





Culcairn to Wagga Wagga Gas Pipeline

MOD 1 Uranquinty Compressor Station – Biodiversity Development Assessment Report

APA Group

20 August 2025

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Declarations

i. Certification under clause 6.15 *Biodiversity Conservation Act 2016*

I, Jessie Russo, certify that this Biodiversity Development Assessment 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).

In preparing this assessment I have acted in accordance with the Accredited BAM Assessor Code of Conduct.

I declare that I have considered the circumstances and there is no actual, perceived or potential conflict of interest involved in the preparation of this Biodiversity Development Assessment Report.

Signature:



Date: 20 August 2025

BAM Assessor Accreditation no: BAAS23017

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Glossary and abbreviations

Term	Definition
APA	Australian Pipeline Association
BAM	Biodiversity Assessment Method
BAM-C	Biodiversity Assessment Method Calculator
BC Act	<i>Biodiversity Conservation Act 2016</i> (NSW)
BCD	NSW Biodiversity, Conservation and Science Directorate of the NSW Department of Climate Change, Energy, the Environment and Water
BDAR	Biodiversity Development Assessment Report
BioNet	NSW BioNet
Biosecurity Act	NSW <i>Biosecurity Act 2015</i>
BOS	Biodiversity Offsets Scheme
CEMP	Construction Environmental Management Plan
CWP	Culcairn to Wagga Pipeline
DAWE	Department of Agriculture, Water and the Environment (Commonwealth)
DCCEEW	Department of Climate Change, Energy, the Environment and Water (NSW)
DECC	Department of Conservation and Climate Change (Commonwealth)
DotE	Department of the Environment (Commonwealth)
DPE	The former NSW Department of Planning and Environment (NSW)
DPI	The former NSW Department of Planning and Industry (NSW)
DPIE	The former NSW Department of Planning, Industry and Environment (NSW)
DPHI	The NSW Department of Planning, Housing and Infrastructure (NSW)
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i> (NSW)
EPA	Environmental Protection Agency (NSW)
EPBC Act	<i>Environmental Protection and Biodiversity Conservation Act 1999</i> (Commonwealth)
FM Act	<i>Fisheries Management Act 1994</i> (NSW)
GDA	Geocentric Datum of Australia
GDEs	Groundwater dependent ecosystems
GIS	Geographic Information System
HTE	High Threat Exotics
HTW	High Threat Weeds
HV	High Voltage
IBRA	Interim Biogeographic Regionalisation of Australia
KTP	Key Threatening Process
LGA	Local Government Area
MGA	Map Grid of Australia
MNES	Matters of National Environmental Significance
OEH	The former NSW Office of Environment and Heritage
PCT	Plant Community Type

Term	Definition
PL	Pipeline Licence
PMST	Protected Matters Search Tool
SAII	Serious and Irreversible Impact
SIS	Species Impact Statement
SPRAT	Commonwealth Species Profile and Threats Database
SSI	State Significant Infrastructure
SVTM	State Vegetation Type Map
TBDC	Threatened Biodiversity Data Collection
TECs	Threatened Ecological Communities
VFD	Variable Frequency Drive

1. Introduction

1.1 Overview

East Australian Pipeline Pty Ltd, part of APA Group (APA), own and operate the Culcairn to Wagga Wagga Pipeline, an 88 km natural gas pipeline extending from Wagga Wagga in the Wagga Wagga local government area (LGA) to Culcairn in the Greater Hume Shire LGA in NSW (the project). The Culcairn to Wagga Wagga pipeline interconnects with the Moomba to Wilton Pipeline which extends approximately 1,300 km between Moomba in South Australia to Wilton in NSW (refer to Figure 1.1).

The Culcairn to Wagga Wagga Pipeline is authorised by Pipeline Licence No. 23 (PL23) and SSI-65512969. The pipeline forms part of APA's East Coast Grid of gas transmission pipelines.

APA is proposing an expansion of gas transportation capacity within its East Coast Grid linking Queensland to the southern states of Australia. This is in response to forecasted potential supply issues during the winter months. To achieve expansion of the East Coast Grid and build capacity to move more gas to address shortfalls, the construction of a compressor station on the Culcairn to Wagga Wagga Pipeline is proposed.

APA seeks to construct the Uranquinty Compressor Station (UCS) as part of Stage 3 of APA's East Coast Grid Expansion Plan (the proposal). The UCS would be located in Uranquinty, NSW along Uranquinty Cross Road within the Wagga Wagga LGA on land owned by APA (Lot 781 DP 878179) (refer to Figure 1.2).

The construction and operation of the UCS, the decommissioning of infrastructure and rehabilitation of land is being sought through a modification (Modification 1) to the SSI-65512969 approval under Section 5.25 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The proposal must be accompanied by a 'Biodiversity Development Assessment Report' (BDAR) prepared by an accredited assessor in accordance with the Biodiversity Assessment Method (BAM) 2020 (DPIE 2020a).

GHD Pty Ltd (GHD) has been engaged by APA to prepare this BDAR for the modification of the Culcairn to Wagga pipeline SSI approval to construct and operate a compressor station at Uranquinty, NSW (Figure 1.2).

1.2 Purpose and scope of this report

GHD has been engaged by APA to prepare a BDAR to address the environmental assessment requirements for SSI (Major Project approval #SSI-65512969) and is authorised by PL23.

The purpose of this report is to assess potential biodiversity issues from the construction, operation, decommissioning and rehabilitation of the proposal, and where required, identify feasible and reasonable mitigation and management measures. This report:

- Describes the existing environment of the study area, including the results of the desktop assessment and site surveys.
- Assesses the value and conservation significance of native vegetation and habitats in the study area and the potential for threatened biota including Commonwealth Matters of National Environmental Significance (MNES) under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) to occur or be affected by the proposal.
- Provides a description of the proposal, including potential impacts on biodiversity values and measures to avoid or mitigate impacts.
- Assesses the significance of impacts on threatened biota and MNES.
- Presents the data used to perform the BAM credit calculations for the proposal.
- Calculates the number and type of biodiversity credits that would be required to offset residual impacts of the proposal in accordance with the BAM.
- Recommends measures to mitigate and manage the impacts identified including decommissioning and rehabilitation of the site after use.

1.3 Structure of this report

The structure of this BDAR is as follows:

- Section 1 – provides an introduction to the proposal and the assessment.
- Section 2 – describes the legislation application to the assessment.
- Section 3– describes the methodology for the assessment.
- Section 4 – describes the context for the site and landscape-scale inputs to the biodiversity assessment.
- Section 5– describes the existing environment of the study area including vegetation and threatened ecological communities and site-scale inputs to the biodiversity assessment.
- Section 6 – describes the extent and quality of habitat for threatened and migratory species at the study area.
- Section 7 – identifies prescribed impacts that are relevant to the assessment.
- Section 8 – outlines steps taken to avoid and minimise potential impacts on biodiversity values.
- Section 9 – assesses the impacts of the construction and operation of the proposal and presents mitigation measures for potential impacts.
- Section 10 – presents a summary of impacts pursuant to the assessment and offsetting thresholds set out in the BAM.
- Section 11 – provides a summary and conclusion.

