



Appendix F

BDAR

Battery Energy Storage System - Jindera

FOR: BESS Atlantic Pty Ltd c/o Gransolar Development Australia Pty Ltd

SLR PROJECT No: 620.041088.00002

Revision: 1.0



Revision Record

Revision	Date	Prepared By	Checked/Authorised By	Details
1.0	22 May 2025	Fiona Iolini	Jeremy Pepper	Final issued with SSD Application



Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with BESS Atlantic Pty Ltd c/o Gransolar Development Australia Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.



Executive Summary

This Biodiversity Development Assessment Report (BDAR) accompanies a state significant development application for a proposed battery energy storage system (BESS) facility at Jindera, NSW. The following is a summary of information required for decision-making by the consent authority:

- The proposed development involves the construction and operation of a new BESS facility and associated infrastructure.
- The Secretary's Environmental Assessment Requirements (SEARs) for the environmental impact statement require the preparation of a BDAR.
- The BDAR also incorporates a description of aquatic ecosystems on the site and an assessment of impacts on aquatic flora and fauna, as required by the SEARs.
- Measures to avoid and minimise impacts include:
 - Locate BESS facility in areas where biodiversity values are limited.
 - Limit clearing associated with powerline easement and APZs – including avoiding better condition native vegetation and hollow-bearing trees and retaining and protecting native ground layers.
 - Limit clearing along water pipeline by adopting under boring rather than open trenching methods and locating indicative works areas to avoid native vegetation and hollow-bearing trees.
 - Use of sediment barriers and ponds as recommended by engineer.
 - Flora and fauna management measures outlined in this BDAR.
- The subject land contains patches of grassy woodland identified as PCT 277 Blakely's Red Gum - Yellow Box Grassy Tall Woodland, which also constitutes White Box-Yellow Box- Blakely's Red Gum Grassy Woodland and Derived Native Grassland ('Box Gum Woodland'), which is listed as a critically endangered ecological community under the *Biodiversity Conservation Act 2016* (BC Act).
- The Box Gum Woodland TEC is in a degraded form and does not meet the condition threshold requirements for *Environment Protection and Biodiversity Conservation 1999* (EPBC Act) listing.
- The subject land also contains foraging and breeding habitat for the Squirrel Glider, which was recorded on site.
- The following species have potential to occur within the subject land and have been partially 'assumed present': Small Scurf-pea, Barking Owl, Squirrel Glider, Superb Parrot, Small Purple-pea, Silky Swainson-pea and Masked Owl. These species were unable to be surveyed during parts of the subject land due to project timeframes and seasonal survey requirements.
- The subject land does not represent 'important habitat' for any threatened species listed under the EPBC Act.
- The proposed development will likely involve:
 - Direct clearing of native vegetation and removal of threatened species habitats.
 - Indirect impacts, being potential impacts on adjacent habitats Box Gum Woodland TEC.



- Prescribed impacts, being potential impacts on habitat corridors and hydrology.
- Impacts on one SAI¹ entity being Box Gum Woodland TEC. An assessment of impacts on Box Gum Woodland (as it occurs on the site) against the BAM criteria for SAIs is included.
- Residual impacts will be minimised through mitigation measures including clearing protocols, construction management measures (e.g. protective fencing, light shields) and rehabilitation.
- Biodiversity offsets are required under the BAM for the permanent removal of 2.88ha of native vegetation associated with construction of the project. Offsetting requirements are summarised in Table E1 and Table E2 below. A total of 38 ecosystem credits is required to offset the loss of native vegetation (see Table E1), whereas 49 species credits are required to offset the loss of threatened species habitat for a selection of affected species (see Table E2).

Table E1: Impacts That Require an Offset – Ecosystem Credits

Vegetation Zone	PCT	TEC/EC	Impact Area (ha)	No. Ecosystem Credits
277_Mod	PCT 277 Blakely's Red Gum - Yellow Box Grassy Tall Woodland	White Box-Yellow Box- Blakely's Red Gum Grassy Woodland and Derived Native Grassland TEC	1.75	27
277_Low	PCT 277 Blakely's Red Gum - Yellow Box Grassy Tall Woodland	White Box-Yellow Box- Blakely's Red Gum Grassy Woodland and Derived Native Grassland TEC	1.13	11
		Total	2.88	38

Table E2: Impacts That Require an Offset – Species Credits

Common Name	Scientific Name	Loss of Habitat (ha) or Individuals	No. Species Credits
Small Scurf-pea	<i>Cullen parvum</i>	0.46	6
Barking Owl	<i>Ninox connivens</i>	0.06	1
Squirrel Glider	<i>Petaurus norfolcensis</i>	2.9	38
Superb Parrot	<i>Polytelis swainsonii</i>	0.06	1
Small Purple-pea	<i>Swainsona recta</i>	0.06	1
Silky Swainson-pea	<i>Swainsona sericea</i>	0.06	1
Masked Owl	<i>Tyto novaehollandiae</i>	0.06	1
		Total	49

¹ Serious and irreversible impact, as defined under the BAM.



Table of Contents

Basis of Report	ii
Executive Summary	iii
SHORTENED FORMS.....	xii
DECLARATIONS	xiii
STAGE 1: BIODIVERSITY ASSESSMENT	1
1.0 Introduction	1
1.1 Proposed Development.....	1
1.1.1 Development Overview	1
1.1.2 Location	1
1.1.3 Proposed Development and the Subject Land.....	1
1.1.4 Other Documentation	3
1.2 Objectives and Project SEARs	4
1.3 Excluded Impacts.....	5
1.4 Matters of National Environmental Significance.....	5
1.5 Information Sources	5
2.0 Methods	7
2.1 Site Context Methods.....	7
2.1.1 Landscape Features.....	7
2.1.2 Native Vegetation Cover	7
2.2 Native Vegetation, Threatened Ecological Communities and VI Methods.....	7
2.2.1 Existing Information.....	7
2.2.2 Mapping Native Vegetation Extent	7
2.2.3 Plot-based Vegetation Survey	7
2.2.4 Vegetation Integrity Survey	8
2.3 Threatened Flora Survey Methods	8
2.3.1 Review of Existing Information	8
2.3.2 Habitat Constraints Assessment.....	8
2.3.3 Field Surveys	8
2.4 Threatened Fauna Survey Methods	9
2.4.1 Review of Existing Information	9
2.4.2 Habitat Constraints Assessment.....	9
2.4.3 Field Surveys	9
2.5 Aquatic Assessment.....	10
2.5.1 Review of Existing Information	10



2.5.2	Habitat Assessment	10
2.5.3	Field Inspection	11
2.6	Weather Conditions.....	11
2.7	Limitations	13
2.7.1	Biodiversity Surveys	13
2.7.2	Aquatic Survey	13
3.0	Site Context	14
3.1	Assessment Area	14
3.2	Landscape Features.....	14
3.2.1	IBRA Bioregions and IBRA Subregions	14
3.2.2	Rivers, Streams, Estuaries and Wetlands	14
3.2.3	Habitat Connectivity	16
3.2.4	Karst, Caves, Crevices, Cliffs, Rocks or Other Geological Features of Significance	16
3.2.5	Areas of Outstanding Biodiversity Value.....	16
3.2.6	NSW (Mitchell) Landscape	17
3.2.7	Additional Landscape Features identified in SEARs	17
3.2.8	Soil Hazard Features.....	17
3.3	Native Vegetation Cover	17
3.4	Existing Aquatic Environment.....	17
3.4.1	Flow Regime	17
3.4.2	Aquatic Habitat and Vegetation	18
3.4.3	Key Fish Habitat.....	22
3.4.4	Critical Habitat.....	23
3.4.5	Wetlands and Other Aquatic Areas of Conservation Significance	23
4.0	Native Vegetation, Threatened Ecological Communities and VI.....	24
4.1	Native Vegetation Extent.....	24
4.1.1	Changes to the Mapped Native Vegetation Extent	24
4.1.2	Areas that are not Native Vegetation	24
4.2	Plant Community Types	25
4.2.1	Overview	25
4.2.2	PCT 277 Blakely's Red Gum - Yellow Box Grassy Tall Woodland.....	25
4.3	Threatened Ecological Communities	29
4.4	Vegetation Zones	30
4.5	Vegetation Integrity (Vegetation Condition)	30
4.5.1	Vegetation Integrity Survey Plots.....	30



4.5.2	Scores.....	31
4.5.3	Use of Benchmark Data	31
5.0	Habitat Suitability for Terrestrial Threatened Species.....	32
5.1	Identification of Threatened Species for Assessment	32
5.1.1	Ecosystem Credit Species.....	32
5.1.2	Candidate (Species Credit) Species.....	36
5.2	Presence of Candidate Species Credit Species	39
5.3	Threatened Species Surveys	41
5.3.1	Threatened Flora Surveys	41
5.3.2	Threatened Fauna Surveys	43
5.4	Expert Reports	50
5.5	More Appropriate Local Data (Where Relevant)	50
5.6	Species Polygons.....	50
6.0	Habitat Suitability for Aquatic Threatened Species	54
6.1	Listed Aquatic Threatened Species	54
6.1.1	Flathead Galaxias	54
6.1.2	Southern Pygmy Perch	54
6.1.3	Macquarie Perch	55
6.2	Matters of National Environmental Significance.....	56
6.2.1	Migratory Species	56
7.0	Identifying Prescribed Impacts	57
STAGE 2: IMPACT ASSESSMENT (BIODIVERSITY VALUES AND PRESCRIBED IMPACTS).....		59
8.0	Avoid and Minimise Impacts	59
8.1	Avoid and Minimise Direct and Indirect Impacts	59
8.1.1	Project Location	59
8.1.2	Project Design.....	59
8.2	Avoid and Minimise Prescribed Impacts	59
8.2.1	Project Location	59
8.2.2	Project Design.....	60
8.3	Other Measures Considered	60
8.4	Summary of Measures to Avoid and Minimise Impacts	60
9.0	Impact Assessment.....	61
9.1	Direct Impacts	61
9.1.1	Residual Direct Impacts	61
9.1.2	Change in Vegetation Integrity Score	61



9.2	Indirect Impacts	63
9.3	Prescribed Impacts.....	67
9.3.1	Habitat Connectivity	67
9.3.2	Waterbodies, Water Quality and Hydrological Processes	67
9.4	Aquatic Impacts.....	67
9.4.1	Riparian Vegetation Clearing.....	68
9.4.2	Sedimentation and Erosion	68
9.4.3	Habitat Fragmentation.....	68
9.4.4	Operation and Maintenance of Vehicles and Other Equipment	69
9.5	Cumulative Impacts.....	69
9.6	Mitigating Residual Impacts – Management Measures and Implementation.....	69
9.7	Adaptive Management Strategy for Uncertain Impacts.....	78
10.0	Serious and Irreversible Impacts	79
10.1	Assessment for Serious and Irreversible Impacts on Biodiversity Values	79
10.1.1	Additional Impact Assessment Provisions for TECs At Risk of an SAIL.....	79
10.1.2	Additional Impact Assessment Provisions for Threatened Species at Risk of an SAIL	81
11.0	Impact Summary	82
11.1	Determine an Offset Requirement for Impacts.....	82
11.1.1	Impacts on Native Vegetation and TECs or ECs (Ecosystem Credits)	82
11.1.2	Impacts on Threatened Species and their Habitat (Species Credits)	83
11.1.3	Indirect and Prescribed Impacts	83
11.2	Impacts that do not Need Further Assessment.....	83
12.0	Biodiversity Credit Report	84
12.1	Ecosystem Credits	84
12.2	Species Credits	85
13.0	References.....	86

Tables in Text

Table 1:	Vegetation Integrity Plots	8
Table 2:	Likelihood of Occurrence Criteria.....	10
Table 3:	Environmental Conditions during Threatened Species Surveys.....	11
Table 4:	Native Vegetation Cover in the Assessment Area.....	17
Table 5	Classification of Key Fish Habitat according to Sensitivity (DPI 2013).....	23
Table 6:	PCTs Identified Within the Subject Land.....	25



Table 7:	PCT 277 Blakely's Red Gum - Yellow Box Grassy Tall Woodland	25
Table 8:	PCT 277 Selection.....	27
Table 9:	TECs within the Subject Land.....	29
Table 10:	Vegetation Zones and Patch Sizes	30
Table 11:	Vegetation Integrity Scores.....	31
Table 12:	Predicted Ecosystem Credit Species	33
Table 13:	Candidate Flora Species.....	36
Table 14:	Candidate Fauna Species.....	37
Table 15:	Determining the Presence of Candidate Flora Species Credit Species	40
Table 16:	Determining the Presence of Candidate Fauna Species Credit Species	40
Table 17:	Threatened Species Surveys for Candidate Flora Species Credit Species	42
Table 18:	Threatened Species Surveys for Candidate Fauna Species Credit Species	44
Table 19:	Results for Present Species.....	51
Table 20:	Results for EPBC Act Listed Species Present.....	53
Table 21:	Prescribed impacts identified	57
Table 22:	Avoidance and Minimisation Measures for Direct, Indirect and Prescribed Impacts	60
Table 23:	Summary of Residual Direct Impacts	61
Table 24:	Impacts to Vegetation Integrity.....	62
Table 25:	Summary of Residual Indirect Impacts.....	64
Table 26:	Summary of Proposed Mitigation and Management Measures for Residual Impacts (direct, indirect and prescribed)	70
Table 27:	Mitigation and Management Measures - implementation	74
Table 28:	Entities at risk of an SAI.....	79
Table 29:	Current status – White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	79
Table 30:	Impact Assessment - White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	80
Table 31:	Impacts that do not Require Offset – Ecosystem Credits	82
Table 32:	Impacts that require an Offset – Ecosystem Credits	82
Table 33:	Impacts that require an Offset – Species Credits	83
Table 34:	Impacts that do not Need Further Assessment for Ecosystem Credits.....	83
Table 35:	Ecosystem Credit Class and Matching Credit Profile	84
Table 36:	Species Credit Class and Matching Credit Profile	85



Figures in Text

Figure 1: Site Map	91
Figure 2: Location Map	92
Figure 3: Development Layout.....	93
Figure 4: Biodiversity Values Map.....	94
Figure 5: Excluded Impacts	95
Figure 6: Field Survey Locations	96
Figure 7: Native Vegetation Extent	99
Figure 8: Plant Community Types.....	100
Figure 9: Threatened Ecological Communities and Ecological Communities	101
Figure 10: Vegetation Zones	102
Figure 11: Candidate Species Credit Species Records and Species Polygons.....	103
Figure 12: Final Impacts Likely to Occur on the Subject Land.....	104
Figure 13: Wind Turbine Disturbance Zone (Not Relevant).....	105
Figure 14: Serious and Irreversible Impacts.....	106
Figure 15: Thresholds for Assessing and Offsetting Impacts	107

Photos in Text

Photo 1: Kilnacraft Creek	15
Photo 2: Waterbody on Northern Lot.....	15
Photo 3: Waterbody near the Substation on the Southern Lot.....	16
Photo 4: Adjoining Property to the South with Scattered Shallow Pools	19
Photo 5: Scattered Shallow Pools in the Southwest Edge of the Subject Land	20
Photo 6: Adjoining Property to North with Minimal Water Flow along the Creek Line	20
Photo 7: Creek within Subject Land is Mostly Densely Covered with Pasture Grasses and Exotic Weeds with Some <i>Juncus</i> spp. Interspersed in Some Areas.....	21
Photo 8: Water Accumulation in Low Lying Areas of the Creek Line	21
Photo 9: Very Minimal Woody Debris Present within the Riparian Zone.....	22
Photo 10: Planted Exotic Vegetation and Pasture around Dwelling.....	24
Photo 11: PCT 277 Blakely's Red Gum - Yellow Box Grassy Tall Woodland - Moderate ...	26
Photo 12: PCT 277 Blakely's Red Gum - Yellow Box Grassy Tall Woodland - Low	26



Appendices

- Appendix A BDAR Requirements Compliance**
- Appendix B Biodiversity Values Map and Threshold Tool Report**
- Appendix C Test of Significance (n/a)**
- Appendix D Determination of Excluded Impacts (n/a)**
- Appendix E Matter of National Environmental Significance**
 - E.1 Matters of National Environmental Significance
 - E.1.1 Overview
 - E.1.2 Relevant Matters
 - E.1.3 Conclusion
- Appendix F Vegetation Survey Data**
- Appendix G Decision-maker Authorisation to Use More Appropriate Local Data (n/a)**
- Appendix H Credit Reports**



SHORTENED FORMS

Short Form	Long Form
APZ	asset protection zone
BAM	Biodiversity Assessment Method
BAM-C	Biodiversity Assessment Method Calculator
BC Act	<i>Biodiversity Conservation Act 2016 (NSW)</i>
BC Regulation	<i>Biodiversity Conservation Regulation 2017 (NSW)</i>
BDAR	Biodiversity Development Assessment Report
BESS	Battery Energy Storage System
BOAMS	Biodiversity Offsets and Agreement Management System
BOS	Biodiversity Offsets Scheme
CEEC	critically endangered ecological community
DBH	diameter at breast height over bark
EC	ecological community listed under the EPBC Act
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cwth)</i>
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
EEC	endangered ecological community
FM Act	<i>Fisheries Management Act 1994 (NSW)</i>
HTW	high threat weed
IBRA	Interim Biogeographic Regionalisation for Australia
LLS Act	<i>Local Land Services Act 2013 (NSW)</i>
MNES	matters of national environmental significance
NPW Act	<i>National Parks and Wildlife Act 1974 (NSW)</i>
NSW	New South Wales
PCT	plant community type
SAII	serious and irreversible impact
SEARs	Secretary's Environmental Assessment Requirements
TBDC	Threatened Biodiversity Data Collection
TEC	threatened ecological community
VEC	vulnerable ecological community
Vegetation SEPP	<i>State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017 (NSW)</i>



DECLARATIONS

i. Certification under clause 6.15 Biodiversity Conservation Act 2016

I certify that this report has been prepared based on the requirements of, and information provided under, the Biodiversity Assessment Method and clause 6.15 of the Biodiversity Conservation Act 2016 (BC Act).

Signature: _____

Date: _____ 22 May 2025 _____

BAM Assessor Accreditation no: _____ BAAS19042 _____

This BDAR has been prepared to meet the requirements of BAM 2020. Appendix A provides an assessment of compliance with the minimum information requirements outlined in BAM Appendix K.

ii. Details and experience of author/s and contributors

Table DC1: Authors and contributors

Name	BAM Assessor Accreditation No.	Position/Role	Tasks Performed	Relevant Qualifications
Jeremy Pepper	BAAS17104	SLR Technical Director (Ecology), Project Director	Document review (technical review of BDAR)	Bachelor of Science (Hons Class 1) University of NSW (1996) Cert II Bushland Regeneration, TAFE NSW Cert III Horticulture (Arboriculture), TAFE NSW
Brendan Alderson	n/a	SLR Principal Consultant (Marine Science)	Report preparation (aquatic ecology sections)	Doctor of Philosophy (Marine Science), University of Newcastle (2007) Bachelor of Science (Honours), University of Newcastle (2001)
Fiona Iolini	BAAS19042	SLR Associate Ecologist, Project Manager	BAM plot surveys, targeted threatened flora surveys, targeted threatened fauna surveys, Report preparation, BAM-C data entry and analysis	Bachelor of Environmental Science and Management, University of Newcastle (2007) Cert III Conservation and Land Management, TAFE NSW (2015)
Bo Davidson	BAAS19079	SLR Associate Ecologist	BAM plot surveys, targeted threatened flora surveys, targeted threatened fauna surveys	Master of Environment, Macquarie University (2014) Postgraduate Diploma of Environmental Science, Macquarie University (2013) Bachelor of Environmental Science (BSc), Macquarie University (2010)
Joshua Drane	n/a	SLR Project Ecologist	Targeted threatened fauna surveys	Bachelor of Environmental Science, Australian Catholic University (2018) Advanced Plant Identification Skills for Research and Environmental Assessment (2023)
Vander Bertoldo	n/a	SLR Project Ecologist	BAM plot surveys, targeted threatened flora surveys, targeted threatened fauna surveys	Master of Marine and Environmental Science, SCU University (2022) Bachelor's Degree in Biological Science (Honours), UNESC University (2013)



Name	BAM Assessor Accreditation No.	Position/Role	Tasks Performed	Relevant Qualifications
				Diploma in Business Management, Lexis School (2019) Certificate IV in Business, English in Paradise (2017)
Elise Newberry	n/a	SLR Project Ecologist	Targeted threatened fauna surveys	Bachelor of Environmental Biotechnology, University of Technology Sydney (2023) Eucalypt Identification Course, ECA (2024)
Ashleigh Rosenkranz	n/a	SLR Project Ecologist	Targeted threatened flora surveys, targeted threatened fauna surveys	Bachelor of Environmental Science and Management, University of Newcastle (2024)
James Hugo	n/a	SLR GIS Technician	Figure preparation (and GIS data management)	Master of Environmental Management and Sustainability, University of Newcastle (2020) Bachelor of Science (Hons), University of Newcastle (2016)
Isaac Floyd	n/a	Night Time Ecology Bioacoustic Scientist	Target threatened fauna survey (bat analysis)	Bachelor of Biomedical Science

iii. Conflict of interest

I declare that I have considered the circumstances and there is no actual, perceived or potential conflict of interest.

This declaration has been made in the interests of full disclosure to the decision-maker. Full disclosure has also been provided to the client.

Signature: _____ *Kiaani* _____

Date: _____ 22 May 2025 _____

BAM Assessor Accreditation no: _____ BAAS19042 _____



STAGE 1: BIODIVERSITY ASSESSMENT

1.0 Introduction

1.1 Proposed Development

1.1.1 Development Overview

BESS Atlantic Pty Ltd c/o Gransolar Development Australia seeks to establish a Battery Energy Storage System (BESS) with a connection to the existing electricity grid via an above ground transmission line to TransGrid's Jindera 330/132 kilovolt (kV) transmission substation.

The proposed development will involve the development, construction, operation, and eventual decommissioning of a BESS with an approximate capacity of 250 Megawatts (MW), 500 Megawatt Hours (MWh) connecting via transmission line directly to the existing Jindera Substation. The BESS will consist of BESS containers (or enclosures), with each container having dimensions of 6m in length, with an approximate weight of 35,000 kilograms (kg). The BESS will be supported by inverters which will convert the electricity from the BESS and connect to the existing TransGrid substation via approximately 500m of 330 kV overhead lines.

Other physical features of the 'Project' include a transmission line, control room/switchgear and auxiliary transmission, car parking, landscaping, an acoustic barrier, security fencing/lighting and a single storage structure. The BESS is self-operating and only requires minor periodic visitation by an authorised person. The facility will be otherwise restricted to the public.

The project also incorporates proposed water pipeline upgrades involving 1.2km underbored section along Ortlipp Road and 851m underbored section along Linder Road.

The proposed development is a State Significant Development (SSD) requiring consent under Part 4 of the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act).

1.1.2 Location

The BESS is proposed on a portion of Lot 204 DP 753342 at 204 Ortlipp Road, Glenellen New South Wales (NSW) 2642 (the 'BESS site'). The existing Jindera substation is located on Lot 1 DP 588720, 140 Ortlipp Road, Jindera NSW 2642 (the 'substation site'), approximately 500m south of the BESS site. The transmission line will traverse an area of Unformed Crown Road, and the water pipeline will be installed within existing road reserves.

Collectively, these properties are hereafter referred to as the 'subject land'. The subject land is located within the Greater Hume Local Government Area (LGA). Refer to Figure 1 and Figure 2.

1.1.3 Proposed Development and the Subject Land

The proposed development will involve the following components:

- Transport of construction personnel, as well as associated heavy and light vehicles, and materials to and from the subject land on a day-to-day basis, dependent on the construction schedule.



- Site establishment works including native vegetation clearing within the BESS boundary and transmission line footprint, bulk earthworks, and a temporary construction compound.
- Road works to formalise internal site access road to accommodate heavy vehicles and a new driveway crossing.
- Construction of hardstand, paved internal roads, control room and switch gear, auxiliary transformer, battery enclosures, and inverter and transformer stations.
- Construction of overhead 330kV transmission line within a 60m wide transmission line easement to facilitate connection to the existing Jindera 330/132kV TransGrid substation and associated high voltage steel poles.
- Construction of three transmission line towers that will be approximately 30m in height with a ground clearance of 7.5m. The towers will be located in the BESS site and substation site, with only the overhead lines passing within the Unformed Crown Road Reserve.
- Construction of ancillary works including parking areas, water tank, storage structures, stormwater management infrastructure and security lighting and fencing.
- Vegetative screening.
- Installation of an acoustic barrier.
- Removal of temporary construction facilities, and rehabilitation of disturbed areas following completion of construction works.
- Construction of water pipeline via underground boring including four indicative laydown clearing areas.

The construction schedule is expected to be approximately 10 months, and the BESS site is expected to be decommissioned after 20-25 years. The proposed development is depicted in Figure 3.

The subject land is 40.81ha and is indicated in Figure 1. As indicated in Figure 1 most of the proposed development footprint will form the 'operational footprint', with a temporary construction compound the only feature expected to form the 'construction footprint'.

The subject land is located within the South Western Slopes IBRA region and Lower Slopes IBRA subregion. The site is positioned at a 220m asl elevation and is flat. The *Reconnaissance Soil and Land Resources of the Murray Catchment* (NSW DCCEE 2024a) maps the soil landscapes of subject land as Kindra in the north (the BESS site) and Yarra Yarra in the south (the substation site and a small portion of the southern tip of the BESS site, as well as the proposed pipeline route and water pipeline).

The Kindra soil landscapes are generally composed of broad gently sloping plains formed on colluvium below metasedimentary hills, with slopes of 1-3% and local relief <5m. The geology is quaternary slopewash derived from Ordovician metasediments. Parent materials consist of gravel, sand, silt and clay colluvial deposits. Soils are red chromosols (red-brown earths), red dermosols (brown podzolic soils and non-calcic brown soils), and red kurosols (red podzolic soils).

The Yarra Yarra soil landscapes are characterised by gently inclined footslopes and fans on granite-derived colluvium, with Slopes 2-8%, and local relief 10-30m. The geology is quaternary colluvium derived from the adjacent Jindera Granite, with some scattered outcrop. Soils on upper and midslopes are very deep (>1.5m), imperfectly to moderately



well-drained red, brown and yellow chromosols (podzolic soils). Soils on lower slopes are typically deep (1-1.5m), imperfectly drained brown and grey sodosols and kurosols (soloths and solodized solonetz soils). Fans contain very deep (1.5-5m), well-drained orthictenosols (earthy sands).

An Aboriginal due diligence assessment (Artefact 2023) describes the soils at the site as *“light brown, sandy silt, with minor inclusions of small, rounded gravel clasts”* and at a dam on the northern property as containing *“light grey silty sand”*. Soils were also assessed to 1m depth recording silty loam topsoils transitioning to light and moderate clays (Water Technology 2025).

There is one mapped watercourse within the subject land, being Kilnacroft Creek which is mapped as occurring in the western corner of the substation site. Kilnacroft Creek is a third order ephemeral stream meandering east-west through the landscape buffer. There are also two small dams within each property.

The subject land has undergone historic clearing although various patches of native vegetation remain. Historic aerial imagery indicates that the BESS site and substation site were used for cropping in 1961 (Premise 2024b). The BESS site is currently used for farming, whilst the substation site forms a transmission sub-station. The road reserve is mostly vegetated, with various small areas of past clearing and disturbance to facilitate existing services, site access, road maintenance etc.

The biodiversity values map does not include areas of vegetated land but does include a buffer area along Kilnacroft Creek (Figure 4).

1.1.4 Other Documentation

A preliminary ecological assessment, involving a brief site inspection, was previously undertaken by RPS (RPS 2023). Parts of the subject land and nearby properties have also been assessed by Eco Logical Australia (2023) and NGH Environmental (2019) for associated solar farm developments. The current biodiversity assessment relies in part on information within the previous studies (as background information), superseded by additional work by SLR in 2024 and 2025.

Other documents relied upon with respect to the current proposal include:

- Environmental Impact Statement (SLR 2025a)
- Landscape Character and Visual Impact Assessment (SLR 2025b)
- Transport Impact Assessment (SLR 2025c)
- Noise and Vibration Impact Assessment (SLR 2025d)
- Waste Management Plan (SLR 2025e)
- Hazard and Risk Assessment (SLR 2025f)
- Social Impact Assessment Report (SLR 2025g)
- Light Spill Assessment (SLR 2025h)
- Bushfire Risk Assessment Report (SLR 2025i)
- Aboriginal Cultural Heritage Assessment (Virtus Heritage 2025)
- Flood Risk and Impact Assessment Report (Water Technology, 2025)
- Heritage Impact Statement (Premise 2024a)



- Agricultural Impact Assessment (Premise 2024b)
- Economic Assessment (Gillespie Economics 2025)
- Land Use Conflict Risk Assessment (Premise 2025)

1.2 Objectives and Project SEARs

The SEARs for the EIS (Application SSD-68815961, issued 18/04/2024) require the preparation of a BDAR, inclusive of an aquatic assessment. In relation to 'biodiversity' and 'aquatic ecology', the following requirements are listed in the SEARs:

- An assessment of the biodiversity values and the likely biodiversity impacts of the project in accordance with Section 7.9 of the *Biodiversity Conservation Act 2016* (NSW) (BC Act), the Biodiversity Assessment Method (BAM) 2020 and documented in a Biodiversity Development Assessment Report (BDAR). The BDAR must:
 - Be prepared using the approved BDAR template.
 - Document the application of the avoid, minimise and offset framework including assessing all direct, indirect and prescribed impacts in accordance with the BAM.
 - Assess the impacts associated with all ancillary infrastructure, including the transport route road upgrades.
 - Include an assessment for serious and irreversible impacts (SAII) in accordance with Section 9.1 of the BAM.
 - Include a strategy to offset any residual impacts of the development in accordance with the BC Act, unless BCS and DPHI determine the proposed development is not likely to have any significant impacts on biodiversity values;
- An assessment of the likely impacts on listed aquatic threatened species, populations or ecological communities, scheduled under the *Fisheries Management Act 1994*, and a description of the measures to minimise and rehabilitate impacts.
- A cumulative impact assessment of biodiversity values in the region from nearby developments.
- If an offset is required, details of the measures proposed to address the offset obligations.

The BDAR has been prepared using the approved BDAR template and aims to address specific advice provided by the Biodiversity, Conservation and Science Group (BCS) of NSW DCCEE in their SEARs (dated 2 April 2024) in relation to the composition of grassland areas, consideration of impacts to the threatened Squirrel Glider (*Petaurus norfolcensis*), and detailed mitigation measures for all potential impacts to threatened species.

The aquatic assessment also addresses key issues specifically raised by DPI (Fisheries) in their SEARs (dated 22 March 2024), including:

- Waterway crossings – designed to facilitate fish passage.
- Riparian buffer zones maintained to limit bed and bank erosion.
- Threatened Species, Populations and Ecological Communities – *Fisheries Management Act 1994* (FM Act). Kilnacraft Creek is indicative habitat for Flathead galaxias and Southern pygmy perch – both species are listed under threatened species provisions of the FM Act.



The aquatic ecology assessment aims to assess any potential impacts on the aquatic ecology of waterways and key fish habitats within the subject land and assessment area, including Kilnacoft Creek, as per the SEARs. The assessment included impacts to listed aquatic threatened species, population or ecological communities, scheduled under State and Federal legislation, and a detailed description of measures to minimise and rehabilitate impacts were provided.

The assessment was carried out in accordance with the NSW Department of Primary Industries (Fisheries) (DPI - Fisheries) *Policy and Guidelines for Fish Habitat Conservation and Management (Updated 2013)* (DPI 2013) and included:

- Clear identification of waterways that may be affected either directly or indirectly by the development or activity.
- A description of aquatic and riparian vegetation present, with photographs and maps, where relevant.
- The extent of aquatic habitat removal or modification which may result from the Project.
- Details of the location of any construction activities that may affect waterways, including any access tracks and transmission towers, and timetable for construction of the Project with details of various phases of construction.
- Details of methodology (e.g. directional drilling, trenching, boring) for any works within or adjacent to waterways.
- Aspects of the management of the proposal, both during construction and after completion, that relate to impact minimisation e.g. Environment Management Plans.

1.3 Excluded Impacts

The subject land has areas of 'category 1 – exempt land', 'category 2 – regulated land' and 'category 2 – vulnerable regulated land' mapped under the Draft Native Vegetation Regulatory mapping as indicated in Figure 5.

As the proposal is a state significant development, impacts are not excluded and are assessed under the BAM.

1.4 Matters of National Environmental Significance

An assessment of EPBC Act matters and Protected Matters Search report is provided in Appendix E and EPBC Act matters are also considered throughout relevant sections of the BDAR.

1.5 Information Sources

Existing information on the terrestrial and aquatic flora and fauna of the subject land and the locality, including relevant threatened biota, was obtained from the following resources:

- The NSW BioNet (NSW DCCEEW 2024b), Protected Matters Search Tool (Commonwealth DCCEEW 2024a) and Atlas of Living Australia (CSIRO 2024) for previous records of threatened species, populations, and ecological communities within a 10km radius centred on the centre of the subject land.
- The NSW BioNet 'Threatened Biodiversity Data Collection' (NSW DCCEEW 2024b), Final Determinations (TSC 2024) and Species Profile and Threats Database



(Commonwealth DCCEEW 2024b) for information on threatened species, populations and ecological communities.

- The preliminary ecological assessment (RPS 2023), Glenellen solar farm BDAR (EcoLogical 2023), Jindera solar farm BDAR (NGH Environmental 2019) and BioNet Vegetation Classification (NSW DCCEEW 2024c) for information on the Plant Community Type (PCT).
- The Department of Primary Industries (DPI) Fish Communities and Threatened Species Distribution of NSW (DPI 2016) and DPI Threatened species lists (DPI 2024a) for information on threatened aquatic species.

A full list of resources is provided in Section 13.0.



2.0 Methods

2.1 Site Context Methods

2.1.1 Landscape Features

Various field surveys enabling the identification of landscape features within the subject land were undertaken by SLR in 2024. The key methods used to identify landscape features in the assessment area include review of:

- Recent Nearmap aerial imagery (Nearmap 2025).
- Regional vegetation mapping (NSW DCCEEW 2022, NSW DCCEEW 2024c).
- Other general GIS data (e.g. wetland, cliff line, EPI protection layer) available on the SEED portal (NSW DCCEEW 2024d).

2.1.2 Native Vegetation Cover

Regional native vegetation mapping for the subject land (NSW DCCEEW 2022) was compared to Nearmap aerial imagery dated January 2024 and subject to field reconnaissance by SLR in 2024. Regional vegetation mapping (NSW DCCEEW 2022) and aerial image (Nearmap 2025) review were used to confirm the native vegetation cover in the assessment area (Section 3.3).

2.2 Native Vegetation, Threatened Ecological Communities and VI Methods

2.2.1 Existing Information

Existing information that was used to identify PCTs (Section 4.2) and TECs (Section 4.3) for the subject land included regional vegetation mapping (NSW DCCEEW 2022 - Version C1.1M1.1 and Version C2.0M2.0), investigations by other ecological consultants (RPS 2023; EcoLogical 2023; NGH Environmental 2018) and the associated profiles available in the BioNet Vegetation Classification (NSW DCCEEW 2024c), as well as relevant Scientific Determinations (TSC 2024, Commonwealth DCCEEW 2024b).

One BAM plot was undertaken within the subject land in 2017 (NGH Environmental 2019), and an additional three plots were undertaken in 2018 (EcoLogical 2023), and this data has been used to support the PCT determination.

2.2.2 Mapping Native Vegetation Extent

Regional vegetation mapping (NSW DCCEEW 2022) and recent Nearmap (2025) aerial imagery were compared and subject to field reconnaissance by SLR in 2024.

2.2.3 Plot-based Vegetation Survey

Plot-based vegetation surveys in accordance with BAM Subsection 4.2.1 were undertaken by SLR in winter and spring 2024. The spring surveys involved an update of the BAM plots sampled in winter 2024, to verify native grasses during the growth season. Data from the current survey is presented in Appendix F and the locations of the plots have also been presented in Figure 6. Sampling locations were generally selected randomly and in accordance with the BAM.



2.2.4 Vegetation Integrity Survey

The methods used to undertake the vegetation integrity survey (Subsection 4.5.1) were in accordance with BAM Subsection 4.3.4. The number of vegetation integrity plots sampled in each vegetation zone was determined in accordance with Table 3 of the BAM. Within the subject land, six 20m by 50m (1,000m²) plot/transect ('BAM plot') containing a nested 20m by 20m (400m²) floristic plots were established and sampled, with four plots in one zone (containing moderate condition vegetation) and two plots in another zone (containing low condition vegetation), as noted below.

The number of vegetation integrity plots completed per vegetation zone within the subject land is presented in Table 1.

Table 1: Vegetation Integrity Plots

Vegetation Zone	Area (ha)	BAM Category	Plots Required	Plots Completed
277_Mod	13.55	>5-20ha	3	4
277_Low	2.79	>2-5ha	2	2

2.3 Threatened Flora Survey Methods

2.3.1 Review of Existing Information

The BAM calculator and a BioNet Atlas search were used to create a list of threatened species of flora for consideration as target threatened species. The TBDC was used to identify habitat constraints and potential microhabitats (see Section 5.1) for each species likely to occur within the PCTs mapped for the subject land.

2.3.2 Habitat Constraints Assessment

Field surveys to assess habitat constraints and microhabitats (see Section 5.1) were undertaken SLR in 2024/2025.

Specific habitat assessment survey techniques for threatened species of flora include:

- Opportunistic and incidental observations during all field surveys.
- Inspection, notes, GPS points and photographs of waterbodies and other incidental habitat features detected during site surveys by SLR.

2.3.3 Field Surveys

Targeted threatened flora surveys, to target *Swainsona sericea*, *Swainsona recta* and *Cullen parvum*, were undertaken in spring/summer 2024. Due to project timeframes, the survey of the proposed water pipeline route was unable to be conducted during the correct survey months for the *Swainsona* spp, which are September, October, November. The design and alignment of the water pipeline was not available until after this survey period had passed. Therefore, these two species have been assumed present within the water pipeline route due to the presence of suitable habitat (but not within the BESS site due to absence of sightings during surveys).

Conversely, surveys for *Cullen parvum* were conducted in the water pipeline route during the survey period (December and January), but not within the BESS site. Accordingly, *Cullen parvum* has been assumed present within the BESS site due to presence of suitable



habitat (but not within the water pipeline route). Field survey tracks by month are shown in Figure 6.

2.4 Threatened Fauna Survey Methods

2.4.1 Review of Existing Information

The BAM calculator and a BioNet Atlas search were used to create a list of threatened species of fauna for consideration as target threatened species. The TBDC was used to identify habitat constraints and potential microhabitats (see Section 5.1) for each species likely to occur within the PCTs mapped for the subject land.

2.4.2 Habitat Constraints Assessment

Various field surveys to assess habitat constraints and microhabitats (see Section 5.1) were undertaken by SLR in 2024/2025. Specific habitat assessment survey techniques for threatened species of fauna include:

- Mapping of hollow-bearing trees.
- Searches for areas of rocky ground.
- Koala SAT surveys, including searches for Koala scratches and scats.
- Opportunistic and incidental observations of fauna species during field surveys, including opportunistic observations of fauna activity such as scats, tracks, burrows, or other traces.

2.4.3 Field Surveys

Surveys undertaken by SLR to target threatened species of fauna include:

- Six nights of call playback surveys on 2 July 2024, 3 July 2024, 4 July 2024, 29 July 2024, 30 July 2024, 31 July 2024 to target Bush Stone-curlew, Barking Owl, Masked Owl and Koala.
- Three days of Koala SAT searches on 2 July 2024, 3 July 2024 and 4 July 2024.
- Eight nights of spotlighting on 29 July 2024, 30 July 2024, 8 October 2024, 9 October 2024, 17 December 2024 and 18 December 2024 to target the Koala and Squirrel Glider.
- Six trap nights (3 nights, 2 cameras) of arboreal remote camera recording and spotlighting on 8 October 2024 and 9 October 2024 to target the Eastern Pygmy Possum.
- Six days of diurnal bird/habitat surveys 8 October 2024, 9 October 2024, 10 October 2024, 11 October 2024, 18 December 2024 and 19 December 2024 to target Superb Parrot, Gang-gang Cockatoo, Little Eagle, Square-tailed Kite, White-bellied Sea-Eagle, Bush Stone-curlew and Grey-headed Flying-fox.
- Four nights of targeted bat surveys on 17 March 2025, 18 March 2024, 19 March 2024, 20 March 2025 to target the Southern Myotis.

Targeted threatened fauna survey locations are shown in Figure 6.



2.5 Aquatic Assessment

2.5.1 Review of Existing Information

A review of information and data was completed in August 2024 to gain an understanding of aquatic ecology values within the assessment area and the broader study locality (within 10km of the subject land). Reviewed sources included in Section 1.5. Any sensitive ecological sites and areas protected by State and local environmental planning instruments (EPIs) due to their ecological significance (e.g. National Parks/Reserves, wetlands and other conservation areas and reserves) were also identified using:

- Critical Habitat Register (DPI 2024b)
- Fisheries Register (DPI 2024c)
- Key Fish Habitat Maps (DPI 2024d)
- Register of Critical Habitat (Commonwealth DCCEEW 2024d)
- Directory of Important Wetlands Australia (Commonwealth DCCEEW 2024c)

2.5.2 Habitat Assessment

An aquatic habitat assessment of Kilnacraft Creek within and proximal to the subject land was completed to aid in the description of aquatic habitat and to assess the likelihood of occurrence of threatened or migratory species, threatened population or ecological community identified with potential to occur within the assessment area. The likelihood of occurrence criteria is detailed in Table 2.