1.4 Key terms

For the purposes of this report, the following definitions apply:

- **Proposal footprint** – The area that would be directly affected by construction, decommissioning and rehabilitation and the location of operational infrastructure.
- **Study area** – is the area investigated as part of this BDAR which includes the proposal footprint and surrounding area with the potential to be directly or indirectly affected by the proposal as shown in Figure 1.2
- **Assessment area** – is the area investigated in accordance with the BAM, encompassing the proposal footprint and study area plus the 1,500 m buffer area surrounding the study area, patch size polygon and surrounding land included in the assessment of site context as shown in Figure 1.2.
- **Locality** – the area within a 10 km radius of the study area.

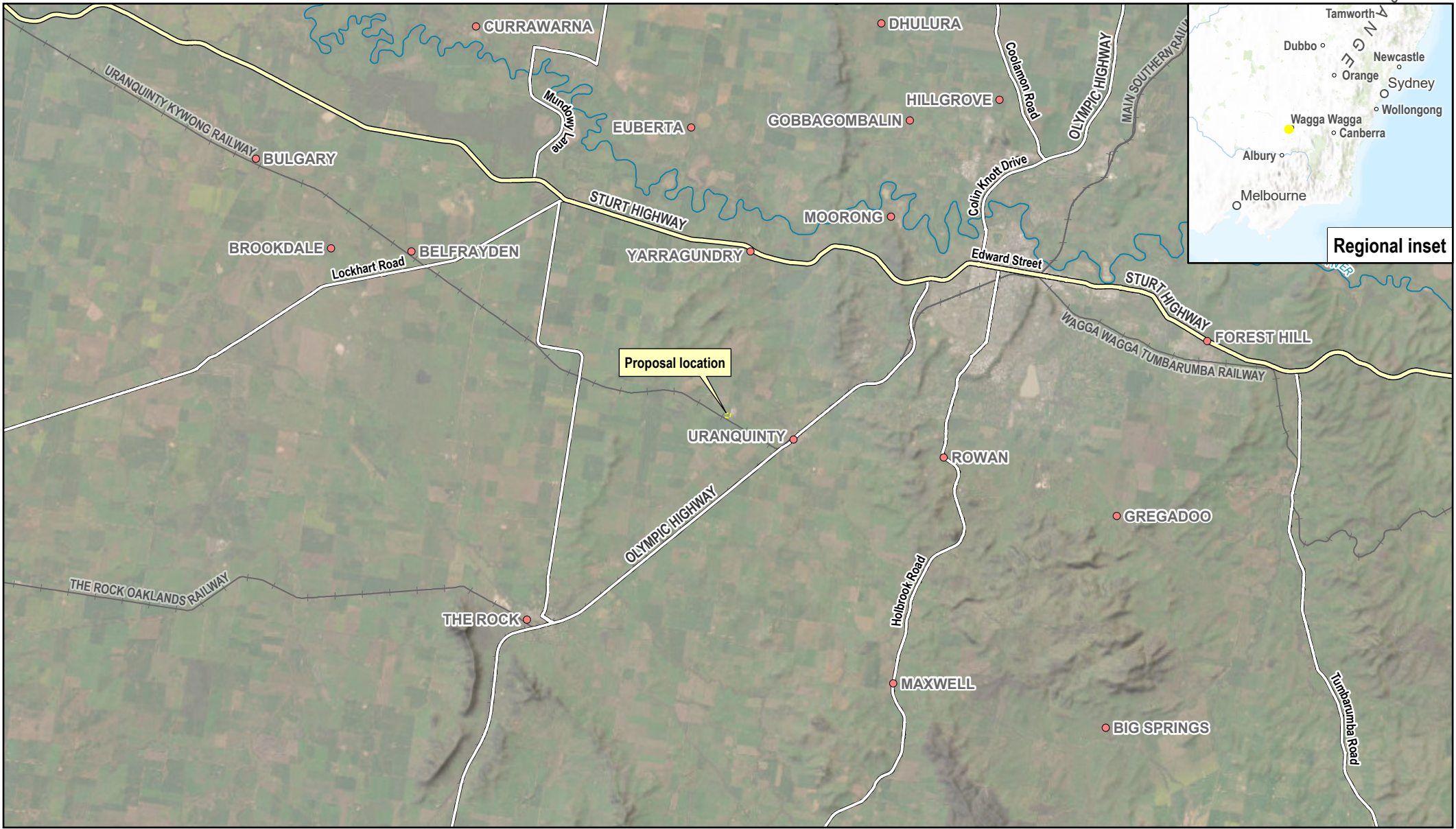
1.5 Summary of the proposal

1.5.1 Location







The proposal is located approximately 3 km north-west of the town of Uranquinty, within the Wagga Wagga LGA (refer Figure 1.1). The land zoning is SP2 – Infrastructure under the Wagga Wagga Local Environmental Plan (NSW Government 2010).

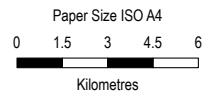
The land parcel comprises Lot 781 DP878179 and is approximately 4.55 ha in size. The site is currently fenced and is located adjacent to the existing Uranquinty Power Station, which is owned and operated by Origin Energy.

The proposed access route to the proposal footprint to enable transport of construction materials and site infrastructure would be via existing, formed roads, namely Uranquinty Cross Road and the Olympic Highway.



LEGEND

-  Proposal location
-  Primary Road
-  Arterial Road
-  Railway
-  Watercourse
-  Localities



Map Projection: Transverse Mercator
 Horizontal Datum: GDA 1994
 Grid: GDA 1994 MGA Zone 55



East Australian Pipeline Pty Ltd
Culcairn to Wagga Wagga Gas Pipeline –
MOD 1 Uranquinty Compressor Station
Biodiversity Development Assessment Report

Project No. **12614690**
 Revision No. **0**
 Date **10/06/2025**

Location of the proposal

FIGURE 1.1

1.5.2 Key features of the proposal

The proposed modification involves the construction, operation, decommissioning and rehabilitation of the UCS. Key elements of the proposed modification include:

- Construction and operation of the UCS, an electric driven compressor unit on Lot 781 DP 878179 in Uranquinty, NSW.
- Following completion of the UCS construction, the laydown area and other cleared areas no longer required for operations will be progressively rehabilitated to minimise dust generation, soil erosion and weed incursion.
- The UCS would operate intermittently throughout the year, responding to peak gas demand.
- Construction workforce with an average of 40 personnel, with a peak of 65 personnel over the 12 month construction period including during commissioning.
- The UCS would operate for approximately 25 years. The UCS is designed to be operated remotely up to 24 hours a day without onsite staff for most of its working life.

No temporary workers camps are required for the proposal. The layout of the proposal is shown in Figure 1.2.

1.5.3 Timing

Subject to receiving planning approval, it is expected that construction of compressor station would commence in the second half of 2026 and is anticipated to take about twelve months to complete, with an additional three months to commission.

1.5.4 Operation

The UCS is designed to operate remotely without onsite staff for most of its working life. It would be operated remotely from APA's control centre in Brisbane and can operate up to 24 hours per day, seven days per week. It is anticipated that the compressor will operate intermittently depending upon gas demand throughout the year.

If personnel are required to be present at the site, operation activities will be carried out during daylight hours unless an emergency requires work to be carried out at night. Typical operation activities would include:

- Minor maintenance (testing, cleaning, equipment performance checks).
- Systems assessment, along with calibrations and adjustments where necessary.
- Equipment repair.

Site personnel will carry out inspections ranging from daily inspections to more rigorous inspections that may vary in frequency, dependent on the works. Major services and engine overhauls will be carried out at set intervals subject to equipment condition, manufacturer recommendations and run hours.