Species are considered 'likely to occur' (i.e. moderate to high likelihood of occurrence) where:

- The geographic distribution of the species is known or predicted to include the drainage catchment in which the project is located, and
- The assessment area contains habitat features or components associated with the species, or
- Past or current surveys undertaken in the project footprint indicate the species is present.

A test of significance (under the FM Act or BC Act) and/or an assessment of significance (under the EPBC Act) for aquatic species considered 'likely to occur' was completed.

Table 2: Likelihood of Occurrence Criteria

Likelihood	Criteria
Recorded	The species was observed in the assessment area during the current survey
High	It is highly likely that a species inhabits the assessment area and is dependent on identified suitable habitat (i.e. for breeding or important life cycle periods), has been recorded recently (within 20 years) in the locality (five kilometres) and is known or likely to maintain resident populations in the assessment area. Also includes species known or likely to visit the assessment area during regular seasonal movements or migration.
Moderate	Potential habitat is present in the assessment area. Species unlikely to maintain sedentary populations, however, may seasonally use resources within the assessment area opportunistically or during migration. The species is unlikely to be dependent (i.e.



Likelihood	Criteria
	for breeding or important life cycle periods) on habitat within the assessment area, or habitat is in a modified or degraded state.
Low	It is unlikely that the species inhabits the assessment area and has not been recorded recently in the locality (five kilometres). It may be an occasional visitor, but habitat similar to the assessment area is widely distributed in the local area, meaning that the species is not dependent on available habitat.
Unlikely	Suitable habitat is absent from the assessment area.

2.5.3 Field Inspection

An inspection of the subject land and assessment area within the vicinity of Kilnacroft Creek was completed in October 2024 to examine the extent and quality of aquatic habitat and to aid in the description of existing aquatic habitat that may be impacted by the current Project. The inspection involved a site meander to ground truth the results of the background review and aquatic habitat assessment with particular consideration given to aquatic species of conservation concern that have the potential to occur within the subject land. No sampling of aquatic fauna was undertaken during the field inspection due to minimal water in Kilnacroft Creek at the time of the inspection.

2.6 Weather Conditions

General environmental conditions on the lead up to the 2024/2025 surveys are shaped by two to three years of on-and-off La Nina weather patterns. Weather conditions during the surveys are summarised in Table 3.

With respect to weather conditions required for target threatened species:

- Call playback surveys for target nocturnal species (Bush Stone-curlew, Barking Owl, Masked Owl) generally require calm, clear, evenings – conditions on the evenings of the surveys were calm and clear.
- Koala SAT surveys are required to be undertaken following three days of no rain. Whilst rain was recorded at the nearest weather station there was no rain forecast at the subject land prior to or during the surveys.

Table 3: Environmental Conditions during Threatened Species Surveys

Survey undertaken (e.g. method / targeted species)	Date	Time	Temperature (min. & max.)	Wind (light, mod... or km)	Rainfall (mm)	Other conditions (relevant to the species)
Lead up to Koala SATs	29 June 2024	9am-3pm	6.9-12.6	13-4	0	n/a
Lead up to Koala SATs	30 June 2024	9am-3pm	3.9-14	Calm-6	19	n/a
Lead up to Koala SATs	1 July 2024	9am-3pm	-1.2-13.2	Calm-7	0	n/a
Koala SATs, call playback, floristic quadrats	2 July 2024	9am-3pm	0.9-14.2	4-9	0.2	Calm, clear evening
Koala SATs, call playback, floristic quadrats	3 July 2024	9am-3pm	-1.2-15	Calm-13	0	Calm, clear evening



Survey undertaken (e.g. method / targeted species)	Date	Time	Temperature (min. & max.)	Wind (light, mod... or km)	Rainfall (mm)	Other conditions (relevant to the species)
Koala SATs, call playback, floristic quadrats	4 July 2024	9am-3pm	1.3-14.1	2-11	0	Calm, clear evening
Call playback, spotlighting	29 July 2024	9am-3pm	-1.4-13.4	6-11	0	Calm, clear evening
Call playback, spotlighting	30 July 2024	9am-3pm	-3.3-13.5	4-9	0.2	Calm, clear evening
Call playback	31 July 2024	9am-3pm	-2.4-14.7	2-7	0	Calm, clear evening
Bird survey, spotlighting	8 October 2024	9am-3pm	5.4-18.5	22-17	0	n/a
Bird survey, threatened flora searches, spotlighting, arboreal camera trapping	9 October 2024	9am-3pm	4.3-20.9	11-9	0	n/a
Bird survey, floristic quadrats, threatened flora searches, arboreal camera trapping	10 October 2024	9am-3pm	4.8-23.3	9-13	0	n/a
Bird survey, threatened flora searches, arboreal camera trapping	11 October 2024	9am-3pm	8.4-25.6	Calm-13	0	n/a
Spotlighting	17 December 2024	9am-3pm	26.1-30.2	24-26	0	n/a
Bird survey, spotlighting, threatened flora searches	18 December 2024	9am-3pm	13-28.1	24-19	0	n/a
Bird survey, threatened flora searches	19 December 2024	9am-3pm	12.7-29.4	4-11	0	n/a
Bat survey	17 March 2025	9am-3pm	9.3-22.4	7-11	3.8	n/a
Bat survey	18 March 2025	9am-3pm	8.7-27.2	7-13	0	n/a
Bat survey	19 March 2025	9am-3pm	13.3-34.3	4-17	0	n/a
Bat survey	20 March 2025	9am-3pm	17.6-25.2	11-15	0	n/a
Bat survey	21 March 2025	9am-3pm	19.8-28	11-22	38.4	n/a
# Weather data sourced from BOM 2024. Temperature, wind and rainfall data sourced from Albury AWS station (number 72160) located at Albury Airport, NSW (i.e. approximately 20km south southwest of the subject land).						



2.7 Limitations

2.7.1 Biodiversity Surveys

Given the duration and timing of the field surveys, it is likely that some of the species that may occur within the subject land (i.e. permanently, seasonally, or transiently) were not detected. However, a detailed habitat assessment was conducted to inform the 'likelihood of occurrence' of threatened species known or predicted to occur within the locality. Limitations with respect to survey timing in relation to candidate species is covered in Section 5.3.

Multiple threatened species of flora were surveyed simultaneously during targeted flora searches (see Section 2.3), and multiple species of fauna were also targeted during fauna surveys (see Section 2.4) but this is unlikely to affect the outcomes of the field work.

Site conditions (including the presence of threatened species of flora and fauna) may change after the date of this report. SLR does not accept responsibility arising from, or in connection with, any change to the site conditions. SLR is also not responsible for updating this report if the site conditions change.

The SLR ecology team operates under a Scientific Licence (licence number SL100176, issued under the BC Act), which authorises field staff to trap, capture, harm, hold and release plants and animals protected under the BC Act and *National Parks and Wildlife Act 1974*, as well as Animal Research Authority (issued by the Secretary of the NSW Animal Care and Ethics Committee of NSW DCCEE), which allows trapping of animals in NSW for the purposes of 'animal research'.

Soft copies of data files in relation to the SLR surveys have been filed on the SLR project server.

2.7.2 Aquatic Survey

The field inspection is influenced by a range of factors and limitations. For this type of inspection, limitations are generally due to a single, short duration inspection that does not account for seasonal or other temporal variation. The detection of certain species may be affected by:

- The sometimes-ephemeral nature of aquatic habitat.
- Seasonal migration (particularly migratory and transient species).
- Seasonal availability of resources.
- Weather conditions during the survey period (some species may go through cycles of activity related to specific weather conditions).
- Species lifecycle.

These potential limitations have been addressed by applying the precautionary principle in cases where the inspection methods may have given a false negative result (e.g. a species that could reasonably be expected to occur, based on previous records and available habitat, was not observed). All species (including threatened species) have been assessed based on the presence of their habitat and the likely significance of that habitat to a viable local population.



3.0 Site Context

3.1 Assessment Area

The assessment area is the area of land within the 1,500m buffer zone surrounding the subject land and is presented in Figure 2. The assessment area covers a total of 1,779.70ha.

3.2 Landscape Features

Landscape features identified within the subject land and assessment area are shown on Figure 1 and Figure 2, respectively. A discussion of relevant landscape features is provided below.

3.2.1 IBRA Bioregions and IBRA Subregions

The subject land lies within the NSW South Western Slopes IBRA Region on the lower inland slopes of the Great Dividing Range. This region occupies 10% of NSW and extends from north of Cowra through southern NSW into western Victoria (NPWS 2003). The region is dominated by sub-humid climate characterised by hot summers with no dry season.

The subject land lies wholly within the Lower Slopes IBRA Subregion. This subregion is characterised by Ordovician to Devonian folded and faulted sedimentary sequences with inter-bedded volcanic rocks and large areas of intrusive granites, as well as large areas of Tertiary and Quaternary alluvium. Soils are shallow stony soils on steep slopes, texture contrast soils grading from red subsoils on upper slopes to yellow subsoils on lower slopes. Alluvial sands, loams and clays, with extensive red-brown earths on undulating plains and more extensive grey clays on alluvium. According to NPWS (2003), the vegetation is typically composed of Dwyer's Gum on granite, Red Ironbark on sedimentary rocks, Hill Red Gum/White Cypress Pine/Red Stringybark in the ranges, Grey Box/Yellow Box/White Cypress Pine/Belah on lower areas, Poplar Box/Kurrajong/Wilga/Red Box in the north, Mallee in the central west, Myall/Rosewood/Yarran on grey clays, Yellow Box/Polar Box/Belah on alluvial loams and River Red Gum or Black Box along streams.

3.2.2 Rivers, Streams, Estuaries and Wetlands

Kilnacraft Creek is an ephemeral third order stream that crosses the southwest corner of the subject land (see Photo 1). Kilnacraft Creek joins the Bowna Creek system approximately 4km to the east of the subject land and eventually joins the Murray River approximately 20km to the southeast of the site.

There are two dams on the subject land as shown in Photo 2 and Photo 3. Within the assessment area there are four Floodplain Wetlands identified on the NSW wetland layer (NSW DCCEE 2010b) (Figure 2).



Photo 1: Kilnacroft Creek



Photo 2: Waterbody on Northern Lot



Photo 3: Waterbody near the Substation on the Southern Lot



3.2.3 Habitat Connectivity

A review of the available wildlife corridor mapping on the SEED portal (NSW DCCEEW 2024d) indicates that there is no mapped wildlife corridor associated with the subject land. An examination of aerial imagery and regional vegetation mapping (NSW DCCEEW 2022) for the assessment area suggest that the vegetation and habitats within the subject land are generally connected to vegetation and habitats in the broader landscape. The vegetation within the subject land is likely to aid wildlife movements in a northeast-southwest direction (see Figure 2).

The proposed development does not involve the construction of wind turbines therefore there are no relevant impacts to flyways for migratory species that pass over the subject land.

3.2.4 Karst, Caves, Crevices, Cliffs, Rocks or Other Geological Features of Significance

The subject land and assessment area do not contain any karst, caves, crevices, cliffs, rocks and areas of geological significance. This has been determined through examining karst, cave, cliff and geological mapping available on the SEED portal (NSW DCCEEW 2024d), as well as review of lidar data and aerial imagery to detect potential cliff lines and rocky areas.

3.2.5 Areas of Outstanding Biodiversity Value

There are no areas of outstanding biodiversity value, as identified under the BC Act, within the subject land and assessment area.



3.2.6 NSW (Mitchell) Landscape

The subject land and assessment area occur entirely within the Brokong Plains Mitchell landscape (DECC 2002). The Brokong Plains is described as quaternary alluvial plains. The general elevation is 170m and local relief is under 10m. Soils are red-brown texture-contrast soils, that have been extensively cleared and cropped. Vegetation types were formerly woodland to open forest of *Eucalyptus microcarpa*, *Eucalyptus melliodora*, *Eucalyptus blakelyi* and *Callitris glaucophylla*.

3.2.7 Additional Landscape Features identified in SEARs

The Secretary's Environmental Assessment Requirements (SEARs) for SSD-68815961 (DPHI 2024) do not list any additional landscape features for assessment in relation to the BDAR.

3.2.8 Soil Hazard Features

As the proposed development is not a vegetation clearing proposal (i.e. a development that requires approval from the Native Vegetation Panel under Part 5A of the LLS Act, or the Vegetation SEPP), soil hazard features are not relevant.

3.3 Native Vegetation Cover

Native vegetation cover for the assessment area has been mapped using regional vegetation mapping (NSW DCCEEW 2022) and review of aerial imagery (Nearmap 2025).

Table 4 summarises the extent of native vegetation cover within the assessment area. Figure 2 shows native vegetation cover within the assessment area.

Table 4: Native Vegetation Cover in the Assessment Area

Assessment area (ha)	1,779.7
Total area of native vegetation cover (ha)	573.6
Percentage of native vegetation cover (%)	32
Class (0-10, >10-30, >30-70 or >70%)	>30-70

3.4 Existing Aquatic Environment

This section provides a description of the existing environment within the subject land and assessment area based on the outcomes of the desktop background review and the field inspection of Kilnacroft Creek that was completed. This description informs the impact assessment and development of environmental management recommendations.

3.4.1 Flow Regime

An examination of numerous historical aerial maps (Nearmap 2025) of Kilnacroft Creek within the subject land over a number of years (back to around 2010) revealed that minimal water and low flow were likely present during periods prior to and following aerial map image capture. This suggests that Kilnacroft Creek is ephemeral in nature and flow within Kilnacroft Creek is minimal, with the exception of periods of high rainfall.



3.4.2 Aquatic Habitat and Vegetation

During the recent site inspection, minimal water was present within Kilnacroft Creek, with only small standing pools of disconnected shallow water scattered sporadically along the creek line throughout the subject land and beyond (Photo 4, Photo 5, Photo 6). A larger dam, immediately to the south-west of the south-west subject land boundary, was present and was the only substantial waterbody observed along the creek during the site inspection. This dam could provide some refuge for aquatic organisms during times of low rainfall and creek flow, although limited connectivity with other waterbodies in the area would restrict fish movement along the creek line and thus is not considered valuable aquatic habitat. Where water was present, water clarity was considered poor although no odour or foam/scum on the water surface was observed. The site inspection of the creek indicated a lack of potential quality aquatic habitat within the creek such as large woody debris and snags, instream native macrophytes, gravel beds and undercuts throughout the creek within and proximal to the subject land.

The creek bed through the subject land and beyond was mostly densely covered with pasture grasses and exotic weeds with some *Juncus* spp. interspersed in some areas (Photo 7), and based on this vegetation cover, it appeared that very little flow has occurred in the creek for some time. The creek bed was mostly stable (due to the density of exotic grass cover) although some low-lying areas of creek bed where water had accumulated were soft and loose (Photo 8).

Surrounding land use beyond the immediate riparian zone was defined as pastoral and within the subject land itself, very little woody vegetation was present within the riparian zone (Photo 9). Riparian vegetation within the subject land included some canopy covering Eucalypt species and mostly pasture grasses and exotic weeds with *Juncus* spp. interspersed throughout. Further upstream of the subject land, larger pockets of woody riparian vegetation were observed, although lack of connectivity and completeness of the woody riparian strip was evident. As with bed stability, creek bank stability was generally stable due to the density of pasture grasses binding bank soils.



Photo 4: Adjoining Property to the South with Scattered Shallow Pools

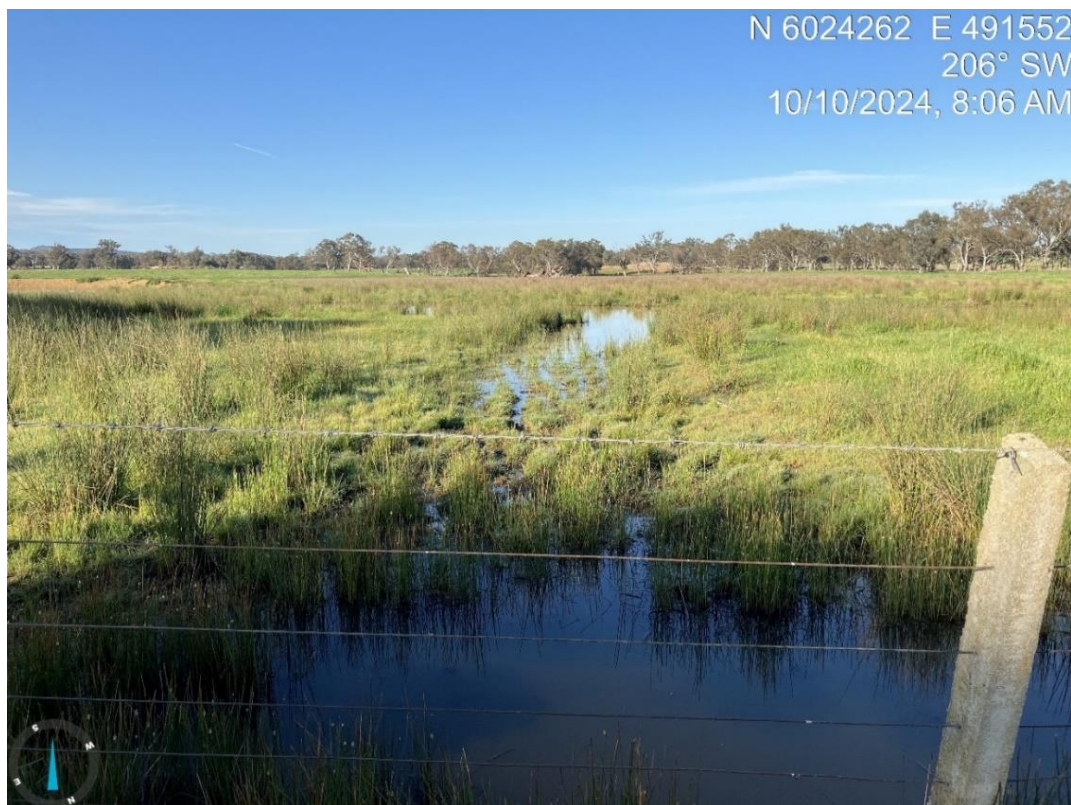


Photo 5: Scattered Shallow Pools in the Southwest Edge of the Subject Land



Photo 6: Adjoining Property to North with Minimal Water Flow along the Creek Line



Photo 7: Creek within Subject Land is Mostly Densely Covered with Pasture Grasses and Exotic Weeds with Some *Juncus* spp. Interspersed in Some Areas



Photo 8: Water Accumulation in Low Lying Areas of the Creek Line



Photo 9: Very Minimal Woody Debris Present within the Riparian Zone



3.4.3 Key Fish Habitat

The indicative Key Fish Habitat (KFH) map provided by NSW DPI within the vicinity of the assessment area indicates that Kilnacraft Creek is considered KFH (Figure 2).

Based on the observations taken during the field inspection and the description of KFH classification outlined in Table 5, the sensitivity of aquatic habitat within Kilnacraft Creek could be considered Type 3 - Minimally sensitive KFH. The aquatic habitat of Kilnacraft Creek within the assessment area was considered mostly ephemeral and did not support native aquatic or wetland vegetation.

Although indicative distribution maps for Flathead Galaxias and Southern Pygmy Perch (both listed as threatened species under the FM Act) suggest that these species may occur within Kilnacraft Creek within the vicinity of the subject land (see Figure 2), it was considered that there is a lack of suitable aquatic habitat for these species for viable populations to rely on this watercourse during any part of their life cycle.



Table 5 Classification of Key Fish Habitat according to Sensitivity (DPI 2013)

Classification	Habitat Type
Type 1 – highly sensitive KFH	- Freshwater habitats that contain in-stream gravel beds, rocks greater than 500 millimetres in two dimensions, snags greater than 300 millimetres in diameter or three metres in length, or native aquatic plants. - Any known or expected protected or threatened species habitat or area of declared 'critical habitat' under the FM Act. - Mound springs.
Type 2 – Moderately sensitive KFH	- Freshwater habitats and brackish wetlands, lakes and lagoons other than those defined in Type 1. - Weir pools and dams up to full supply level where the weir or dam is across a natural waterway.
Type 3 – Minimally sensitive KFH	- Freshwater habitats not included in Types 1 or 2. - Ephemeral aquatic habitat not supporting native aquatic or wetland vegetation.
Not considered KFH	- First and second order gaining streams (based on the Strahler method of stream ordering). - Farm dams on first and second order streams or unmapped gullies. - Agricultural and urban drain. - Urban or other artificial ponds (e.g. evaporation basins, aquaculture ponds). - Sections of stream that have been concrete-lined or piped (not including a waterway crossing)

3.4.4 Critical Habitat

The assessment area does not encompass any critical aquatic habitat declared under the FM Act or the EPBC Act.

3.4.5 Wetlands and Other Aquatic Areas of Conservation Significance

There are no nationally important wetlands located within the assessment area.



4.0 Native Vegetation, Threatened Ecological Communities and VI

4.1 Native Vegetation Extent

The subject land is 40.81ha, and the native vegetation extent within the subject land is 16.76ha or 41%. Native vegetation extent is mapped in Figure 7.

4.1.1 Changes to the Mapped Native Vegetation Extent

Differences between the actual native vegetation extent and vegetation extent shown on aerial imagery (Nearmap 2025) used in figures for this BDAR are due to the presence of exotic pasture and non-native planted vegetation. This is supported by field reconnaissance by SLR in 2024. The native vegetation extent is mapped in Figure 7.

4.1.2 Areas that are not Native Vegetation

Areas that are not native vegetation are indicated on Figure 7 and include:

- Planted non-native vegetation around the dwelling and substation (see Photo 10).
- Cleared land, being areas of maintained pasture.

These areas were reported by RPS 2023, have been excluded by regional mapping (NSW DCCEEW 2022) and have been verified and updated by SLR in 2024.

Photo 10: Planted Exotic Vegetation and Pasture around Dwelling



4.2 Plant Community Types

4.2.1 Overview

Native vegetation within the subject land has been assessed as aligning with the BioNet Vegetation Classification PCTs identified within Table 6 and their extent is shown in Figure 8. Detailed descriptions of each PCT are provided in the following subsections.

Table 6: PCTs Identified Within the Subject Land

PCT ID	PCT name	Subject land area (ha)
277	Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	16.34
Total area		16.34

4.2.2 PCT 277 Blakely's Red Gum - Yellow Box Grassy Tall Woodland

4.2.2.1 PCT Overview

Table 7 provides an overview of PCT 277 based on data contained within the BioNet Vegetation Classification, and the extent of this PCT within the subject land.

Table 7: PCT 277 Blakely's Red Gum - Yellow Box Grassy Tall Woodland

PCT ID	277
PCT Name	Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Vegetation Formation	Grassy Woodlands
Vegetation Class	Western Slopes Grassy Woodlands
Per Cent Cleared Value (%)	94
Extent within Subject Land (ha)	16.34

PCT 277 is typically a tall woodland to about 20m high, with limited to no shrub layer and a grassy ground layer. This community occurs as two broad conditions states across much of the subject land. Within the subject land the tree canopy is dominated by *Eucalyptus blakelyi* and *Eucalyptus melliodora*. One *Eucalyptus albens* was recorded at the site boundary along Ortlipp Road in the north of the site. Some *Eucalyptus polyanthemos* were also noted along Ortlipp Road/Lindner Road. There is little to no shrub layer with only one shrub *Acacia baileyana* recorded.

The ground layer is dominated by grasses and graminoids including *Austrostipa scabra*, *Lomandra filiformis*, *Rytidosperma caespitosum*, *Rytidosperma fulvum*, *Rytidosperma setaceum*, *Cymbopogon refractus* and *Microlaena stipoides*. Forbs present in low abundance include *Desmodium varians*, *Tricoryne elatior*, *Dichondra repens*, *Hypericum gramineum* and *Rumex brownii*. Weeds are common including *Hypericum perforatum*, *Paspalum dilatatum*, *Phalaris aquatica*, *Lolium perenne*, *Dactylis glomerata*, *Bromus molliformis*, *Bromus diandrus*, *Bromus catharticus*, *Avena fatua*, *Plantago lanceolata*, *Hypochaeris radicata*, *Romulea rosea*, *Arctotheca calendula*, *Cirsium vulgare* and *Conyza bonariensis*.



4.2.2.2 Condition states

Two condition states have been mapped for PCT 277 within the subject land:

- Moderate, being areas that contain a mature canopy with a degraded understorey (see Photo 11).
- Low, being areas of regrowth, with a degraded understorey (see Photo 12).

Photo 11: PCT 277 Blakely's Red Gum - Yellow Box Grassy Tall Woodland - Moderate



Photo 12: PCT 277 Blakely's Red Gum - Yellow Box Grassy Tall Woodland - Low



4.2.2.3 Justification of PCT selection

The evidence-based justification for PCT 277 selection is provided in Table 8. This PCT was the dominant PCT mapped for the subject land and was also verified by RPS (2023), Ecological (2023) and NGH Environmental (2019). The vegetation is characterised by a canopy of *Eucalyptus blakelyi* and *Eucalyptus melliodora*, no shrub layer and a ground layer that has been moderately to heavily degraded by a history of clearing and farming practices. Lower lying areas of the vegetation within the subject land also contain moisture tolerant species such as *Carex appressa*, therefore wetland formations were also considered when assigning the PCT.

Table 8: PCT 277 Selection

Search Term	Selection
IBRA Bioregion	NSW South Western Slopes
IBRA Sub-region	Lower Slopes
Vegetation Formation	Forested Wetlands, Freshwater Wetlands, Grassy Woodlands
Vegetation Class	Western Slopes Grassy Woodlands, Inland Floodplain Swamps, Inland Riverine Forests
Upper Stratum Species	<i>Eucalyptus blakelyi</i> , <i>Eucalyptus melliodora</i>
Short list	Returned a list of 13 PCTs: 79, 80, 81, 85, 201, 266, 276, 277, 278, 280, 282, 283, 360
Selection	PCT 79 was discarded based on species composition (lacking the dominant canopy <i>Eucalyptus camaldulensis</i>), landscape position (on riverbanks and river flats along major watercourses) and distribution (occurring in the upper slopes sub-region of the NSW South-western Slopes Bioregion and extending into the Southeastern Highlands Bioregion). PCT 80 was discarded based on species composition (lacking the dominant <i>Eucalyptus macrocarpa</i> and <i>Callitris glaucophylla</i>) and distribution (being mainly restricted to the western section of the NSW South-western Slopes Bioregion). PCT 81 was discarded based on species composition (lacking the dominant <i>Eucalyptus microcarpa</i>), soils (well drained alluvial brown sandy loam to loam soil) and distribution (typically occurring north of Dubbo, mainly in the Brigalow Belt South Bioregion). PCT 85 was discarded based on species composition (lacking the dominant canopy <i>Casuarina cunninghamiana</i>), soils (gravels, sands and loams) and landscape position (along major watercourses). PCT 201 was excluded based on species composition (lacking the dominant canopy <i>Eucalyptus conica</i>) and distribution (being mainly around Forbes). PCT 266 was excluded based on species composition (lacking the dominant canopy <i>Eucalyptus albens</i>) and landscape position (on hill slopes). PCT 276 was discarded based on species composition (dominant species being <i>Eucalyptus melliodora</i>) and distribution (north of the site from Wagga Wagga to Wellington) PCT 278 has similar floristic match to the site but was discarded based on landscape position being described as occurring “in gullies and on creek flats in hill landscapes or along creeks mainly in the Upper Slopes sub-region of the NSW South-western Slopes Bioregion”.



Search Term	Selection
	PCT 280 was discarded based on species composition (lacking dominant canopy <i>Eucalyptus macrorhyncha</i> and a shrub layer), landscape position (on steep hillslopes and hillcrests) and distribution (east of Cootamundra). PCT 282 was discarded based on species composition (mostly lacking the usual co-dominant <i>Eucalyptus albens</i>) and landscape position (on hillslopes, hillcrests or footslopes on undulating hills). PCT 283 was discarded based on species composition (lacking the dominant canopy <i>Eucalyptus bridgesiana</i>). PCT 360 was discarded based on species composition (an absence of wetland grasses such as Swamp Wallaby Grass <i>Amphibromus</i> spp.) and soil types (lack of light grey, heavy clay gilgai soil). PCT 277 is the best-fit PCT as it is dominated by <i>Eucalyptus blakelyi</i> and <i>Eucalyptus melliodora</i>. It is a very widespread community on fertile deep, loam or clay soils derived from a range of substrates including fine-grained sedimentary and metamorphic rocks but also volcanics and fine-grained granite. It occurs on flats, footslopes and hillslopes.

4.2.2.4 Alignment with TECs

PCT 277 is associated with a TEC within the BioNet Vegetation Classification, being *White Box-Yellow Box- Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions* ('Box Gum Woodland').

All 'PCT 277_Mod' and 'PCT 277_Low' areas across the subject land are considered to meet the definition of this TEC based on the following criteria from the Scientific Determination (TSC 2024):

- The community occurs within the NSW South Western Slopes Bioregion, which is the region within which the subject land occurs.
- The community occurs in a broad range of landscapes and soils therefore the subject land conditions are likely to fall under the definition, being "*hilly to undulating landscapes in areas with soils of moderate fertility derived from a range of lithologies, including alkaline and acid volcanics, granites, sediments, serpentinites, and metamorphics*".
- The wide range of elevations mean that the subject land at 220m elevation occurs within typical range, being 170m to 1,200m.
- Two of the three dominant characteristic canopy species, being *Eucalyptus blakelyi* and *Eucalyptus melliodora* dominate the site, and one specimen was also found of the third characteristically dominant species, *Eucalyptus albens*.
- The shrub layer is absent, which is typical of the community.
- Seventeen characteristic species listed in the final determination occur on the subject land including *Eucalyptus blakelyi*, *Eucalyptus melliodora*, *Eucalyptus albens*, *Austrostipa scabra*, *Lomandra filiformis*, *Rytidosperma setaceum*, *Cymbopogon refractus*, *Microlaena stipoides*, *Poa sieberiana*, *Desmodium varians*, *Tricoryne elatior*, *Dichondra repens*, *Hypericum gramineum*, *Leptorhynchus squamatus*, *Arthropodium fimbriatum*, *Euchiton involucreatus* and *Rumex brownii*.



- The floristic composition and abundance of the community is described as varying significantly in the derived native grassland component particularly following period of good rainfall such that grassland areas may be dominated by only a few species.
- Areas of regrowth are considered to form part of the ecological community.

4.2.2.5 Alignment with EPBC Act Listed ECs

PCT 277 is associated with an EC listed under the EPBC Act within the BioNet Vegetation Classification, being *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland*. The EPBC Act listing is accompanied by a Policy Statement (DEH 2006) which contains a flow chart with a set of condition thresholds to assist with determining whether the vegetation is representative of the nationally listed EC.

With respect to the flowchart the vegetation within the subject land is not considered to meet the listing based on the following criteria:

- “Yes”, the subject land is dominated by Yellow Box (*Eucalyptus melliodora*) and Red Gum (*Eucalyptus blakelyi*).
- “Yes”, the 0.1ha plot area at BAM01 contains most native understorey species (15 species) and contains a predominately native understorey (88.1% cover). Noting that whilst there is a high cover (88.1%) of native understorey species at BAM01, the dominant species at this location are wet-tolerant (*Carex appressa*, *Eleocharis acuta*, *Juncus* spp.) and are not characteristic of the EPBC Act listed community. All other plots have less than 33% cover of native understorey species.
- “Yes” the patch is 0.1ha or greater.
- “No” the 0.1ha plot area at BAM01 is not likely to contain 12 or more native non-grass understorey species. Whilst one “important species” is present (*Leptorhynchus squamatus*) only six non-grass native understorey species were recorded in the 0.04ha plot area.

4.3 Threatened Ecological Communities

TECs and where relevant, ECs identified within the subject land are listed in Table 9 and their extent is shown on Figure 9.

Table 9: TECs within the Subject Land

TEC Name	SAIL#	BC Act Status	EPBC Act Status	Associated Vegetation Zones (within the Subject Land)	Area within Subject Land (ha)
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Yes	Critically Endangered	n/a	277_Mod, 277_Low	16.34

Entity at risk of a 'serious and irreversible impact'



4.4 Vegetation Zones

Section 4.3.1 of BAM 2020 describes mapping of vegetation condition under “*broad condition states*” and suggests the following approach: “*Disturbance to growth form groups for tree, shrub and ground cover or extent of exotics (or combinations of these) can be used to identify areas of similar condition*”. The subject land patches were grouped into two broad condition state of “*moderate*” and “*low*”. The moderate condition class typically incorporates areas with a mature canopy and degraded ground layers. The low condition class includes areas of regrowth vegetation with degraded ground layers.

As defined in Section 4.3.2 of BAM 2020 “A patch is an area of native vegetation that occurs on the subject land and includes native vegetation that has a gap of less than 100m from the next area of native vegetation (or ≤ 30m for non-woody ecosystems).” Patch size was calculated for each vegetation zone and assigned to a class, being < 5ha, 5-24ha, 25-100ha or ≥100ha. The patch size class for all vegetation zones on the subject land is ≥ 100 ha.

Vegetation zones and associated patch sizes are listed in Table 10 and displayed in Figure 10.

Table 10: Vegetation Zones and Patch Sizes

Vegetation Zone ID	PCT ID Number and Name	Condition / Other Defining Feature	Area (ha)	Patch Size Class (< 5 ha, 5-24 ha, 25-100 ha or ≥ 100 ha)	No. VI Plots Required	No. VI Plots Completed	No. VI Plots Used	Plot IDs of VI Plots Used
277_Mod	PCT 277 Blakely's Red Gum - Yellow Box Grassy Tall Woodland	Mature canopy	13.55	≥100ha	3	4	4	BAM01, BAM02, BAM03, BAM04
277_Low	PCT 277 Blakely's Red Gum - Yellow Box Grassy Tall Woodland	Regrowth	2.79	≥100ha	2	2	2	BAM05, BAM06

4.5 Vegetation Integrity (Vegetation Condition)

4.5.1 Vegetation Integrity Survey Plots

The number of BAM plots sampled in each vegetation zone was based on the minimum number of plots required for the area of land subject to development in accordance with Table 3 of BAM 2020. The minimum number of plots per vegetation zone, as per BAM requirements, was sampled, as shown in Table 10).



4.5.2 Scores

The vegetation integrity scores for each vegetation zone are presented in Table 11.

Table 11: Vegetation Integrity Scores

Vegetation Zone ID	Composition Condition Score	Structure Condition Score	Function Condition Score	VI Score	Hollow-bearing Trees Present? (Yes/No)
277_Mod	46.7	89.4	48.3	58.6	Yes
277_Low	10.7	62.5	42.5	30.5	Yes

4.5.3 Use of Benchmark Data

Vegetation benchmarks used in the calculation of the Vegetation Integrity (VI) score were not amended and were adopted as per the BAM Calculator at the time of the assessment.



5.0 Habitat Suitability for Terrestrial Threatened Species

5.1 Identification of Threatened Species for Assessment

5.1.1 Ecosystem Credit Species

Table 12 lists all ecosystem credit species predicted to occur on or use the subject land (based on the PCTs present), and:

- Identifies the source of information (e.g. automatically populated in BAM-C, recently listed under the BC Act and not yet added to the TBDC, previous ecological reports).
- Justifies species added to the BAM-C auto-populated list or removed from the list in accordance with BAM Subsections 5.2.1 and 5.2.2.
- Includes the sensitivity to gain class (from the TBDC).



Table 12: Predicted Ecosystem Credit Species

Common Name	Scientific Name	Listing Status		Dual Credit Sp. (Yes / No)	Source (BAM-C / TBDC / Previous Survey / Current Survey)	Species Retained? (Yes / No / Partial*)	Reason For Exclusion (Geographic Limitations / Habitat Constraint / Vagrant)	Veg Zone ID Species Retained Within, (Including PCT ID)	Sensitivity To Gain Class (Very High / High / Moderate / Low)
		BC Act	EPBC Act						
Black Falcon	<i>Falco subniger</i>	V	-	No	BAM-C	Yes	n/a	277_Mod, 277_Low	Moderate
Black-chinned Honeyeater (eastern subspecies)	<i>Melithreptus gularis gularis</i>	V	-	No	BAM-C	Yes	n/a	277_Mod, 277_Low	Moderate
Brown Treecreeper (eastern subspecies)	<i>Climacteris picumnus victoriae</i>	V	V	No	BAM-C	Yes	n/a	277_Mod, 277_Low	High
Diamond Firetail	<i>Stagonopleura guttata</i>	V	V	No	BAM-C	Yes	n/a	277_Mod, 277_Low	Moderate
Dusky Woodswallow	<i>Artamus cyanopterus cyanopterus</i>	V	-	No	BAM-C	Yes	n/a	277_Mod, 277_Low	Moderate
Flame Robin	<i>Petroica phoenicea</i>	V	-	No	BAM-C, Current Survey	Yes	n/a	277_Mod, 277_Low	Moderate
Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>	E	E	Yes	BAM-C	Yes	n/a	277_Mod, 277_Low	Moderate
Grey-crowned Babbler (eastern subspecies)	<i>Pomatostomus temporalis temporalis</i>	V	-	No	BAM-C	Yes	n/a	277_Mod, 277_Low	Moderate
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	V	V	Yes	BAM-C	Yes	n/a	277_Mod, 277_Low	High



Common Name	Scientific Name	Listing Status		Dual Credit Sp. (Yes / No)	Source (BAM-C / TBDC / Previous Survey / Current Survey)	Species Retained? (Yes / No / Partial*)	Reason For Exclusion (Geographic Limitations / Habitat Constraint / Vagrant)	Veg Zone ID Species Retained Within, (Including PCT ID)	Sensitivity To Gain Class (Very High / High / Moderate / Low)
		BC Act	EPBC Act						
Large Bent-winged Bat	<i>Miniopterus orianae oceanensis</i>	V	-	Yes	Current Survey	Yes	n/a	277_Mod, 277_Low	High
Little Eagle	<i>Hieraaetus morphnoides</i>	V	-	Yes	BAM-C	Yes	n/a	277_Mod, 277_Low	Moderate
Little Lorikeet	<i>Glossopsitta pusilla</i>	V	-	No	BAM-C	Yes	n/a	277_Mod, 277_Low	High
Painted Honeyeater	<i>Grantiella picta</i>	V	V	No	BAM-C	Yes	n/a	277_Mod, 277_Low	Moderate
Regent Honeyeater	<i>Anthochaera phrygia</i>	CE	CE	Yes	BAM-C	Yes	n/a	277_Mod, 277_Low	High
Scarlet Robin	<i>Petroica boodang</i>	V	-	No	BAM-C	Yes	n/a	277_Mod, 277_Low	Moderate
Southern Whiteface	<i>Aphelocephala leucopsis</i>	V	V	No	BAM-C	Yes	n/a	277_Mod, 277_Low	Low
South-eastern Hooded Robin	<i>Melanodryas cucullata cucullata</i>	E	E	No	BAM-C	Yes	n/a	277_Mod, 277_Low	Moderate
Speckled Warbler	<i>Chthonicola sagittata</i>	V	-	No	BAM-C	Yes	n/a	277_Mod, 277_Low	High
Spotted Harrier	<i>Circus assimilis</i>	V	-	No	BAM-C	Yes	n/a	277_Mod, 277_Low	Moderate
Spotted-tailed Quoll	<i>Dasyurus maculatus</i>	V	E	No	BAM-C	Yes	n/a	277_Mod, 277_Low	High



Common Name	Scientific Name	Listing Status		Dual Credit Sp. (Yes / No)	Source (BAM-C / TBDC / Previous Survey / Current Survey)	Species Retained? (Yes / No / Partial*)	Reason For Exclusion (Geographic Limitations / Habitat Constraint / Vagrant)	Veg Zone ID Species Retained Within, (Including PCT ID)	Sensitivity To Gain Class (Very High / High / Moderate / Low)
		BC Act	EPBC Act						
Square-tailed Kite	<i>Lophoictinia isura</i>	V	-	Yes	BAM-C	Yes	n/a	277_Mod, 277_Low	Moderate
Superb Parrot	<i>Polytelis swainsonii</i>	V	V	Yes	BAM-C	Yes	n/a	277_Mod, 277_Low	Moderate
Swift Parrot	<i>Lathamus discolor</i>	E	CE	Yes	BAM-C	Yes	n/a	277_Mod, 277_Low	Moderate
Turquoise Parrot	<i>Neophema pulchella</i>	V	-	No	BAM-C	Yes	n/a	277_Mod, 277_Low	High
Varied Sittella	<i>Daphoenositta chrysoptera</i>	V	-	No	BAM-C	Yes	n/a	277_Mod, 277_Low	Moderate
White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>	V	-	Yes	BAM-C	Yes	n/a	277_Mod, 277_Low	High
White-throated Needletail	<i>Hirundapus caudacutus</i>	V	V	No	BAM-C	Yes	n/a	277_Mod, 277_Low	High
Yellow-bellied Sheath-tail-bat	<i>Saccolaimus flaviventris</i>	V	-	No	BAM-C	Yes	n/a	277_Mod, 277_Low	High
Listing status: V=vulnerable, E=endangered, CE=critically endangered									



None of the predicted ecosystem credit species have been excluded based on the TBDC habitat constraints or assessed differently in different vegetation zones. The Large Bent-winged Bat *Miniopterus orianae oceanensis* was detected during the targeted bat survey in March 2025 and as such has been added to the list of ecosystem credit species.

5.1.2 Candidate (Species Credit) Species

All species credit species (e.g. those that are automatically populated in BAM-C, recently listed under the BC Act or not yet added to the TBDC) and the relevant source of information (e.g. previous ecological reports, environmental impact statements, scientific literature, Council reports, site survey etc.) are listed in this section.

5.1.2.1 Candidate Flora (Species Credit) Species

Candidate flora species are listed in Table 13.

Table 13: Candidate Flora Species

Common Name	Scientific Name	Listing Status		Source (BAM-C / TBDC / Previous Survey / Current Survey)	Species Retained? (Yes / No / Partial)	Reason For Exclusion (1. Geographic Limitations 2. Habitat Constraints 3. Microhabitats)	Veg Zone ID Species Retained Within (Including PCT ID)
		BC Act	EPBC Act				
Small Scurf-pea	<i>Cullen parvum</i>	E	-	BAM-C	Yes	n/a	277_Mod, 277_Low
Small Purple-pea	<i>Swainsona recta</i>	E	E	BAM-C	Yes	n/a	277_Mod, 277_Low
Silky Swainson-pea	<i>Swainsona sericea</i>	V	-	BAM-C	Yes	n/a	277_Mod, 277_Low
Listing status: V=vulnerable, E=endangered							

No candidate flora species were excluded (in the BAM-C) based on geographic limitations as mapped by the Threatened Species Profile distribution mapping. No species were excluded based on the TBDC habitat constraints. No candidate species credit species have been assessed differently in different vegetation zones.

5.1.2.2 Candidate Fauna (Species Credit) Species

Candidate fauna species are listed in Table 14.



Table 14: Candidate Fauna Species

Common Name	Scientific Name	Listing Status		Dual Credit Species (Yes / No)	Sources (BAM / TBDC / Previous Survey / Current Survey)	Species Retained? (Yes / No / Partial)	Reason for Exclusion (Geographic Limitations / Habitat Constraints / Vagrant Species / Microhabitats)	Vegetation Zone ID Species Retained Within (including PCT ID)
		BC Act	EPBC Act					
<i>Anthochaera phrygia</i>	Regent Honeyeater	CE	CE	Yes	BAM-C	No	Habitat constraint	n/a
<i>Aprasia parapulchella</i>	Pink-tailed Legless Lizard	V	V	No	BAM-C	No	Habitat constraint	n/a
<i>Burhinus grallarius</i>	Bush Stone-curlew	E	-	No	BAM-C	Yes	n/a	277_Mod, 277_Low
<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	E	E	Yes	BAM-C	Yes	n/a	277_Mod, 277_Low
<i>Cercartetus nanus</i>	Eastern Pygmy-possum	V	-	No	BAM-C	Yes	n/a	277_Mod, 277_Low
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	E	E	No	BAM-C	No	Habitat constraints	n/a
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	V	-	Yes	BAM-C	Yes	n/a	277_Mod, 277_Low
<i>Hieraaetus morphnoides</i>	Little Eagle	V	-	Yes	BAM-C	Yes	n/a	277_Mod, 277_Low
<i>Lathamus discolor</i>	Swift Parrot	E	CE	Yes	BAM-C	No	Habitat constraints	n/a
<i>Lophoictinia isura</i>	Square-tailed Kite	V	-	Yes	BAM-C	Yes	n/a	277_Mod, 277_Low



Common Name	Scientific Name	Listing Status		Dual Credit Species (Yes / No)	Sources (BAM / TBDC / Previous Survey / Current Survey)	Species Retained? (Yes / No / Partial)	Reason for Exclusion (Geographic Limitations / Habitat Constraints / Vagrant Species / Microhabitats)	Vegetation Zone ID Species Retained Within (including PCT ID)
		BC Act	EPBC Act					
<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	V	-	Yes	Current Survey	No	Habitat constraints	n/a
<i>Myotis macropus</i>	Southern Myotis	V	-	No	BAM-C	Yes	n/a	277_Mod, 277_Low
<i>Ninox connivens</i>	Barking Owl	V	-	No	BAM-C	Yes	n/a	277_Mod, 277_Low
<i>Petaurus norfolcensis</i>	Squirrel Glider	V	-	No	BAM-C, Current Survey	Yes	n/a	277_Mod, 277_Low
<i>Petaurus norfolcensis</i> - endangered population	Squirrel Glider in the Wagga Wagga Local Government Area	EP	-	No	BAM-C	No	Geographic limitations	n/a
<i>Phascolarctos cinereus</i>	Koala	E	E	No	BAM-C	Yes	n/a	277_Mod, 277_Low
<i>Polytelis swainsonii</i>	Superb Parrot	V	V	Yes	BAM-C	Yes	n/a	277_Mod, 277_Low
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	V	Yes	BAM-C	Yes	n/a	277_Mod, 277_Low
<i>Tyto novaehollandiae</i>	Masked Owl	V	-	No	BAM-C	Yes	n/a	277_Mod, 277_Low
Listing status: V=vulnerable, E=endangered, EP=Endangered Population, CE=critically endangered								



No candidate species have been excluded based on geographic limitations (as mapped by the Threatened Species Profile distribution mapping). However, the Squirrel Glider *Petaurus norfolcensis* endangered population is legally described as occurring within the Wagga Wagga Local Government Area. As the subject land at Jindera lies outside of Wagga Wagga LGA, the Squirrel Glider endangered population is outside its geographic limitation and has therefore been removed from further assessment in the BAM-C.

The following species have been excluded based on the TBDC habitat constraints:

- The TBDC habitat constraints for the Regent Honeyeater *Anthochaera phrygia*, and Swift Parrot *Lathamus discolor* are “Other: As per Important Habitat Map”. The Important Habitat Map does not map any areas of habitat for these two (or other) species on the subject land.
- The TBDC habitat constraints for the Pink-tailed Legless Lizard *Aprasia parapulchella* are “Rocky areas - Or within 50m of rocky areas”; there are no rocky areas on or within 50m of the subject land.
- The TBDC habitat constraints for the Large-eared Pied Bat *Chalinolobus dwyeri* are “Cliffs: Within two kilometres of rocky areas containing caves, overhangs, escarpments, outcrops, or crevices, or within two kilometres of old mines or tunnels”; there are no cliffs (or rocky areas containing caves, overhangs, escarpments, outcrops or crevices) or old mines or tunnels within 2km of the subject land.
- The TBDC habitat constraints for the Large Bent-winged Bat *Miniopterus orianae oceanensis* are “Caves: Cave, tunnel, mine, culvert or other structure known or suspected to be used for breeding including species records with microhabitat code “IC - in cave;” observation type code “E nest-roost;” with numbers of individuals >500”. There are no caves or other similar breeding features for the Large Bent-winged Bat within the subject land.

The Large Bent-winged Bat *Miniopterus orianae oceanensis* was detected during the targeted bat survey in March 2025 and as such has been added to the list of candidate fauna species.

5.2 Presence of Candidate Species Credit Species

In accordance with BAM Subsection 5.2.4, candidate species listed in Table 15 and Table 16 are determined to be present within the subject land based on:

- Assumed presence within the subject land.
- An important habitat map (for dual credit species).
- Targeted threatened species surveys.
- An expert report.

For the candidate species listed below, presence was determined using targeted surveys or by assumed presence. No species were determined present via important habitat map or expert report. Species in grey shading are those determined to be present on site.



Table 15: Determining the Presence of Candidate Flora Species Credit Species

Common Name	Scientific Name	Listing Status		Method Used to Determine Presence (Target Survey/ Assumed Present/ Important Habitat Mapped Area/ Expert Report)	Present? (Yes/ No/ Assumed Present)	Further Assessment Required? (BAM Subsections 5.2.5 and 5.2.6) (Yes/ No)
		BC Act	EPBC Act			
Small Scurf-pea	<i>Cullen parvum</i>	E	-	Target survey/ Assumed Present	No (in areas surveyed)/ Assumed Present (BESS and powerline areas)	Yes (partially)
Small Purple-pea	<i>Swainsona recta</i>	E	E	Target survey/ Assumed Present	No (in areas surveyed)/ Assumed Present (water pipeline)	Yes (partially)
Silky Swainson-pea	<i>Swainsona sericea</i>	V	-	Target survey/ Assumed Present	No (in areas surveyed)/ Assumed Present (water pipeline)	Yes (partially)
Listing status: V=vulnerable, E=endangered						

Table 16: Determining the Presence of Candidate Fauna Species Credit Species

Common Name	Scientific Name	Listing Status		Method Used to Determine Presence (Target Survey / Assumed Present / Important Habitat Mapped Area / Expert Report)	Present? (Yes / No / Assumed Present)	Further Assessment Required? (BAM Subsections 5.2.5 and 5.2.6) (Yes / No)
		BC Act	EPBC Act			
Bush Stone-curlew	<i>Burhinus grallarius</i>	E	-	Target Survey	No	No
Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>	E	E	Target Survey	No	No
Eastern Pygmy-possum	<i>Cercartetus nanus</i>	V	-	Target Survey	No	No
White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>	V	-	Target Survey	No	No
Little Eagle	<i>Hieraaetus morphnoides</i>	V	-	Target Survey	No	No



Common Name	Scientific Name	Listing Status		Method Used to Determine Presence (Target Survey / Assumed Present / Important Habitat Mapped Area / Expert Report)	Present? (Yes / No / Assumed Present)	Further Assessment Required? (BAM Subsections 5.2.5 and 5.2.6) (Yes / No)
		BC Act	EPBC Act			
Square-tailed Kite	<i>Lophoictinia isura</i>	V	-	Target Survey	No	No
Southern Myotis	<i>Myotis macropus</i>	V	-	Target Survey	No	No
Barking Owl	<i>Ninox connivens</i>	V	-	Target Survey/ Assumed Present	No (in areas surveyed)/ Assumed Present (water pipeline)	Yes (partially)
Squirrel Glider	<i>Petaurus norfolcensis</i>	V	-	Target Survey	Yes	Yes
Koala	<i>Phascolarctos cinereus</i>	E	E	Target Survey	No	No
Superb Parrot	<i>Polytelis swainsonii</i>	V	V	Target Survey/ Assumed Present	No (in areas surveyed)/ Assumed Present (water pipeline)	Yes (partially)
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	V	V	Target Survey	No	No
Masked Owl	<i>Tyto novaehollandiae</i>	V	-	Target Survey/ Assumed Present	No (in areas surveyed)/ Assumed Present (water pipeline)	Yes (partially)
Listing status: V=vulnerable, E=endangered						

5.3 Threatened Species Surveys

This section lists details of targeted threatened species surveys completed (to date) for candidate species (where surveys have been used to determine presence). Additionally, the presence of candidate species can be determined via assumed presence, important habitat map or expert report. Species assumed present on the subject land are listed above in Section 5.2. No expert reports were employed for the current assessment and no species were deemed present on the basis of the important habitat map.

5.3.1 Threatened Flora Surveys

Candidate flora species that require 'further assessment' and have undergone targeted survey are listed in Table 17.



Table 17: Threatened Species Surveys for Candidate Flora Species Credit Species

Common Name	Scientific Name	Threatened Flora Species Surveys				Present (Yes/ No/ Assumed Present)	Further Assessment Required (BAM Subsections 5.2.5 and 5.2.6) (Yes/No)
		Survey Method (Transects or Grids)	Timing of Survey – within Recommended Period? (BAM-C / TBDC)		Effort (Hours & No. People)		
			Yes (enter dates)	No (enter date)			
Small Scurf-pea	<i>Cullen parvum</i>	Transects	18 December 2024, 19 December 2024	n/a	12 hours, 2 persons	No (in areas surveyed)/ Assumed Present (BESS and powerline)	Yes - partially
Small Purple-pea	<i>Swainsona recta</i>	Transects	9 October 2024, 10 October 2024, 11 October 2024	n/a	14 hours, 2 persons and 3 hours, 1 person	No (in areas surveyed)/ Assumed Present (water pipeline)	Yes - partially
Silky Swainson- pea	<i>Swainsona sericea</i>	Transects	9 October 2024, 10 October 2024, 11 October 2024	n/a	14 hours, 2 persons and 3 hours, 1 person	No (in areas surveyed)/ Assumed Present (water pipeline)	Yes - partially



Threatened flora surveys as detailed in Section 2.3 were undertaken with reference to the BAM *Surveying threatened plants and their habitats* guide (DPIE 2020a) and survey notes within the TBDC.

Habitat suitability and survey adequacy for relevant species is further described as follows:

- *Cullen parvum* is typically found in grassland, River Red Gum Woodland or Box-Gum Woodland, sometimes on grazed land and usually on table drains or adjacent to drainage lines or watercourses, in areas with rainfall of between 450 and 700mm. Plants tend to die back in dry seasons and resprout with rain in winter or spring; in dry years, plants apparently do not always produce shoots but survive below the ground. Surveys involve 5-10m maximum width parallel transects in areas of native vegetation from December to January. Targeted surveys of the water pipeline were undertaken in December 2024 and the species was not detected. The species was not surveyed for within the proposed BESS facility and associated powerline area and is assumed present at this location.
- *Swainsona recta* occurs in the grassy understorey of woodlands and open forests dominated by *Eucalyptus blakelyi*, *E. melliodora*, *E. rubida* and *E. goniocalyx*. It grows in association with understorey dominants such as *Themeda australis*, *Poa* spp. and *Austrostipa* spp. Plants die back in summer, surviving as a rootstock until they shoot again in autumn. Surveys involve 5-10m maximum width parallel transects in areas of native vegetation from September to November. Targeted surveys of the subject land (excluding the water pipeline) were undertaken in October 2024 and the species was not detected. The species was not surveyed for within the proposed water pipeline and is assumed present at this location.
- *Swainsona sericea* is found in Box-Gum Woodland in the Southern Tablelands and South West Slopes. Surveys involve 5-10m maximum width parallel transects in areas of native vegetation from September to October. Targeted surveys of the subject land (excluding the water pipeline) were undertaken in October 2024 and the species was not detected. The species was not surveyed for within the proposed water pipeline and is assumed present at this location.

5.3.2 Threatened Fauna Surveys

Candidate fauna species that require 'further assessment' and have undergone targeted survey are listed in Table 18, including details of survey method, effort, timing.



Table 18: Threatened Species Surveys for Candidate Fauna Species Credit Species

Common Name	Scientific Name	Threatened Fauna Species Surveys				Present (Yes / No / Assumed Present)	Further assessment required (BAM Subsections 5.2.5 and 5.2.6) (Yes / No)
		Survey Method (e.g. Harp Trap, Elliott Trap, Bioacoustics, etc.)	Timing of Survey – within Recommended Period? (BAM-C / TBDC)		Effort (Hours & No. People)		
			Yes (enter dates)	No (enter dates)			
Bush Stone- curlew	<i>Burhinus grallarius</i>	Call playback	2, 3, 4, 29, 30, 31 July 2024	n/a	9hrs, 2 persons	No	No
		Diurnal bird/habitat surveys	2, 3, 4, 29, 30, 31 July 2024	n/a	9hrs, 2 persons	No	No
			8, 9, 10, 11 October 2024	n/a	8hrs, 2 persons	No	No
			18, 19 December 2024	n/a	4hrs, 2 persons	No	No
Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>	Diurnal bird/habitat surveys	8, 9, 10, 11 October 2024	n/a	8hrs, 2 persons	No	No
			18, 19 December 2024	n/a	4hrs, 2 persons	No	No
Eastern Pygmy- possum	<i>Cercartetus nanus</i>	IR cameras	9, 10, 11 October 2024	n/a	3 nights, 2 devices	No	No
		Spotlighting	8, 9 October 2024	n/a	4hrs, 2 persons	No	No
			17, 18 December 2024	n/a	4hrs, 2 persons	No	No
White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>		2, 3, 4, 29, 30, 31 July 2024	n/a	9hrs, 2 persons	No	No



Common Name	Scientific Name	Threatened Fauna Species Surveys				Present (Yes / No / Assumed Present)	Further assessment required (BAM Subsections 5.2.5 and 5.2.6) (Yes / No)
		Survey Method (e.g. Harp Trap, Elliott Trap, Bioacoustics, etc.)	Timing of Survey – within Recommended Period? (BAM-C / TBDC)		Effort (Hours & No. People)		
			Yes (enter dates)	No (enter dates)			
		Diurnal bird/habitat surveys	8, 9, 10, 11 October 2024	n/a	8hrs, 2 persons	No	No
			18, 19 December 2024	n/a	4hrs, 2 persons	No	No
Little Eagle	<i>Hieraaetus morphnoides</i>	Diurnal bird/habitat surveys	8, 9, 10, 11 October 2024	n/a	8hrs, 2 persons	No	No
		Nest survey	n/a	18, 19 December 2024	4hrs, 2 persons	No	No
Square-tailed Kite	<i>Lophoictinia isura</i>	Diurnal bird/habitat surveys	8, 9, 10, 11 October 2024	n/a	8hrs, 2 persons	No	No
			18, 19 December 2024	n/a	4hrs, 2 persons	No	No
Southern Myotis	<i>Myotis macropus</i>	Harp trapping, bat detectors	17, 18, 19, 20, 21 March 2025	n/a	16 trap nights	No	No
Barking Owl	<i>Ninox connivens</i>	Call playback	2, 3, 4, 29, 30, 31 July 2024	n/a	9hrs, 2 persons	No (in areas surveyed)/ Assumed Present (water pipeline)	Yes - partially
Squirrel Glider	<i>Petaurus norfolcensis</i>	Call playback	2, 3, 4, 29, 30, 31 July 2024	n/a	9hrs, 2 persons	Yes	Yes



Common Name	Scientific Name	Threatened Fauna Species Surveys				Present (Yes / No / Assumed Present)	Further assessment required (BAM Subsections 5.2.5 and 5.2.6) (Yes / No)
		Survey Method (e.g. Harp Trap, Elliott Trap, Bioacoustics, etc.)	Timing of Survey – within Recommended Period? (BAM-C / TBDC)		Effort (Hours & No. People)		
			Yes (enter dates)	No (enter dates)			
		Spotlighting	29, 30 July 2024	n/a	4hrs, 2 persons	Yes	Yes
		Spotlighting	8, 9 October 2024	n/a	4hrs, 2 persons	Yes	Yes
		Spotlighting	17, 18 December 2024	n/a	4hrs, 2 persons	Yes	Yes
Koala	<i>Phascolarctos cinereus</i>	Call playback	2, 3, 4, 29, 30, 31 July 2024	n/a	9hrs, 2 persons	No	No
		Koala SAT survey	2, 3, 4 July 2024	n/a	9hrs, 2 persons	No	No
		Spotlighting	29, 30 July 2024	n/a	4hrs, 2 persons	No	No
			8, 9 October 2024	n/a	4hrs, 2 persons	No	No
			17, 18 December 2024	n/a	4hrs, 2 persons	No	No
Superb Parrot	<i>Polytelis swainsonii</i>	Diurnal bird/habitat surveys	8, 9, 10, 11 October 2024	n/a	8hrs, 2 persons	No (in areas surveyed)/ Assumed Present (water pipeline)	Yes - partially



Common Name	Scientific Name	Threatened Fauna Species Surveys				Present (Yes / No / Assumed Present)	Further assessment required (BAM Subsections 5.2.5 and 5.2.6) (Yes / No)
		Survey Method (e.g. Harp Trap, Elliott Trap, Bioacoustics, etc.)	Timing of Survey – within Recommended Period? (BAM-C / TBDC)		Effort (Hours & No. People)		
			Yes (enter dates)	No (enter dates)			
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	Spotlighting	8, 9 October 2024	n/a	4hrs, 2 persons	No	No
		Diurnal bird/habitat surveys	8, 9, 10, 11 October 2024	n/a	8hrs, 2 persons	No	No
			17, 18 December 2024	n/a	4hrs, 2 persons	No	No
Masked Owl	<i>Tyto novaehollandiae</i>	Call playback	2, 3, 4, 29, 30, 31 July 2024	n/a	9hrs, 2 persons	No (in areas surveyed)/ Assumed Present (water pipeline)	Yes - partially



Threatened fauna surveys (as detailed in Section 2.4) were undertaken with reference to the survey notes within the TBDC, as well as the following survey guidelines:

- Koala BAM survey guide (DPE 2022b).
- 'Species credit' threatened bats and their habitats NSW survey guide for the Biodiversity Assessment Method (DPIE 2021a).
- Survey guidelines for Australia's threatened birds (DEWHA 2010).

Survey requirements and habitat considerations are summarised below:

- Bush Stone-curlew *Burhinus grallarius*: May be surveyed all year. It may be easier to detect during breeding season, possibly calls all year, but it is unclear how well it responds to playback. It cannot be predicted to occur at a site based on vegetation surrogates but can be detected reliably from survey. Call playback surveys diurnal habitat searches have been completed and the species has not been recorded.
- Gang-gang Cockatoo *Callocephalon fimbriatum*: Survey months are October to January. Surveys involve looking for signs of breeding, identifying potential nest trees (at least 3m above the ground and with hollow diameter of 7cm or larger), then monitoring potential nest trees during breeding season (October to January). Several suitably sized hollows have been identified during the surveys, but there were no signs of breeding in the October 2024 or December 2024 surveys. There are also no records of the Gang-gang Cockatoo within the BioNet 10km search.
- Eastern Pygmy-possum *Cercartetus nanus*: Survey months are October to March. There are no survey guidelines for this species. Survey techniques may include spotlighting, passive traps, infrared cameras, pitfalls, Elliot trapping. The TBDC notes that the species is very difficult to detect, especially via spotlighting. The species was not recorded via spotlight and IR camera trap surveys. It typically prefers areas with dense understorey and there are no records of the within the BioNet 10km therefore it has been determined that the species does not occur on the subject land.
- White-bellied Sea-Eagle *Haliaeetus leucogaster*: Survey months are July to December. Surveys involve searches for breeding habitat (nests) and surveys to confirmation presence. Breeding habitat is live large old trees within 1km of a rivers, lakes, large dams or creeks, wetlands and coastlines AND the presence of a large stick nest within tree canopy; or an adult with nest material; or adults observed duetting within breeding period. Diurnal bird/habitat surveys in October and December 2024 showed no signs of the species or suitable large nests.
- Little Eagle *Hieraaetus morphnoides*: Survey months are August to October. Surveys involve searches for breeding habitat (nests) and surveys to confirm presence. Breeding habitat is live (occasionally dead) large old trees within vegetation AND the presence of a male and female; or any adult with nesting material; or an individual on a large stick nest in the top half of the tree canopy; or pairs displaying (soaring, diving, engaging in chases, or a male observed calling in flight with a female begging from tree). Paddock trees can also be important for nesting. Where a breeding site is identified the species buffer polygon is a circular polygon with a 300m radius around the nest tree. The purpose of the buffer is to minimise disturbance/avoid clearing within the area essential for breeding. The Little Eagle was recorded flying over the subject land by RPS in 2023. The October 2024 surveys included four days of diurnal bird/habitat searches and the species was not recorded within the subject land. No nests were recorded in the water pipeline during the December 2024 surveys, meaning targeted surveys are not necessary for this area.



- Square-tailed Kite *Lophoictinia isura*: Survey months are September to January. It is difficult to identify a Kite nest (there are lots of comparable sized stick nests built by other species). Kites need be in attendance to confirm breeding sites. Breeding habitat is live large old trees within suitable vegetation AND the presence of a male and female; or female with nesting material; or an individual on a large stick nest in the top half of the tree canopy. Diurnal bird/habitat searches in October and December 2024 did not detect the Square-tailed Kite. There are also no records of the Square-tailed Kite within the BioNet 10km search and therefore it is unlikely that this species occurs at the subject land or surrounding areas.
- Southern Myotis *Myotis macropus*: Survey months are October to March. Potential habitat is the range of PCTs associated with the species (as per the TBDC) within 200 meters of any medium to large permanent creeks, rivers, lakes or other waterways (i.e. with pools/ stretches 3m or wider) (Anderson et al. 2005). Traps or nets should be set beside or preferably over pools of water along creeks or rivers, particularly in flat or areas of low relief if present. Traps can be set under bridges or culverts, or overhanging branches. The survey may use only mist nets, or a combination of harp traps and mist nets. Roost searches involve: any bridges, tunnels, culverts or other structures identified as potential breeding habitat should be searched for bats or signs of bats (guano etc.). A torch should be used, and attention paid to inspecting cracks or seams in the roof. A handheld bat detector can alert the searcher to ultrasonic calls. If bats or signs of bats are observed, the bats may need to be captured to identify species and breeding status using traps, nets or other methods. Survey effort involves 16 trap nights over a minimum of four nights for harp trap or mist net and 30 minutes search per structure for roost searches. Targeted bat surveys (harp traps and bat detectors) were undertaken in March 2025 and the species was not recorded within the subject land. There are currently no records of the species within the 10km BioNet Atlas search and it is unlikely that the species occurs within the subject land.
- Barking Owl *Ninox connivens*: Survey months are January to August. Surveys involve acoustic recording (however this technique is in infancy and requires site specific survey design consultation with NSW DCCEEW) OR six nights of call playback using one station per 100ha. Paddock trees may be important for this species. Call playback surveys of the subject land were completed in July 2024, and the species was not recorded. The call playback surveys did not cover the water pipeline easement, and this species is assumed present for areas that fall outside of the 100ha survey area.
- Squirrel Glider *Petaurus norfolcensis*: Survey year-round but sites with bipinnate acacia, autumn winter flowering trees and shrubs such as *Eucalyptus robusta* and *Banksia* sp. (*B. integrifolia* etc.) should be subject to a more retracted survey period of between March-August. Relies on large old trees with hollows for breeding and nesting. These trees are also critical for movement and typically need to be closely connected (i.e. no more than 50m apart). No specific survey techniques provided for this species. The Squirrel Glider was recorded within the subject land opportunistically during call playback surveys and during targeted spotlighting surveys in July, October and December 2024.
- Koala *Phascolarctos cinereus*: Species may be surveyed all year-round. Surveys must be in accordance with the Koala Biodiversity Assessment Method Survey Guide. These are: 1. Spot Assessment Technique (SAT) 2. Conservation detection dogs 3. Spotlighting 4. Passive acoustic 5. Drones. A combination of SAT survey and



spotlighting is required (or a combination of other techniques above). SAT surveys require: 3 SAT sites per <5ha; grid with 150m spacing over habitat; identify centre tree, move outward and identify 29 nearest trees, undertake radial search for koala scats within 1m of tree base, 2 mins per tree. Spotlighting involves two nights spotlighting with 100m spaced transects at 200m length per 5ha. Koala SAT surveys and spotlighting were undertaken in July 2024 and additional spotlighting was carried out in October and December 2024. To date there have been no Koala's or evidence of Koala presence recorded within the subject land. The water pipeline is not considered to be suitable habitat for the Koala.

- Superb Parrot *Polytelis swainsonii*: Survey months are September to November. The TBDC states that NSW DCCEEW is developing survey guidance for threatened bird species. In the interim, assessors must undertake a species survey using best practice methods that can be replicated for repeat surveys. As such, the October 2024 surveys involved transects and area searches over four days in accordance with the *Survey guidelines for Australia's threatened birds* (DEWHA 2010). The Superb Parrot was not recorded on the subject land during targeted surveys. The Superb Parrot has been assumed present for the water pipeline areas.
- Grey-headed Flying-fox *Pteropus poliocephalus*: Survey months are October to December. Surveys involve searches for camps and roosting habitats, followed by surveys to identify breeding females and map the camp. No Grey-headed Flying-fox individuals or breeding camps were identified during the surveys in October and December 2024.
- Masked Owl *Tyto novaehollandiae*: Survey months are January to August. Surveys involve acoustic recording (however this technique is in infancy and requires site specific survey design consultation with NSW DCCEEW) OR six nights of call playback using one station per 100ha. Paddock trees may be important for this species. There are no records of the Masked Owl within the BioNet 10km search and it is unlikely that the species occurs on the subject land. Call playback surveys of the subject land were completed in July 2024, and the species was not recorded. The call playback surveys did not cover the water pipeline easement, and this species is assumed present for areas that fall outside of the 100ha survey area.

5.4 Expert Reports

No expert reports have been used to determine species presence/absence.

5.5 More Appropriate Local Data (Where Relevant)

More appropriate local data has not been adopted for this assessment.

5.6 Species Polygons

Species polygons are indicated in Figure 11. Species polygons are based on the methods identified in the TBDC. Results are summarised in Table 19 and Table 20.



Table 19: Results for Present Species

Common Name	Scientific Name	Biodiversity Risk Weighting (BAM-C & TBDC) (Very High 3, High 2, Moderate 1.5, Low 1)	SAIL entity (BAM-C & TBDC) (Yes/No)	Habitat Constraints / Microhabitats Present on the Subject Land / Vegetation Zone	Abundance – No. Individual Plants Present on Subject Land (Flora with Unit of Measure of Count)	Extent (ha) of Suitable Habitat Present on Site (Impact Areas - Flora or Fauna with Unit of Measure of Area)	TBDC Info (e.g. Buffers, General Comments, Where Relevant)	Habitat Condition (VI score for each Vegetation Zone in the Polygon – Area Species Only)
Barking Owl	<i>Ninox connivens</i>	High (2)	No	Trees with hollow >20cm diameter and >4m above the ground	n/a	0.06	Trees with hollow >20cm diameter and >4m above the ground	277_mod is 58.6
Squirrel Glider	<i>Petaurus norfolcensis</i>	High (2)	No	PCT 277 with hollow-bearing trees	n/a	2.88	n/a	277_mod is 58.6, 277_low is 30.5
Superb Parrot	<i>Polytelis swainsonii</i>	High (2)	No	PCT 277 trees with hollows >5cm diameter and >4m above ground or trees with a DBH of >30cm	n/a	0.06	Circular buffer with a 100m radius around the nest tree. We have assumed all areas would be within appropriate buffer areas.	277_mod is 58.6
Small Scurf-pea	<i>Cullen parvum</i>	High (2)	No	PCT 277	n/a	0.46	n/a	277_mod is 58.6, 277_low is 30.5



Common Name	Scientific Name	Biodiversity Risk Weighting (BAM-C & TBDC) (Very High 3, High 2, Moderate 1.5, Low 1)	SAIL entity (BAM-C & TBDC) (Yes/No)	Habitat Constraints / Microhabitats Present on the Subject Land / Vegetation Zone	Abundance – No. Individual Plants Present on Subject Land (Flora with Unit of Measure of Count)	Extent (ha) of Suitable Habitat Present on Site (Impact Areas - Flora or Fauna with Unit of Measure of Area)	TBDC Info (e.g. Buffers, General Comments, Where Relevant)	Habitat Condition (VI score for each Vegetation Zone in the Polygon – Area Species Only)
Small Purple-pea	<i>Swainsona recta</i>	Moderate (1.5)	No	PCT 277	n/a	0.06	n/a	277_mod is 58.6
Silky Swainson-pea	<i>Swainsona sericea</i>	High (2)	No	PCT 277	n/a	0.06	n/a	277_mod is 58.6
Masked Owl	<i>Tyto novaehollandiae</i>	High (2)	No	Trees with hollow >20cm diameter and >4m above the ground	n/a	0.06	Trees with hollow >20cm diameter and >4m above the ground	277_mod is 58.6



Table 20: Results for EPBC Act Listed Species Present

Common Name	Scientific Name	Abundance – No. Individual Plants Present on Subject Land (Flora with Unit of Measure as Count)	Extent (ha) of Suitable Habitat Present on Site (Flora or Fauna with Unit of Measure as Area)
Small Purple-pea	<i>Swainsona recta</i>	n/a	0.06
Superb Parrot	<i>Polytelis swainsonii</i>	n/a	0.06



6.0 Habitat Suitability for Aquatic Threatened Species

6.1 Listed Aquatic Threatened Species

A review of the BioNet Atlas database, NSW DPI Threatened species list and the Commonwealth DCCEE Protected Matters Search Tool (PMST) revealed three threatened aquatic species with potential to occur within the assessment area. Each of these are discussed further below. Migratory aquatic species listed under the EPBC Act are discussed in Section 6.2.1.

6.1.1 Flathead Galaxias

Habitat

The species is generally found mid-water in still/slow moving waters of small watercourses, lakes, lagoons, billabongs and backwaters with a substratum of coarse sand or mud and aquatic vegetation. It forages for aquatic insects and crustaceans and spawns in spring when water temperatures are above 10.5°C.

Listed Status

Flathead Galaxias, listed as critically endangered under the FM Act and the EPBC Act, are endemic to the southern tributaries of the Murray-Darling River system and their tributaries and the upper Macquarie River catchment (DPI 2016). They used to be intermittently widespread and locally abundant. However, this species has experienced declines in distribution and abundance throughout NSW and is thought to be locally extinct in the lower Murray, Murrumbidgee, Macquarie and Lachlan Rivers (DPI 2016).

Distribution and Likelihood of Occurrence

Indicative distributions of threatened freshwater fish in mapped by DPI (2016) indicate that Flathead Galaxias have the potential to occur within Kilnacraft Creek near the subject land. According to occurrence records contained in the Atlas of Living Australia (ALA) database (CSIRO 2024), no records of Flathead Galaxias have been caught in Kilnacraft Creek or within the Study Locality, with only a number of records pre-dating 2003 occurring within the Murray River near Albury.

Based on the information presented within the ALA database and the aquatic habitat assessment undertaken for the Project, it is considered that Flathead Galaxias are highly unlikely to be found within the assessment area.

6.1.2 Southern Pygmy Perch

Habitat

Southern Pygmy Perch are found in well-vegetated, slow-flowing or still waters including streams, lakes, billabongs and other types of wetlands. Southern Pygmy Perch reach sexual maturity in their first year, when males are about 30 mm and females about 33mm long. Each female can produce up 4000 small, transparent, non-adhesive eggs which are scattered over vegetation or rocks on the bottom. They prefer covered habitats and are not usually found in open water.



Listed Status

The Southern Pygmy Perch is a small fish that was once widely distributed throughout the Murrumbidgee and Murray River systems. In NSW, the species has suffered dramatic declines in recent decades and as a result it is listed as an endangered species under the FM Act. There have been large-scale reductions in their range since European settlement, particularly inland.

Distribution and Likelihood of Occurrence

Southern Pygmy Perch were formerly found in the Murray and lower Murrumbidgee River systems. Populations of Southern Pygmy Perch have recently been discovered in tributaries of the upper Lachlan and upper Murray River catchments. Indicative distributions of mapped by DPI (2016) indicate that Southern Pygmy Perch have the potential to occur within Kilnacraft Creek near the subject land. According to occurrence records contained in the ALA database, no records of Southern Pygmy Perch have been caught in Kilnacraft Creek or within the assessment area, with only a number of older records occurring within smaller tributaries of the Murray River near Albury.

Based on the information presented within the ALA database and the aquatic habitat assessment undertaken for the Project, it is considered that Southern Pygmy Perch are highly unlikely to be found within the assessment area.

6.1.3 Macquarie Perch

Habitat

Macquarie Perch prefer clear water and deep, rocky holes with extensive cover in the form of aquatic vegetation, large boulders, debris and overhanging banks. They spawn in spring or summer and lay their eggs in shallow, fast-flowing water over stones and gravel in shallow upland watercourses or flowing parts of rivers.

Listed Status

Macquarie Perch are listed as endangered under the FM Act and the EPBC Act.

Distribution and Likelihood of Occurrence

Macquarie Perch are found in the Murray-Darling Basin (particularly upstream reaches) and parts of south-eastern coastal NSW, including the Hawkesbury and Shoalhaven catchments (DPI 2016), where they are found in rivers and lakes, but particularly the upper reaches of rivers and their tributaries. Macquarie Perch have been stocked or translocated into a number of reservoirs including Talbingo, Cataract, Khancoban and Coliban reservoirs, and translocated into watercourses including the Yarra, Mongarlowe and Wannon rivers, and Sevens Creek.

The indicative distribution of Macquarie Perch as mapped by DPI (2016) does not include Kilnacraft Creek or anywhere within the assessment area. The inclusion of Macquarie Perch within the results of the PMST most likely reflect historical records and/or the presence of suitable habitat in the Murray Darling Basin. ALA records indicate that no occurrences have been recorded in Kilnacraft Creek and the assessment area, with only a small number of historical records of Macquarie Perch within the Murray River and some of its smaller tributaries near Albury.



Based on the information presented within the ALA database, indicative DPI distributions and the aquatic habitat assessment undertaken for the Project, it is considered that Macquarie Perch are highly unlikely to be found within the assessment area.

6.2 Matters of National Environmental Significance

There are eight types of Matters of Environmental Significance (MNES) listed under the EPBC Act of which actions that have, or are likely to have, a significant impact on the environment, would require approval from the Australian Government Minister (Commonwealth Minister). Of the eight types of MNES, four are potentially relevant to this assessment:

- Wetlands of International Importance.
- Listed threatened species and ecological communities.
- Listed Threatened species.
- Listed Migratory Species.

6.2.1 Migratory Species

Migratory species are those animals that migrate to Australia and its external territories or pass through or over Australian waters during their annual migrations. Listed migratory species may include any native species identified in an international agreement approved by the Minister. All listed migratory species are MNES under the EPBC Act. An action will require approval if the action has, will have, or is likely to have, a significant impact on a listed migratory species.

The PMST indicated no migratory aquatic species recorded or predicted to occur in the assessment area or study locality.



7.0 Identifying Prescribed Impacts

Prescribed impact features are identified in Table 21 and are mapped on the Site Map (Figure 1) and Location Map (Figure 2).

Table 21: Prescribed impacts identified

Feature	Present (Yes/No)	Description of Feature Characteristics and Location	Threatened Entities that Use, are Likely to Use, or are Part of the Habitat Feature (Where Relevant, include Threatened Species or Fauna that are Part of a TEC or EC, that are at Risk of Vehicle Strike)
Karst, caves, crevices, cliffs, rocks or other geological features of significance	No	n/a	n/a
Human-made structures	No	n/a	n/a
Non-native vegetation	No	n/a	n/a
Habitat connectivity	Yes	The Squirrel Glider has been recorded in the northeastern corner of the sub-station site and along Ortlipp Road to the southwest. As such it is likely that the species dens and forages in these areas and the proposed powerline represents a 60m wide barrier to existing movements. It is noted that Squirrel Gliders may glide up to 100m in distance and the existing feeder that runs in a northwest direction from the substation represents a similar barrier and based on the location of recent records does not appear to significantly impact Squirrel Glider movements. Squirrel Glider linkages are likely to exist throughout the locality where breaks in the native vegetation and canopy trees are under 100m.	Squirrel Glider
Waterbodies, water quality and hydrological processes	Yes	Kilnacraft Creek	Ecosystem credit species which could forage across waterbodies (such as bats) or drink from waterbodies (i.e. most ecosystem species)



Feature	Present (Yes/No)	Description of Feature Characteristics and Location	Threatened Entities that Use, are Likely to Use, or are Part of the Habitat Feature (Where Relevant, include Threatened Species or Fauna that are Part of a TEC or EC, that are at Risk of Vehicle Strike)
Wind turbine strikes (wind farm development only)	No	n/a	n/a
Vehicle strikes	No	n/a	n/a

The list of threatened entities was generated based on site survey, habitat assessment and consideration of the habitats described for each species in the TBDC.



STAGE 2: IMPACT ASSESSMENT (BIODIVERSITY VALUES AND PRESCRIBED IMPACTS)

8.0 Avoid and Minimise Impacts

8.1 Avoid and Minimise Direct and Indirect Impacts

8.1.1 Project Location

The proposal is for a BESS facility which is to be constructed on land which is suitably located beside an existing substation and solar farm developments.

Alternative sites were not considered sufficient for the purposes of the Project due to unsuitable characteristics including site topography and land use, proximity to an existing substation, landowner discussions for leasing, permissibility and distance from sensitive receivers.

Most of the development footprint is positioned on previously cleared land and areas of TEC and threatened species habitats have been mostly avoided in the design of the layout. The water pipeline will be under bored, and its construction will not require native vegetation clearing, except for a select few locations where the boring will take place (inlet and outlet pits). The laydown areas are 20m x 10m, and these are positioned to avoid native vegetation and habitats where possible.

8.1.2 Project Design

The project has been designed to maximise use of already cleared land. The BESS facility footprint has been positioned within cleared paddock areas; however, ancillary features, such as the powerlines and access driveways will require a small amount of vegetation clearing and maintenance.

A powerline will be required to pass through an area of TEC to connect the facility to the substation. This will require clearing of three pads to install power poles, as well as vegetation tree and shrub clearing and maintenance within a 60m wide area of TEC and Squirrel Glider habitat.

Alternative footprints for the powerline easement that were considered during the design phase are shown in Figure 12. The final footprint required 60m width of clearing in accordance with TransGrid requirements, compared to the 40m width that was initially considered. However, the final design of the powerline easement has been located to avoid better condition native vegetation and hollow-bearing trees along Ortlipp Road.