Equipment would undergo regular compliance checks during the life of the compressor station and this will occur every one to four years depending on the frequency of each equipment type. Major services and engine overhauls will likely be carried out every five to ten years or as per the manufacturer's standard.

1.5.5 Decommissioning and rehabilitation

The decommissioning phase would involve removal; of plant and equipment, with the filling of excavated areas and reinstatement of topsoil and revegetation (refer to section 9.4).

The proposal footprint will be rehabilitated progressively as construction activities are completed. The proposal footprint will be fully rehabilitated following decommissioning of the compressor station at the end of its project life which is estimated to be around 25 years.



Construction layout

- Compressor station
- Construction and laydown area
- Vent stack

LEGEND

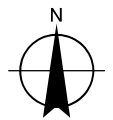
- Proposal footprint
- Study area
- Cadastre
- Site layout
- Railway

Paper Size ISO A4

0 20 40 60 80

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



APT Management Services Pty Ltd
Culcairn to Wagga Gas Pipeline –
MOD 1 Uranquinty Compressor Station
Biodiversity Development Assessment Report

Project No. **12614690**
 Revision No. **0**
 Date **01/08/2025**

Site map

FIGURE 1.2

1.6 Scope and limitations

This report has been prepared by GHD for APA Group and may only be used and relied on by APA Group for the purpose agreed between GHD and APA Group as set out in section 1.2 of this report.

GHD otherwise disclaims responsibility to any person other than APA Group arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer section 1.7 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

The opinions, conclusions and any recommendations in this report are based on information obtained from, and testing undertaken at or in connection with, specific sample points. Site conditions at other parts of the site may be different from the site conditions found at the specific sample points.

Investigations undertaken in respect of this report are constrained by the particular site conditions leading up to field surveys. As a result, not all relevant site features and conditions may have been identified in this report. Site conditions may change after the date of this Report. GHD does not accept responsibility arising from, or in connection with, any change to the site conditions. GHD is also not responsible for updating this report if the site conditions change.

GHD is not responsible for any updates made by the Biodiversity, Conservation and Science Directorate (BCS) to the BAM credit calculator or and additional assessment requirements required due to new or updated survey guidelines or policies being published following issue of this report. If updates to this report are required due to changes made by BCS or other government departments GHD would not be responsible for these changes.

GHD has prepared this report on the basis of information provided by Australian Pipeline Association and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

1.7 Assumptions

The services undertaken by GHD in connection with preparing this assessment:

- Were limited to those detailed specifically in section 1.2 this report.
- Are based on the proposal footprint presented in this report (shown on Figure 1.2).
- Are based on the desktop review and survey methods presented in section 3 of this report.

2. Legislative context

2.1 NSW Biodiversity Conservation Act 2016

The NSW *Biodiversity Conservation Act 2016* (BC Act) provides legal protection for biota of conservation significance in NSW. The BC Act aims to, amongst other things, 'maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development'. It provides for the listing of threatened species and communities, establishes a framework to avoid, minimise and offset the impacts of proposed development (the Biodiversity Offsets Scheme, or BOS), and establishes a scientific method for assessing the likely impacts on biodiversity values and calculating measures to offset those impacts (the Biodiversity Assessment Method, BAM). These are discussed further below.

2.1.1 Biodiversity Offset Scheme and Biodiversity Assessment Method

The BC Act, together with the Biodiversity Conservation Regulation 2017, provides a mechanism to address impacts on biodiversity from land clearing associated with development, clearing or conferral of biodiversity certification. Under this legislation, there are provisions for a Biodiversity Offsets Scheme (BOS), which includes a framework to avoid, minimise and offset impacts of development on biodiversity.

The aim of the BOS is to provide a transparent, consistent and scientifically based approach to biodiversity assessment and offsetting, to ensure that the impacts of development, clearing or biodiversity certification will result in no net loss of biodiversity. The scheme creates a market framework for the conservation of biodiversity values and the offsetting of development impacts, by establishing the mechanisms to offset impacts of development, clearing or biodiversity certification through biodiversity credit trading such that there is no net loss of biodiversity values. The scheme also allows for the establishment of biodiversity stewardship agreements, which are in-perpetuity agreements entered into by landholders, to secure offset sites and generate biodiversity credits, which can be used to offset impacts of development.

The BAM underpins the BOS and establishes a standard method to address the loss of biodiversity and threatened species. The BAM sets out how biodiversity values will be assessed, prescribes requirements to avoid and minimise impacts, establishes rules for calculating the number and class of credits required for unavoidable impacts, and determines the trading rules that will apply. The methodology includes a software package known as the Biodiversity Assessment Method Calculator (the credit calculator, or BAM-C) which processes site survey and assessment data. The credit calculator specifies the type and extent of surveys required for a Biodiversity Assessment and then processes survey data to calculate the number and type of biodiversity credits that are either required at a development site or will be generated at a stewardship site. The BAM must be applied by a person accredited under the BC Act.

2.1.2 Trigger for streamlined Biodiversity Development Assessment Report

Within the BAM there are provisions for streamlined assessments based on small area clearings (Appendix C of the BAM 2020). For parcels of land with a minimum Lot size of 40 ha to less than 1000 ha the maximum area clearing limit for the application of the small area development module is 3 ha. The streamlined assessment module therefore applies to the proposal.

2.2 NSW Fisheries Management Act 1994

The objects of the NSW *Fisheries Management Act 1994* (FM Act) are to conserve, develop and share the fishery resources of the State for the benefit of present and future generations. It provides for the listing of threatened species, populations and ecological communities, listing of 'Key Threatening Processes' (KTPs), and the requirements or otherwise for the preparation of a Species Impact Statement (SIS).

One of the objectives of the FM Act is to 'conserve key fish habitats ' which includes aquatic habitats that are important to the maintenance of fish populations generally and the survival and recovery of threatened aquatic species. To assist in the protection of key fish habitats, DPI has produced the Policy and guidelines for fish habitat conservation and management (DPI 2013). This policy applies to the following developments, works or activities, each of which can impact on key fish habitat:

- Dredging or reclamation
- Impeding fish passage
- Damaging marine vegetation
- De-snagging.

The proposal does not involve any of these activities and would not affect key fish habitat.

2.3 NSW Biosecurity Act 2015

The NSW *Biosecurity Act 2015* provides for risk-based management of biosecurity in NSW. It provides a statutory framework to protect the NSW economy, environment and community from the negative impact of pests, diseases and weeds.

The primary object of the *Biosecurity Act 2015* is to provide a framework for the prevention, elimination and minimisation of biosecurity risks posed by biosecurity matter, dealing with biosecurity matter, carriers and potential carriers, and other activities that involve biosecurity matter, carriers or potential carriers.

In NSW, all plants are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable.

Priority weeds were recorded in the study area. Legal requirements to minimise the potential for the introduction and/or spread of weeds as a result of the proposal are discussed in Table 9.5

2.4 Commonwealth Environment Protection and Biodiversity Conservation Act 1999

The purpose of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is to ensure that actions likely to cause a significant impact on 'matters of national environmental significance' undergo an assessment and approval process. Under the EPBC Act, an action includes a project, a development, an undertaking, an activity or a series of activities, or an alteration of any of these things. An action that 'has, will have or is likely to have a significant impact on a matter of national environmental significance (MNES)' is deemed to be a 'controlled action' and may not be undertaken without prior approval from the Australian Minister for the Environment. MNES relevant to this report include threatened species and ecological communities and migratory species.