8.2 Avoid and Minimise Prescribed Impacts

8.2.1 Project Location

Prescribed impact features identified in Section 6.0 include habitat connectivity and waterbodies, water quality and hydrological processes. The 60m width of clearing required to facilitate the proposed powerline easement is a suitable distance for the Squirrel Glider to cross, therefore it is not considered necessary to re-locate the project site based on impacts to Squirrel Glider movements. The development footprint has been positioned to avoid impacts to creeks and riparian buffers; therefore, it is not necessary to re-locate the project site based on potential impacts to creeks.



8.2.2 Project Design

In relation to habitat connectivity the proposal is likely to impact Squirrel Glider habitat connectivity to a degree. Mitigation measures (such as pre-clearance surveys, clearing protocols) are proposed to minimise impacts to fauna during site clearing and development activities. The proposed development also occurs upstream of creek habitats which are likely to be sensitive to hydrological changes. The development footprint has been positioned to avoid the riparian zones of watercourses. Mitigation measures are proposed to reduce the likelihood of impacts to hydrology (Water Technology 2025).

8.3 Other Measures Considered

No other measures were considered in relation to avoiding and minimising project impacts.

8.4 Summary of Measures to Avoid and Minimise Impacts

Table 22 documents the measures to avoid and minimise direct, indirect and prescribed impacts.

Table 22: Avoidance and Minimisation Measures for Direct, Indirect and Prescribed Impacts

Action	Outcome (Describe the outcome of implementing the measure, with reference to specific entities identified in Sections 4 and 5)	Timing	Responsibility
Locate BESS facility in areas where biodiversity values are limited	Minimise direct impacts on TEC/EC/Squirrel Glider and potential threatened species habitats	Design/DA	Proponent, designers
Limit clearing associated with powerline easement and APZs – including avoiding better condition native vegetation and hollow-bearing trees and retaining and protecting native ground layers	Minimise direct impacts on TEC/EC/Squirrel Glider and potential threatened species habitats	Design/DA	Proponent, designers
Limit clearing along water pipeline by adopting under boring rather than open trenching methods and locating indicative works areas to avoid native vegetation and hollow-bearing trees	Minimise direct impacts on TEC/EC/Squirrel Glider and potential threatened species habitats	Design/DA	Proponent, designers
Use of sediment barriers and ponds as recommended by engineer	Minimise indirect impacts on riparian corridor	Implemented during Construction	Proponent, engineers
Flora and fauna management measures outlined in this BDAR	Minimise impacts of vegetation clearing activities and BESS operation	Implemented during Construction	Proponent, construction team, project ecologist



9.0 Impact Assessment

9.1 Direct Impacts

9.1.1 Residual Direct Impacts

Impacts likely to occur on the subject land after steps are taken to avoid and minimise impacts are identified in Table 23 and Figure 12.

Table 23: Summary of Residual Direct Impacts

Direct impact (Describe the impact on PCT/TEC/EC or threatened species and their habitat)	BC Act status	EPBC Act status	SAIL entity	Project phase/timing of impact (e.g. construction, operation, rehabilitation)	Extent (ha, number of individuals)
Clearing of PCT 277 Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	Critically endangered	n/a	Yes	Construction	2.88
Clearing of Squirrel Glider habitat	Vulnerable	n/a	No	Construction	2.99
Clearing of potential habitat for Barking Owl	Vulnerable	n/a	No	Construction	0.06
Clearing of potential habitat for Superb Parrot	Vulnerable	Vulnerable	No	Construction	0.06
Clearing of potential habitat for Masked Owl	Vulnerable	n/a	No	Construction	0.06
Clearing of potential habitat for Small Scurf Pea	Vulnerable	n/a	No	Construction	2.82
Clearing of potential habitat for Small Purple-pea	Endangered	Endangered	No	Construction	0.06
Clearing of potential habitat for Silky Swainson-pea	Vulnerable	n/a	No	Construction	0.06

9.1.2 Change in Vegetation Integrity Score

Table 24 documents the change in vegetation integrity for residual direct impacts on native vegetation, TECs, threatened species and their habitat that were identified on the subject land.



Table 24: Impacts to Vegetation Integrity

Vegetation zone	PCT ID	Management zone	Area (ha)	Before Development				After Development				Chang in VI score
				Composition	Structure	Function	VI score	Composition	Structure	Function	VI score	
277_Mod	277	Clear all vegetation	0.29	46.7	89.4	48.3	58.6	0	0	0	0	-58.6
277_Mod	277	Clear trees and shrubs, retain native ground cover	1.46	46.7	89.4	48.3	58.6	43.8	57.4	13.8	32.6	-31.4
277_Low	277	Clear all vegetation	0.24	10.7	62.6	42.5	30.5	0	0	0	0	-30.5
277_Low	277	Clear trees and shrubs, retain native ground cover	0.89	10.7	62.6	42.5	30.5	7.5	29.7	13.7	14.5	-19.1



Parts of the operation footprint (i.e. powerline easement and APZs) will retain native ground cover and therefore will have a vegetation integrity score above zero after development. Management actions to maintain the integrity of the remaining vegetation and prevent further decline include clearing protocols, limiting access to these areas during construction and rehabilitation of any areas of inadvertent ground layer disturbance using native species typical of PCT 277 at the site.

9.2 Indirect Impacts

Table 25 documents the residual indirect impacts (likely to occur on native vegetation, threatened entities and their habitat beyond the development footprint). Indirect impact areas are identified on Figure 12 where relevant.



Table 25: Summary of Residual Indirect Impacts

Indirect impact (Describe impact, e.g. transport of weeds and pathogens from the site to adjacent vegetation)	Impacted entities (PCT/threatened entity and their habitats and where relevant, EPBC Act listing)	Extent (ha or zone reference)	Frequency	Duration (long-term/ short-term/ medium-term)	Project phase/ timing of impact (e.g. construction, operation, rehabilitation)	Likelihood and consequences
2a. <i>Inadvertent impacts on adjacent habitat or vegetation</i>	PCT 277 which represents Box Gum Woodland TEC, Squirrel Glider habitat and potential habitat for species assumed present	13.5	Daily for the duration of construction (10 months). Sporadically during operation.	Short-term and long-term	Construction and operation	Low likelihood. Reduced condition of vegetation and habitats.
2b. <i>Reduced viability of adjacent habitat due to edge effects</i>	PCT 277 which represents Box Gum Woodland TEC, Squirrel Glider habitat and potential habitat for species assumed present	13.5	Daily for the duration of construction (10 months). Sporadically during operation.	Short-term and long-term	Construction and operation	Low likelihood. Reduced condition of vegetation and habitats.
2c. <i>Reduced viability of adjacent habitat due to noise, dust or light spill</i>	PCT 277 which represents Box Gum Woodland TEC, Squirrel Glider habitat and potential habitat for species assumed present	13.5	Daily for the duration of construction (10 months). Sporadically during operation.	Short term and long-term	Construction and operation	Moderate likelihood. Reduced suitability of directly adjoining habitats for foraging and breeding activities.
2d. <i>Transportation of weeds and pathogens from the site to adjacent vegetation</i>	PCT 277 which represents Box Gum Woodland TEC, Squirrel Glider habitat and potential habitat for species assumed present	13.5	Monthly	Long-term	Construction and operation	Moderate likelihood. Reduced condition of vegetation and habitats.
2e. <i>Increased risk of starvation or exposure, and loss of shade or shelter</i>	Squirrel Glider habitat and potential habitat for threatened fauna species assumed present	13.5	One off	Short term	Construction	Low likelihood. Reduced suitability of directly adjoining habitats for foraging activities.



Indirect impact (Describe impact, e.g. transport of weeds and pathogens from the site to adjacent vegetation)	Impacted entities (PCT/threatened entity and their habitats and where relevant, EPBC Act listing)	Extent (ha or zone reference)	Frequency	Duration (long-term/ short-term/ medium-term)	Project phase/ timing of impact (e.g. construction, operation, rehabilitation)	Likelihood and consequences
<i>2f. Loss of breeding habitat</i>	Squirrel Glider and potential habitat for threatened fauna species assumed present	13.5	One off	Short term	Construction	Low likelihood. Reduced suitability of directly adjoining habitats for breeding activities.
<i>2g. Trampling of threatened flora species</i>	n/a	n/a	n/a	n/a	n/a	n/a
<i>2h. Inhibition of nitrogen fixation and increased soil salinity</i>	n/a	n/a	n/a	n/a	n/a	n/a
<i>2i. Fertiliser drift</i>	n/a	n/a	n/a	n/a	n/a	n/a
<i>2j. Rubbish dumping</i>	PCT 277 which represents Box Gum Woodland TEC, Squirrel Glider habitat and potential habitat for species assumed present	13.5	Potentially daily or weekly	Long term	Construction and operation	Moderate likelihood. Reduced vegetation and habitat condition.
<i>2k. Wood collection</i>	PCT 277 which represents Box Gum Woodland TEC, Squirrel Glider habitat and potential habitat for species assumed present	13.5	Potentially every few months or years	Long term	Construction and operation	Low likelihood. Reduced condition of vegetation and habitats.
<i>2l. Removal and disturbance of rocks, including bush rock</i>	n/a	n/a	n/a	n/a	n/a	n/a



Indirect impact (Describe impact, e.g. transport of weeds and pathogens from the site to adjacent vegetation)	Impacted entities (PCT/threatened entity and their habitats and where relevant, EPBC Act listing)	Extent (ha or zone reference)	Frequency	Duration (long-term/ short-term/ medium-term)	Project phase/ timing of impact (e.g. construction, operation, rehabilitation)	Likelihood and consequences
<i>2m. Increase in predators</i>	Squirrel Glider habitat and potential habitat for species assumed present	13.5	Daily	Long-term	Operation	Low likelihood. Loss of breeding habitat or deaths.
<i>2n. Increase in pest animal populations</i>	n/a	n/a	n/a	n/a	n/a	n/a
<i>2o. Changed fire regimes</i>	PCT 277 which represents Box Gum Woodland TEC, Squirrel Glider habitat and potential habitat for species assumed present	13.5	Fires might occur every 5-10 years	Long term	Operation	Moderate likelihood. Reduced extent and condition of vegetation and habitats.
<i>2p. Disturbance to specialist breeding and foraging habitat (e.g. beach nesting for shorebirds).</i>	Squirrel Glider habitat and potential habitat for fauna species assumed present	13.5	Daily	Long-term	Operation	Low likelihood. Reduced suitability of directly adjoining habitats for foraging activities.



9.3 Prescribed Impacts

9.3.1 Habitat Connectivity

- Nature: Construction of the powerline easement will interrupt habitat connectivity for the Squirrel Glider, although following construction the species is likely to be able to glide between the vegetation remaining on either side of the powerline.
- Extent: The area of reduced habitat connectivity is 60m by 200m and is shown in Figure 12 (location where proposed powerline easement impacts PCT 277).
- Duration: Short term during construction and long-term during operation.
- Consequences: Short term disruption of habitat connectivity for the Squirrel Glider, which could result in reduced foraging and breeding successes. Mitigation measures are required.

9.3.2 Waterbodies, Water Quality and Hydrological Processes

- Nature: Impacts to water bodies, water quality and hydrological processes could affect the condition of receiving waters, as well as watering habitat for threatened species of fauna. The risk of groundwater contamination due to the project is assessed as negligible based on “*lack of stored chemicals and oils, depth to water and layered clay lithology in the region*” (Water Technology 2025). Risk of erosion is low (Water Technology 2025).
- Extent: The extent of waterbodies is shown in Figure 1.
- Duration: Short term during construction and long-term during operation.
- Consequences: Impacts on water bodies, water quality and hydrological processes could lead to erosion, sedimentation, pollution, increased phosphorous in soils, weed invasion and changes to native species composition. Mitigation measures are proposed.

9.4 Aquatic Impacts

Impacts on aquatic habitats are likely to be spatially and temporally limited. Some vegetation clearing associated with the construction of the proposed overhead lines will be undertaken for the Project, however, this will occur outside of a 40m buffer from the top of the creek line. Impacts from this vegetation clearing are discussed further in Section 9.1.

The only construction activity that may impact the ecology of the creek would be the installation of a 100mm water pipe underneath Kilnacraft Creek near Ortlipp Road. At this stage, it is unclear on the exact methodology for the installation of the pipe underneath the creek. For the purposes of the impact assessment, it is assumed that as a minimum, the installation process will involve the use of a specialist drilling rig and the establishment of entry and exit points either side of the creek.

This report includes an assessment of the following potential impacts associated with the installation of the pipe:

- Riparian vegetation clearing.
- Sediment and erosion.
- Habitat fragmentation.



- Operation and maintenance of vehicles and other equipment and fuel spills.

9.4.1 Riparian Vegetation Clearing

Some vegetation in close proximity to the creek line may need to be cleared to facilitate drilling rigs and entry and exit points. Based on the site inspection of the creek, the only vegetation in the vicinity of the proposed works would be moderate low cover of invasive weeds and pasture grasses. The only function of this poor-quality vegetation would be to provide some minimal stability and creek bank protection.

Given the small area that would be required for entry/exit points and potential drilling pads, the poor quality of this vegetation and its very limited ecological value, along with the low quality of aquatic habitat of the creek within proximity of this proposed works, it is expected that the removal of this vegetation would not have any adverse impact on the creek ecology. In addition, if impacts were to occur to the aquatic ecology of the creek, these would be very minor and temporary in nature.

9.4.2 Sedimentation and Erosion

Following riparian vegetation clearing associated with the installation of the underground water pipe, there is a potential for soil erosion and sedimentation to occur within the creek during rainfall. This could lead to impacts on aquatic ecology (i.e. increased turbidity and nutrients) as well as alteration of aquatic habitats. Increased sediment and eroded material can smother retained riparian vegetation, cause dieback of grasses and shrubs and reduce regeneration of groundcover species.

The areas of vegetation that would be removed to facilitate drilling rigs and entry/exit points would be small and therefore this is unlikely to substantially alter sedimentation and erosion of the creek. Although it is unlikely that erosion and sedimentation would impact the aquatic ecology of the creek, clearing should be as minimal as possible and located as far from the creek as practically possible to mitigate any runoff off through cleared areas of vegetation that enter the creek. Silt fences could also be installed to minimise runoff where possible. A Construction Environmental Management Plan (CEMP) including a Sediment and Erosion Control Plan (SECP) should be prepared prior to construction. In addition, works should be undertaken during the drier months of the year to minimise the likelihood of run-off into Kilnacraft Creek.

9.4.3 Habitat Fragmentation

There is potential that drilling underneath the creek line may jeopardise the integrity of the creek bed and aid in the facilitation of loss of water from the creek. This would depend on the underlying bed makeup (soft soil vs bedrock) and the groundwater influence of the creek. Loss of water from the creek could lead to habitat fragmentation and loss of connectivity between upstream and downstream aquatic habitat. Habitat fragmentation is the process whereby habitat loss results in the division of large, continuous habitats into small, isolated habitat fragments (Ewers and Didham 2006Reque). The area between fragments is typically man-made and largely inhabitable by the species that previously existed in the area. The ecological impacts of habitat fragmentation include (Andrews 1990):

- Changes in the number of species in fragments.
- Changes to the composition of faunal assemblages.
- Changes to ecological processes in fragments such as food chains, fish passage, predator-prey interactions, and dispersal associations.



Best practice mitigation measures during drilling activities would be required to ensure that creek bed integrity is maintained during the pipe installation process. If these practices are adhered to, it is highly unlikely that loss of water from the creek, and thus habitat fragmentation would occur as a result of underground drilling activities.

9.4.4 Operation and Maintenance of Vehicles and Other Equipment

Fuel and oil required for the operation of vehicles and construction machinery during the installation of the water pipe presents a risk to aquatic ecology, if spills enter watercourses (via either surface or ground water). Both diesel and petrol are toxic to aquatic flora and fauna at relatively low concentrations.

Spilt diesel and petrol are both likely to form a layer on the surface of the water. The volatility of both diesel and petrol contributes to substantial evaporative loss, while neither product is likely to form water-in-oil emulsions due to their low viscosity. Spilt fuel is most likely to enter the creeks via an accidental spill on the roads near creek crossings, or when there are construction activities next to waterways.

The likelihood of spills and resulting impact on surrounding waterways is likely to be very low, due to lack of waterways in close proximity to the subject land and the high level of control demanded by Australian Standard 1940:2004 - *The storage and handling of flammable and combustible liquids*.

9.5 Cumulative Impacts

In relation to the impacts of the Proposal on biodiversity values, the SEARs require consideration of 'cumulative impacts'. The biodiversity values contained within the subject land are described and impacts and biodiversity offsets are calculated according to the Biodiversity Assessment Method (BAM). However, it is noted that there are not specific requirements for assessment of cumulative impacts under the BAM.

A consideration of the cumulative impacts of the Proposal on biodiversity values must take into account other similar projects (in terms of scale and nature). In this regard other development applications for solar farms within the locality that are either under assessment, approved or under construction are:

- Glenellen Solar Farm (Approved December 2023).
- Jindera Solar Farm (Approved December 2020).

The cumulative impact of these projects is not expected to result in a significant reduction in the extent of native vegetation or TECs within the region.

Construction/installation of the proposed pipeline route is not likely to substantially increase cumulative impacts in the area. The route selected for the proposed pipeline is predominately through pastures and only very small amounts of mostly exotic vegetation would be removed and these are along the edges of existing tracks and roads. Therefore, it is considered that the scale of the impact of the proposed water pipe is small and impacts associated with construction and operation are predicted to be very minor and manageable.

9.6 Mitigating Residual Impacts – Management Measures and Implementation

Proposed mitigation and management measures are identified in Table 26 and further details are provided in Table 27.



Table 26: Summary of Proposed Mitigation and Management Measures for Residual Impacts (direct, indirect and prescribed)

Mitigation measure (specify if none proposed and ensure an adaptive management strategy is developed and addressed in Section 1.1)	Method / technique	Timing	Frequency	Responsibility	Likely efficacy (incl. risk of failure)	MNES (when relevant)
Fauna displacement (BAM 8.4.1, 2)						
<i>2a. Timing works to avoid critical life cycle events, such as breeding or nursing</i>	Limit clearing and construction during Squirrel Glider breeding season	Site clearing and construction	One off	Proponent, construction team	High efficacy, low risk	n/a
<i>2b. Instigating clearing protocols, including pre-clearing surveys, daily surveys and staged clearing, and using a trained ecologist or licensed wildlife handler during clearing events</i>	Pre-clearance surveys and daily wildlife capture	Site clearing	Daily	Proponent, construction team, ecologist	High efficacy, low risk	Superb Parrot
<i>2c. Relocating habitat features (e.g. fallen timber, hollow logs) from the development or clearing site, to adjacent retained vegetation</i>	Relocate habitat features (especially hollows)	Site clearing	Daily	Proponent, construction team, ecologist	High efficacy, low risk	Superb Parrot
	Install nest boxes	Prior to tree felling	One off	Proponent, construction team, ecologist	High efficacy, low risk	Superb Parrot
Indirect impacts on native vegetation and habitats (BAM 8.4.1, 3)						
<i>3a. Adoption of clearing protocols that identify vegetation to be retained, prevent inadvertent damage and reduce soil disturbance; for example, a chainsaw is preferable to heavy machinery to remove native vegetation for partial clearing</i>	Staged clearing, limit use of heavy machinery	Site clearing and construction	One off	Proponent, construction team, ecologist	High efficacy, low risk	n/a



Mitigation measure (specify if none proposed and ensure an adaptive management strategy is developed and addressed in Section 1.1)	Method / technique	Timing	Frequency	Responsibility	Likely efficacy (incl. risk of failure)	MNES (when relevant)
<i>3b. Using noise barriers, or daily/seasonal timing of construction and operational activities to reduce impacts of noise</i>	Limit clearing and construction during Squirrel Glider breeding season and evening hours	Construction	One off	Proponent, construction team	High efficacy, low risk	n/a
<i>3c. Using light shields, or daily/seasonal timing of construction and operational activities to reduce impacts of light spill</i>	Use of light shields and limiting evening construction works. Follow recommendations of Light Spill Assessment (SLR 2025).	Construction and operation	Daily	Proponent, construction team, site management	High efficacy, low risk	n/a
<i>3d. Using adaptive dust management and monitoring programs to control air quality</i>	Dust management and monitoring surveys	Construction	One off	Proponent, construction team	High efficacy, low risk	n/a
<i>3e. Scheduling the timing of construction activities to avoid impacts (e.g. timing the construction for when migratory species are not at the site, or when particular species known to, or likely to use the habitat on the site, are not breeding or nesting)</i>	Limit clearing and construction during Squirrel Glider breeding season and evening hours	Construction	One off	Proponent, construction team	High efficacy, low risk	n/a
<i>3f. Erecting temporary fencing to protect significant environmental features, such as riparian zones</i>	Temporary fencing (non-barbed and with reflective markers) of construction area	Construction	One off	Proponent, construction team	High efficacy, low risk	n/a
<i>3g. Using hygiene protocols to prevent the spread of weeds or pathogens between infected and uninfected areas</i>	Machinery wash down prior to site entry	Construction	Daily	Proponent, construction team	High efficacy, low risk	n/a



Mitigation measure (specify if none proposed and ensure an adaptive management strategy is developed and addressed in Section 1.1)	Method / technique	Timing	Frequency	Responsibility	Likely efficacy (incl. risk of failure)	MNES (when relevant)
<i>3h. Training staff and conducting site briefings to communicate environmental features to be protected and measures to be implemented</i>	Environmental site briefings identifying areas of retained native vegetation	Construction	One off	Proponent, construction team	High efficacy, low risk	n/a
<i>3i. Preparing a vegetation management plan to regulate activity in vegetation and habitats adjacent to residential developments. The plan may include controls on pet ownership, rubbish disposal, wood collection, fire management, and disturbance to nests and other niche habitats</i>	n/a	n/a	n/a	n/a	n/a	n/a
<i>3j. Providing for the ecological restoration, rehabilitation and/or ongoing maintenance of retained native vegetation habitat on, or adjacent to, the development or clearing site</i>	Rehabilitation survey and implementation	Post-construction	One off	Proponent, construction team, ecologist	High efficacy, low risk	n/a
Prescribed Impacts (BAM 8.4.2, 1)						
<i>1a. Scheduling the timing of construction activities to avoid critical life cycle events (e.g. timing construction activities to avoid migratory species on site, or using the site)</i>	Limit clearing and construction during Squirrel Glider breeding season	Construction	One off	Proponent, construction team, ecologist	High efficacy, low risk	n/a
<i>1b. Instigating clearing protocols, including pre-clearing surveys, daily surveys and staged clearing, and using a trained ecologist or licensed wildlife handler during clearing, construction and</i>	n/a	n/a	n/a	n/a	n/a	n/a



Mitigation measure (specify if none proposed and ensure an adaptive management strategy is developed and addressed in Section 1.1)	Method / technique	Timing	Frequency	Responsibility	Likely efficacy (incl. risk of failure)	MNES (when relevant)
<i>maintenance activities for human-made structures and non-native vegetation</i>						
<i>1c. Retaining habitat features (e.g. fallen timber, hollow logs, rocks) within the subject land, or relocating them to adjacent retained remnant vegetation</i>	Relocate habitat features (especially hollows)	Site clearing	Daily	Proponent, construction team, ecologist	High efficacy, low risk	n/a
<i>1d. Installing artificial connectivity measures (e.g. glider poles, rope crossings, habitat bridges) to re-establish connections between habitat and favoured transport corridors</i>	Ensure Squirrel Glider habitat connectivity is safely maintained by using non-barbed fencing with reflective markers. Where connectivity <60m consider use of glider poles and rope crossings.	Operation	One off	Proponent, construction team, ecologist	High efficacy, low risk	n/a
<i>1e. Erecting temporary fencing to protect significant environmental features, such as karst, caves, rock outcrops and water bodies</i>	Temporary fencing (non-barbed and with reflective markers) of construction area	Construction	One off	Proponent, construction team	High efficacy, low risk	n/a
<i>1f. Replacing habitat provided by human-made structures and non-native vegetation with alternative habitat</i>	n/a	n/a	n/a	n/a	n/a	n/a
<i>1g. Using sediment barriers or sedimentation ponds to control the quality of water released from the site into the receiving environment</i>	Sediment barriers and ponds, where recommended by engineer	Construction and operation	One off	Proponent, construction team, engineer, site operator	High efficacy, low risk	n/a



Mitigation measure (specify if none proposed and ensure an adaptive management strategy is developed and addressed in Section 1.1)	Method / technique	Timing	Frequency	Responsibility	Likely efficacy (incl. risk of failure)	MNES (when relevant)
<i>1h. Training staff and conducting site briefings to communicate environmental features to be protected and the measures implemented to protect them</i>	Environmental site briefings identifying waterways	Construction	One off	Proponent, construction team	High efficacy, low risk	n/a
<i>1i. Ecological restoration, rehabilitation actions and/or maintenance of retained native vegetation on, or adjacent to, the subject land</i>	Rehabilitation survey and implementation	Post-construction	One off	Proponent, construction team, ecologist	High efficacy, low risk	n/a
<i>1j. Development control measures that regulate the types of activities that can occur in native vegetation and habitat adjacent to residential development, including prohibiting the collection of bush rocks</i>	n/a	n/a	n/a	n/a	n/a	n/a

Table 27: Mitigation and Management Measures - implementation

Measure/action	Monitoring and evaluation strategy (Data, frequency, timing and reporting)	Performance criteria (linked to monitoring and evaluation strategy)	Adaptive management threshold (trigger for adaptive management plan/actions)	Adaptive management response (when triggered)
Limit clearing and construction during Squirrel Glider breeding season (June to January)	Record timing of works in flora and fauna management report	Works take place from February to May, with timing of works recorded in report	Minor works are required in breeding season	Seek ecological advice on how to best manage works to reduce impacts on Squirrel Glider breeding (e.g. use hollow tree inspection camera to determine whether breeding is occurring, stagger work program, limit work to daylight hours)



Measure/action	Monitoring and evaluation strategy (Data, frequency, timing and reporting)	Performance criteria (linked to monitoring and evaluation strategy)	Adaptive management threshold (trigger for adaptive management plan/actions)	Adaptive management response (when triggered)
Pre-clearance surveys and daily wildlife capture	Survey once prior to commencement of native vegetation clearing and daily during site clearing. Details and outcomes reported in flora and fauna management report.	Pre-clearance and daily surveys recorded in report. Fauna relocated safely.	Fauna injured during clearing	Injured wildlife taken to nearest vet or animal carer and re-released on site
Relocate habitat features - Ecologist to supervise relocation and placement of salvaged habitat features into retained bushland on site.	Once during site clearing or as needed. Relocated habitat features are to be mapped and documented in flora and fauna management report.	Suitable habitat features re-located and documented in report	n/a	n/a
	Install nest boxes in suitable host trees. Prepare nest box strategy.	Occupancy rate (of native arboreal fauna) during post-construction phase	Damaged boxes or occupied by feral species	Replace any damaged boxes and/or remove feral species
Staged clearing, limit use of heavy machinery in areas of retained vegetation and native ground layer (APZ and powerline maintenance area)	For duration of construction, compliance to be monitored during and post construction and demonstrated in reporting.	Reporting shows that retained vegetation and ground layer protection areas not significantly impacted by construction and any areas of disturbance are rehabilitated	Impacts to areas of retained vegetation	Seek ecological advice to rehabilitate any areas of disturbance
Use of light shields and limiting evening construction works. Follow recommendations of Light Spill Assessment (SLR 2025).	For duration of construction and operation, compliance monitored and communicated in construction compliance documentation	Light spill is reduced	Light spill into adjacent vegetation	Adjust lighting



Measure/action	Monitoring and evaluation strategy (Data, frequency, timing and reporting)	Performance criteria (linked to monitoring and evaluation strategy)	Adaptive management threshold (trigger for adaptive management plan/actions)	Adaptive management response (when triggered)
Dust management and monitoring surveys	For duration of construction, compliance monitored and communicated in construction compliance documentation	Dust generated by construction is appropriately managed	Visible dust accumulations observed in adjacent habitats	Review and improve dust management measures
Temporary fencing (non-barbed and with reflective markers) of construction area	For duration of construction, compliance monitored and communicated in construction compliance documentation	Fencing is installed and condition is maintained for duration of works	Fencing becomes damaged	Reinstate fencing
Machinery wash down prior to site entry	For duration of construction, compliance monitored and communicated in construction compliance documentation	Machine hygiene is maintained for duration of works	n/a	n/a
Environmental site briefings identifying areas of retained native vegetation and waterways	For duration of construction, compliance monitored and communicated in construction compliance documentation	Workers are informed of areas of retained vegetation and waterways for duration of construction	n/a	n/a
Rehabilitation survey and implementation	Ecologist to perform an inspection during construction and post construction to check condition of areas of retained native vegetation, documented in flora and fauna management report. Any areas of disturbance are	Any areas of disturbance are rehabilitated	n/a	n/a



Measure/action	Monitoring and evaluation strategy (Data, frequency, timing and reporting)	Performance criteria (linked to monitoring and evaluation strategy)	Adaptive management threshold (trigger for adaptive management plan/actions)	Adaptive management response (when triggered)
	mapped and photographed for rehabilitation.			
Sediment barriers and ponds, where recommended by engineer	Engineer/site manager to inspect sediment flows and install barriers as required. Report in construction compliance documentation.	Appropriate sediment barriers installed and maintained for duration of construction and operation	Visible sediment flows occurring after rain fall event, sediment barriers damaged	Seek engineer advice and reinstate sediment barriers
Ensure Squirrel Glider habitat connectivity is safely maintained by using non-barbed fencing with reflective markers. Where connectivity <60m consider use of glider poles and rope crossings.	Ecologist to perform an inspection during and post construction to check fencing and habitat connectivity, with findings and recommendations documented in flora and fauna management report.	Fencing is appropriate and habitat connectivity is maintained	Fencing is inappropriate and habitat connectivity is compromised	Retrofit fencing, install glider poles and rope crossings



Residual direct impacts require further assessment for SAI (BAM Section 9.1) and to determine a credit requirement (BAM Section 9.2). Residual indirect or prescribed impacts for which no mitigation measures are proposed require an adaptive management strategy (BAM Section 8.5). Other indirect and prescribed impacts that remain after the avoid, minimise and mitigate measures have been applied, may be offset using additional biodiversity credits (above the credit requirement generated by the BAM-C for direct impacts) and/or other conservation measures.

9.7 Adaptive Management Strategy for Uncertain Impacts

An adaptive management plan can be used to address impacts that are infrequent or difficult to measure. These include indirect or prescribed impacts, or other remaining biodiversity impacts. The proponent must develop an adaptive management plan to address any remaining impacts where mitigation measures have not been proposed. SLR is of the opinion that all indirect, prescribed, or other residual biodiversity impacts are minor in nature and/or will be sufficiently mitigated and managed by implementing measures outline in this BDAR. As such an adaptive management plan is not proposed.



10.0 Serious and Irreversible Impacts

10.1 Assessment for Serious and Irreversible Impacts on Biodiversity Values

Entities at risk of an SAIL that are relevant to the proposed development are identified in Table 28.

Table 28: Entities at risk of an SAIL

Common name	Scientific name	Reason for inclusion in assessment
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	n/a	Included in current list of entities at risk of an SAIL and is likely to be impacted by the proposal

10.1.1 Additional Impact Assessment Provisions for TECs At Risk of an SAIL

Serious and irreversible impact entities are assessed in the following section and mapped in Figure 14.

10.1.1.1 White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

1. Actions to avoid and minimise direct and indirect impacts

Actions to avoid and minimise direct and indirect impacts are included in Section 8.1 and include locating the development to avoid areas of TEC where possible, maximising use of already cleared land, under boring the water pipeline and retention and protection of TEC ground layer vegetation within powerline easement.

2. Current status (excluding impacts of the proposal)

Table 29: Current status – White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

Criteria	Data/Information	Data sources	Details of data deficiency, assumptions, reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
Current total geographic extent (ha) of the TEC in NSW	250,729 [#]	EPBC Act Conservation Advice (TSSC 2006)	Data not available in TBDC. The estimate found in the Conservation Advice (TSSC 2006) is reference with date ranges from 1999-2004 so the data is at least 20 years old.
Estimated reduction in geographic extent of the TEC since 1970	Not available	n/a	Data not available in TBDC
Extent of reduction in ecological function, describing the degree of environmental degradation or disruption to biotic processes (Principle 2) indicated by factors listed in BAM Subsection 9.1.1(2.b.)			



Criteria	Data/Information	Data sources	Details of data deficiency, assumptions, reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
Evidence of restricted geographic distribution (Principle 3) based on the TEC's geographic range in NSW			
Extent of occurrence (ha)	250,729	EPBC Act Conservation Advice (TSSC 2006)	Data not available in TBDC. The estimate found in the Conservation Advice (TSSC 2006) is reference with date ranges from 1999-2004 so the data is at least 20 years old.
Area of occupancy (ha)	Not available	n/a	Data not available in TBDC
Number of threat-defined locations	Not available	n/a	Data not available in TBDC
# EPBC Act definition of the TEC under the Listing Advice (TSSC 2006).			

3. Impact assessment

Table 30: Impact Assessment - White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

Criteria	Data/Information	Data sources	Details of data deficiency, assumptions, reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
Impact on the geographic extent of the TEC (Principles 1 and 3)			
Area of TEC to be impacted by the proposal (ha)	2.88	n/a	n/a
Area of TEC to be impacted by the proposal as a % of the current geographic extent in NSW (%)	0.001%	n/a	n/a
Direct/indirect impacts likely as a result of the proposal to contribute to loss of flora/fauna species characteristic of the TEC (BAM Subsection 9.1.1(4.a.ii.))	2.88ha direct clearing	n/a	n/a
Impacts likely to contribute to further environmental degradation or disruption of biotic processes (Principle 2)			
Remaining extent of isolated areas of TEC (ha)	Most areas of native vegetation remaining in the assessment area are connected via a <100m gap therefore are not isolated - see	n/a	n/a



Criteria	Data/Information	Data sources	Details of data deficiency, assumptions, reasons for low confidence in information (e.g. TBDC indicates data is unknown or deficient)
	Figure 10. PCT 277 constitutes most of the remaining areas of native vegetation in the assessment area.		
Average distance between remaining remnants – remnant is retained (m)	For the assessment area these distances are <100m – see Figure 10	n/a	n/a
Average distance between remaining remnants – remnant is removed (m)	<100m	n/a	n/a
Estimated maximum dispersal distance of species associated with the TEC (km)	<100m	n/a	n/a
Area to perimeter ratio of remaining remnants (ratio)	unknown	n/a	n/a
Vegetation integrity analysis			
277_Mod (Composition score)	46.7	n/a	n/a
277_Mod (Structure score)	89.4	n/a	n/a
277_Mod (Function score)	48.3	n/a	n/a
277_Low (Composition score)	10.7	n/a	n/a
277_Low (Structure score)	62.5	n/a	n/a
277_Low (Function score)	42.5	n/a	n/a
Greyed cells are not relevant/required because the assessment is the source of data.			

10.1.2 Additional Impact Assessment Provisions for Threatened Species at Risk of an SAI

For this assessment there are no threatened species at risk of a serious and irreversible impact.



11.0 Impact Summary

11.1 Determine an Offset Requirement for Impacts

11.1.1 Impacts on Native Vegetation and TECs or ECs (Ecosystem Credits)

Table 31 identifies impacts on native vegetation and TECs or ECs that do not require an offset (as per BAM Subsection 9.2.1(3.)). Table 32 identifies impacts that require an offset (as per BAM Subsection 9.2.1(1.)). Thresholds for assessment and offsetting impacts are identified in Figure 15.

Table 31: Impacts that do not Require Offset – Ecosystem Credits

Vegetation zone	PCT name	TEC	Impact area (ha)	TEC association	Entity at risk of an SAI? (Yes / No)	Current VI score
n/a	n/a	n/a	n/a	n/a	n/a	n/a

Table 32: Impacts that require an Offset – Ecosystem Credits

Vegetation zone	PCT name	TEC	Impact area (ha)	Current VI score	Future VI score	Change in VI score	Biodiversity risk weighting	Number of ecosystem credits required
277_Mod	Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	1.75	58.6	32.6	-31.4	2	27
277_Low	Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	1.13	30.5	14.5	-19.1	2	11
Total credits								38



11.1.2 Impacts on Threatened Species and their Habitat (Species Credits)

Table 33 identifies impacts on threatened species (species credits) that require an offset (as per BAM Subsection 9.2.2(2.)).

Table 33: Impacts that require an Offset – Species Credits

Common name	Scientific name	BC Act status	EPBC Act status	Loss of habitat (ha)	Biodiversity risk weighting	Number of species credits required
Small Scurf-pea	<i>Cullen parvum</i>	E	-	0.46	2	6
Barking Owl	<i>Ninox connivens</i>	V	-	0.06	2	1
Squirrel Glider	<i>Petaurus norfolcensis</i>	V	-	2.9	2	38
Superb Parrot	<i>Polytelis swainsonii</i>	V	V	0.06	2	1
Small Purple-pea	<i>Swainsona recta</i>	E	E	0.06	1.5	1
Silky Swainson-pea	<i>Swainsona sericea</i>	V	-	0.06	2	1
Masked Owl	<i>Tyto novaehollandiae</i>	V	-	0.06	2	1
Total credits						49

11.1.3 Indirect and Prescribed Impacts

The retirement of biodiversity credits may be used with other conservation measures to mitigate prescribed impacts or the indirect impacts of a proposal on areas of native vegetation, TECs and/or threatened species, or their habitat adjacent to the subject land. SLR is of the opinion that all indirect and prescribed impacts are minor in nature and/or will be sufficiently mitigated and managed by implementing measures outlined in this BDAR.

As such, additional biodiversity credits to mitigate indirect or prescribed impacts are not proposed.

11.2 Impacts that do not Need Further Assessment

Table 34 identifies impacts that do not need further assessment for ecosystem credits (as per BAM Section 9.3(1-2)). These areas are also identified Figure 15.

Table 34: Impacts that do not Need Further Assessment for Ecosystem Credits

Impact	Location within subject land	Justification why no further assessment is required
Cleared Land	Most of the proposed development footprint	No native vegetation or habitats for threatened species present



12.0 Biodiversity Credit Report

The Biodiversity Credit Report for the project is included in Appendix H.

Biodiversity credits that share the same attributes form a class of credits. The credit classes for ecosystem credits and species credits are presented in the following sections.