Specific consideration of the approval and offsetting requirements for MNES is only required for controlled actions. The NSW Government and Australian Government finalised amendments to the Assessment Bilateral Agreement after changes to NSW legislation, and the Amending Agreement no. 1 was signed on 24 March 2020. The Australian Government formally endorsed the NSW BOS through the EPBC Act Condition-setting Policy (DAWE 2020). The EPBC Act condition setting policy (DAWE 2020) notes that where a proposal demonstrates compliance with an endorsed state or territory policy, the proponent will not be required to simultaneously comply with the corresponding Australian Government policy. As such, a proponent for a controlled action is not required to calculate offsets separately using the EPBC Act offsets policy (DSEWPaC 2012) and associated calculator, unless offsets are required for a matter not considered by the BAM.

The EPBC Act has been considered in this assessment through:

- Desktop review to determine the listed biodiversity matters that are predicted to occur within the locality of the proposal and hence could occur, subject to the habitats present
- Targeted field surveys for listed threatened biota and migratory species
- Identification of suitable impact mitigation and environmental management measures for threatened and migratory biota, where required

- Discussion of how offsets for significant residual impacts on protected matters would be delivered within the framework of the NSW BOS.

Based on the impact assessment presented in this BDAR, the proposal does not have the potential to have a significant impact on any MNES and a referral to DCCEEW for assessment is not considered necessary.

3. Methods

3.1 Desktop assessment

3.1.1 Data review

A desktop database review was undertaken to identify threatened flora and fauna species, populations and ecological communities (threatened biota) listed under the BC Act and EPBC Act, that could be expected to occur in the locality, based on previous records, known distribution ranges, and habitats present. These were also used to obtain the necessary site data to perform BAM calculations.

Information sources used in the preparation of this report include:

- The NSW State Vegetation Type Map (SVTM) (DPE 2023a) to identify candidate plant community types (PCTs) in the study area and to map native vegetation extent
- NSW BioNet Vegetation Classification (NSW DCCEEW 2024a) descriptions and characteristic plant species lists to identify and map PCTs at fine scale in the study area
- NSW BioNet Atlas for records of threatened biota previously recorded in a 10 km radius around the study area (NSW DCCEEW 2024b)
- NSW DCCEEW threatened biodiversity profile search online database for threatened ecological communities and species listed under the BC Act (NSW DCCEEW 2024c)
- Threatened Biodiversity Data Collection (TBDC) profiles of threatened species listed under the BC Act (NSW DCCEEW 2024d)
- DCCEEW EPBC Act Protected Matters Search Tool – for a 10 km radius around the study area (searched July 2021) (Commonwealth DCCEEW 2024a)
- EPBC Act Species profile and threats database, online profiles (SPRAT) (Commonwealth DCCEEW 2024b) and Register of Critical Habitat (DCCEEW 2023b)
- The list of candidate species credit-type species and predicted species identified by the BAM calculator (BAM-C)
- Department of Primary Industries (DPI) freshwater threatened species distribution maps (DPI 2023).

The threatened biota and migratory species identified in the desktop assessment are presented in Appendix B. Following collation of database records and threatened species and community profiles, a list of threatened species requiring assessment was compiled according to the 'steps for identifying habitat suitability for threatened species' in the BAM. This was further refined following field surveys and identification and assessment of habitat present within the study area. A likelihood of occurrence ranking was attributed to biota based on this information and used to compile lists of 'predicted threatened species' (that is, ecosystem credit species) and 'candidate threatened species' (that is, species credit entities requiring targeted survey) according to Step 2 'assessment of habitat constraints' of the BAM.

3.1.2 Background research

Background research was conducted to identify:

- Landscape-scale features of the study area in accordance with Subsection 3.1.3 of the BAM (DPIE 2020a).
- Site context of the study area that includes assessing vegetation cover and patch size as required under Section 3.2 and Subsections 4.3.2 of the BAM (DPIE 2020a).
- The likely distribution of native vegetation and threatened ecological communities, based on previous mapping and aerial photograph interpretation, for targeted field verification as required under Section 4 of the BAM (DPIE 2020a).
- A list of predicted and candidate threatened species and populations of flora and fauna to assess the habitat suitability and threatened biodiversity data collection as required under Section 5 of the BAM (DPIE 2020a).
- Availability of baseline information to determine whether additional surveys, mapping and reporting is required to support project approval.

The background research included analysis of the following information sources:

- NSW (Mitchell) Landscapes mapping Version 3.1 (DPIE 2016) and Descriptions for NSW (Mitchell) Landscapes Version 2 (DECC 2002)
- Interim Biogeographic Regionalisation of Australia (IBRA version 7.0) mapping (DCCEEW 2023c)
- Initial BAM calculations
- Atlas of Groundwater Dependent Ecosystems (GDE) (BOM 2024a)
- Aerial photograph imagery of the study area.

3.2 Field surveys

3.2.1 Survey overview

A site survey was conducted by two GHD ecologists on 22 August 2023. Due to the relatively small area of the proposal footprint, staged surveys of the study area were not necessary. Site surveys were conducted in accordance with the BAM and with reference to appropriate threatened species survey guidelines for targeted species. Additional surveys were undertaken on 18 September and 16 October 2023. Site surveys included:

- Site stratification and vegetation mapping
- Sampling of vegetation integrity plot/transects
- Habitat assessments
- Targeted surveys for threatened flora using parallel flora transects
- Incidental observations of threatened fauna.

Survey effort that has directly contributed to this BDAR is summarised in Table 3.1 below, described in section 3.2.1 and shown on Figure 3.1 and Figure 3.2.

Table 3.1 Survey techniques and timing

Survey stage	Date	Survey Technique
Preliminary investigation of biodiversity values and vegetation integrity assessment	22 August 2023	Vegetation zone mapping Vegetation integrity plots Habitat assessment for all predicted and candidate threatened species Diurnal bird survey
Spring targeted species credit surveys for Serious And Irreversible Impact (SAII) entities only	18 September 2023 16 October 2023	Systematic threatened flora traverses Diurnal bird survey Nest tree census

3.2.2 Vegetation and flora surveys

3.2.2.1 Vegetation mapping

Regional vegetation mapping (DPE 2023a) was ground-truthed in the field to verify community type and boundaries, floristic and structural homogeneity within patches and to update mapping as required. Vegetation mapping was undertaken via systematic walked transects across the entire proposal footprint and by walking the boundary of likely vegetation units, based on aerial photograph interpretation. The overall condition of vegetation was assessed through general observation and comparison against the PCT condition benchmark data as well as using parameters such as species diversity, history of disturbance, weed invasion and canopy health.

Native vegetation communities in the study area were assigned to the closest equivalent PCT held in the BioNet Vegetation Classification database (NSW DCCEEW 2024a). The closest equivalent PCT for each vegetation community was determined through a comparison of the floristic descriptions of PCTs in the database with the vegetation integrity plot data collected from the proposal site. In addition to floristic and structural similarity, the landscape position, soil type and other diagnostic features of the vegetation communities on the sites were also compared to the descriptions in the database to determine the most suitable PCT. Threatened ecological communities (TECs) as defined in NSW and Commonwealth legislation were also identified.

The native vegetation in the study area was then stratified into vegetation zones in accordance with the BAM. A vegetation zone is defined in the BAM as a relatively homogenous area that is the same PCT and has the same broad condition state. Each vegetation zone was assigned a patch size in accordance with Subsection 4.3.2 of the BAM. Justification for selected PCTs and condition classes is provided in section 5.2.2.

Vegetation zone mapping and all other landscape and site assessment mapping that supports this BDAR, was completed in ArcGIS in the spatial projection GDA 94, MGA Zone 55. GIS shape files have been submitted for approval along with the BDAR.

3.2.2.2 Vegetation integrity survey plots (assessing site condition)

Following the stratification of the study area into vegetation zones, plot surveys were conducted in accordance with the BAM to obtain vegetation integrity data for the calculation of biodiversity credits. The sampling was undertaken using 20 x 20 m plots nested within a larger 20 x 50 m plot.

Vegetation integrity was calculated by assessing ten attributes used to evaluate vegetation function, composition and structure (refer Table 3.2). These attributes were then assessed against benchmark values using the BAM-C.

All flora species recorded within each plot were allocated a growth form group and designated as either native, exotic or high threat weeds (HTWs) in accordance with defined lists obtained from the BAM-C.

Table 3.2 Site data collected within each plot

Attribute	Area assessed
Native plant species richness	20 X 20 m plot
Percentage foliage cover for each species	20 X 20 m plot
Estimated number of individuals for each species	20 X 20 m plot
Number of large trees	50 X 20 m plot
Tree regeneration (presence/absence)	50 X 20 m plot
Tree stem size class	50 X 20 m plot
Total length of fallen logs	50 X 20 m plot
Litter cover	5 times 1 X 1 m plot
High threat exotic vegetation cover	50 X 20 m plot
Hollow bearing trees	50 X 20 m plot

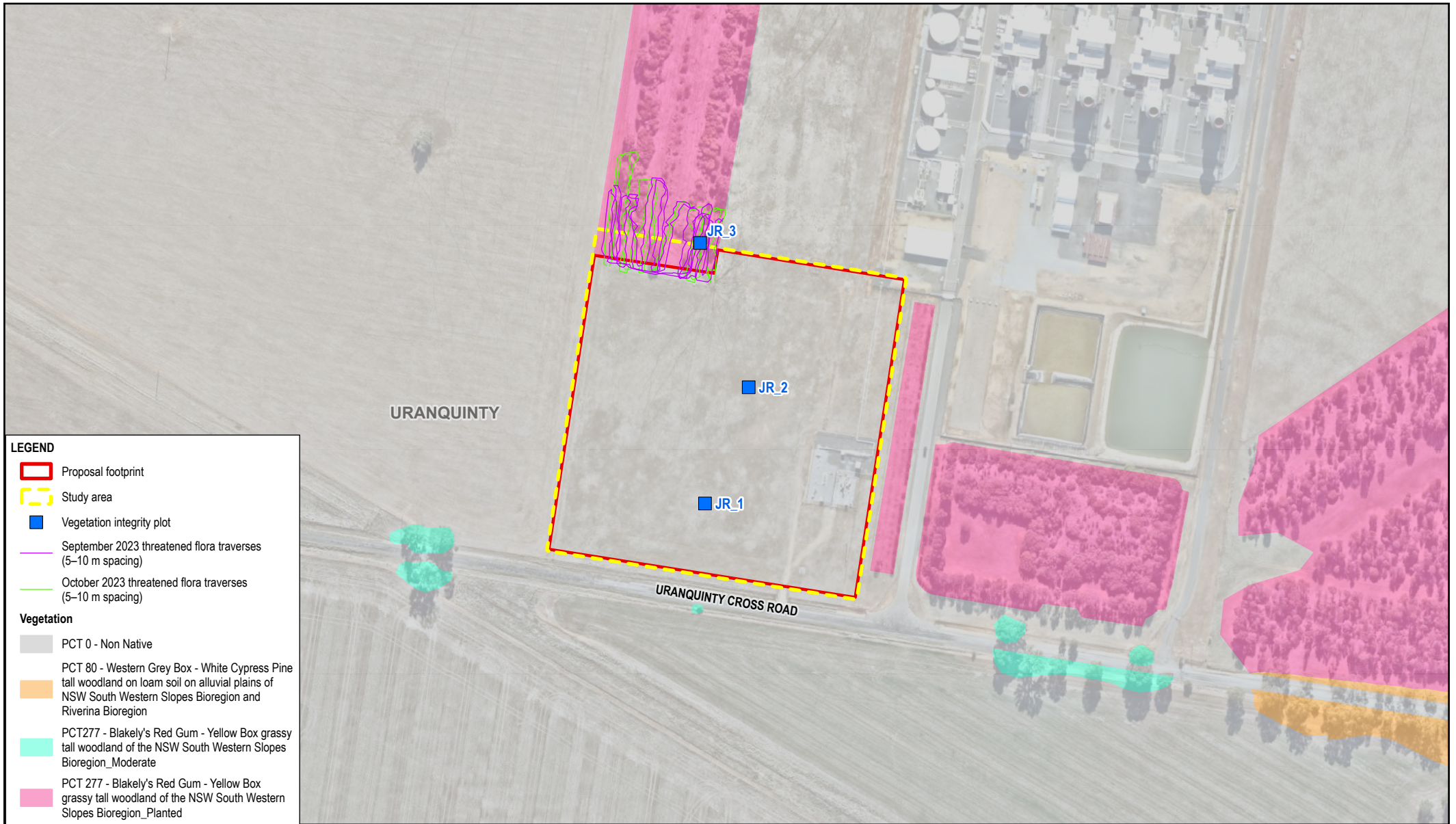
The survey effort undertaken to address the minimum plot sampling required by the BAM is summarised in Table 5.3. The locations of the survey plots are shown in Figure 3.1. Plots were located away from ecotones, tracks and track edges or other disturbed areas where possible.

3.2.2.3 Threatened flora searches

Potential candidate species credit entities for the study area were identified with reference to the BAM. All threatened plants are classified under the BAM as species credit entities as their occurrence cannot be reliably predicted based on vegetation type. The suite of threatened plants with potential to occur in the study area was identified based on the desktop assessment results and the species credit entities identified by preliminary BAM-C calculations. Habitat for these species was identified and assessed based on threatened species database records and threatened species profiles (NSW DCCEEW c, d) and the experience and judgement of GHD ecologists.

Targeted surveys for candidate species are not required for small area assessments (i.e. this BDAR), except if the candidate species is identified as being at risk of a Serious and Irreversible Impact (SAIL entity).

Targeted searches were undertaken within vegetation zone 1 for *Prasophyllum* sp. Wybong, as this species is identified as an SAIL entity (refer to Figure 3.1). Searches were undertaken in accordance with the Draft Survey Guidelines for Australia's Threatened Orchids (DCCEEW 2013) and the BAM surveying threatened plants and their habitats (DPIE 2020b), with 5 m spaced parallel transects across vegetation zone 1 within the study area.