12.1 Ecosystem Credits

Table 35: Ecosystem Credit Class and Matching Credit Profile

Ecosystem credit	Attributes shared with matching credits						
	PCT name	PCT vegetation class	PCT vegetation formation	Associated TEC or EC	Offset trading group (BAM Section 10.2, Tables 4 & 5)	Hollow bearing trees present?	IBRA subregion (in which proposal is located)
PCT 277	Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	Western Slopes Grassy Woodlands	Grassy Woodlands	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions	Yes	Lower Slopes



12.2 Species Credits

Table 36: Species Credit Class and Matching Credit Profile

Species credit	Attributes shared with matching credits				
	Name of threatened species	Kingdom	BC Act status	EPBC Act status	IBRA region (In which proposal is located)
Small Scurf-pea	<i>Cullen parvum</i>	Flora	E	-	Lower Slopes
Barking Owl	<i>Ninox connivens</i>	Fauna	V	-	Lower Slopes
Squirrel Glider	<i>Petaurus norfolcensis</i>	Fauna	V	-	Lower Slopes
Superb Parrot	<i>Polytelis swainsonii</i>	Fauna	V	V	Lower Slopes
Small Purple-pea	<i>Swainsona recta</i>	Flora	E	E	Lower Slopes
Silky Swainson-pea	<i>Swainsona sericea</i>	Flora	V	-	Lower Slopes
Masked Owl	<i>Tyto novaehollandiae</i>	Fauna	V	-	Lower Slopes



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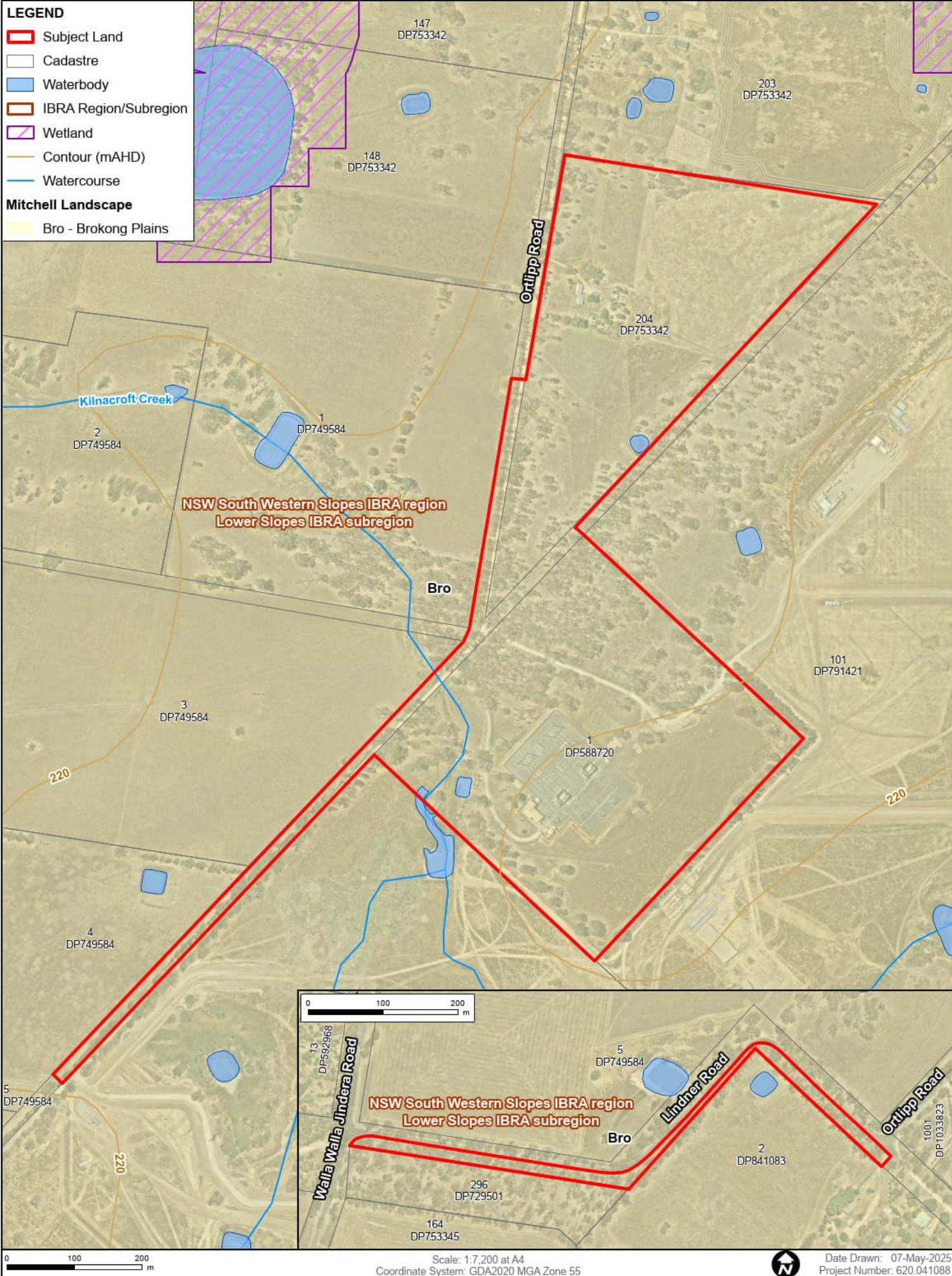


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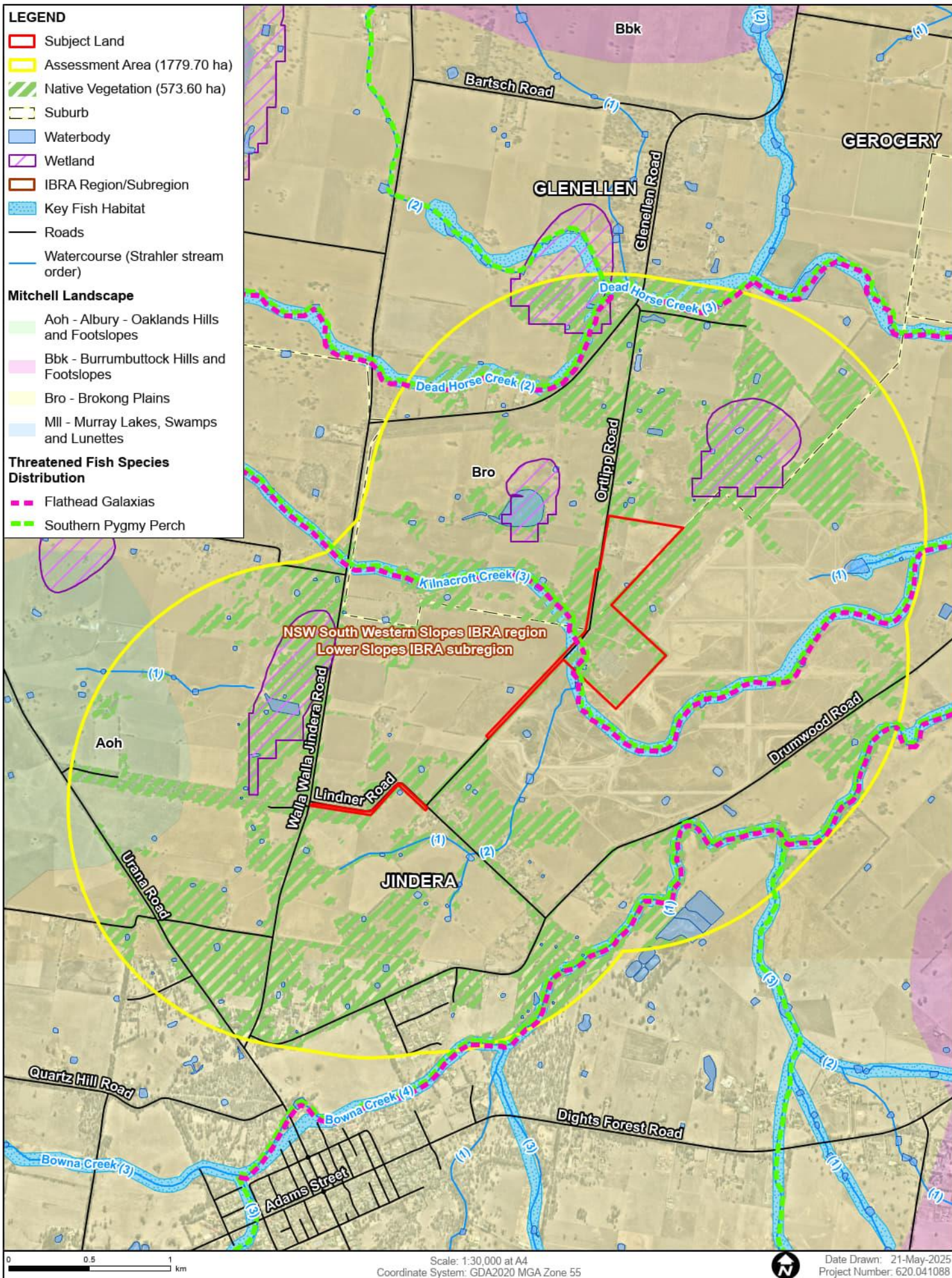


Data Sources:
NSW SS (2024)
Aerial imagery: Nearmap (November 2024)
Mitchell Landscapes: NSW DCCEEW (2016)
IBRA regions: Commonwealth DCCEEW (2012)
Wetlands: NSW EPI Wetlands (NSW DPHI 2023)

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

SITE MAP

FIGURE 1



Data Sources:
NSW SS (2024). Waterbodies within Assessment Area digitised by SLR (2025) through aerial imagery interpretation
Aerial imagery: Nearmap (November 2024). Wetlands: NSW EPI Wetlands (NSW DPI 2023)
Native vegetation: derived from SVTM (NSW DPE 2023)
Mitchell Landscapes: NSW DCCEEW (2016)
IBRA regions: Commonwealth DCCEEW (2012)

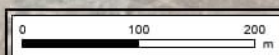
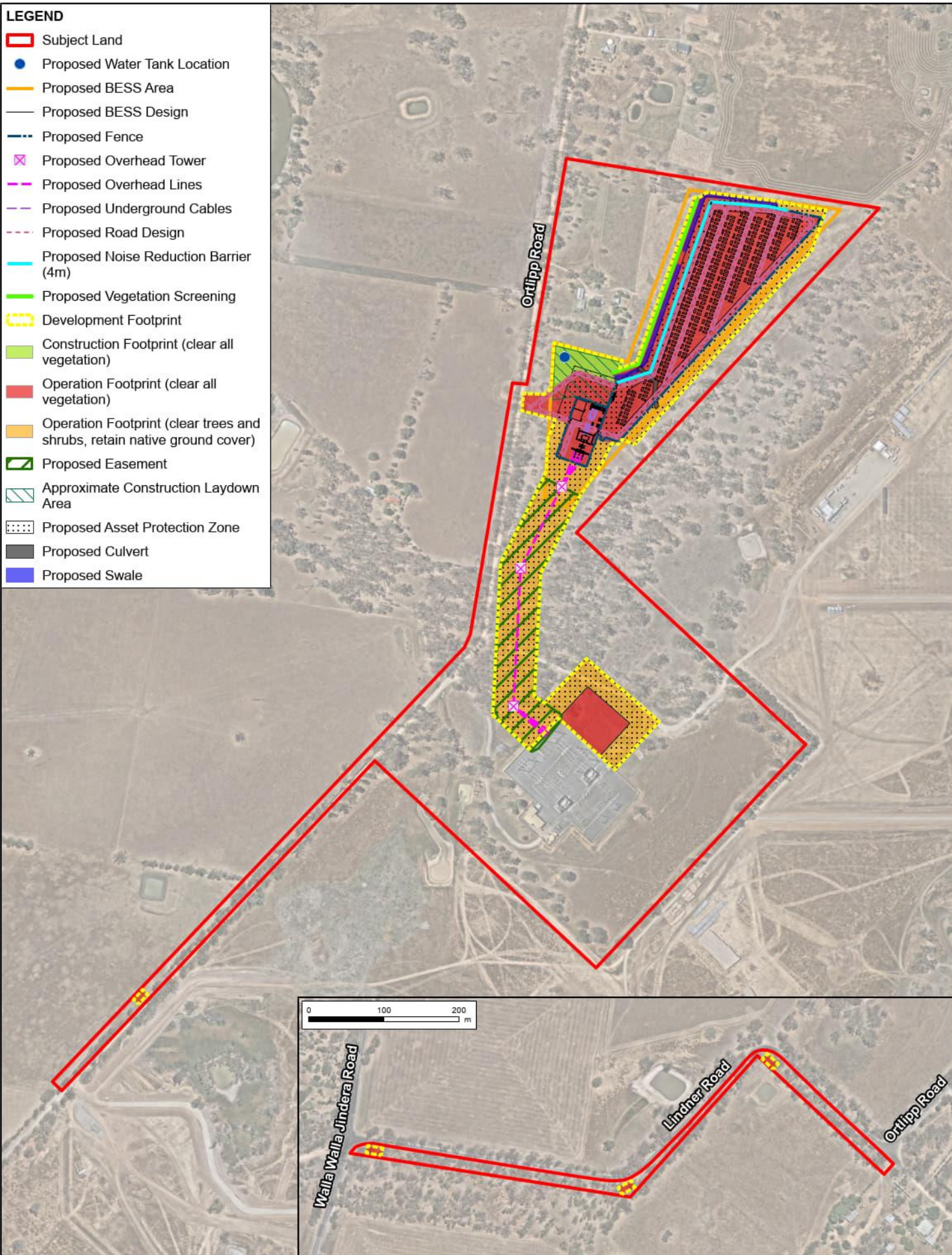
DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

LOCATION MAP

FIGURE 2

LEGEND

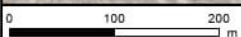
- Subject Land
- Proposed Water Tank Location
- Proposed BESS Area
- Proposed BESS Design
- Proposed Fence
- ✕ Proposed Overhead Tower
- Proposed Overhead Lines
- Proposed Underground Cables
- Proposed Road Design
- Proposed Noise Reduction Barrier (4m)
- Proposed Vegetation Screening
- Development Footprint
- Construction Footprint (clear all vegetation)
- Operation Footprint (clear all vegetation)
- Operation Footprint (clear trees and shrubs, retain native ground cover)
- Proposed Easement
- Approximate Construction Laydown Area
- Proposed Asset Protection Zone
- Proposed Culvert
- Proposed Swale



Walla Walla Jindera Road

Lindner Road

Ortlipp Road



Scale: 1:7,200 at A4
Coordinate System: GDA2020 MGA Zone 55



Date Drawn: 12-May-2025
Project Number: 620.041088



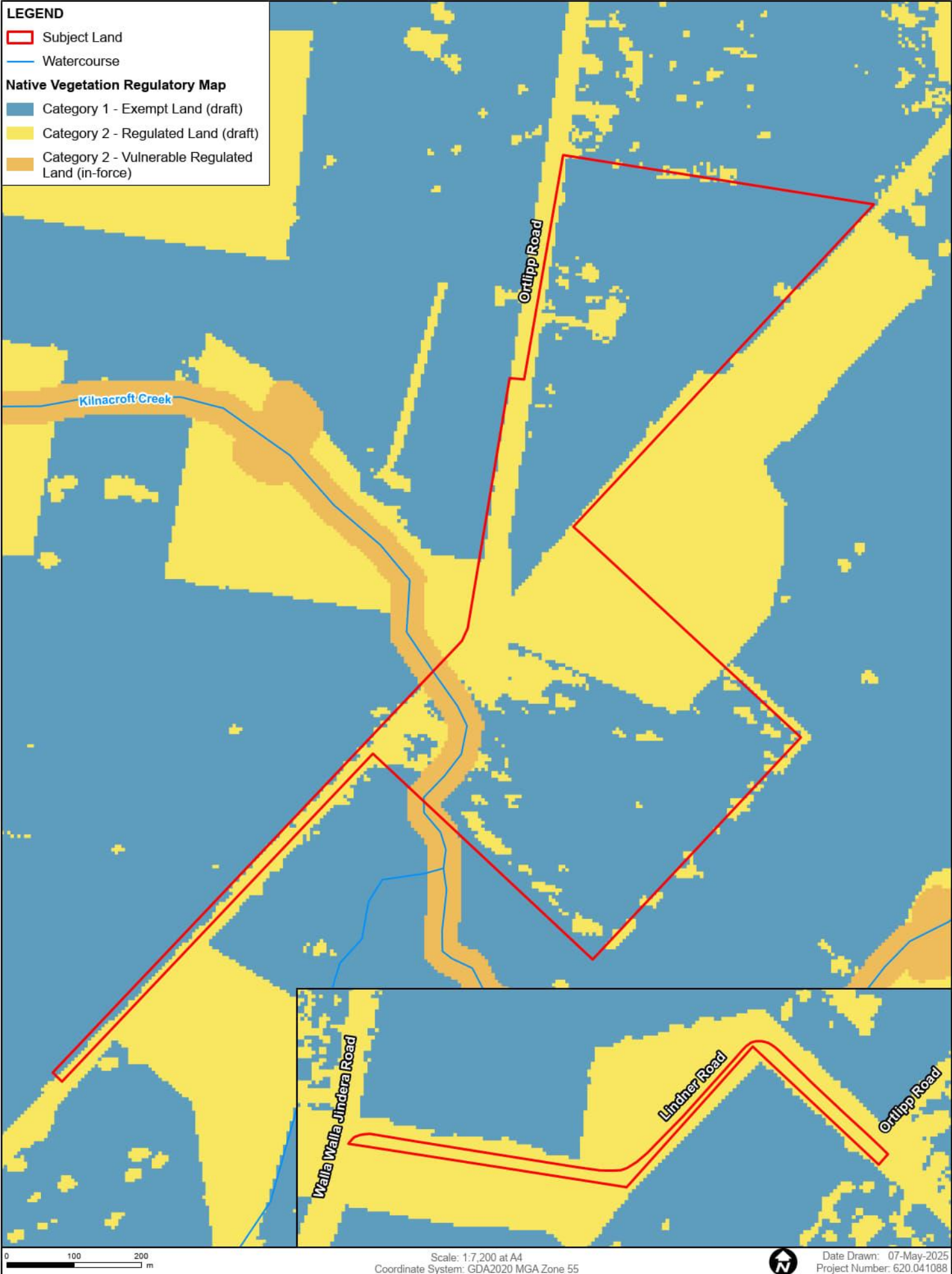
Data Sources:
NSW SS (2024)
Aerial imagery: Nearmap (November 2024)

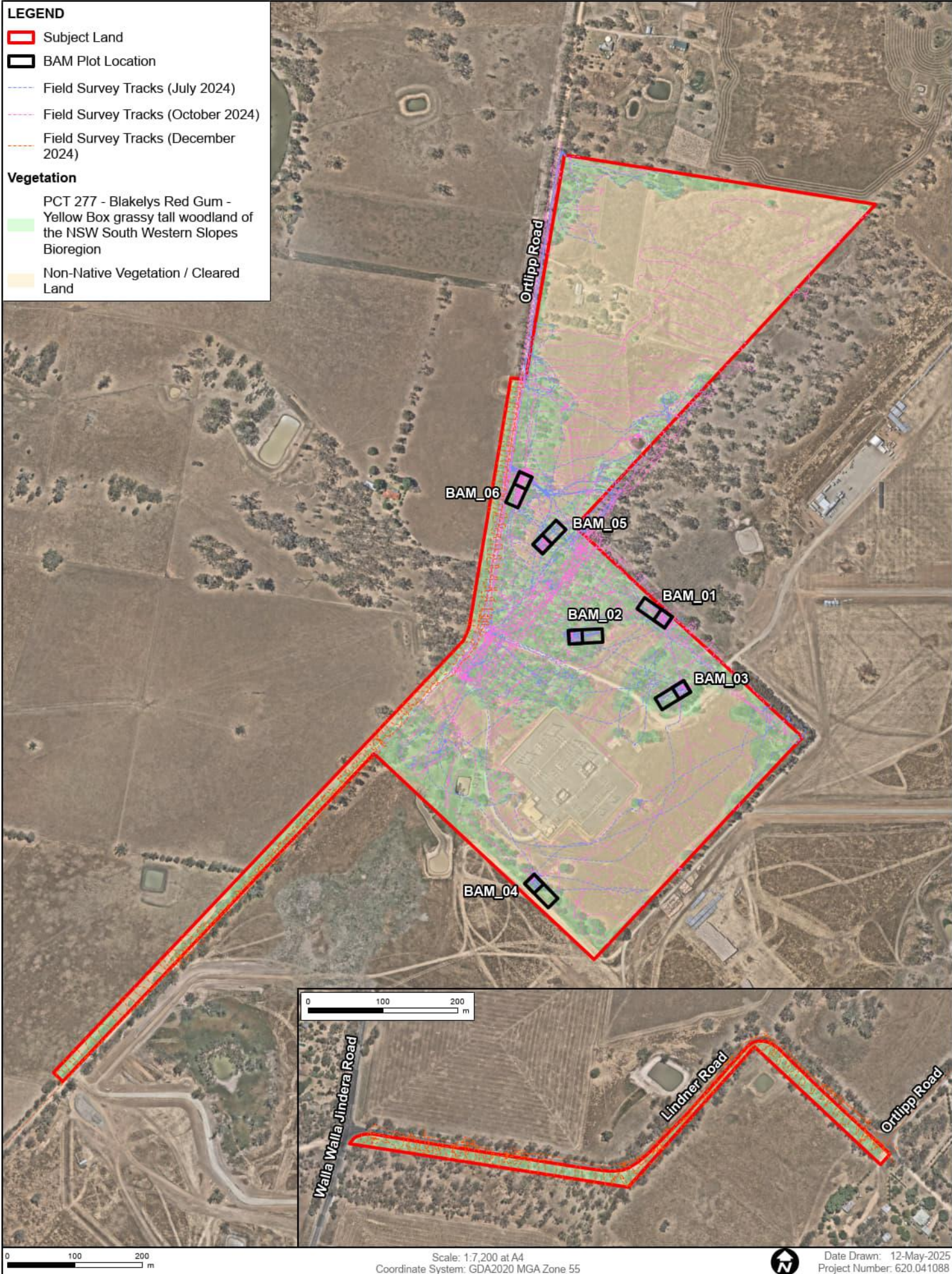
DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

DEVELOPMENT LAYOUT

FIGURE 3





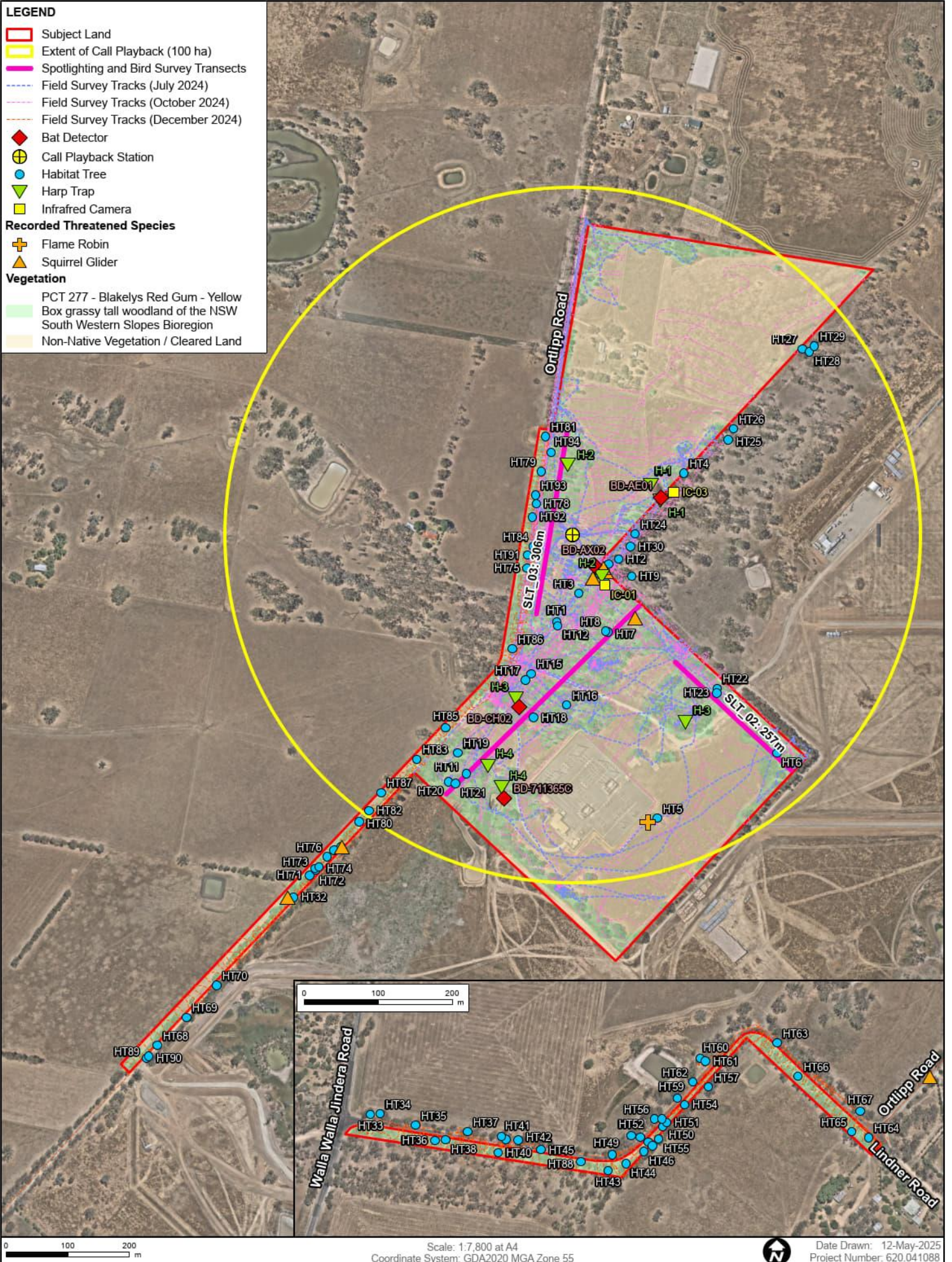


FIELD SURVEY LOCATIONS FLORA

FIGURE 6a



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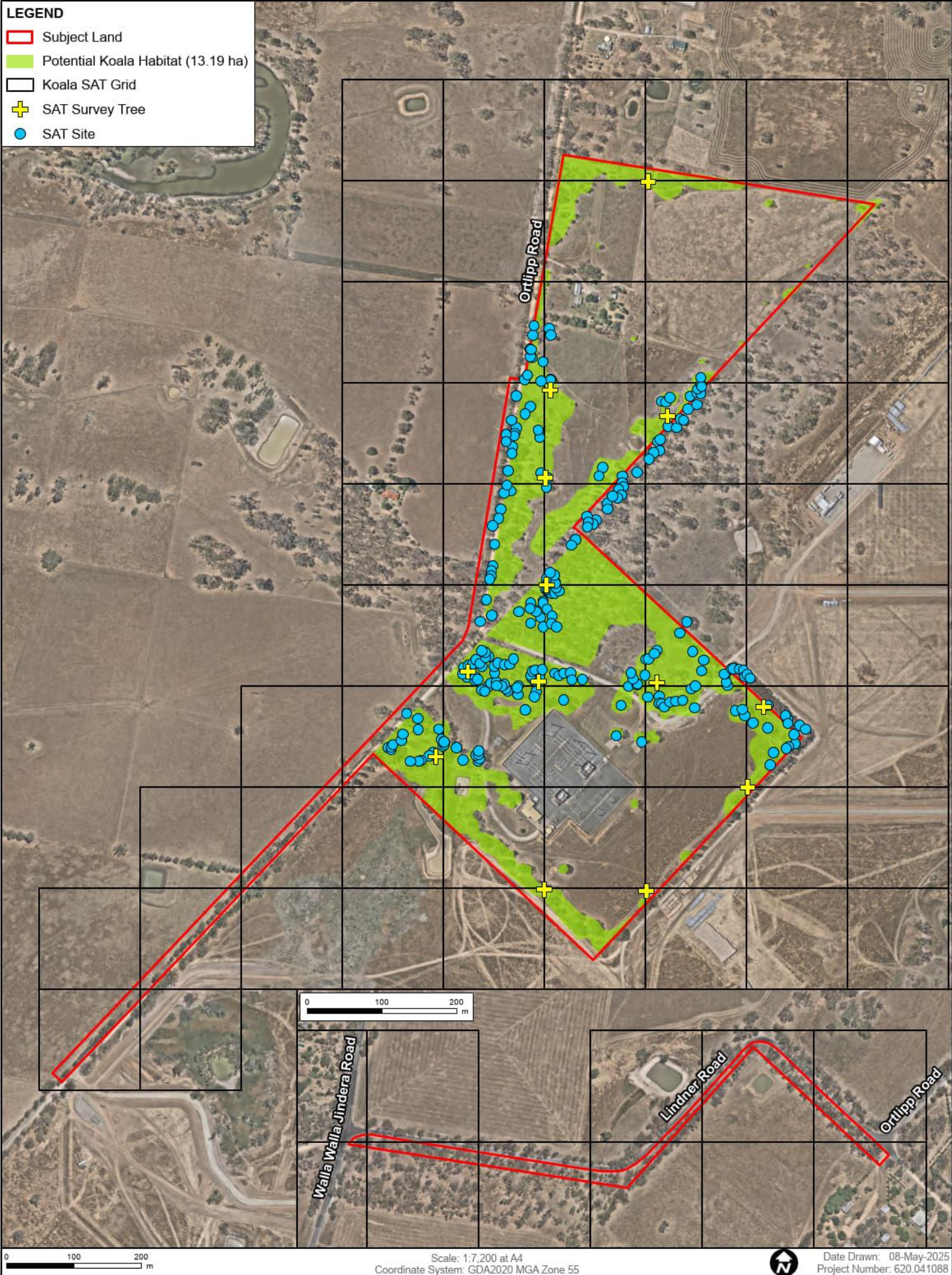
FIELD SURVEY LOCATIONS FAUNA

FIGURE 6b



Data Sources:
NSW SS (2024)
Aerial Imagery: Nearmap (November 2024)

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Data Sources:
NSW SS (2024)
Aerial imagery: Nearmap (November 2024)



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FIELD SURVEY LOCATIONS KOALA

FIGURE 6c

LEGEND

Subject Land

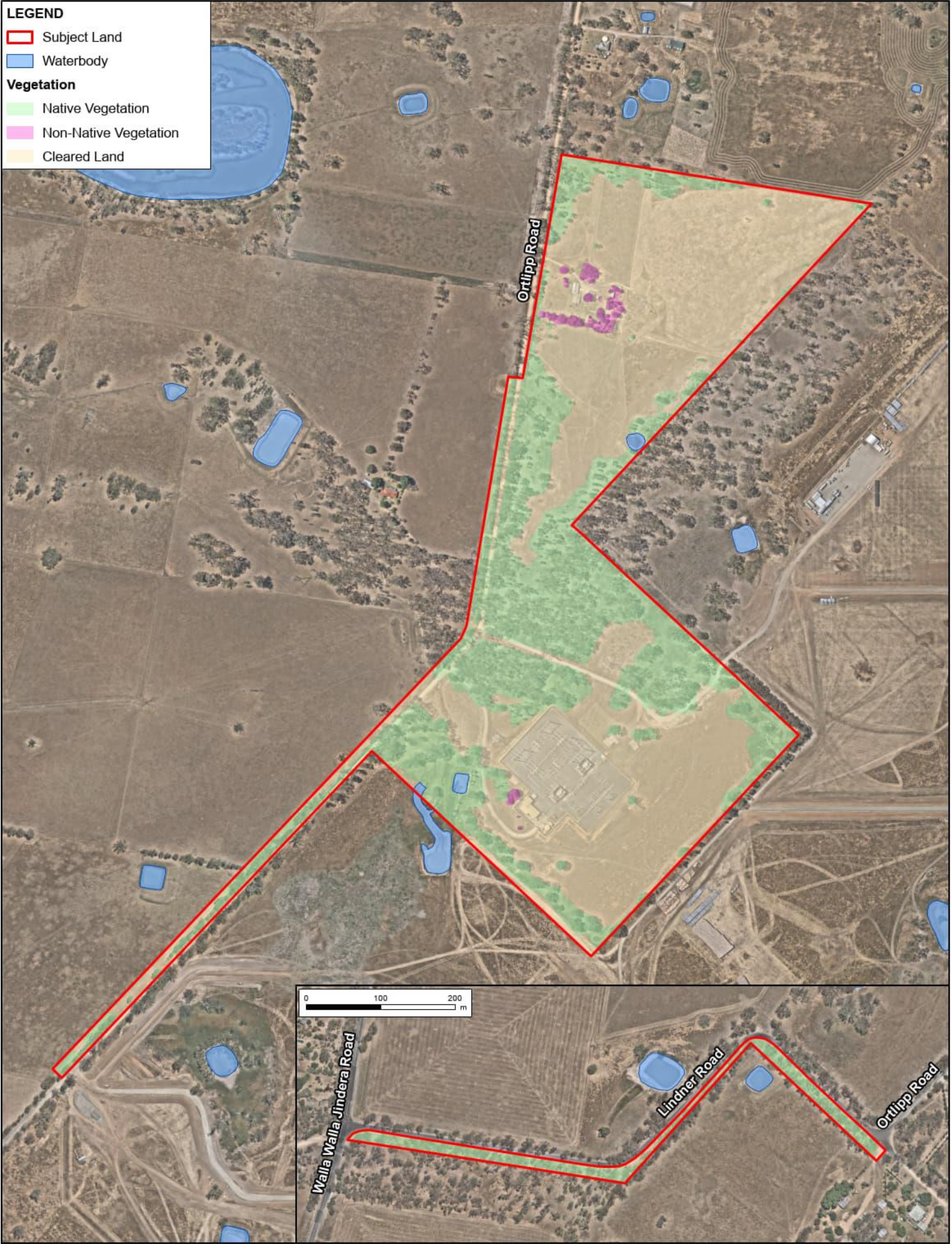
Waterbody

Vegetation

Native Vegetation

Non-Native Vegetation

Cleared Land



0 100 200 m

Scale: 1:7,200 at A4
Coordinate System: GDA2020 MGA Zone 55

Date Drawn: 07-May-2025
Project Number: 620.041088

Data Sources:
NSW SS (2024)
Aerial imagery: Nearmap (November 2024)



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NATIVE VEGETATION EXTENT

FIGURE 7

LEGEND

Subject Land

Plant Community Type (PCT)

PCT 277 - Blakelys Red Gum - Yellow
 Box grassy tall woodland of the NSW South Western Slopes Bioregion



0 100 200
m

Scale: 1:7,200 at A4
 Coordinate System: GDA2020 MGA Zone 55



Date Drawn: 07-May-2025
 Project Number: 620.041088

Data Sources:
 NSW SS (2024)
 Aerial imagery: Nearmap (November 2024)



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PLANT COMMUNITY TYPES

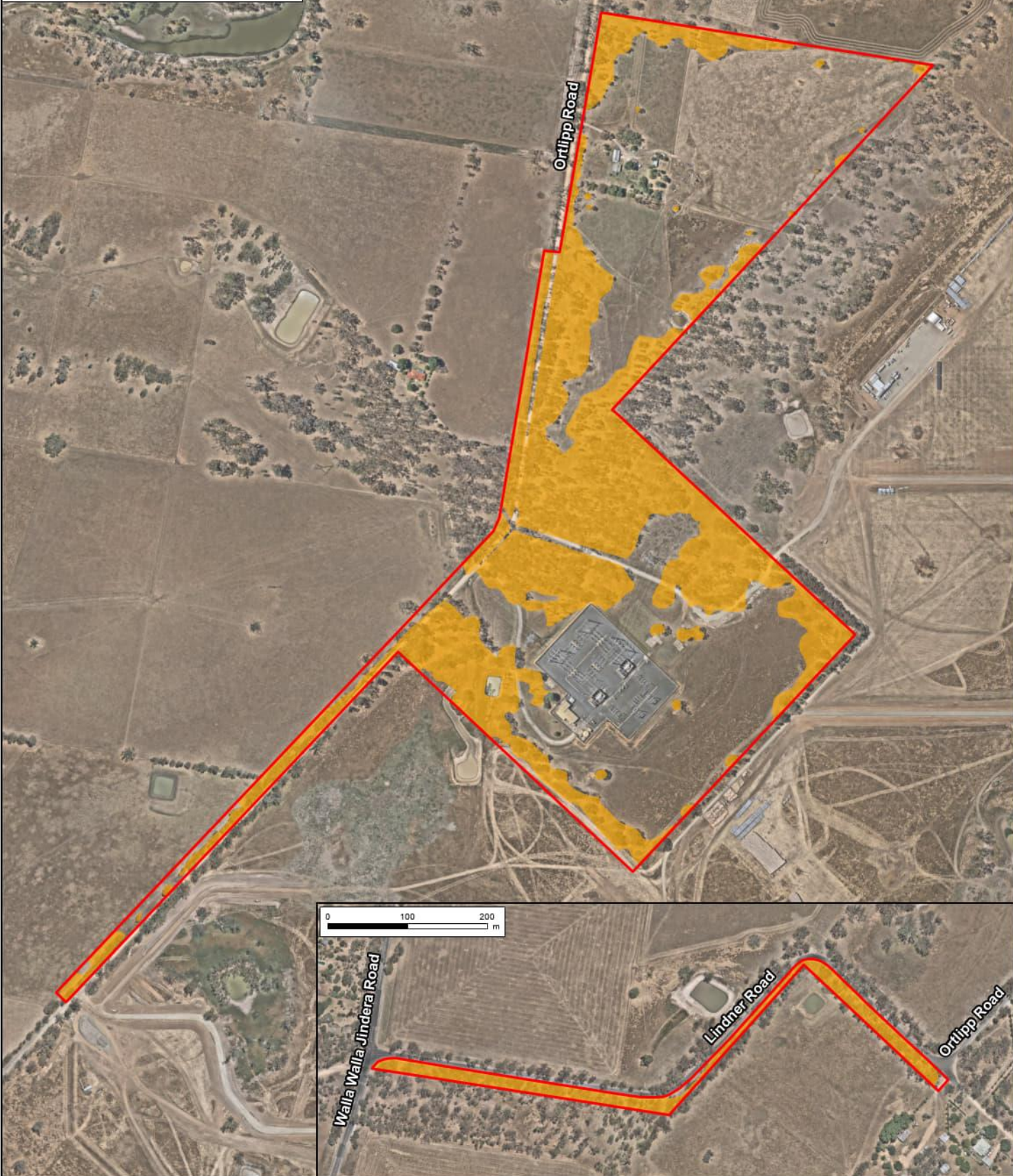
FIGURE 8

LEGEND

Subject Land

Threatened Ecological Community

White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland TEC – critically endangered



0 100 200 m

Scale: 1:7,200 at A4
Coordinate System: GDA2020 MGA Zone 55



Date Drawn: 07-May-2025
Project Number: 620.041088

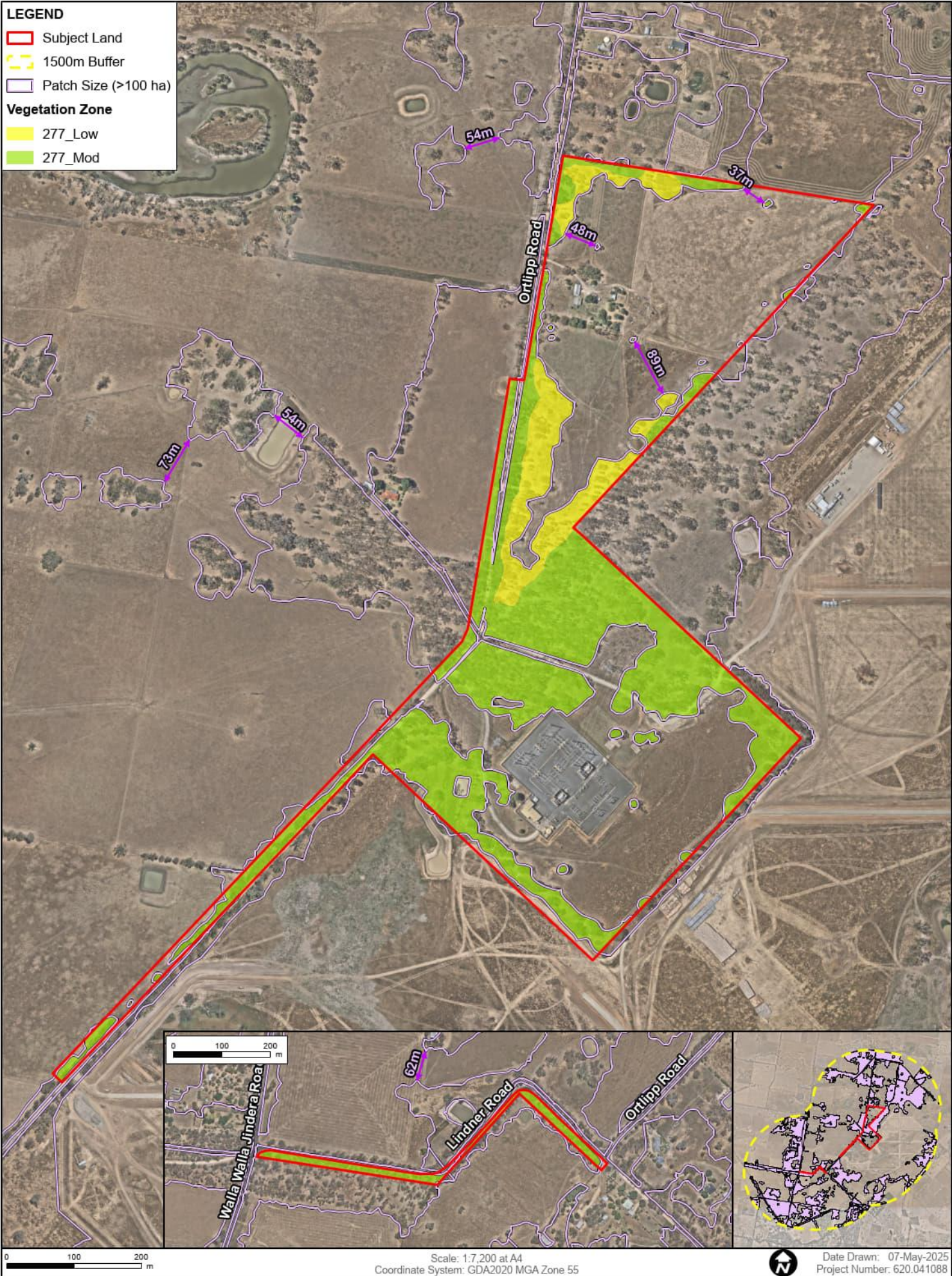
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NSW SS (2024)
Aerial Imagery: Nearmap (November 2024)

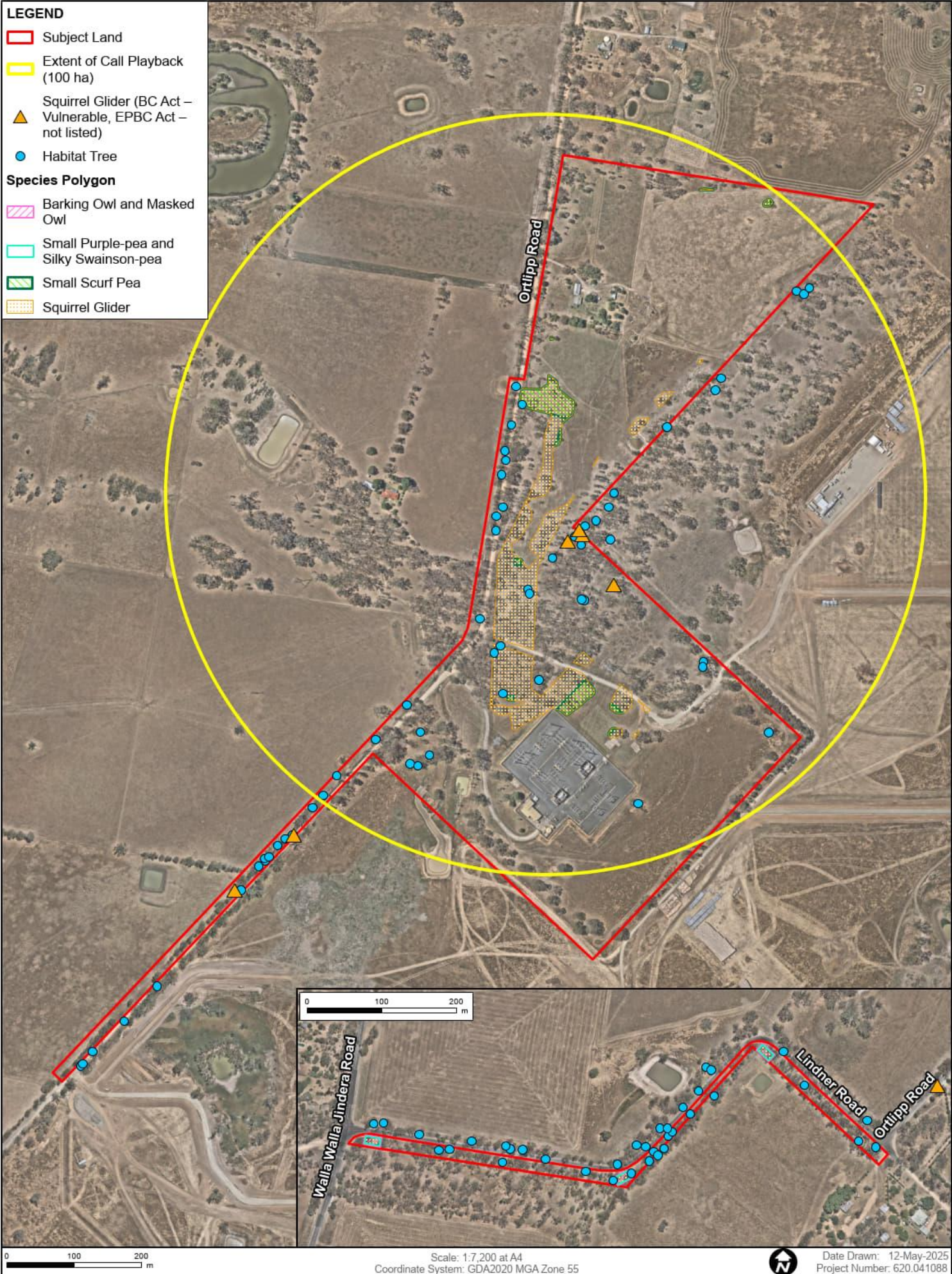


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THREATENED ECOLOGICAL COMMUNITIES AND ECOLOGICAL COMMUNITIES

FIGURE 9



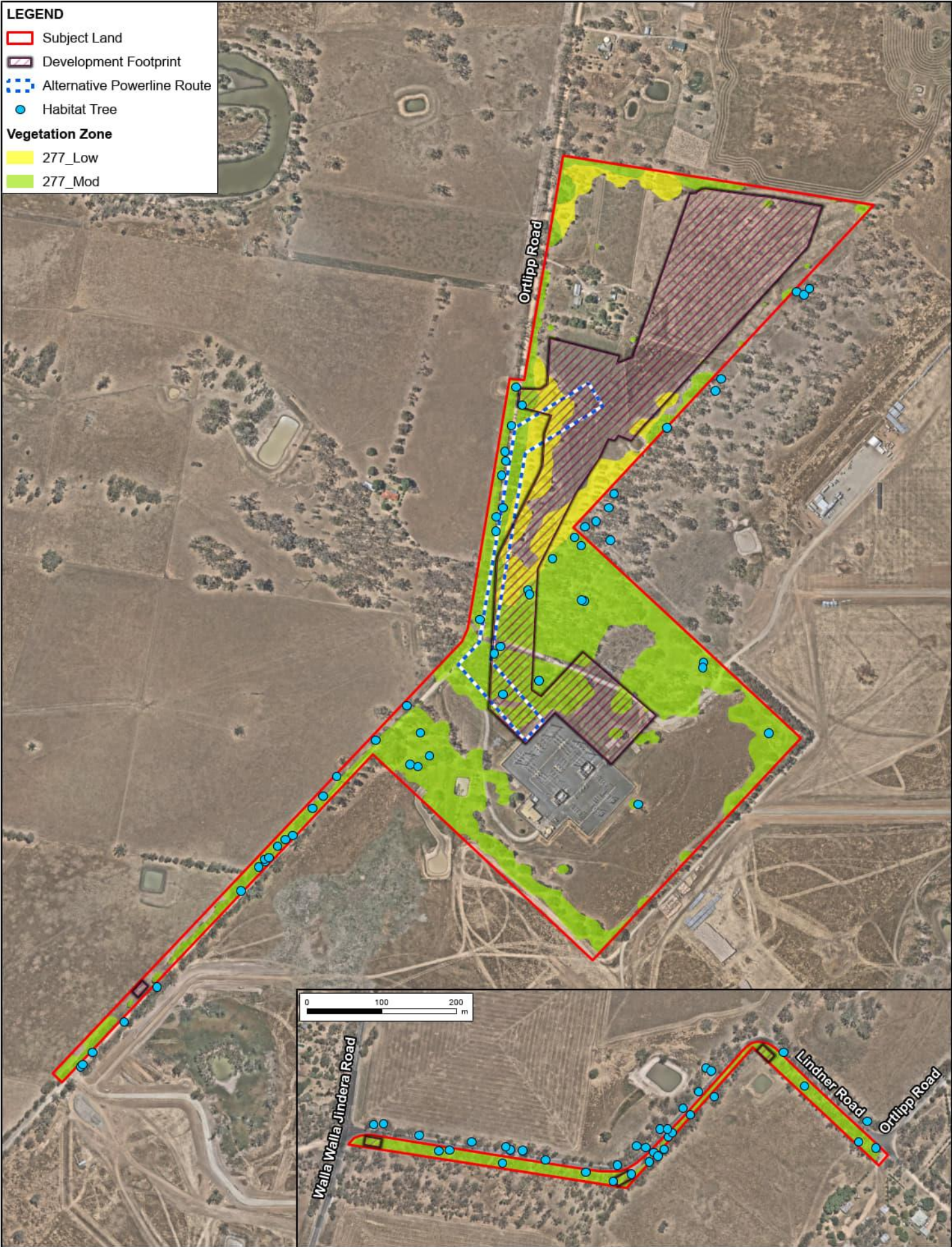


LEGEND

- Subject Land
- Development Footprint
- Alternative Powerline Route
- Habitat Tree

Vegetation Zone

- 277_Low
- 277_Mod



0 100 200 m

Scale: 1:7,200 at A4
Coordinate System: GDA2020 MGA Zone 55

0 100 200 m

Walla Walla Jindera Road

Lindner Road

Ortlipp Road

North Arrow

Date Drawn: 21-May-2025
Project Number: 620.041088



Data Sources:
NSW SS (2024)
Aerial imagery: Nearmap (November 2024)

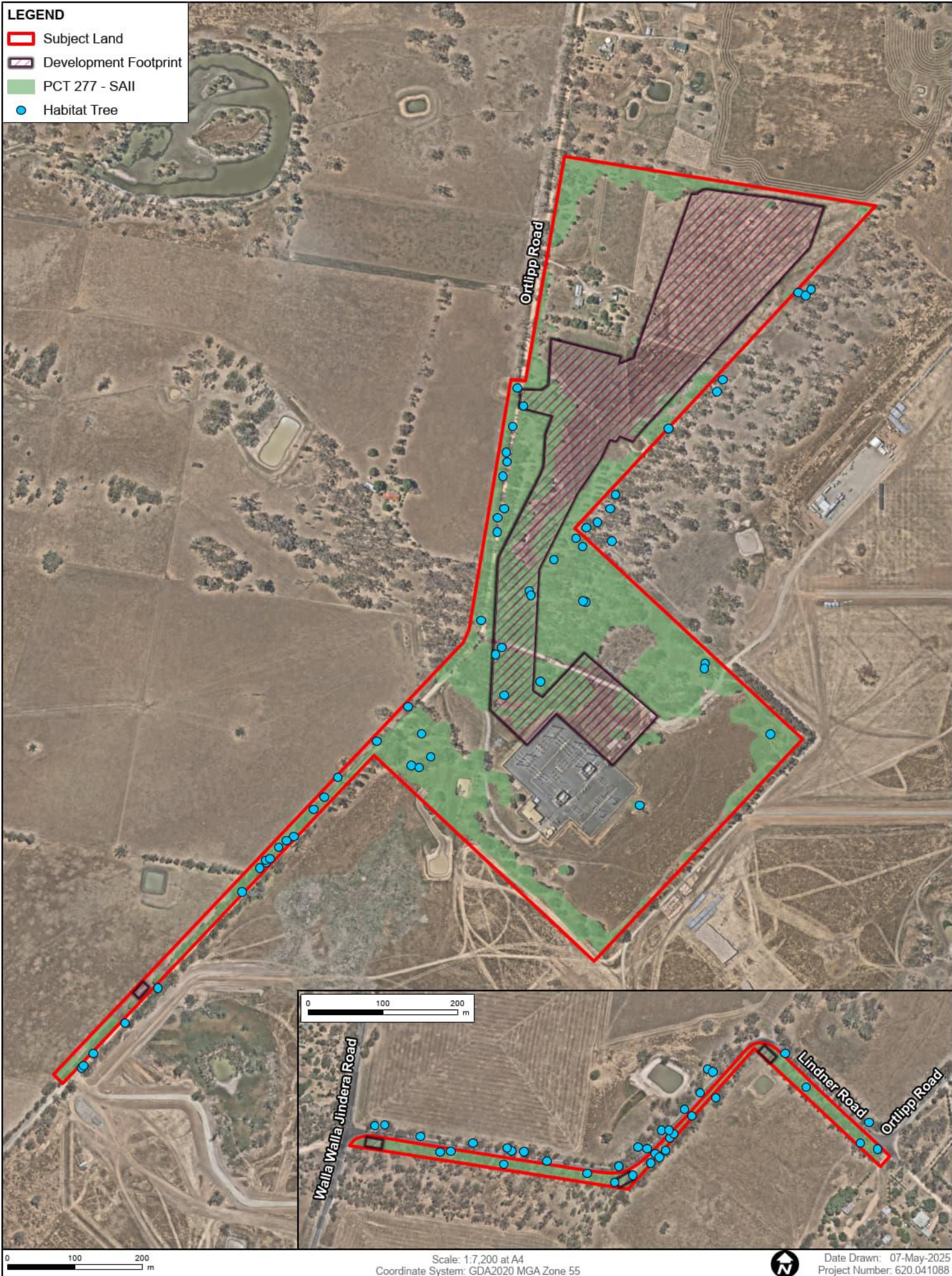
DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

**FINAL IMPACTS LIKELY TO
OCCUR ON THE SUBJECT LAND**

FIGURE 12

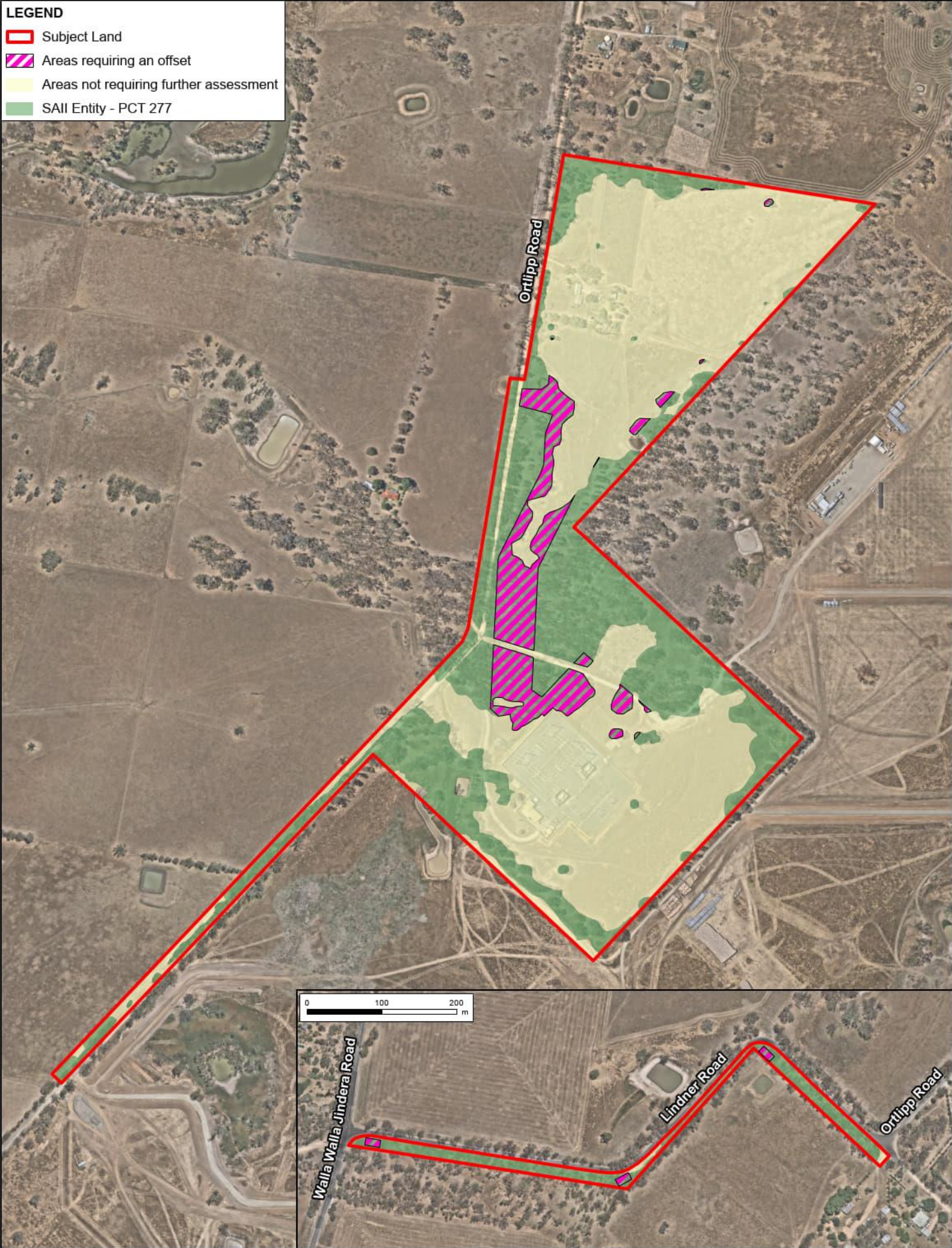
Figure 13: Wind Turbine Disturbance Zone (Not Relevant)





LEGEND

-  Subject Land
-  Areas requiring an offset
-  Areas not requiring further assessment
-  SAIL Entity - PCT 277



0
100
200
m

Scale: 1:7,200 at A4
Coordinate System: GDA2020 MGA Zone 55

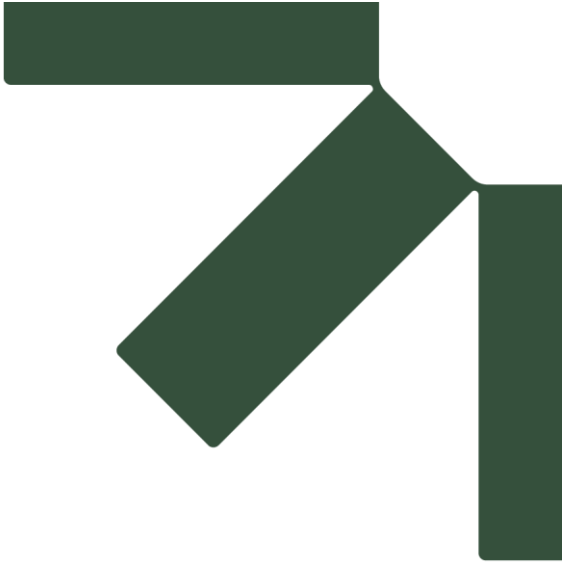

Date Drawn: 07-May-2025
Project Number: 620.041088



DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

**THRESHOLDS FOR ASSESSING
AND OFFSETTING IMPACTS**

FIGURE 15



Appendix A BDAR Requirements Compliance

Biodiversity Development Assessment Report

SSD-68815961: Proposed BESS Facility

140 Ortlipp Road, Jindera NSW / 204 Ortlipp Road, Glenellen, NSW

BESS Atlantic Pty Ltd c/o Gransolar Development Australia Pty Ltd

SLR Project No.: 620.041088.00002

22 May 2025

Table A-1: Compliance of introduction chapter with BDAR minimum information requirements (BAM reference: Chapters 2 and 3)

Information Type	BAM requirement	Section in BDAR
Information	Introduction to the biodiversity assessment including:	-
	☒ brief description of the proposal	1.1.1
	☒ identification of subject land boundary, including:	1.1.3
	☒ operational footprint	
	☒ construction footprint indicating clearing associated with temporary/ancillary construction facilities and infrastructure	
	☒ general description of the subject land	1.1.3
Maps and Table	☒ sources of information used in the assessment, including reports and spatial data	1.5
	☒ identification and justification for entering the BOS	1.2
Maps and Table	Map of the subject land boundary showing the final proposal footprint, including the construction footprint for any clearing associated with temporary/ancillary construction facilities and infrastructure	Figure 3

Table A-2: Compliance of landscape chapter with BDAR minimum information requirements (BAM reference: Sections 3.1 and 3.2, Appendix E)

Information Type	BAM requirement	Section in BDAR
Information	Identification of site context components and landscape features, including:	—
	☒ general description of subject land topographic and hydrological setting, geology and soils	1.1.3
	☒ per cent native vegetation cover in the assessment area (as described in BAM Section 3.2)	3.3
	☒ IBRA bioregions and subregions (as described in BAM Subsection 3.1.3(2.))	3.2.1
	☒ rivers and streams classified according to stream order (as described in BAM Subsection 3.1.3(3.) and Appendix E)	3.2.2
	☒ wetlands within, adjacent to and downstream of the site (as described in BAM Subsection 3.1.3(3.))	3.2.2
	☒ connectivity of different areas of habitat (as described in BAM Subsection 3.1.3(5–6.))	3.2.3
	☒ karst, caves, crevices, cliffs, rocks and other geological features of significance and for vegetation clearing proposals, soil hazard features (as described in BAM Subsections 3.1.3(7.) and 3.1.3(12.))	3.2.4
	☒ areas of outstanding biodiversity value occurring on the subject land and assessment area (as described in BAM Subsection 3.1.3(8–9.))	3.2.5
	☒ any additional landscape features identified in any SEARs for the proposal	3.2.7
	☒ NSW (Mitchell) landscape on which the subject land occurs	3.2.6
	☒ details of field reconnaissance undertaken to confirm the extent and condition of landscape features and native vegetation cover (as described in Operational Manual Stage 1 Section 2.4)	2.1
Maps and tables	☒ Site Map ☒ Property boundary ☒ Boundary of subject land	Figure 1



Information Type	BAM requirement	Section in BDAR
	☒ Cadastre of subject land (including labelling of Lot and DP or section plan if relevant) ☒ Landscape features identified in BAM Subsection 3.1.3	
	☒ Location Map ☒ Digital aerial photography at 1:1,000 scale or finer ☒ Boundary of subject land ☒ Assessment area (i.e. the subject land and either 1500 m buffer area or 500 m buffer for linear development) ☒ Landscape features identified in BAM Subsection 3.1.3 ☒ Additional detail (e.g. local government area boundaries) relevant at this scale	Figure 2
	Landscape features identified in BAM Subsection 3.1.3 and to be shown on the Site Map and/or Location Map include: ☒ IBRA bioregions and subregions ☒ rivers, streams and estuaries ☒ wetlands and important wetlands ☒ connectivity of different areas of habitat ☒ karst, caves, crevices, cliffs, rocks and other geological features of significance and if required, soil hazard features ☒ areas of outstanding biodiversity value occurring on the subject land and assessment area ☒ any additional landscape features identified in any SEARs for the proposal ☒ NSW (Mitchell) landscape on which the subject land occurs	Figure 1 and Figure 2
Data	☒ All report maps as separate jpeg files	-
	Individual digital shape files of:	-
	☒ subject land boundary	-
	☒ assessment area (i.e. subject land and 1500 m buffer area) boundary	-
	☒ cadastral boundary of subject land	-
	☒ areas of native vegetation cover	-
	☒ landscape features	-

Table A-3: Compliance of native vegetation chapter with BDAR minimum information requirements (BAM reference: Chapter 4, Appendix A and Appendix H)

Information Type	BAM requirement	Section in BDAR
Information	☒ Identify native vegetation extent within the subject land, including cleared areas and evidence to support differences between mapped vegetation extent and aerial imagery (as described in BAM Section 4.1(1-3.) and Subsection 4.1.1)	4.1 and Figure 7
	☒ Provide justification for all parts of the subject land that do not contain native vegetation (as described in BAM Subsection 4.1.2)	4.1.2
	☒ Review of existing information on native vegetation including references to previous vegetation maps of the subject land and assessment area (described in BAM Section 4.1(3.) and Subsection 4.1.1)	2.1.2, 2.2.2
	☒ Describe the systematic field-based floristic vegetation survey undertaken in accordance with BAM Section 4.2	2.2.3
	☒ Where relevant, describe the use of more appropriate local data, provide reasons that support the use of more appropriate local data and include the written confirmation from the decision-maker that they support the use of more appropriate local data (as described in BAM Subsection 1.4.2 and Appendix A)	5.5 and Appendix G



Information Type	BAM requirement	Section in BDAR
	For each PCT within the subject land, describe:	–
	☒ PCT name and ID	4.2 and Figure 8
	☒ vegetation class	4.2
	☒ extent (ha) within subject land	4.2
	☒ evidence used to identify a PCT including any analyses undertaken, references/sources, existing vegetation maps (BAM Section 4.2(1–3.))	4.2
	☒ plant species relied upon for identification of the PCT and relative abundance of each species	4.2
	☒ if relevant, TEC status including evidence used to determine vegetation is the TEC (BAM Subsection 4.2.2(1–2.))	4.2 and Figure 9
	☒ estimate of per cent cleared value of PCT (BAM Subsection 4.2.1(5.))	4.2
	Describe the vegetation integrity assessment of the subject land, including:	–
	☒ identification and mapping of vegetation zones (as described in BAM Subsection 4.3.1)	4.4 and Figure 10
	☒ description of vegetation zones within the subject land (as described in Operational Manual Stage 1 Table 2 and Subsection 3.3.2)	4.4 and Figure 10
	☒ area (ha) of each vegetation zone	4.4
	☒ assessment of patch size (as described in BAM Subsection 4.3.2)	4.4
	☒ survey effort (i.e. number of vegetation integrity survey plots) as described in BAM Subsection 4.3.4(1–2.)	4.5.1
	☒ use of relevant benchmark data from BioNet Vegetation Classification (as described in BAM Subsection 4.3.3(5.))	4.5.3
	Where use of more appropriate local benchmark data is proposed (as described in BAM Subsection 1.4.2, BAM Subsection 4.3.3(5.) and BAM Appendix A):	4.5.3
	☒ identify the PCT or vegetation class for which local benchmark data will be applied	
	☒ identify published sources of local benchmark data (if benchmarks obtained from published sources)	
	☒ describe methods of local benchmark data collection (if reference plots used to determine local benchmark data)	
	☒ provide justification for use of local data rather than BioNet Vegetation Classification benchmark values	4.5.3
	☒ provide written confirmation from the decision-maker that they support the use of local benchmark data	Appendix G
Maps and tables	☒ Map of native vegetation extent within the subject land at scale not greater than 1:10,000 including identification of all areas of native vegetation including areas that are ground cover only , cleared areas (as described in BAM Section 4.1(1–3.)) and all parts of the subject land that do not contain native vegetation (BAM Subsection 4.1.2)	Figure 7
	☒ Map of PCTs within the subject land (as described in BAM Section 4.2(1.))	Figure 8
	☒ Map of vegetation zones within the subject land (as described in BAM Subsection 4.3.1)	Figure 10
	☒ Map the location of floristic vegetation survey plots and vegetation integrity survey plots relative to PCT boundaries	Figure 6
	☒ Map of TEC distribution on the subject land and table of TEC listing, status and area (ha)	Figure 9 and Table 9



Information Type	BAM requirement	Section in BDAR
	☒ Map of patch size locations for each native vegetation zone and table of patch size areas (as described in BAM Subsection 4.3.2)	Figure 10 and Table 10
	Table of current vegetation integrity scores for each vegetation zone within the site and including:	Table 11
	☒ composition condition score	
	☒ structure condition score	
	☒ function condition score	
Data	☒ presence of hollow bearing trees	
	☒ All report maps as separate jpeg files	-
	☒ Plot field data (MS Excel format)	Appendix F
	☒ Plot field datasheets	Appendix F
	Digital shape files of:	-
	☒ PCT boundaries within subject land	-
	☒ TEC boundaries within subject land	-
	☒ vegetation zone boundaries within subject land	-
	☒ floristic vegetation survey and vegetation integrity plot locations	-

Table A-4: Compliance of threatened species chapter with BDAR minimum information requirements (BAM reference: Chapter 5)

Information Type	BAM requirement	Section in BDAR
Information	Identify ecosystem credit species likely to occur on the subject land, including:	-
	☒ list of ecosystem credit species derived from the BAM-C (as described in BAM Subsection 5.1.1 and Section 5.2(1.))	Table 12
	☒ justification and supporting evidence for exclusion of any ecosystem credit species based on geographic limitations, habitat constraints or vagrancy (as described in BAM Subsections 5.2.1 and 5.2.2)	5.1.1
	☒ justification for addition of any ecosystem credit species to the list	5.1.1
	Identify species credit species likely to occur on the subject land, including:	-
	☒ list of species credit species derived from the BAM-C (as described in BAM Subsection 5.1.1)	Table 13 and Table 14
	☒ justification and supporting evidence for exclusions based on geographic limitations, habitat constraints or vagrancy (as described in BAM Subsections 5.2.1 and 5.2.2)	5.1.2
	☒ justification and supporting evidence for exclusions based on degraded habitat constraints and/or microhabitats on which the species depends (as described in BAM Subsection 5.2.2)	5.1.2
	☒ justification for addition of any species credit species to the list	5.1.2
	From the list of candidate species credit species, identify:	Table 15 and Table 16
	☒ species assumed present within the subject land (if relevant) (as described in BAM Subsection 5.2.4(2.a.))	
	☒ species present within the subject land on the basis of being identified on an important habitat map for a species (as described in BAM Subsection 5.2.4(2.d.))	
	☒ species for which targeted surveys are to be completed to determine species presence (BAM Subsection 5.2.4(2.b.))	
	☒ species for which an expert report is to be used to determine species presence (BAM Subsection 5.2.4(2.c.))	



Information Type	BAM requirement	Section in BDAR
	Present the outcomes of species credit species assessments from:	-
	☒ threatened species survey (as described in BAM Section 5.2.4)	Table 17 and Table 18
	☒ expert reports (if relevant) including justification for presence of the species and information used to make this determination (as described in BAM Subsection 5.2.4, Section 5.3, Box 3)	5.4
	Where survey has been undertaken include detailed information on:	-
	☒ survey method and effort (as described in BAM Section 5.3)	Table 17 and Table 18
	☒ justification of survey method and effort (e.g. citation of peer-reviewed literature) if approach differs from the department's taxa-specific survey guides or where no relevant guideline has been published	5.3
	☒ timing of survey in relation to requirements in the TBDC or the department's taxa-specific survey guides. Where survey was undertaken outside these guides include justification for the timing of surveys	Table 17 and Table 18
	☒ survey personnel and relevant experience	Declaration ii
	☒ describe any limitations to surveys and how these were addressed/overcome	2.7, 5.3
	Where an expert report has been used in place of survey (as described in BAM Section 5.3, Box 3), include:	-
	☒ justification of the use of an expert report	5.4
	☒ identify the expert, provide evidence of their expert credentials and departmental approval of expert status	
	☒ all requirements of Box 3 have been addressed in the expert report	
	Where use of local data is proposed (BAM Subsection 1.4.2):	-
	☒ identify relevant species	5.5
	☒ identify data to be amended	
	☒ identify source of information for local data, e.g. published literature, additional survey data, etc.	
	☒ justify use of local data in preference to VIS Classification or TBDC data	Appendix G
	☒ provide written confirmation from the decision-maker that they support the use of local data	
	Species polygon completed for species credit species present within the subject land (assumed present or determined on the basis of survey, expert report or important habitat map) ensuring that:	-
	☒ the unit of measure for each species is documented	Table 19 and Table 20
	for species assessed by area:	-
	☒ the polygon includes the extent of suitable habitat for the target species within the subject land (as described in BAM Subsection 5.2.5)	Figure 11
	☒ a description of, and evidence-based justification for, the habitat constraints, features or microhabitats used to map the species polygon including reference to information in the TBDC for that species and any buffers applied	5.6
	for species assessed by counts of individuals:	-
	☒ the number of individual plants present on the subject land (as described in BAM Subsection 5.2.5(3.))	5.6
	☒ the method used to derive this number (i.e. threatened species survey or expert report) and evidence-based justification for the approach taken	5.6



Information Type	BAM requirement	Section in BDAR
	☒ the polygon includes all individuals located on the subject land with a buffer of 30 m around the individuals or groups of individuals on the subject land	Figure 11
	☒ Identify the biodiversity risk weighting for each species credit species identified as present within the subject land (as described in BAM Section 5.4)	Table 19
Maps and tables	☒ Table showing ecosystem credit species in accordance with BAM Subsection 5.1.1, and identifying:	-
	☒ the ecosystem credit species removed from the list	Table 12
	☒ the sensitivity to gain class of each species	Table 12
	☒ Table detailing species credit species in accordance with BAM Section 5.2 and identifying:	Table 13 and Table 14
	☒ the species credit species removed from the list of species because the species is considered vagrant, out of geographic range or the habitat or microhabitat features are not present	Table 13 and Table 14
	☒ the candidate species credit species not recorded on the subject land as determined by targeted survey, expert report or important habitat map	Table 15 and Table 16
	☒ Table detailing species credit species recorded or assumed as present within the subject land, habitat constraints or microhabitats associated with the species, counts of individuals (flora)/extent of suitable habitat (flora and fauna) (as described in BAM Subsection 5.2.6) and biodiversity risk weighting (BAM Section 5.4)	Table 19 and Table 20
	☒ Map indicating the GPS coordinates of all individuals of each species recorded within the subject land and the species polygon for each species (as described in BAM Subsection 5.2.5)	Figure 11
Data	☒ Digital shape files of suitable habitat identified for survey for each candidate species credit species	-
	☒ Survey locations including GPS coordinates of any plots, transects, grids	-
	☒ Digital shape files of each species polygon including GPS coordinates of located individuals	-
	☒ Species polygon map in jpeg format	-
	☒ Expert reports and any supporting data used to support conclusions of the expert report	-
	☒ Field datasheets detailing survey information including prevailing conditions, date, time, equipment used, etc.	-

Table A-5: Compliance of prescribed Impacts chapter with BDAR minimum information requirements (BAM reference: Chapter 6)

Information Type	BAM requirement	Section in BDAR
Information	Identify potential prescribed biodiversity impacts on threatened entities, including:	-
	☒ karst, caves, crevices, cliffs, rocks and other geological features of significance (as described in BAM Subsection 6.1.1)	Table 21
	☒ occurrences of human-made structures and non-native vegetation (as described in BAM Subsection 6.1.2)	
	☒ corridors or other areas of connectivity linking habitat for threatened entities (as described in BAM Subsection 6.1.3)	
	☒ waterbodies or any hydrological processes that sustain threatened entities (as described in BAM Subsection 6.1.4)	
	☒ protected animals that may use the proposed wind farm development site as a flyway or migration route (as described in BAM Subsection 6.1.5)	Table 21



Information Type	BAM requirement	Section in BDAR
	☒ where the proposed development may result in vehicle strike on threatened fauna or on animals that are part of a threatened ecological community (as described in BAM Subsection 6.1.6)	Table 21
	☐ Identify a list of threatened entities that may be dependent upon or may use habitat features associated with any of the prescribed impacts	
	☐ Describe the importance of habitat features to the species including, where relevant, impacts on life cycle or movement patterns (e.g. Subsection 6.1.3)	0
	Where the proposed development is for a wind farm:	-
	☐ identify a candidate list of protected animals that may use the development site as a flyway or migration route, including: resident threatened aerial species, resident raptor species and nomadic and migratory species that are likely to fly over the proposal area (as described in BAM Subsection 6.1.5)	n/a
	☐ provide details of targeted survey for candidate species of wind farm developments undertaken in accordance with BAM Subsection 6.1.5(2–3.)	n/a
	☐ predict the habitual flight paths for nomadic and migratory species likely to fly over the subject land and map the likely habitat for resident threatened aerial and raptor species (BAM Subsection 6.1.5(4.))	n/a
	Where the proposal may result in vehicle strike:	–
	☒ identify a list of threatened fauna or protected fauna species that are part of a TEC and at risk of vehicle strike due to the proposal	Table 21
Maps and tables	☒ Map showing location of any prescribed impact features (i.e. karst, caves, crevices, cliffs, rocks, human-made structures, etc.)	Figure 1 and Figure 2
	☒ Map showing location of potential vehicle strike locations	Figure 1
	☒ Maps of habitual flight paths for nomadic and migratory species likely to fly over the site and maps of likely habitat for threatened aerial species resident on the site (for wind farm developments only)	Figure 1 and Figure 2
Data	☒ Digital shape files of prescribed impact feature locations	–
	☒ Prescribed impact features map in jpeg format	–

Table A-6: Compliance of avoid and minimise impacts chapter with BDAR minimum information requirements (BAM reference: Chapter 7)

Information Type	BAM requirement	Section in BDAR
Information	Demonstration of efforts to avoid and minimise impacts on biodiversity values (including prescribed impacts) associated with the proposal location in accordance with Chapter 7, including an analysis of alternative:	-
	☒ modes or technologies that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed mode or technology	8.1 and 8.2
	☒ routes that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed route	8.1 and 8.2
	☒ alternative locations that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed location	8.1 and 8.2
	☒ alternative sites within a property on which the proposal is located that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed site	8.1 and 8.2
	☒ Describe efforts to avoid and minimise impacts (including prescribed impacts) to biodiversity values through proposal design (as described in BAM Sections 7.1 and 7.2)	8.1 and 8.2



Information Type	BAM requirement	Section in BDAR
	☒ Identification of any other site constraints that the proponent has considered in determining the location and design of the proposal (as described in BAM Subsection 7.2.1(3.))	8.0
	☒ Detail measures or options considered but not implemented because they are not feasible and/or practical (e.g. due to site constraints)	8.3
Maps and tables	☒ Table of measures to be implemented to avoid and minimise the impacts of the proposal, including action, outcome, timing and responsibility	Table 22
	☒ Map of alternative footprints considered to avoid or minimise impacts on biodiversity values; and of the final proposal footprint, including construction and operation	Figure 3, Figure 12
	☒ Maps demonstrating indirect impact zones where applicable	Figure 12
Data	Digital shape files of:	-
	☒ alternative and final proposal footprint	-
	☒ direct and indirect impact zones	-
	☒ Maps in jpeg format	-

Table A-7: Compliance of assessment of impacts chapter with BDAR minimum information requirements (BAM reference: Chapter 8, Sections 8.1 and 8.2)

Information Type	BAM requirement	Section in BDAR
Information	☒ Determine the impacts on native vegetation and threatened species habitat, including a description of direct impacts of clearing of native vegetation, threatened ecological communities and threatened species habitat (as described in BAM Section 8.1)	Table 23
	Assessment of indirect impacts on vegetation and threatened species and their habitat including (as described in BAM Section 8.2):	-
	☒ description of the nature, extent, frequency, duration and timing of indirect impacts of the proposal	Table 25
	☒ documenting the consequences to vegetation and threatened species and their habitat including evidence-based justifications	9.2
	☒ reporting any limitations or assumptions, etc. made during the assessment	9.2
	☒ identification of the threatened entities and their habitat likely to be affected	Table 25
	Assessment of prescribed biodiversity impacts (as described in BAM Section 8.3) including:	-
	assessment of the nature, extent frequency , duration and timing of impacts on the habitat of threatened species or ecological communities associated with:	-
	☒ karst, caves, crevices, cliffs, rocks and other features of geological significance	0
	☒ human-made structures	0
	☒ non-native vegetation	0
	☒ connectivity of different areas of habitat of threatened species that facilitates the movement of those species across their range	9.3.1
	☒ movement of threatened species that maintains their life cycle	9.3.1
	☒ water quality, waterbodies and hydrological processes that sustain threatened species and threatened ecological communities	9.3.2
	☒ assessment of the impacts of wind turbine strikes on protected animals	0
	☒ assessment of the impacts of vehicle strikes on threatened species of animals or on animals that are part of a TEC	0



Information Type	BAM requirement	Section in BDAR
	☒ evaluate the consequences of prescribed impacts	0
	☒ describe impacts that are uncertain	0
	☒ document limitations to data, assumptions and predictions	0
Maps and tables	☒ Table showing change in vegetation integrity score for each vegetation zone as a result of identified impacts	Table 24
Data	N/A	-

Table A-8: Compliance of mitigation and management of impacts chapter with BDAR minimum information requirements (BAM reference: Chapter 8, Sections 8.4 and 8.5)

Information Type	BAM requirement	Section in BDAR
Information	Identification of measures to mitigate or manage impacts in accordance with the recommendations in BAM Sections 8.4 and 8.5 including:	-
	☒ techniques, timing, frequency and responsibility	Table 26
	☒ identify measures for which there is risk of failure	
	☒ evaluate the risk and consequence of any residual impacts	
	☒ document any adaptive management strategy proposed	Table 27
	Identification of measures for mitigating impacts related to:	-
	☒ displacement of resident fauna (as described in BAM Subsection 8.4.1(2.))	9.6
	☒ indirect impacts on native vegetation and habitat (as described in BAM Subsection 8.4.1(3.))	
Maps and tables	☒ mitigating prescribed biodiversity impacts (as described in BAM Subsection 8.4.2)	9.7
	☒ Details of the adaptive management strategy proposed to monitor and respond to impacts on biodiversity values that are uncertain (BAM Section 8.5)	
	☒ Table of measures to be implemented before, during and after construction to mitigate and manage impacts of the proposal, including action, outcome, timing and responsibility	Table 26
Data	N/A	-

Table A-9: Compliance of impact summary chapter with BDAR minimum information requirements (BAM reference: Chapter 9)

Information Type	BAM requirement	Section in BDAR
Information	Identification and assessment of impacts on TECs and threatened species that are at risk of a serious and irreversible impacts (SAII, in accordance with BAM Section 9.1) including:	-
	☒ addressing all criteria in Subsection 9.1.1 for each TEC listed as at risk of an SAIL present on the subject land	10.0
	☒ for each TEC, report the extent of the TEC in NSW	10.0
	☒ addressing all criteria in Subsection 9.1.2 for each threatened species at risk of an SAIL present on the subject land	10.0
	☒ for each threatened species, report the population size in NSW	10.0
	☒ documenting assumptions made and/or limitations to information	Table 29
	☒ documenting all sources of data, information, references used or consulted	
	☒ clearly justifying why any criteria could not be addressed	



Information Type	BAM requirement	Section in BDAR
	☒ Identification of impacts requiring offset in accordance with BAM Section 9.2	Table 32 and Table 33
	☒ Identification of impacts not requiring offset in accordance with BAM Subsection 9.2.1(3.)	Table 31
	☒ Identification of areas not requiring assessment in accordance with BAM Section 9.3	Table 34
Maps and tables	☒ Map showing the extent of TECs at risk of an SAIL within the subject land	Figure 14
	☒ Map showing location of threatened species at risk of an SAIL within the subject land	Figure 14
	Map showing location of:	-
	☒ impacts requiring offset	Figure 15
	☒ impacts not requiring offset	Figure 15
	☒ areas not requiring assessment	Figure 15
Data	Digital shape files of:	-
	☒ extent of TECs at risk of an SAIL within the subject land	-
	☒ location of threatened species at risk of an SAIL within the subject land	-
	☒ boundary of impacts requiring offset	-
	☒ boundary of impacts not requiring offset	-
	☒ boundary of areas not requiring assessment	-
	☒ Maps in jpeg format	-

Table A-10: Compliance of impact summary chapter with BDAR minimum information requirements (BAM reference: Chapter 10)

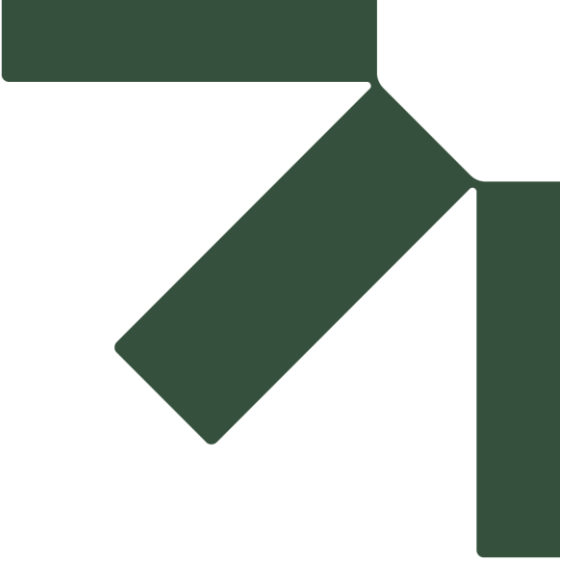
Information Type	BAM requirement	Section in BDAR
Information	Ecosystem credits and species credits that measure the impact of the development on biodiversity values, including:	-
	☒ future vegetation integrity score for each vegetation zone within the subject land (Equation 25 and Equation 26 in BAM Appendix H)	Table 32
	☒ change in vegetation integrity score (BAM Subsection 8.1.1)	
	☒ number of required ecosystem credits for the direct impacts of the proposal on each vegetation zone within the subject land (BAM Subsection 10.1.2)	
	☒ biodiversity risk weighting for each	Table 32 and Table 33
Maps and tables	☒ number of required species credits for each candidate threatened species that is directly impacted on by the proposal (BAM Subsection 10.1.3)	Table 33
	☒ Table of PCTs requiring offset and the number of ecosystem credits required	Table 32
Data	☒ Table of threatened species requiring offset and the number of species credits required	Table 33
	☒ Submitted proposal in the BAM Calculator	-



Table A-11: Compliance of biodiversity credit report chapter with BDAR minimum information requirements (BAM reference: Chapter 10)

Information Type	BAM requirement	Section in BDAR
Information	☒ Description of credit classes for ecosystem credits and species credits at the development or clearing site or land to be biodiversity certified (BAM Section 10.2)	Table 35 and Table 36
	☒ BAM credit report in pdf format	Appendix H
Maps and tables	☒ Table of credit class and matching credit profile	Table 36
Data	☒ BAM credit report in pdf format	Appendix H





Appendix B Biodiversity Values Map and Threshold Tool Report

Biodiversity Development Assessment Report

SSD-68815961: Proposed BESS Facility

140 Ortlipp Road, Jindera NSW / 204 Ortlipp Road, Glenellen, NSW

BESS Atlantic Pty Ltd c/o Gransolar Development Australia Pty Ltd

SLR Project No.: 620.041088.00002

22 May 2025

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		25/08/2024 5:33 PM
1. Biodiversity Values (BV) Map - Results Summary (Biodiversity Conservation Regulation Section 7.3)		
1.1	Does the development Footprint intersect with BV mapping?	yes
1.2	Was <u>ALL</u> 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?	yes
2. Area Clearing Threshold - Results Summary (Biodiversity Conservation Regulation Section 7.2)		
2.1	Size of the development or clearing footprint	353,281.8 sqm
2.2	Native Vegetation Area Clearing Estimate (NVACE) (within development/clearing footprint)	93,565.4 sqm
2.3	Method for determining Minimum Lot Size	LEP
2.4	Minimum Lot Size (10,000sqm = 1ha)	1,000,000 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)	yes
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)		yes

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: _____

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

Date: _____

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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.