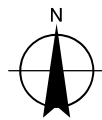
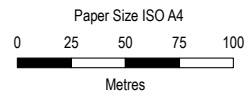


LEGEND

- Proposal footprint
- Study area
- Vegetation integrity plot
- September 2023 threatened flora traverses (5–10 m spacing)
- October 2023 threatened flora traverses (5–10 m spacing)

Vegetation

- PCT 0 - Non Native
- PCT 80 - Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion
- PCT277 - Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion_Moderate
- PCT 277 - Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion_Planted



Map Projection: Transverse Mercator
 Horizontal Datum: GDA 1994
 Grid: GDA 1994 MGA Zone 55

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Flora survey effort

FIGURE 3.1

Noting the extent of non-native vegetation at the study area (see section 5.3.2), systematic threatened flora searches within areas of non-native vegetation are not required to comply with the BAM.

Section 6 provides a summary of the candidate threatened flora species that were considered during field surveys.

3.2.3 Terrestrial fauna surveys

Fauna habitat assessment and searches

General fauna habitat assessments were undertaken throughout the study area and surrounding areas including active searches for potential shelter, basking, roosting, nesting and/or foraging sites. Specific habitat features and resources such as water bodies, food trees, the density of understorey vegetation, the composition of ground cover, the soil type, presence of hollow-bearing trees, leaf litter and ground debris were noted if. Given the highly modified nature of the site, the study area contains minimal habitat features of relevance for most fauna species, and some of the fauna habitat searches were completed in surrounding areas outside of the mapped study area to confirm the potential indirect impacts on adjacent vegetation and habitats as a result of the proposal.

Indicative habitat criteria for targeted threatened species (i.e. those determined as having the potential to occur within the development footprint following the desktop review) were identified prior to fieldwork occurring with particular focus on species credit matters. Habitat criteria were based on information provided in NSW DCCEEW threatened species profiles, field guides, and the knowledge and experience of GHD field ecologists.

A 'systematic nest tree census' was conducted over the entire study area and surrounding planted vegetation outside of the study area to help determine the presence of threatened species nest trees to inform the assessment of species credits. Areas outside the mapped study area were surveyed due to the lack of trees within the study area itself, and to identify potential indirect impacts on adjacent habitats as a result of the proposal.

All nearby mature trees including trees outside of the study area were inspected for the presence of stick nests and/or hollows. No hollow bearing trees were recorded. Stick nests were mapped and data collected on tree species, diameter at breast height and nest size.

Habitat assessments were conducted including active searches for:

- Rock outcrops or overhangs providing potential shelter sites for fauna
- Burrows, dens and warrens
- Evidence of fauna occupation such as: distinctive scats or latrine sites; whitewash and regurgitated pellets under roost sites; tracks or animal remains
- Evidence of activity such as feeding scars, scratches and diggings.

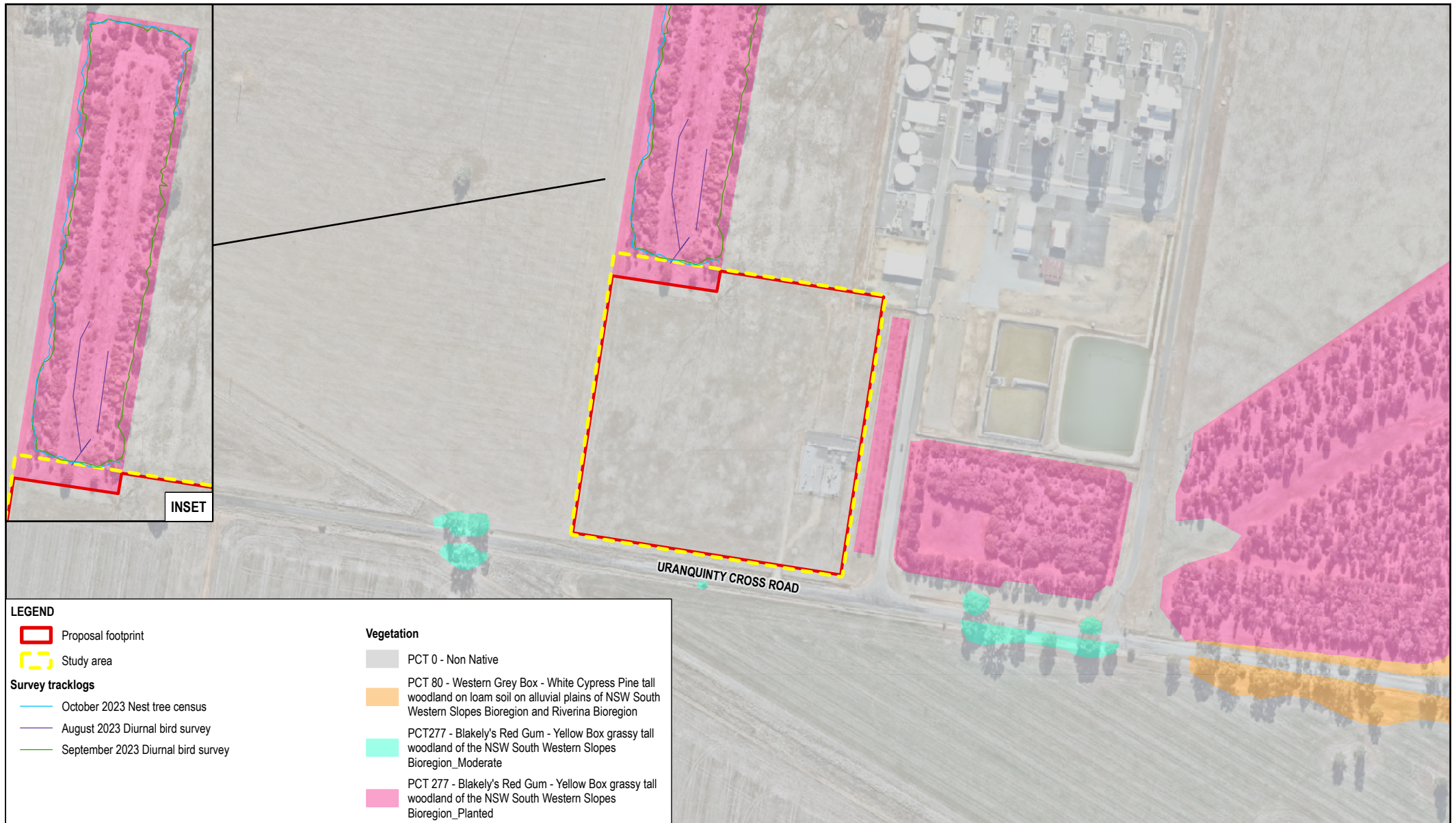
No significant habitat features were observed, consistent with the alignment of the proposal footprint with cleared agricultural land adjoining the existing Uranquinty Power Station and extent of previous clearing and modification of the study area.

Opportunistic and incidental observations of fauna species were recorded at all times during field surveys.

Diurnal bird surveys

Targeted surveys for diurnal birds were undertaken in August, September and October 2023. Surveys involved walking transects in areas of suitable habitat for a period of 30 to 45 minutes, with a combined total survey effort of 120 minutes (refer to Figure 3.2). Birds were identified by observation with binoculars and/or call identification. Diurnal bird surveys also included searches for signs indicative of particular threatened species, including searching for evidence of feeding or breeding activity that indicated reliance on a particular habitat resource in the study area.

All opportunistic observations of birds were recorded during all field surveys.