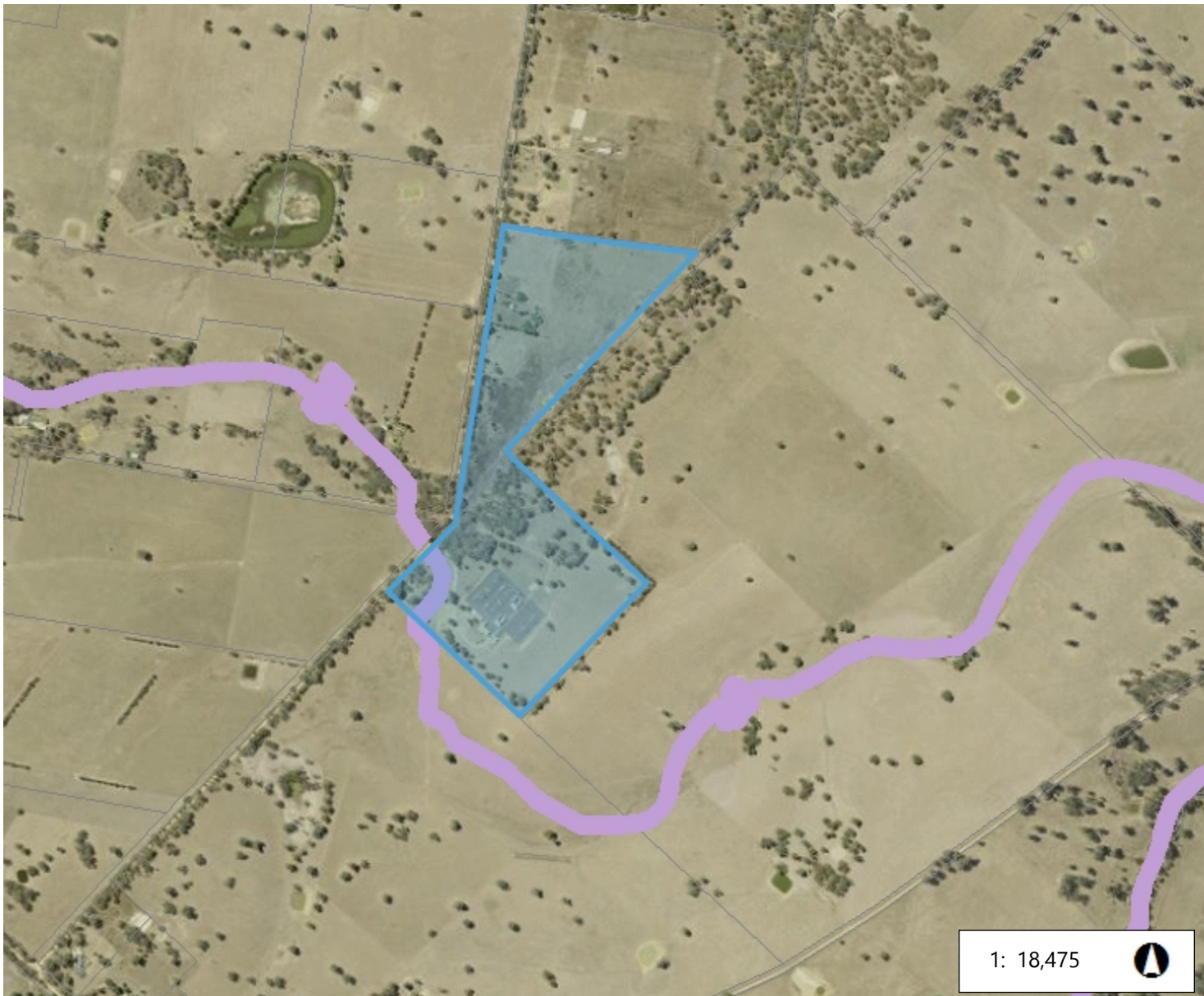
This report may be used as evidence for development applications submitted to councils. You may also use this report when considering native vegetation clearing under the State Environmental Planning Policy (Biodiversity and Conservation) 2021 - Chapter 2 vegetation in non-rural areas.

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.

Biodiversity Values Map



938.5 0 469.27 938.5 Metres

WGS_1984_Web_Mercator_Auxiliary_Sphere

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

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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.

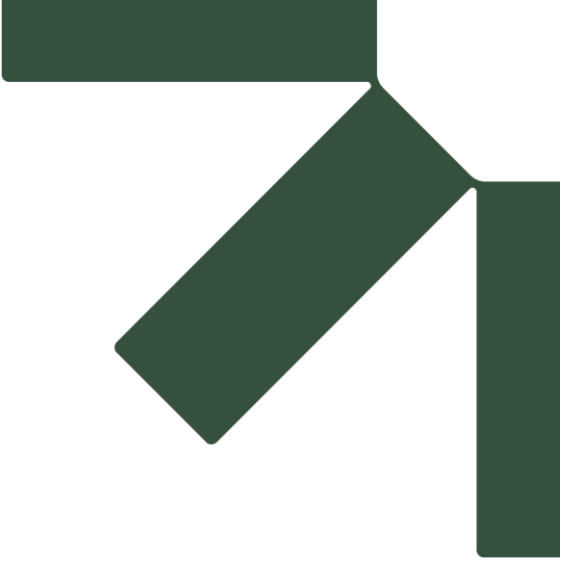
Imagery © Airbus DS/Spot Image 2016

© NSW Department of Customer Service, Basemaps 2019

© NSW Department of Planning and Environment

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.



Appendix C Test of Significance (n/a)

Biodiversity Development Assessment Report

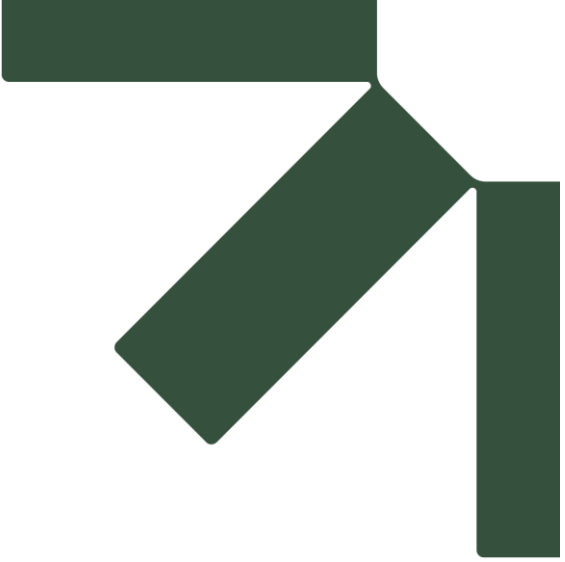
SSD-68815961: Proposed BESS Facility

140 Ortlipp Road, Jindera NSW / 204 Ortlipp Road, Glenellen, NSW

BESS Atlantic Pty Ltd c/o Gransolar Development Australia Pty Ltd

SLR Project No.: 620.041088.00002

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Appendix D Determination of Excluded Impacts (n/a)

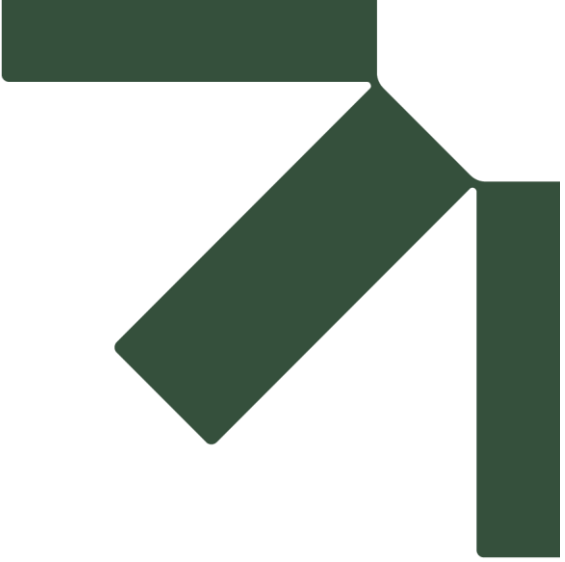
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Appendix E Matter of National Environmental Significance

Biodiversity Development Assessment Report

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22 May 2025

E.1 Matters of National Environmental Significance

E.1.1 Overview

Under the EPBC Act an action will require approval from the Australian Government Environment Minister (the 'minister') if the action has, will have, or is likely to have, a significant impact on a Matter of National Environmental Significance (MNES). The general test for significance is whether an impact is 'important, notable or of consequence, having regard to its context or intensity'.

The following section provides an assessment of the Matters of National Environmental Significance Significant Impact Guidelines 1.1 (DoE 2013) with respect to threatened species and communities, as well as migratory species that could utilise the subject land. This assessment aims to assist the applicant to decide whether they should submit a referral to the Commonwealth Department of Climate Change, Energy, the Environment and Water for a decision by the minister on whether assessment and approval is required under the EPBC Act.

E.1.2 Relevant Matters

A search of the Protected Matters Search Tool (PMST) reveals that 40 threatened species, nine migratory species (and/or their habitats) and three threatened ecological communities listed in the EPBC Act are predicted to occur within a 10km radius of the site (see attached PMST report).

In relation to the 40 threatened species listed under the EPBC Act that have been detected by the PMST most are also listed under the BC Act and are not associated with PCT 277 or are assessed in other sections of the BDAR. In this regard the BAM-C does not identify the following species as associated with PCT 277 and the vegetation and habitats within the subject land do not represent potential habitat for these species: Striped Legless Lizard, Southern Bell Frog, Sloane's Froglet, Key's Matchstick Grasshopper, Golden Sun Moth, Latham's Snipe, Australian Painted Snipe, Australasian Bittern, Common Greenshank, Curlew Sandpiper, Grey Falcon, Blue-winged Parrot, Plains-wanderer, Corben's Long-eared Bat, Slender Darling Pea *Swainsona murrayana*, Hoary Sunray *Leucochrysum albicans* subsp. *tricolor*, Crimson Spider Orchid *Caladenia concolor*, Tarengo Leek Orchid *Prasophyllum petilum*, Floating Swamp Wallaby-grass *Amphibromus fluitans* and Large-fruit Fireweed *Senecio macrocarpus*.

The subject land does not represent 'important habitat' for these species which have been assessed for ecosystem credits (i.e. foraging habitat) or removed from assessment based on habitat constraints: Swift Parrot, Gang-gang Cockatoo, Painted Honeyeater, Regent Honeyeater, Brown Treecreeper, White-threatened Needle-tail, Southern Whiteface, South-eastern Hooded Robin, Diamond Firetail, Spotted-tailed Quoll, Grey-headed Flying-fox and Pink-tailed Legless Lizard.

The following species have some potential to occur on the subject land but were not detected during targeted survey work: Koala, Superb Parrot and Small Purple Pea *Swainsona recta*. Due to the addition of the water pipeline area after surveys for these species the Superb Parrot and Small Purple Pea are 'assumed present', however based on the degraded nature of habitats and road-side disturbances it is considered unlikely that these species occur within the small 0.06-hectare impact area for the water pipeline. The subject land does not represent 'important habitat' (as defined by the 'Guidelines' - DoE 2013) for these species.

In relation to the remainder of the species (i.e. the 'EPBC Act only' listed entities):



- The subject land does not represent suitable habitat for aquatic species Macquarie Perch, Flathead Galaxias and Murray Crayfish – potentially relevant species are considered further in aquatic sections of the BDAR.
- The site lacks suitable wetland habitats for the Sharp-tailed Sandpiper.
- The Sturdy Leek-orchid *Prasophyllum validum* is not currently known to occur in the local area and is primarily distributed in Victoria and South Australia where it occurs within drier woodland habitats, generally with a low sparse understorey. The subject land does not represent suitable habitat for this species.

As such, none of the threatened species detected by the PMST are considered relevant matters for further assessment.

The subject land and assessment area do not contain 'important habitat' for migratory shorebirds (i.e. Latham's Snipe, Common Greenshank, Curlew Sandpiper, Pectoral Sandpiper, Sharp-tailed Sandpiper and Common Sandpiper). Important habitat for migratory shorebirds is defined as "those recognised as nationally or internationally important" (DEE 2017).

Other migratory species include two migrant non-breeding species from Asia (Fork-tailed Swift and White-throated Needletail) and the Yellow Wagtail which is an extremely uncommon migrant species to Australia (DoE 2015). The Fork-tailed Swift and White-throated Needletail are almost exclusively aerial, and the subject land is unlikely to provide 'important habitat' for these species. It is highly unlikely that the subject land represents important habitat for the Yellow Wagtail, based on its limited occurrence in Australia and the nature of the habitats on the subject land. As such, none of the migratory species detected by the PMST are considered relevant matters for further assessment.

The PCT 277 vegetation within the subject land has potential to represent the EPBC Act threatened ecological community, known as *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland*. The BDAR considers the associated threshold and conditions required for this vegetation to qualify under the EPBC Act listing and it has been determined that the vegetation is too degraded to meet the listing criteria.

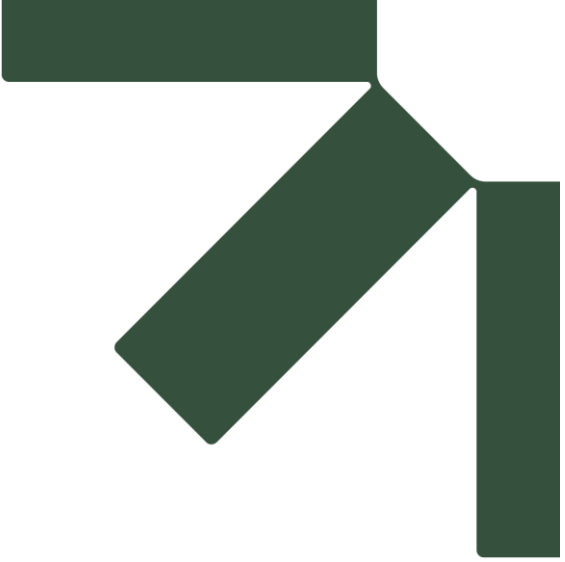
No other EPBC Act matters are of relevance to the biodiversity of the site.

E.1.3 Conclusion

Threatened species, migratory species and communities listed under the EPBC Act have been assessed for their relevance to the subject land and its habitats at Jindera, NSW. It has been determined that there are no relevant matters for assessment.

It is not likely that the proposed development will have a significant impact on any matters of national environmental significance with respect to threatened species, communities or migratory species listed under the EPBC Act. Referral of the development application to the Commonwealth Department of Climate Change, Energy, the Environment and Water is not warranted.





Appendix F Vegetation Survey Data

Biodiversity Development Assessment Report

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BEES Atlantic Pty Ltd c/o Gransolar Development Australia Pty Ltd

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22 May 2025

Table F1: Vegetation survey and data – plot info

Plot	PCT	Area	Patch size	Condition class	Zone	Easting	Northing	Bearing	Plot-based vegetation surveys	Vegetation integrity surveys
BAM01	277	1.75	200	Mod	55	491885	6024532	298	Yes	Yes
BAM02	277	1.75	200	Mod	55	491737	6024510	87	Yes	Yes
BAM03	277	1.75	200	Mod	55	491913	6024437	216	Yes	Yes
BAM04	277	1.75	200	Mod	55	491678	6024151	122	Yes	Yes
BAM05	277	1.13	200	Low	55	491691	6024641	40	Yes	Yes
BAM06	277	1.13	200	Low	55	491670	6024758	180	Yes	Yes

Table F2: Vegetation survey and data – composition

Plot	Tree	Shrub	Grass	Forb	Fern	Other
BAM01	0	0	9	6	0	0
BAM02	2	0	6	4	0	0
BAM03	1	0	6	3	0	0
BAM04	1	1	6	2	0	0
BAM05	1	0	4	1	0	0
BAM06	1	0	1	0	0	0

Table F3: Vegetation survey and data – structure

Plot	Tree	Shrub	Grass	Forb	Fern	Other
BAM01	0	0	88.1	3.5	0	0
BAM02	25	0	27.5	0.5	0	0
BAM03	20	0	12.1	0.3	0	0
BAM04	20	0.1	29	3	0	0
BAM05	25	0	15.2	0.1	0	0
BAM06	20	0	15	0	0	0

Table F4: Vegetation survey and data – function

Plot	Large Trees	Hollows trees	Litter cover	Length of fallen logs	Tree stem 5-9	Tree stem 10-19	Tree stem 20-29	Tree stem 30-49	Tree stem 50-79	Tree regen	High threat exotics
BAM01	0	0	28	0	Absent	Absent	Absent	Absent	Absent	Absent	1.1
BAM02	5	1	61	15	Present	Present	Present	Present	Present	Present	1.1
BAM03	1	1	30	0	Absent	Present	Present	Present	Present	Absent	30
BAM04	2	1	47	12	Absent	Absent	Present	Present	Present	Absent	32.1
BAM05	0	1	32	1	Present	Present	Present	Absent	Absent	Present	25
BAM06	0	1	50	2	Present	Present	Present	Absent	Absent	Present	25.1



Table F5: Vegetation survey and data – function

GF Code	Species Name	N, HTW, or Non-HTW	BAM01-Cover	BAM02-Cover	BAM03-Cover	BAM04-Cover	BAM05-Cover	BAM06-Cover
SG	<i>Acacia baileyana</i>	N	0	0	0	0.1	0	0
n/a	<i>Arctotheca calendula</i>	Non-HTW	0	0	1	5	0	2
FG	<i>Arthropodium fimbriatum</i>	N	0	0.2	0	0	0	0
GG	<i>Austrostipa scabra</i>	N	0	0	0	5	5	15
n/a	<i>Avena fatua</i>	Non-HTW	0	0	0	1	0	0
n/a	<i>Bromus diandrus</i>	HTW	1	0.1	20	30	15	5
n/a	<i>Bromus hordeaceus</i>	Non-HTW	0	0	0.1	2	0	0
n/a	<i>Bromus molliformis</i>	Non-HTW	0	0	0	0	0	0.1
GG	<i>Carex appressa</i>	N	30	5	0	0	0	0
GG	<i>Carex inversa</i>	N	0	15	5	0	0	0
n/a	<i>Cerastium glomeratum</i>	Non-HTW	0	10	0	0.2	0	0
n/a	<i>Cirsium vulgare</i>	Non-HTW	0.1	5	0.1	0	0	0
n/a	<i>Conyza bonariensis</i>	Non-HTW	0	0.1	0	0	0	0
GG	<i>Cymbopogon refractus</i>	N	1	0	0	0	0	0
n/a	<i>Dactylis glomerata</i>	Non-HTW	0	1	0	1	0	0
FG	<i>Dichondra repens</i>	N	0.1	0.1	0.1	0	0	0
n/a	<i>Ehrharta longiflora</i>	Non-HTW	0	0	0	0	0	0.1
GG	<i>Eleocharis acuta</i>	N	20	0	0	0	0	0
GG	<i>Eragrostis sp.</i>	N	10	0	1	0	0	0
TG	<i>Eucalyptus blakelyi</i>	N	0	15	20	20	25	20
TG	<i>Eucalyptus melliodora</i>	N	0	10	0	0	0	0
FG	<i>Euchiton involucratus</i>	N	0.1	0	0	0	0	0
n/a	<i>Galium aparine</i>	Non-HTW	0	0.2	0	0	0	0
FG	<i>Goodenia gracilis</i>	N	3	0	0	0	0	0
n/a	<i>Hordeum leporinum</i>	Non-HTW	0	1	3	3	0	0
FG	<i>Hypericum gramineum</i>	N	0	0	0	0	0.1	0
n/a	<i>Hypericum perforatum</i>	HTW	0	0	0	0	5	15
n/a	<i>Hypochaeris radicata</i>	Non-HTW	0.1	1	0	1	2	2
GG	<i>Juncus continuus</i>	N	5	5	2	5	0	0
GG	<i>Juncus planifolius</i>	N	10	0	0	0	0	0
GG	<i>Lachnagrostis filiformis</i>	N	0.1	0	0	0	0.2	0
FG	<i>Leptorhynchus squamatus</i>	N	0.1	0	0	0	0	0
n/a	<i>Lolium perenne</i>	Non-HTW	0	15	15	10	0	0
GG	<i>Microlaena stipoides</i>	N	0	1	0	3	0	0
FG	<i>Myriophyllum crispatum</i>	N	0.1	0	0	0	0	0
GG	<i>Panicum sp.</i>	N	10	0.5	0	0	0	0
n/a	<i>Phalaris aquatica</i>	Non-HTW	0	2	0	0	0	25
n/a	<i>Plantago coronopus</i>	Non-HTW	2	0	0	0	0	0
n/a	<i>Plantago lanceolata</i>	Non-HTW	0	0	0	0.1	0	0.1



GF Code	Species Name	N, HTW, or Non-HTW	BAM01-Cover	BAM02-Cover	BAM03-Cover	BAM04-Cover	BAM05-Cover	BAM06-Cover
n/a	<i>Poa annua</i>	Non-HTW	0.1	0	0	0	0	0
GG	<i>Poa sieberiana</i>	N	0	0	0	1	0	0
FG	<i>Ranunculus sessiliflorus</i>	N	0.1	0.1	0.1	0	0	0
n/a	<i>Romulea rosea</i>	HTW	0.1	1	10	2	5	5
n/a	<i>Rumex acetosella</i>	HTW	0	0	0	0.1	0	0.1
FG	<i>Rumex brownii</i>	N	0	0.1	0.1	2	0	0
GG	<i>Rytidosperma bipartitum</i>	N	0	0	0	0	5	0
GG	<i>Rytidosperma fulvum</i>	N	0	0	1	10	0	0
GG	<i>Rytidosperma setaceum</i>	N	0	0	0.1	5	0	0
GG	<i>Rytidosperma sp.</i>	N	2	1	3	0	5	0
FG	<i>Stellaria angustifolia</i>	N	0	0	0	1	0	0
n/a	<i>Sonchus asper</i>	Non-HTW	0.1	0.1	0.1	0	0	0
n/a	<i>Trifolium sp.</i>	Non-HTW	0	0.1	0	1	0	0
n/a	<i>Trifolium subterraneum</i>	Non-HTW	0	0	0	0	0	0.1
n/a	<i>Vulpia bromoides</i>	Non-HTW	0	0	0	20	0	10



Photo F6: BAM01 Start of transect in winter 2024



Photo F7: BAM01 Start of transect in spring 2024



Photo F8: BAM01 End of transect in winter 2024



Photo F9: BAM02 Start of transect in winter 2024



Photo F10: BAM02 Start of transect in spring 2024



Photo F11: BAM02 End of transect in winter 2024



Photo F12: BAM03 Start of transect in winter 2024



Photo F13: BAM03 Start of transect in spring 2024



Photo F14: BAM03 End of transect in winter 2024



Photo F15: BAM04 Start of transect in winter 2024



Photo F16: BAM04 Start of transect in spring 2024



Photo F17: BAM04 End of transect in winter 2024



Photo F18: BAM05 Start of transect in winter 2024



Photo F19: BAM05 Start of transect in spring 2024



Photo F20: BAM05 End of transect in winter 2024



Photo F21: BAM06 Start of transect in spring 2024



Photo F22: BAM06 End of transect in spring 2024



Groundcover check 10/10/2024 FI

Numbers 1- 8 on this page correlate with the numbers and explanatory notes on page 3									
Site sheet #	1 of	Date	03/07/24	Survey Name	Jimberna BESS	Plot Identifier	P1 (BAMOI)		
Recorders	Bo D, Vander B			IBRA region	NSW SW slopes Lower slopes	Veg zone ID	Z1		
Datum	5556	Co-ordinate system		MGA Zone	4	X coordinates	441885	Y coordinates	6024532
Location description									
Plot dimensions				Orientation of midline from 0m line		298°		Photo #	
20 x 50m								Pl. 1 - Pl. 2	

Vegetation integrity									
Composition and structure sum values may be calculated after entering data into available tools. If not required write in the field.									
Composition (400 m ² plot)			Structure (400 m ² plot)			Function (1000 m ² plot)			
		Sum values			Sum values (%) (may sum to >100%)	³ Tree stem size class (DBH)	If data are to be used as more appropriate local data i.e. to generate local benchmarks, stems must be counted		
Total count of native plant species (richness) in each growth form group (not individual plants within each growth form)	Trees (TG)	0	Sum of 2 foliage cover of native species by growth form group	Trees (TG)	0	80+ cm	Count best practice tick		
	Shrubs (SG)	0		Shrubs (SG)	0	50-79 cm	Count best practice tick. If 8 large tree benchmark size ≥ 50 cm count		
	Grasses (GG)	79		Grasses (GG)	68.881	30-49 cm	Count best practice tick. If 8 large tree benchmark size ≥ 30 cm count		
	Forbs (FG)	16		Forbs (FG)	0.13.5	20-29 cm	Count best practice tick. If 8 large tree benchmark size ≥ 20 cm count		
	Ferns (EG)	0		Ferns (EG)	0	10-19 cm	Count best practice tick		
	Other (OG)	0		Other (OG)	0	5-9 cm	Count best practice tick		
						⁴ Tree regeneration <5cm	Tick		
						⁵ Length of fallen logs	Tally space 0 Total 0		
						⁶ Hollow-bearing trees	Tick NONE		
Vegetation integrity - function cont. (five 1m ² plots)		⁷ Litter cover (%)		Bare ground cover (%)		Cryptogam cover (%)		Rock cover (%)	
Subplot scores		25 20 40 45 20		0 25 10 25 60		0 5 10 0 0		5 0 0 0 0	
Average of 5 subplots		28		24		5		1	

Vegetation class		⁸ Large tree benchmark size		20/ 30/ 50/ 80 DBH		Confidence	H/ M/ L
Plant community type (PCT)		277 (degraded by powerline)		EEC	Tick	Confidence	H/ M/ L
Photographs and site features that may help in determining PCT and management zone (optional) or for BioNet systematic flora survey purposes.							
Morphological type	Landform element	Landform pattern	Microrelief				
Lithology	Soil surface texture	Soil colour	Soil depth				
Slope	Aspect	Site drainage	Distance to nearest water type				
Disturbance	Severity code	Age code	Brief site description or other notes				
Clearing (inc. logging)	3	NR	Appears to become temporarily boggy light brown soil				
Cultivation (inc. pasture)	1	NR					
Soil erosion	1	2					
Firewood / CWD removal	3	E					
Grazing (id native/stock)	1	E					
Fire damage	0						
Storm damage	0		Emergent height				
Weediness	1	NR	Upper stratum height				
Other			Middle stratum ht				
			Lower stratum ht				
			Tp Md Bt				
			Tp Md Bt				
			Tp Md Bt				
			Tp Md Bt				

Severity: 2=low, 3=moderate, 4=high, 5=very high; Age: NR=not recent (<10yrs), E=recent (1-10yrs), O=old (>10yrs)



400 m2 floristics plot:	Survey Name	Plot Identifier	Recorders
Date 07 07 24	Jindera BESS	P1	Bo. D, Vander. B

GF code	Species name Full species name, or a unique means of identifying separate taxa within a survey is mandatory. Data from here will be used to assign growth form richness and cover.	N, HTW or non-HTW	Foliage cover	Abundance	Voucher
	Sedge, long inflorescences, photo		30	60	
	Club sedge, spreading leaf, photo		10	50	
✓ GG	<i>Juncus</i> <i>continuos</i> ? (photo)	N	5	10	
✓ GG	<i>Rytidosperma</i> sp.	N	2	20	
FG	<i>Habitus</i> sp. <i>Dichondra</i> <i>repens</i>	N	0.1	6	
✓ -	<i>Cinn</i> <i>vulgaris</i>	E	0.1	6	
-	<i>Sonchus</i> sp. <i>asper</i>	E	0.1	6	
GG	<i>Cymbopogon</i> <i>retrofractus</i>	N	1	6	
GG	<i>Eragrostis</i> sp.	N	10	30	
-	<i>Plantago</i> <i>coronopus</i>	E	2	100	
✓ -	<i>Hypochaeris</i> <i>radistia</i>	E	0.1	6	
GG	<i>Panicum</i> sp.	N	10	30	
✓ GG	<i>Carex</i> <i>applanata</i>	N	30	60	
GG	<i>Juncus</i> <i>planifolius</i>	N	10	50	
GG	15 <i>Eleocharis</i> <i>acuta</i>	N	20		
	16 <i>Sonchus</i> <i>asper</i>	E	0.1		
FG	17 <i>Catolpis</i> ? (from P3) <i>Ranunculus</i> <i>sessiflorus</i>	N	0.1		
GG	18 <i>Lachnagrostis</i> <i>filiformis</i>	N	0.1		
n/a	19 <i>Romulea</i> <i>rosea</i>	E	0.1		
FG	20 Mistle-like herb. <i>Myriophyllum</i> <i>crispatum</i>	N	0.1		
FG	21 <i>Bromus</i> <i>teptorhynchus</i> <i>Saxifragaceae</i> <i>Bottoms</i>	N	0.1		
n/a	22 <i>Bromus</i> <i>diandrus</i>	HTE	1		
FG	23 Bright green thick leaf herb <i>Diogenesia</i> <i>gracilis</i>	N	3		✓
FG	24 <i>Euchor</i> <i>andulicatus</i>	N	0.1		
n/a	25 <i>Poa</i> <i>annua</i>	E	0.1		
	26				
	27				
	28				
	29				
	30				
	31				
	32				
	33				
	34				
	35				

Print more copies of this page to allow for higher species counts at a plot. All vascular plant species in a plot need to be recorded.

GF Code: see growth form definitions in BAH 2020 Appendix F (TG Tree, SG shrub, GG grass, FG forb, EG fern, OG other, N: native, HTW: high threat weed)

Foliage cover: 0.1, 0.2, 0.5, 1, 2, 5, 10, 15, 20, 25, 100%. Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across; 0.5% = 20.8 x 20.8 cm, 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m. Note the top 5 dominant native species within each GF group.

Abundance: Count 1, 2, 3, ... when < 10, estimate when > 10, 20, 30, ... 100, 200, 300, ... 1000, 2000, 3000 (as integer values).



Groundcover check 10/10/24 F1

Numbers 1- 8 on this page correlate with the numbers and explanatory notes on page 3									
Site sheet #	1 of	Date	03 07 24	Survey Name	JINDERA BESS	Plot Identifier	P2 (BAMOL)		
Recorders	V.B. B.D.	IBRA region	NSW SW Slopes	Veg zone ID	2				
Datum	SS	Co-ordinate system	Projected or geographic	MGA Zone	H	1X coordinates	491737	1Y coordinates	6024510
Location description		Descriptive notes to locate site without grid reference							
Plot dimensions	20x50m				Orientation of midline from 0m line	87°	Photo #	P2.1- P2.2	

Datum: AGD66 WGS84 GDA94 GDA2020 or Other (specify). MGA Zone (for Projected coordinate system only): 56 (Coastal NSW), 55 (Central NSW) or 54 (Western NSW) X/Y coordinate: Long/Lat (for Projected coordinate system), Easting/Northing (for geographic coordinate system)

Vegetation integrity									
Composition and structure sum values may be completed after entering data into available tools. It is not required while in the field.									
Composition (400 m ² plot)			Structure (400 m ² plot)			Function (1000 m ² plot)			
		Sum values			Sum values (%) (may sum to >100%)	³ Tree stem size class (DBH)	If data are to be used as more appropriate local data i.e. to generate local benchmarks, stems must be counted		
Total count of native plant species (richness) in each growth form group (not individual plants within each growth form)	Trees (TG)	2	Sum of ² foliage cover of native species by growth form group	Trees (TG)	25	80+ cm	Count ☒		
	Shrubs (SG)	0		Shrubs (SG)	0	50-79 cm	Count (best practice) tick. If 8+ tree benchmark size > 30 cm count		
	Grasses (GG)	56		Grasses (GG)	12.5 27.5	30-49 cm	Count (best practice) tick. If 8+ tree benchmark size > 30 cm count		
	Forbs (FG)	24		Forbs (FG)	0.2 0.5	20-29 cm	Count (best practice) tick. If 8+ tree benchmark size > 20 cm count		
	Ferns (EG)	0		Ferns (EG)	0	10-19 cm	Count (best practice) tick		
	Other (OG)	0		Other (OG)	0	5-9 cm	Count (best practice) tick		
					Total high threat weed cover	1.1 ☒	⁵ Length of fallen logs	Count (best practice) tick. Total 15	
						⁶ Hollow-bearing trees	Count (best practice) tick		
Vegetation integrity - function cont. (five 1m ² plots)		⁷ Litter cover (%)		Bare ground cover (%)		Cryptogam cover (%)		Rock cover (%)	
Subplot scores		80 75 50 50 50		0 0 0 0 0		0 0 0 0 5		0 0 0 0 0	
Average of 5 subplots		62		0		1		0	

These attributes require consideration of site observations and may be completed after field work

Vegetation class	⁸ Large tree benchmark size	20/ 30/ 50/ 80 DBH	Confidence	H/ M/ L
Plant community type (PCT)	EEC	Tick	Confidence	H/ M/ L

Physiography and site features that may help in determining PCT and management zone (optional) or for BioNet systematic flora survey purposes

Morphological type	Landform element	Landform pattern	Microrelief			
Lithology	Soil surface texture	Soil colour	Soil depth			
Slope	Aspect	Site drainage	Distance to nearest water type			
Disturbance	Severity code	Age code	Brief site description or other notes			
Clearing (inc. logging)	1	NR	Appears to become temporarily bossy. Brown soil - Good litter and log cover.			
Cultivation (inc. pasture)	1	NR				
Soil erosion	1	R				
Firewood / CWD removal	1	NR				
Grazing (id native/stock)	1	R				
Fire damage	0	R				
Storm damage	1	R	Emergent height	Upper stratum height	Middle stratum ht	Lower stratum ht
Weediness	1	R	Tp Md Bt	Tp Md Bt	Tp Md Bt	Tp Md Bt
Other			m m m	m m m	m m m	m m m

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)



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≡ ≡



*SLR

400 m2 floristics plot:	Survey Name	Plot Identifier	Recorders
Date 030724	Jinkens BESS	P2	Bo. D, Vander. B

GF code	Species name Full species name, or a unique means of identifying separate taxa within a survey is mandatory. Data from here will be used to assign growth form richness and cover.	N, HTW or non-HTW	Foliage cover	Abundance	Voucher
✓ TG	Eucalyptus blakleyi	N	15	6	
✓ TG	Eucalyptus melliodora	N	10	3	
✓ GG	Juncus continuus	N	5	20	
✓ -	Hypochaeris adnata	E	1	50	
GG	Rytidosperma sp.	N	1	50	
FG	Oenothera repens	N	0.1	50	
GG	Panicum sp.	N	0.5	20	
✓ -	Rumex rosea	HTW	1	100	
✓ GG	Tall sedge (P) Carex appressa	N	5	10	
✓ -	Cirsium vulgare	E	2.5	20	
-	Coryza bonariensis	E	0.1	3	
GG	Muhlenbergia stipoides	N	1	50	
-	Dactylis glomerata	E	1	20	
✓ FG	Rumex brunneus	N	0.1	6	
-	Triticum sp.	E	0.1	6	
16	Phalaris aquatica	E	2	5	
FG	Anthropodium fimbriatum	N	0.2		
-	Cerastium glomeratum	E	10		
GH	Carex inversa	N	15		
-	Hordeum leporinum	E	1		
-	Bromus diandra	E	0.1		
-	Lolium perenne	E	15		
FG	Cactis? Ranunculus sess. flexuosus from earth	N	0.1		
-	Galium aparine	E	0.2		
-	Sonchus asper	E	0.1		
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					

Print more copies of this page to allow for higher species counts at a plot. All vascular plant species in a plot need to be recorded.