LEGEND

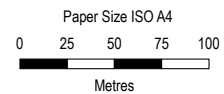
- Proposal footprint
- Study area

Survey tracklogs

- October 2023 Nest tree census
- August 2023 Diurnal bird survey
- September 2023 Diurnal bird survey

Vegetation

- PCT 0 - Non Native
- PCT 80 - Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion
- PCT277 - Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion_Moderate
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Map Projection: Transverse Mercator
 Horizontal Datum: GDA 1994
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Fauna survey effort

FIGURE 3.2

3.3 Targeted surveys

Under the BAM, targeted surveys are not required for threatened fauna species that can be reliably predicted to occur at the study area based on habitat surrogates (predicted / ecosystem credit species). These species are assumed to be present within associated PCTs, given a certain patch size and condition.

Appendix C of the BAM states that for streamlined assessments, targeted, seasonal surveys are not required for candidate threatened species entities i.e. species credit species that are not at risk of a SAIL.

None of the species credit fauna species predicted to occur during the desktop assessment are listed as SAIL entities. As such targeted fauna surveys within the site were limited to incidental observations and habitat assessments, as outlined in section 3.2.3 above.

3.4 Survey conditions

Diurnal bird surveys were undertaken in late winter and early to mid-spring. Bureau of Meteorology (BOM 2024b) records for survey dates are outlined in Table 3.3.

Cumulative rainfall from 12 months prior to the sampling of vegetation integrity plots was recorded from the nearest weather stations (Table 3.4) and compared against the wet or dry annual rainfall thresholds to reflect climatic variation as recommended in Subsection 1.4.2(3.) of the BAM, *Guidance for assessors and decision-makers in applying modified benchmarks to assessments of vegetation integrity* (DPIE 2023a). Table 3.4 identifies the wet rainfall thresholds at the proposal site and shows that this was exceeded in the previous 12 months. Therefore, wet benchmark data for the PCTs within the proposal site were adopted. Areas of non-native vegetation in the proposal site were excluded from the analysis of cumulative rainfall and appropriate benchmarks (see Table 3.4).

Table 3.3 Daily weather observations during the survey period (BOM 2024b)

Weather Station	Date	Time of diurnal bird survey	Minimum temperature (°C)	Maximum temperature (°C)	Rainfall previous 24 hours (mm)	Rainfall previous 7 days (mm)
Station 074272	22/08/2023	11.10 am	6.7	21.4	0.2	6.4
Station 074272	18/09/2023	12.30 pm	11.7	32.8	0	0.2

Table 3.4 Benchmark classes based on cumulative rainfall in preceding year

Weather Station (BOM 2024b)	PCT ID	Vegetation Class	Wet rainfall annual threshold (cumulative total over 12 months mm) (NSW DCCEW 2024a)	Cumulative rainfall for preceding 12 months (mm)
Station 074272	Non-native vegetation only	n/a	n/a	n/a
Station 074272	277	Western Slopes Grassy Woodlands	>748	872.2

3.5 Survey limitations

The timing of the preliminary survey was outside the optimal survey period for some species. As the survey was undertaken in late winter, temporal conditions may not be suitable for some species. For instance, the cooler climate may impact the activity of reptiles and invertebrates, some migratory species may not be present at this time of year and species of threatened flora may not be in flower or growing, such as cryptic or annual species. Additionally, some fauna species are highly mobile and transient. Consequently, it is likely that not all species either resident or transitory to the site would have been recorded during field surveys. Potential disadvantages due to this limitation were reduced by undertaking database searches and by assessing the habitat value of proposal footprint for threatened and migratory species known to occur in the wider area to determine their likelihood of occurrence (Appendix B).

There is no native vegetation in the proposal footprint and as such there is no requirement to confirm the presence or otherwise of species credit matters in accordance with the BAM. As discussed in section 2.1.2, this BDAR is a streamlined BDAR and this survey was not designed to enable detection of all species, either resident or transitory to the study area. Instead, it was aimed at providing an overall assessment of the ecological values of the area with particular emphasis on native vegetation types, potential threatened ecological communities and entities at risk of an SAIL to allow an assessment of the potential impacts of the proposal in line with the requirements of Appendix C of the BAM. Appendix C of the BAM states that for streamlined assessments, targeted, seasonal surveys are not required for candidate threatened species entities i.e. species credit species that are not at risk of a SAIL. None of the species credit fauna species predicted to occur during the desktop assessment are listed as SAIL entities. Given the extent of previous clearing and modification of the study area there is negligible habitat resources for any of the threatened and migratory fauna that could occur in the locality.

3.6 Credit calculations

BAM credit calculations were completed by Jessie Russo (accredited assessor number BAAS23017) with reference to the BAM and using the Credit calculator Version 1.4.0.00 and version 1.2 wet benchmark data (refer to section 3.4).

An assessment case (00041067/BAAS23017/23/00042831) was created for the proposal to support the calculation of vegetation integrity scores and identification of potential predicted threatened species and candidate threatened species with reference to the BAM. The assessment type was set as 'Part 5 Development (Small Area) in the BAM-C'. Impact assessment relating to vegetation integrity and habitat suitability for threatened species within the proposal footprint is not required as part of this BDAR due to no native vegetation being present in the proposal footprint. Therefore, no credits for direct impacts have been calculated and the assessment case for the proposal has not been finalised.

3.6.1 Predicted threatened species (ecosystem credit entities)

Based on the bioregional context for the assessment and the PCTs, patch size, vegetation cover and habitat resources present at the study area, the BAM calculator generates a list of threatened fauna species that are predicted to utilise the study area and proposal footprint (that is, potential 'predicted threatened species', or potential 'ecosystem credit entities'). The potential for these predicted threatened species to occur within the site were further refined based on the desktop assessment, habitat resources observed during field surveys, records during the surveys, and the knowledge and experience of the assessor. Targeted surveys are not required under the BAM for these species as they are assumed to be present.

Targeted surveys may, in general, be required if the predicted species are also listed under the EPBC Act, to assess the significance of impacts in accordance with the *MNES Significant impact guidelines 1.1 – Environment Protection and Biodiversity Conservation Act 1999* (DotE 2013). The vegetation and flora surveys and terrestrial fauna surveys and habitat assessments described above were used to help determine the presence of EPBC Act threatened species and their habitats within the proposal footprint. Given the generally low biodiversity value of the study area and proposal footprint, and the absence of any specific habitat features or resources for any MNES, no targeted survey techniques were employed for any predicted species listed under the EPBC Act.

As described above, the proposal footprint contains only non-native vegetation. Impact assessment relating to habitat suitability for predicted threatened species and calculation of ecosystem credits for direct impacts is not required as part of this BDAR. Predicted threatened species have been considered in general and with reference to the BAM and preliminary BAM-C calculations to help inform the assessment of prescribed impacts and potential impacts to MNES.

3.6.2 Candidate threatened species (species credit entities)

Threatened species that cannot reliably be predicted to occur on a development site based on PCT, distribution and habitat criteria are identified by the Threatened Biodiversity Data Collection (TBDC) as 'species credit' entities. In some circumstances, the particular habitat components of species assessed for ecosystem credit species, such as the breeding habitat of a cave roosting bat or forest owls, are also assessed for species credits.

The credit calculator references geographic, vegetation and habitat data for the study area to generate a list of the species credit entities that are predicted to occur (i.e. the 'potential candidate threatened species'). Searches of threatened species databases were also completed to identify any additional potential candidate threatened species (to those generated by the credit calculator) that are known or predicted to occur in the locality. The likelihood of occurrence of potential candidate threatened species was reviewed, giving consideration to the habitats available in the proposal footprint and study area (refer section 4).