GF Code - see growth form definitions in BAF 2020 Appendix F (TG: Tree, SG: shrub, GG: grass, FG: forb, EG: fern, OG: other, N: native, HTW: high threat weed)

Foliage cover 0.1, 0.2, 0.5, 1, 2, 3, 4, 5, 10, 15, 20, 25, 100%; Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across; 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m. Note the top 3 dominant native species within each GF group

Abundance Count: 1, 2, 3, 4, 5, 10, 20, 30, 100, 200, 300, 1000, 2000, 3000 (as integer values)



Arundone Check 10/10/24 F1

Numbers 1- 8 on this page correlate with the numbers and explanatory notes on page 3									
Site sheet #	1 of	Date	0307 24	Survey Name	JINDAMMA	Plot Identifier	P3 (BAM03)		
Recorders	VB B.D.			IBRA region	NW SW slopes Lower slopes		Veg zone ID		
Datum	SS	Co-ordinate system	Projected or geographic	MGA Zone	H	1X coordinates	491913	1Y coordinates	6024437
Location description			Descriptive notes to locate site without grid reference						
Plot dimensions	20x50m				Orientation of midline from 0m line	Magne	216	Photo #	P3.1- P3.2

Datum: AGD66, WGS84, GDA94, GDA2020 or Other (specify). MGA Zone: (for Projected coordinate system only): 56 (Coastal NSW), 53 (Central NSW) or 54 (Western NSW). XY coordinate: Long/Lat (for Projected coordinate system), Easting/Northing (for geographic coordinate system)

Vegetation integrity									
Composition and structure sum values may be completed after entering data into available tools. It is not required while in the field									
Composition (400 m ² plot)			Structure (400 m ² plot)			Function (1000 m ² plot)			
		Sum values			Sum values (%) (may sum to >100%)	³ Tree stem size class (DBH)	If data are to be used as more appropriate local data i.e. to generate local benchmarks, stems must be counted		
Total count of native plant species (richness) in each growth form group (not individual plants within each growth form)	Trees (TG)	1	Sum of ² foliage cover of native species by growth form group	Trees (TG)	20	80+ cm	Count ☒		
	Shrubs (SG)	0		Shrubs (SG)	0	50-79 cm	Count (best practice/tick: if 1 large tree benchmark size ≥ 50 cm, count)		
	Grasses (GG)	46		Grasses (GG)	712.1	30-49 cm	Count (best practice/tick: if 1 large tree benchmark size ≥ 50 cm, count)		
	Forbs (FG)	13		Forbs (FG)	0.10.3	20-29 cm	Count (best practice/tick: if 1 large tree benchmark size ≥ 20 cm, count)		
	Ferns (EG)	0		Ferns (EG)	0	10-19 cm	Count (best practice/tick: if 1 large tree benchmark size ≥ 20 cm, count)		
	Other (OG)	0		Other (OG)	0	5-9 cm	Count (best practice/tick: if 1 large tree benchmark size ≥ 20 cm, count)		
				Total high threat weed cover	230	⁵ Length of fallen logs	Tally space	☒	
						⁶ Hollow-bearing trees	Tally space	☒	
Vegetation integrity - function cont. (five 1m ² plots)		⁷ Litter cover (%)		Bare ground cover (%)		Cryptogam cover (%)		Rock cover (%)	
Subplot scores		45 30 25 25 25		0 0 0 0 15		0 0 0 0 0		0 0 0 0 0	
Average of 5 subplots		30		3		0		0	

These attributes require consideration of site observations and may be completed after field work

Vegetation class		⁸ Large tree benchmark size	20/ 30/ 50/ 80 DBH	Confidence	H/ M/ L
Plant community type (PCT)	277	EEC	☒	Confidence	H/ M/ L

Physiography and site features that may help in determining PCT and management zone (optional) or for BioNet systematic flora survey purposes

Morphological type		Landform element		Landform pattern		Microrelief	
Lithology		Soil surface texture		Soil colour		Soil depth	
Slope		Aspect		Site drainage		Distance to nearest water type	
Disturbance	Severity code	Age code	Brief site description or other notes				
Clearing (inc. logging)	2	NR	Appears to become temporarily boggy. Brown soil. Plenty of litter.				
Cultivation (inc. pasture)	2	NR					
Soil erosion	1	R					
Firewood / CWD removal	1	R					
Grazing (id native/stock)	1	R					
Fire damage	0	R					
Storm damage	1	R	Emergent height				
Weediness	2	R	Upper stratum height				
Other			Middle stratum ht				
			Lower stratum ht				
			Tp Md Bt Tp Md Bt Tp Md Bt Tp Md Bt				
			m m m m m m m m m m m m				

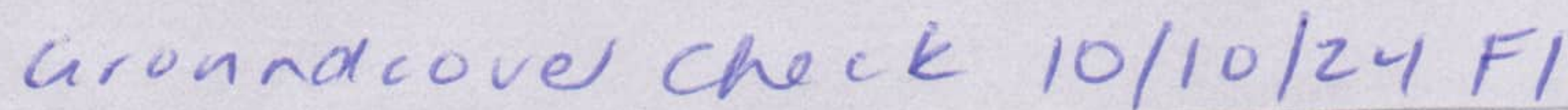
Severity: 0=no evidence, 1=light, 2=moderate, 3=severe Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)



400 m2 floristics plot:		Survey Name	Plot Identifier	Recorders
Date	03 07 24	Jindera BESS	P3	Br. P. Vander. B

GF code	Species name	N, HTW or non-HTW	² Foliage cover	Abundance	Voucher
	Full species name, or a unique means of identifying separate taxa within a survey is mandatory. Data from here will be used to assign growth form richness and cover.				
✓ TG	Eucalyptus blakleyi	N	20	10	
✓ GG	Juncus tenuis	N	2	10	
✓ -	Romulea rosea	HTE	10	200	
GG	Rytidosperma sp.	N	3	50	
GG	Eragrostis sp.	N	1	20	
FG	Dichonaea repens	N	0.1	20	
✓ GG	Rytidosperma fulvum	N	1	30	
-	8 Small dark leaved star ball flower herb	E	1		✓ P
GH	9 Carex invaria	N	5		
-	10 Bromus diandrus	HTE	20		
-	11 Lolium perenne	E	15		
FL	12 Galatris Ranunculus sessiflorus	N	0.1		✓ P
-	13 Cirsium vulgare	E	0.1		
-	14 Bromus hordeaceus Soft Brome	E	0.1		
-	15 Hordeum leporinum	E	3		
GG	16 Rytidosperma setaceum	N	0.1		
	17 Rumex brownii	N	0.1		
	18 Sonchus asper	E	0.1		
	19				
	20				
	21				
	22				
	23				
	24				
	25				
	26				
	27				
	28				
	29				
	30				
	31				
	32				
	33				
	34				
	35				





Numbers 1- 8 on this page correlate with the numbers and explanatory notes on page 3									
Site sheet #	1 of	Date	04 07 24	Survey Name	TINDERA	Plot Identifier	P4 (Barro)		
Recorders	VB, BD			IBRA region	NSW SW Slopes Lower slopes	Veg zone ID			
Datum	SS	Co-ordinate system	Projected or geographic	MGA Zone	H	1°X coordinates	491678	1°Y coordinates	624151
Location description			Descriptive notes to locate site without grid reference						
Plot dimensions	For composition & structure (400m ²): 20 m x 20 m For structure (1000m ²): 20 m x 50 m				Orientation of midline from 0m line	Magnetic	Photo #	P4.1 - P4.2	
	20 x 50m					222°			

Vegetation integrity														
Composition and structure sum values may be completed after entering data into available tools. It is not required while in the field.														
Composition (400 m ² plot)			Structure (400 m ² plot)			Function (1000 m ² plot)								
		Sum values			Sum values (%) (may sum to >100%)	³ Tree stem size class (DBH)		If data are to be used as more appropriate local data i.e. to generate local benchmarks, stems must be counted						
Total count of native plant species (richness) in each growth form group (not individual plants within each growth form)	Trees (TG)	1	Sum of ² foliage cover of native species by growth form group	Trees (TG)	20	80+ cm		Count ☒						
	Shrubs (SG)	1		Shrubs (SG)	0.1	50-79 cm		Count (best practice)/tick. If large tree benchmark size > 20 cm, count ☒						
	Grasses (GG)	56		Grasses (GG)	2129	30-49 cm		Count (best practice)/tick. If large tree benchmark size > 20 cm, count ☒						
	Forbs (FG)	12		Forbs (FG)	13	20-29 cm		Count (best practice)/tick. If large tree benchmark size > 20 cm, count ☒						
	Ferns (EG)	0		Ferns (EG)	0	10-19 cm		Count (best practice)/tick ☒						
	Other (OG)	0		Other (OG)	0	5-9 cm		Count (best practice)/tick ☒						
			Total high threat weed cover		232.1	⁵ Length of fallen logs					Total 12 m			
						⁶ Hollow-bearing trees		Tick ☒						
Vegetation integrity - function cont. (five 1m ² plots)		⁷ Litter cover (%)			Bare ground cover (%)			Cryptogam cover (%)			Rock cover (%)			
Subplot scores		20 50 40 50 75			0 5 5 5 0			0 0 25 0 0			0 0 0 0 0			
Average of 5 subplots		47			3			3			0			

Vegetation class		⁸ Large tree benchmark size	20/ 30/ 50/ 80 DBH	Confidence	H/ M/ L	
Plant community type (PCT)			EEC	Tick	Confidence	H/ M/ L

Morphological type		Landform element		Landform pattern		Microrelief	
Lithology		Soil surface texture		Soil colour		Soil depth	
Slope		Aspect		Site drainage		Distance to nearest water type	

[illegible]

400 m2 floristics plot:	Survey Name	Plot Identifier	Recorders
Date 04 07 2024	Tinderra BESS	P4	Bo. D, Vander. B

GF code	Species name Full species name, or a unique means of identifying separate taxa within a survey is mandatory. Data from here will be used to assign growth form richness and cover.	N, HTW or non-HTW	Foliage cover	Abundance	Voucher
✓ TG	Eucalyptus blakleyi	N	20	3	
✓ GG	Juncus contrivus	N	5	10	
✓ -	Rumex rocea	HTW	2	300	
-	Dactylis glomerata	E	1	20	30
✓ GG	Rytidosperma sp. (hairs) fulvum	N	10	100	
FG	Rumex brownii	N	2	20	
-	Trifolium sp.	E	1	50	
-	Hypochaeris radiata	E	1	50	
GG	Microlema stipoides	N	3	50	
GG	Rytidosperma setaceum	N	5	50	
-	Abrotanella colendula	E	5	50	
SG	Acaia bailyana	N	0.1	1	
GG	Acaia sp. Austrostipa sp (A. scabra)	N	5	50	
14	Juncus abrie				
na 15	Bromus diandrus	HT E	30		55
na 16	holium perenne	E	10		
na 17	Avena fatua	E	1		
na 18	Bromus mollis (Soft Brone) ^{hordeaceus}	E	2		
na 19	Plantago lanceolata	E	0.1		
20	Rumex brownii	N	2	above	
na 21	Vulpia bromoides	E	20		
na 22	Hordeum luparium	E	3		
ah 23	Poa sieberiana	N	0.1		
na 24	Cerastium glomeratum	E	0.2		
Ph	Stellaria angustifolia Stellaria?	N	1		✓ P
na	Rumex acetosella (Sorrel)	HTW	0.1		

GF code: 14-24 are codes to denote higher species counts at a plot. All vascular plant species in a plot need to be recorded.

GF Code: 14-24 are codes to denote higher species counts at a plot. All vascular plant species in a plot need to be recorded.

Foliage cover: 0.1, 0.2, 0.5, 1, 2, 3, 4, 5, 10, 15, 20, 25, 100%. Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 7.1 cm across. 1% cover represents an area of approximately 1.4 x 1.4 m and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m. Note the top 5 dominant native species within each GF group.

Abundance: Count 1, 2, 3, 4, 5, 10, 20, 30, 100, 200, 300, 1000, 2000, 3000, (as integer values)



Groundcover check 10/10/24 FI

Numbers 1- 8 on this page correlate with the numbers and explanatory notes on page 3									
Site sheet #	1 of	Date	04 Oct 24	Survey Name	JINXERA	Plot Identifier	PS (Barnos)		
Recorders	VB, BB			IBRA region	NSW sw slopes Lower Slopes	Veg zone ID			
Datum	55	Co-ordinate system	Projected or geographic	MGA Zone	4	1X coordinates	492691	1Y coordinates	602464
Location description		Descriptive notes to locate site without grid reference							
Plot dimensions	20x50m				Orientation of midline from 0m line	Magnetic	40	Photo #	PS. 1- PS. 2

Datum: AGD66, WGS84, GDA94, GDA2020 or Other (specify). MGA Zone (for Projected coordinate system only): 56 (Coastal NSW), 55 (Central NSW or 54 (Western NSW). XY coordinate. Long/Lat (for Projected coordinate system), Easting/Northing (for geographic coordinate system)

Vegetation integrity									
Composition and structure sum values may be completed after entering data into available tools. It is not required while in the field									
Composition (400 m ² plot)			Structure (400 m ² plot)			Function (1000 m ² plot)			
		Sum values			Sum values (%) (may sum to >100%)	³ Tree stem size class (DBH)	If data are to be used as more appropriate local data i.e. to generate local benchmarks, stems must be counted		
Total count of native plant species (richness) in each growth form group (not individual plants within each growth form)	Trees (TG)	1	Sum of ² foliage cover of native species by growth form group	Trees (TG)	25	80+ cm	Count ☒		
	Shrubs (SG)	0		Shrubs (SG)	0	50-79 cm	Count (best practice)/tick. If 8 large tree benchmark size ≥ 50 cm, count ☒		
	Grasses (GG)	34		Grasses (GG)	15	30-49 cm	Count (best practice)/tick. If 8 large tree benchmark size ≥ 30 cm, count ☒		
	Forbs (FG)	1		Forbs (FG)	0.1	20-29 cm	Count (best practice)/tick. If 8 large tree benchmark size ≥ 20 cm, count ☒		
	Ferns (EG)	0		Ferns (EG)	0	10-19 cm	Count (best practice)/tick. If 8 large tree benchmark size ≥ 10 cm, count ☒		
	Other (OG)	0		Other (OG)	0	5-9 cm	Count (best practice)/tick. If 8 large tree benchmark size ≥ 5 cm, count ☒		
				Total high threat weed cover	225	⁵ Length of fallen logs	1 ally space	Total	7 m
						⁶ Hollow-bearing trees	Tick	☒	
Vegetation integrity - function cont. (five 1m ² plots)		⁷ Litter cover (%)		Bare ground cover (%)		Cryptogam cover (%)		Rock cover (%)	
Subplot scores		25 50 25 40 20		0 0 5 0 0		0 0 0 0 0		0 0 0 0 0	
Average of 5 subplots		32		1		0		0	

These attributes require consideration of site observations and may be completed after field work

Vegetation class	⁸ Large tree benchmark size	20/ 30/ 50/ 80 DBH	Confidence	H/ M/ L
Plant community type (PCT)	EEC	Tick	Confidence	H/ M/ L

Physiography and site features that may help in determining PCT and management zone (optional) or for BioNet systematic flora survey purposes

Morphological type	Landform element	Landform pattern	Microrelief		
Lithology	Soil surface texture	Soil colour	Soil depth		
Slope	Aspect	Site drainage	Distance to nearest water type		
Disturbance	Severity code	Age code	Brief site description or other notes Regrowth vegetation. Yellow brown soils.		
Clearing (inc. logging)	2-3	NR			
Cultivation (inc. pasture)	2	NR			
Soil erosion	0				
Firewood / CWD removal	2	R			
Grazing (id native/stock)	0				
Fire damage	0				
Storm damage	1	R			
Weediness	2	R			
Other					
Emergent height			Upper stratum height	Middle stratum ht	Lower stratum ht
Tp Md Bt			Tp Md Bt	Tp Md Bt	Tp Md Bt
m m m			m m m	m m m	m m m

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)



400 m2 floristics plot:		Survey Name	Plot Identifier	Recorders
Date	04.07.24	Jindera BESS	P5	Bo. D. Vander. B

[illegible]

Numbers 1- 8 on this page correlate with the numbers and explanatory notes on page 3

Site sheet #	1 of	Date	19 Nov 24	Survey Name	JINDENA	Plot Identifier	P6
Recorders	V.B. , F.I.			IBRA region	NSW SW Slopes	Veg zone ID	
Datum	SS	Co-ordinate system	Projected or geographic	MGA Zone	H	'X coordinates	369245
						'Y coordinates	146.907706
Location description		Descriptive notes to locate site without grid reference					
Plot dimensions	20 x 50 m			Orientation of midline from 0m line	180	Photo #	P6.1 P6.2

Datum: AGD66, WGS84, GDA94, GDA2020 or Other (specify); MGA Zone (for Projected coordinate system only): 56 (Coastal NSW), 55 (Central NSW) or 54 (Western NSW); X/Y coordinates: Long/Lat (for Projected coordinate system), Easting/Northing (for geographic coordinate system)

Vegetation integrity									
Composition and structure sum values may be completed after entering data into available tools. It is not required while in the field									
Composition (400 m ² plot)			Structure (400 m ² plot)			Function (1000 m ² plot)			
		Sum values			Sum values (%) (may sum to >100%)	³ Tree stem size class (DBH)	If data are to be used as more appropriate local data i.e. to generate local benchmarks, stems must be counted		
Total count of native plant species (richness) in each growth form group (not individual plants within each growth form)	Trees (TG)	1	Sum of ² foliage cover of native species by growth form group	Trees (TG)	20	80+ cm	Count ☒		
	Shrubs (SG)	0		Shrubs (SG)	0	50-79 cm	Count (best practice/tick, if 8 large tree benchmark size ≥ 50 cm, count) ☒		
	Grasses (GG)	1		Grasses (GG)	15	30-49 cm	Count (best practice/tick, if 8 large tree benchmark size ≥ 30 cm, count) ☒		
	Forbs (FG)	0		Forbs (FG)	0	20-29 cm	Count (best practice/tick, if 8 large tree benchmark size ≥ 20 cm, count) ☒		
	Ferns (EG)	0		Ferns (EG)	0	10-19 cm	Count (best practice/tick) ☒		
	Other (OG)	0		Other (OG)	0	5-9 cm	Count (best practice/tick) ☒		
						⁴ Tree regeneration <5cm	Count (best practice/tick) ☒		
Total high threat weed cover				25.1	⁵ Length of fallen logs	Count (best practice/tick) ☒			
						⁶ Hollow-bearing trees	Tick ☒ (NTIN Plot)		
Vegetation integrity - function cont. (five 1m ² plots)		⁷ Litter cover (%)		Bare ground cover (%)		Cryptogam cover (%)		Rock cover (%)	
Subplot scores		40 30 30 35 50		0 5 0 5 0		0 0 0 0 0		0 0 0 0 0	
Average of 5 subplots		50		2		0		0	

These attributes require consideration of site observations and may be completed after field work.

Vegetation class		⁸ Large tree benchmark size	20/ 30/ 50/ 80 DBH	Confidence	H/ M/ L
Plant community type (PCT)		EEC	Tick	Confidence	H/ M/ L

Physiography and site features that may help in determining PCT and management zone (optional) or for BioNet systematic flora survey purposes

Morphological type		Landform element		Landform pattern		Microrelief												
Lithology		Soil surface texture		Soil colour		Soil depth												
Slope		Aspect		Site drainage		Distance to nearest water type												
Disturbance	Severity code	Age code	Brief site description or other notes															
Clearing (inc. logging)																		
Cultivation (inc. pasture)																		
Soil erosion																		
Firewood / CWD removal																		
Grazing (id native/stock)																		
Fire damage																		
Storm damage																		
Weediness																		
Other																		
								Emergent height				Upper stratum height				Middle stratum ht		
			Tp Md Bt				Tp Md Bt				Tp Md Bt				Tp Md Bt			
			m m m				m m m				m m m				m m m			

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)



400 m2 floristics plot:	Survey Name	Plot identifier	Recorders
Date	9 10 2024	Jindiva Spring	PG
			Fiona Iolini

GF code	Species name Full species name, or a unique means of identifying separate taxa within a survey is mandatory. Data from here will be used to assign growth form richness and cover.	N, HTW or non-HTW	² Foliage cover	Abundance	Voucher
1	E. tetraetorum Makelyi	N	20		
2	Bromus diandrus	HTE	5		
3	Romulea rosea	ATE	5		
4	Mentha sativoides Hypericum perforatum	HTE	15		
5	Austrostipa scabra	N	15		
6	Plantago lanceolata	E	0.1		
7	Hypochaeris radicata	E	2		
8	Aritotheca calendula	E	2		
9	Lotus australis? Trifolium subterraneum	E	0.1		✓ P
10	Phalaris aquatica	E	25		
11	Vulpia bromoides	E	10		✓ A
12	Rumex acetosella	HTE	0.1		
13	Bromus molliformis	E	0.1		
14	Ehrharta longiflora	Awn grass? E	0.1		✓ P
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					

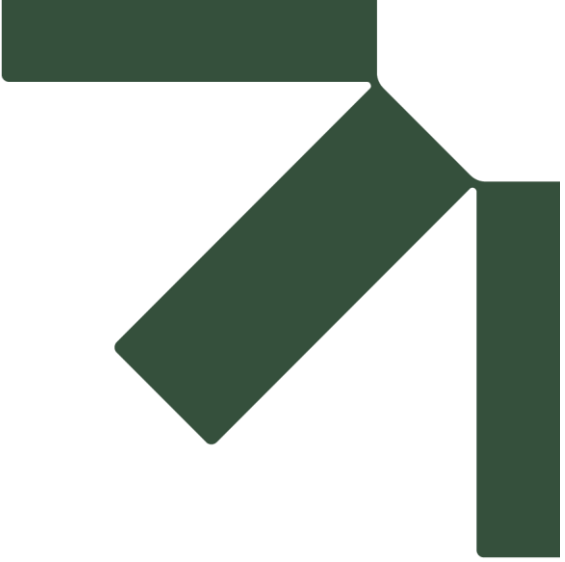
Print more copies of this page to allow for higher species counts at a plot. All vascular plant species in a plot need to be recorded.

GF Code: see growth form definitions in SAM 2020 Appendix F (TG Tree, SG shrub, GG grass, FG forb, EG fern, OG other, N native, HTW: high threat weed)

² Foliage cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, 4, 5, 10, 15, 20, 25, ..., 100%. Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across; 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m. Note the top 3 dominant native species within each GF group.

Abundance: Count 1, 2, 3, ..., when ≤10; estimate when >10: 20, 30, 100, 200, 300, ..., 1000, 2000, 3000, ... (as integer values)





Appendix G Decision-maker Authorisation to Use More Appropriate Local Data (n/a)

Biodiversity Development Assessment Report

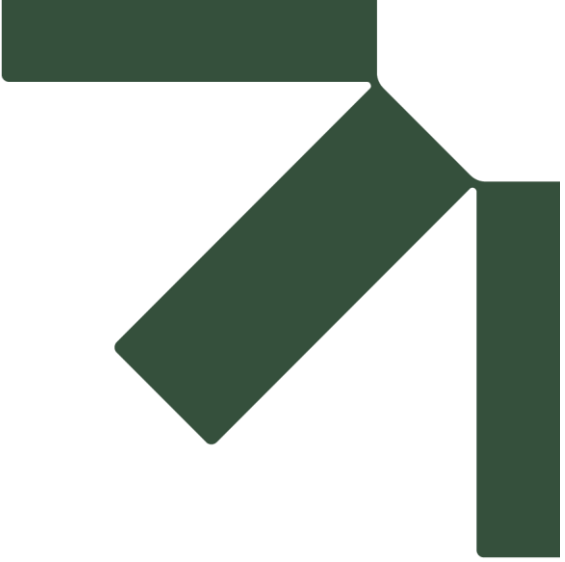
SSD-68815961: Proposed BESS Facility

140 Ortlipp Road, Jindera NSW / 204 Ortlipp Road, Glenellen, NSW

BESS Atlantic Pty Ltd c/o Gransolar Development Australia Pty Ltd

SLR Project No.: 620.041088.00002

22 May 2025



Appendix H Credit Reports

Biodiversity Development Assessment Report

SSD-68815961: Proposed BESS Facility

140 Ortlipp Road, Jindera NSW / 204 Ortlipp Road, Glenellen, NSW

BESS Atlantic Pty Ltd c/o Gransolar Development Australia Pty Ltd

SLR Project No.: 620.041088.00002

22 May 2025

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00047584/BAAS19042/24/00047585	Jindera BESS Facility	28/10/2024
Assessor Name	Report Created	BAM Data version *
Fiona Iolini	22/05/2025	Current classification (live - default) (80)
Assessor Number	BAM Case Status	Date Finalised
BAAS19042	Finalised	22/05/2025
Assessment Revision		Assessment Type
0		Major Projects

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	TEC name	Current Vegetation integrity score	Change in Vegetation integrity (loss / gain)	Area (ha)	Sensitivity to loss (Justification)	Species sensitivity to gain class	BC Act Listing status	EPBC Act listing status	Biodiversity risk weighting	Potential SAI	Ecosystem credits
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Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

1	277_Mod	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 Highla	58.6	31.4	1.8	Population size	Low Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.00	True	27
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BAM Credit Summary Report

2	277_Low	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 Highla	30.5	19.1	1.1	Population size	Low Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.00	True	11
											Subtotal	38
											Total	38

Species credits for threatened species

Vegetation zone name	Habitat condition (Vegetation Integrity)	Change in habitat condition	Area (ha)/Count (no. individuals)	Sensitivity to loss (Justification)	Sensitivity to gain (Justification)	BC Act Listing status	EPBC Act listing status	Potential SAII	Species credits
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BAM Credit Summary Report

<i>Cullen parvum / Small Scurf-pea (Flora)</i>										
277_Mod	31.4	31.4	0.23	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Endangered	Not Listed	False		4
277_Low	19.1	19.1	0.23	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Endangered	Not Listed	False		2
								Subtotal		6
<i>Ninox connivens / Barking Owl (Fauna)</i>										
277_Mod	31.4	31.4	0.06	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False		1
								Subtotal		1
<i>Petaurus norfolcensis / Squirrel Glider (Fauna)</i>										
277_Low	19.1	19.1	1.1	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False		11
277_Mod	31.4	31.4	1.8	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False		27
								Subtotal		38

<i>Polytelis swainsonii</i> / Superb Parrot (Fauna)									
277_Mod	31.4	31.4	0.06	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Vulnerable	False	1
								Subtotal	1
<i>Swainsona recta</i> / Small Purple-pea (Flora)									
277_Mod	31.4	31.4	0.06	Biodiversity Conservation Act listing status	Effectiveness of management in controlling threats	Endangered	Endangered	False	1
								Subtotal	1
<i>Swainsona sericea</i> / Silky Swainson-pea (Flora)									
277_Mod	31.4	31.4	0.06	Biodiversity Conservation Act listing status	Ability to colonise improved habitat	Vulnerable	Not Listed	False	1
								Subtotal	1
<i>Tyto novaehollandiae</i> / Masked Owl (Fauna)									
277_Mod	31.4	31.4	0.06	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False	1
								Subtotal	1

BAM Candidate Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00047584/BAAS19042/24/00047585	Jindera BESS Facility	28/10/2024
Assessor Name	Report Created	BAM Data version *
Fiona Iolini	22/05/2025	Current classification (live - default) (80)
Assessor Number	Assessment Type	BAM Case Status
BAAS19042	Major Projects	Finalised
Assessment Revision		Date Finalised
0		22/05/2025

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

List of Species Requiring Survey

Name	Presence	Survey Months
<i>Burhinus grallarius</i> Bush Stone-curlew	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☒ Jul ☐ Aug ☐ Sep ☒ Oct ☐ Nov ☒ Dec ☐ Survey month outside the specified months?
<i>Callocephalon fimbriatum</i> Gang-gang Cockatoo	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☒ Oct ☐ Nov ☒ Dec ☐ Survey month outside the specified months?
<i>Cercartetus nanus</i> Eastern Pygmy-possum	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☒ Oct ☐ Nov ☒ Dec ☐ Survey month outside the specified months?

BAM Candidate Species Report

<i>Cullen parvum</i> Small Scurf-pea	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
<i>Haliaeetus leucogaster</i> White-bellied Sea-Eagle	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☒ Jul ☐ Aug ☐ Sep ☒ Oct ☐ Nov ☒ Dec ☐ Survey month outside the specified months?
<i>Hieraaetus morphnoides</i> Little Eagle	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☒ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
<i>Lophoictinia isura</i> Square-tailed Kite	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☒ Oct ☐ Nov ☒ Dec ☐ Survey month outside the specified months?
<i>Myotis macropus</i> Southern Myotis	No (surveyed)	☐ Jan ☐ Feb ☒ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
<i>Ninox connivens</i> Barking Owl	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?

BAM Candidate Species Report

<i>Petaurus norfolcensis</i> Squirrel Glider	Yes (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☒ Jul ☐ Aug ☐ Sep ☒ Oct ☐ Nov ☒ Dec
		☐ Survey month outside the specified months?
<i>Phascolarctos cinereus</i> Koala	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☒ Jul ☐ Aug ☐ Sep ☒ Oct ☐ Nov ☒ Dec
		☐ Survey month outside the specified months?
<i>Polytelis swainsonii</i> Superb Parrot	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec
		☐ Survey month outside the specified months?
<i>Pteropus poliocephalus</i> Grey-headed Flying-fox	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☒ Oct ☐ Nov ☒ Dec
		☐ Survey month outside the specified months?
<i>Swainsona recta</i> Small Purple-pea	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec
		☐ Survey month outside the specified months?
<i>Swainsona sericea</i> Silky Swainson-pea	Yes (assumed present)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec
		☐ Survey month outside the specified months?

BAM Candidate Species Report

<i>Tyto novaehollandiae</i> Masked Owl	Yes (assumed present)	☐ Jan	☐ Feb	☐ Mar	☐ Apr
		☐ May	☐ Jun	☐ Jul	☐ Aug
		☐ Sep	☐ Oct	☐ Nov	☐ Dec
		☐ Survey month outside the specified months?			

Threatened species Manually Added

Common Name	Scientific Name
Large Bent-winged Bat	Miniopterus orianae oceanensis

Threatened species assessed as not on site

Refer to BAR for detailed justification

Common name	Scientific name	Justification in the BAM-C
Large Bent-winged Bat	Miniopterus orianae oceanensis	Habitat constraints
Large-eared Pied Bat	Chalinolobus dwyeri	Habitat constraints
Pink-tailed Legless Lizard	Aprasia parapulchella	Habitat constraints
Regent Honeyeater	Anthochaera phrygia	Habitat constraints
Squirrel Glider in the Wagga Wagga Local Government Area	Petaurus norfolcensis - endangered population	Refer to BAR
Swift Parrot	Lathamus discolor	Habitat constraints

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00047584/BAAS19042/24/00047585	Jindera BESS Facility	28/10/2024
Assessor Name	Report Created	BAM Data version *
Fiona Iolini	22/05/2025	Current classification (live - default) (80)
Assessor Number	Assessment Type	BAM Case Status
BAAS19042	Major Projects	Finalised
Assessment Revision		Date Finalised
0		22/05/2025

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name	Vegetation Types(s)
Black Falcon	Falco subniger	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Diamond Firetail	Stagonopleura guttata	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Dusky Woodswallow	Artamus cyanopterus cyanopterus	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Flame Robin	Petroica phoenicea	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Gang-gang Cockatoo	Callocephalon fimbriatum	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Grey-crowned Babbler (eastern subspecies)	Pomatostomus temporalis temporalis	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

BAM Predicted Species Report

Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Large Bent-winged Bat	<i>Miniopterus orianae oceanensis</i>	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Little Eagle	<i>Hieraaetus morphnoides</i>	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Little Lorikeet	<i>Glossopsitta pusilla</i>	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Painted Honeyeater	<i>Grantiella picta</i>	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Regent Honeyeater	<i>Anthochaera phrygia</i>	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Scarlet Robin	<i>Petroica boodang</i>	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
South-eastern Hooded Robin	<i>Melanodryas cucullata cucullata</i>	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Southern Whiteface	<i>Aphelocephala leucopsis</i>	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Speckled Warbler	<i>Chthonicola sagittata</i>	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Spotted Harrier	<i>Circus assimilis</i>	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Spotted-tailed Quoll	<i>Dasyurus maculatus</i>	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Square-tailed Kite	<i>Lophoictinia isura</i>	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Superb Parrot	<i>Polytelis swainsonii</i>	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Swift Parrot	<i>Lathamus discolor</i>	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Turquoise Parrot	<i>Neophema pulchella</i>	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Varied Sittella	<i>Daphoenositta chrysoptera</i>	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
White-throated Needletail	<i>Hirundapus caudacutus</i>	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Yellow-bellied Sheath-tail-bat	<i>Saccolaimus flaviventris</i>	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

BAM Predicted Species Report

Threatened species Manually Added

Common Name	Scientific Name
Large Bent-winged Bat	Miniopterus orianae oceanensis

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C
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BAM Vegetation Zones Report

Proposal Details

Assessment Id	Assessment name	BAM data last updated *
00047584/BAAS19042/24/00047585	Jindera BESS Facility	28/10/2024
Assessor Name	Report Created	BAM Data version *
Fiona Iolini	22/05/2025	Current classification (live - default) (80)
Assessor Number	Assessment Type	BAM Case Status
BAAS19042	Major Projects	Finalised
Assessment Revision		Date Finalised
0		22/05/2025

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Vegetation Zones

#	Name	PCT	Condition	Area	Minimum number of plots	Management zones
1	277_Mod	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	Mod	1.75	1	KeepGround (1.46 ha) ClearAll (0.29 ha)

BAM Vegetation Zones Report

2	277_Low	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	Low	1.13	1	KeepGround (0.89 ha) ClearAll (0.24 ha)
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BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00047584/BAAS19042/24/00047585	Jindera BESS Facility	28/10/2024
Assessor Name	Assessor Number	BAM Data version *
Fiona Iolini	BAAS19042	Current classification (live - default) (80)
Proponent Names	Report Created	BAM Case Status
	22/05/2025	Finalised
Assessment Revision		Assessment Type
0		Major Projects
Date Finalised	* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.	
22/05/2025		

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
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 Highla	Critically Endangered Ecological Community	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion



BAM Biodiversity Credit Report (Like for like)

Species
Nil

Additional Information for Approval

PCT Outside Ibra Added

None added

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
No Changes

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

BAM Biodiversity Credit Report (Like for like)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	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 Highla	2.9	38	0	38

277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	Like-for-like credit retirement options					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
	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 Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347,	-	277_Mod	Yes	27	Lower Slopes, Bogan-Macquarie, Inland Slopes, Lachlan Plains, Murray Fans, Murrumbidgee and Nymagee. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Biodiversity Credit Report (Like for like)

350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 516, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
White Box - Yellow Box - - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland,		277_Low	Yes	11	Lower Slopes, Bogan-Macquarie, Inland Slopes, Lachlan Plains, Murray Fans, Murrumbidgee and Nymagee. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Biodiversity Credit Report (Like for like)

	Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 516, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399,					
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BAM Biodiversity Credit Report (Like for like)

	3406, 3415, 3533, 4147, 4149, 4150					
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Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Cullen parvum / Small Scurf-pea	277_Mod, 277_Low	0.5	6.00
Ninox connivens / Barking Owl	277_Mod	0.1	1.00
Petaurus norfolcensis / Squirrel Glider	277_Low, 277_Mod	2.9	38.00
Polytelis swainsonii / Superb Parrot	277_Mod	0.1	1.00
Swainsona recta / Small Purple-pea	277_Mod	0.1	1.00
Swainsona sericea / Silky Swainson-pea	277_Mod	0.1	1.00
Tyto novaehollandiae / Masked Owl	277_Mod	0.1	1.00

Credit Retirement Options

Like-for-like credit retirement options

Cullen parvum / Small Scurf-pea	Spp	IBRA subregion
	Cullen parvum / Small Scurf-pea	Any in NSW
Ninox connivens / Barking Owl	Spp	IBRA subregion
	Ninox connivens / Barking Owl	Any in NSW

BAM Biodiversity Credit Report (Like for like)

Petaurus norfolcensis / Squirrel Glider	Spp	IBRA subregion
	Petaurus norfolcensis / Squirrel Glider	Any in NSW
Polytelis swainsonii / Superb Parrot	Spp	IBRA subregion
	Polytelis swainsonii / Superb Parrot	Any in NSW
Swainsona recta / Small Purple-pea	Spp	IBRA subregion
	Swainsona recta / Small Purple-pea	Any in NSW
Swainsona sericea / Silky Swainson-pea	Spp	IBRA subregion
	Swainsona sericea / Silky Swainson-pea	Any in NSW
Tyto novaehollandiae / Masked Owl	Spp	IBRA subregion
	Tyto novaehollandiae / Masked Owl	Any in NSW

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id

00047584/BAAS19042/24/00047585

Assessor Name

Fiona Iolini

Proponent Name(s)

Assessment Revision

0

Date Finalised

22/05/2025

Proposal Name

Jindera BESS Facility

Assessor Number

BAAS19042

Report Created

22/05/2025

BAM data last updated *

28/10/2024

BAM Data version *

Current classification (live - default) (80)

BAM Case Status

Finalised

Assessment Type

Major Projects

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
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 Highla	Critically Endangered Ecological Community	277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
Species		
Nil		

Additional Information for Approval

PCT Outside Ibra Added

BAM Biodiversity Credit Report (Variations)

None added

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
No Changes

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	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 Highla	2.9	38	0	38.00

277-Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	Like-for-like credit retirement options					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	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	-	277_Mod	Yes	27	Lower Slopes,Bogan-Macquarie, Inland Slopes, Lachlan Plains, Murray Fans, Murrumbidgee and Nymagee. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Biodiversity Credit Report (Variations)

	South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 516, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived	-	277_Low	Yes	11	Lower Slopes,Bogan-Macquarie, Inland Slopes, Lachlan Plains, Murray Fans, Murrumbidgee and Nymagee.

BAM Biodiversity Credit Report (Variations)

	Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 516, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149,					or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
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BAM Biodiversity Credit Report (Variations)

	4150					
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Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Cullen parvum / Small Scurf-pea	277_Mod, 277_Low	0.5	6.00
Ninox connivens / Barking Owl	277_Mod	0.1	1.00
Petaurus norfolcensis / Squirrel Glider	277_Low, 277_Mod	2.9	38.00
Polytelis swainsonii / Superb Parrot	277_Mod	0.1	1.00
Swainsona recta / Small Purple-pea	277_Mod	0.1	1.00
Swainsona sericea / Silky Swainson-pea	277_Mod	0.1	1.00
Tyto novaehollandiae / Masked Owl	277_Mod	0.1	1.00

Credit Retirement Options Like-for-like options

Cullen parvum / Small Scurf-pea	Spp		IBRA region
	Cullen parvum /Small Scurf-pea		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

BAM Biodiversity Credit Report (Variations)

	Flora	Endangered	Lower Slopes, Bogan-Macquarie, Inland Slopes, Lachlan Plains, Murray Fans, Murrumbidgee and Nymagee. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Ninox connivens/ Barking Owl	Spp		IBRA region
	Ninox connivens /Barking Owl		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Lower Slopes, Bogan-Macquarie, Inland Slopes, Lachlan Plains, Murray Fans, Murrumbidgee and Nymagee. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Petaurus norfolcensis/ Squirrel Glider	Spp		IBRA region
	Petaurus norfolcensis /Squirrel Glider		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing	IBRA region

BAM Biodiversity Credit Report (Variations)

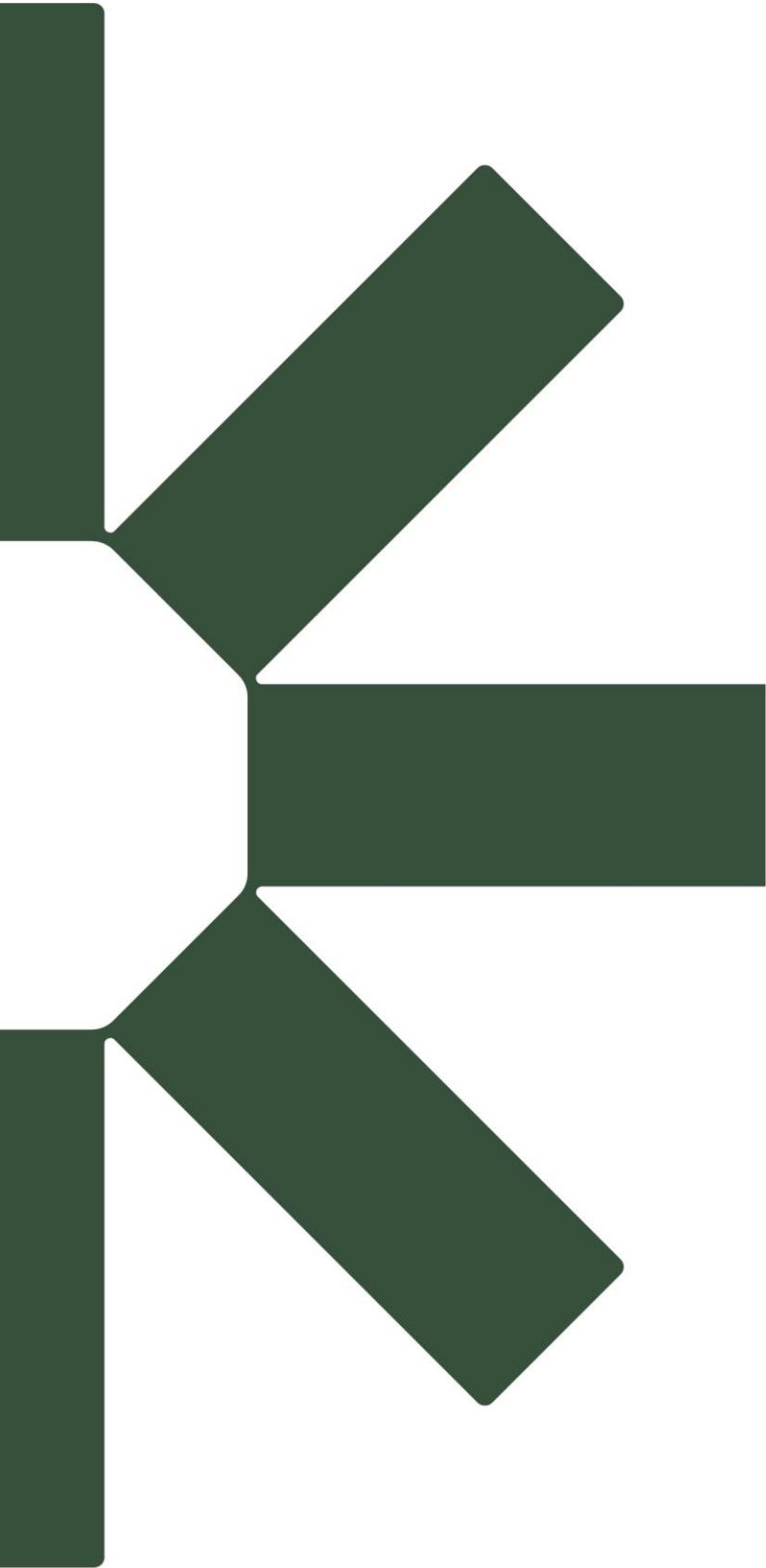
		under Part 4 of the BC Act shown below	
	Fauna	Vulnerable	Lower Slopes, Bogan-Macquarie, Inland Slopes, Lachlan Plains, Murray Fans, Murrumbidgee and Nymagee. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Polytelis swainsonii/ Superb Parrot	Spp		IBRA region
	Polytelis swainsonii /Superb Parrot		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Lower Slopes, Bogan-Macquarie, Inland Slopes, Lachlan Plains, Murray Fans, Murrumbidgee and Nymagee. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Swainsona recta/ Small Purple-pea	Spp		IBRA region
	Swainsona recta /Small Purple-pea		Any in NSW
	Variation options		

BAM Biodiversity Credit Report (Variations)

	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Endangered	Lower Slopes, Bogan-Macquarie, Inland Slopes, Lachlan Plains, Murray Fans, Murrumbidgee and Nymagee. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Swainsona sericea/ Silky Swainson-pea	Spp		IBRA region
	Swainsona sericea/Silky Swainson-pea		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Flora	Vulnerable	Lower Slopes, Bogan-Macquarie, Inland Slopes, Lachlan Plains, Murray Fans, Murrumbidgee and Nymagee. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Tyto novaehollandiae/ Masked Owl	Spp		IBRA region

BAM Biodiversity Credit Report (Variations)

Tyto novaehollandiae/Masked Owl		Any in NSW
Variation options		
Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
Fauna	Vulnerable	Lower Slopes, Bogan-Macquarie, Inland Slopes, Lachlan Plains, Murray Fans, Murrumbidgee and Nymagee. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.



Making Sustainability Happen