Appendix C of the BAM states that for small area assessments, targeted seasonal surveys are not required for candidate threatened species entities i.e. species credit species, that are not at risk of a SAI.

None of the species credit type fauna species predicted by the BAM-C or desktop assessment (species with moderate to high likelihood of occurrence) are listed as SAI entities. As such, targeted fauna surveys within the site were limited to incidental observations and habitat assessments as outlined in section 3.2.3.

One species credit flora species predicted by the BAM-C is listed as an SAI entity, *Prasophyllum* sp. Wybong. Targeted surveys for this species were undertaken in accordance with the Draft Survey Guidelines for Australia's Threatened Orchids (DCCEEW 2013) and the BAM Surveying threatened plants and their habitats (DPIE 2020b). The survey method and results are detailed in section 3.2.2.3.

3.7 Assumptions

A 'proposal footprint' polygon (that is, direct and indirect impact footprint) was prepared for the proposal based on the proposal layout and design data provided by APA. It is assumed that the description and spatial data accurately represent the extent of impacts arising from the proposal. As such, these data have been used to calculate the extent of removal of vegetation and habitat arising from the proposal using GIS. The calculations have, in turn, been relied upon in the BAM calculations and the determination of key thresholds such as if:

- The proposal would have a direct impact on a threatened species
- Biodiversity offsets are required for a particular impact
- A particular impact is likely to be significant.

The assessment conclusions may, therefore, change, as a result of the provision of an updated design and/or spatial data.

3.8 Staff qualifications

This BDAR and associated credit calculations has been prepared and certified by Jessie Russo (accredited assessor number BAAS23017). The credit calculator and BDAR were peer reviewed by Kath Chesnut (accredited assessor number BAAS17031).

Qualifications of GHD ecologists who completed field surveys and report inputs are presented in Table 3.5.

Table 3.5 Staff qualifications and proposal roles

Name	Position/proposal role	Qualifications	Relevant experience
Jessie Russo	Senior Ecologist / accredited assessor, lead author of BDAR, flora and fauna surveys, credit calculations	BEnvSc. (Hons) BAM Assessor Accreditation	6+ years
Kath Chesnut	Senior ecologist / technical review of report and credit calculations	BEnvSc (Hons) BAM Assessor Accreditation	14+ years
Ben Harrington	Technical Director – Biodiversity / technical review Certifying accredited assessor for final credit calculations	BSc, MSc Accredited BAM Assessor (BAAS17023)	21+ years
Bryan Rees	Graduate Ecologist / field surveys	BSc (Ecology)	1 + year

Stage 1: Biodiversity assessment

4. Site context

The BAM requires the assessment of landscape features to establish the site context, describe the biodiversity values of the study area and assess the impacts of the proposal on the study area. Landscape features within the proposal footprint, assessment area and study area relevant to the BAM calculations are discussed in the following sections.

4.1 Assessment area

The assessment areas are defined as the area of land within the 1500 m buffer area surrounding the subject land for each site-based development (refer Figure 4.1). A summary of the landscape features associated with the study area of the proposal is provided in Table 4.1. Individual landscape features are described in more detail throughout the sections below including justifications for the use of data entered in the BAM calculator. Generally, the study area and the surrounding landscape have been historically cleared and are in a degraded condition due to the construction and operation of the existing Uranquinty Power Station, local roads, as well as sheep grazing and other agricultural uses.

Table 4.1 Summary of landscape features present within the study area

Landscape features	Study area
Method applied for site context components	Site-based
Interim Biogeographic regionalisation of Australia (IBRA) bioregion (DCCEEW 2023c)	NSW South Western Slopes
IBRA subregion (DCCEEW 2023c)	Inland Slopes
LGA	Wagga Wagga
Mitchell landscape (DPE 2016)	Brokong Plains
Percentage native vegetation extent within buffer area	6% - the buffer area contains 836 ha of land with native vegetation cover over 53 ha.
Rivers, streams and estuaries	None
Wetlands	None
Connectivity features	The proposal footprint is not part of a patch of native vegetation or fauna movement corridor.
Areas of geological significance or soil hazard features	No areas of geological significance or soil hazard features are present eSPADE V2.2 (NSW DPIE 2020)
Areas of outstanding biodiversity value	No areas identified under the BC Act as being of outstanding biodiversity value have been mapped in the study area.

4.2 Landscape features

4.2.1 Rivers, streams, estuaries and wetlands

No rivers, streams, estuaries and wetlands occur within or adjacent to the study area. The closest waterbody is Roping Pole Swamp located approximately 1.7 km west of the study area. Sandy Creek is the closest waterway located 2.3 km east of the proposal area (refer to Figure 4.1).

No important wetland features intersect the study area or study area listed in the Directory of Important Wetlands in Australia (DIWA). The closest Ramsar wetland are the Hattah-kulkyne Lakes located 400-500 km south west of the study area (Commonwealth DCCEEW 2024a).

4.2.2 Habitat connectivity

Native vegetation extent was mapped across the assessment area using the SVTM (DPE 2023a) and adjusted within the study area based on the results of the desktop assessment and air photo interpretation within the 1500m buffer. Patch size polygons were mapped in accordance with the BAM to include native vegetation in the study area that has a gap of less than 100 m from the next area of native vegetation (or ≤ 30 m for non-woody ecosystems). Native vegetation and patch size polygons are shown on Figure 5.1.

The study area contains limited native vegetation and has been historically cleared for agricultural purposes and associated buildings and structures for the existing Uranquinty Power Station. Planted native vegetation occurs in the northwest corner of the study area. This vegetation is in moderate condition and extends north for approximately 373 m, where it then connects to a narrow strip of remnant native vegetation which continues north along boundary fence lines for approximately 827 m. Native vegetation to the south and west is very minimal and is surrounded by cropped pastures and roads, providing very limited habitat connectivity. Planted native vegetation also occurs to the east outside of the study area, however connectivity is hindered by roads and infrastructure associated with the existing power station.

The majority (97%) of the study area contains patchy, species-poor non-native ground cover vegetation. The study area provides limited foraging and short-term roosting opportunities for woodland birds, owls, raptors and bats, and does not comprise an important connecting link within the surrounding landscape. Any habitat connectivity that may serve as potential movement corridors for threatened species is, therefore, likely to be limited to highly mobile species.

The study area has the potential to provide plant-pollinator interactions. This may include connectivity for pollinators like insects and other vertebrates as well as other pollination mechanisms such as windblown seed.

4.2.3 Karst, caves, crevices, cliffs, rocks or other geological features of significance

There are no karst, caves, crevices, cliffs, rocks or other geological features of significance located within or adjacent to the study area.

No areas of outstanding biodiversity value or high biodiversity values, as identified under the BC Act, occur within the study area or assessment area.

4.2.4 NSW (Mitchell) landscape

NSW (Mitchell) Landscapes within the proposal footprint and assessment area are shown on Figure 4.1 and described in Table 4.2. Brokong Plains covers the entire study area and the majority of the assessment area, therefore this was entered into BAM-C.

Table 4.2 Mitchell Landscapes

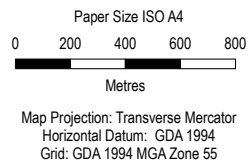
Landscape name (DPE 2016)	Description (DECC 2002)
Brokong Plains	Quaternary alluvial plains, general elevation 170 m, local relief <10 m. Red-brown texture-contrast soils, extensively cleared and cropped, formerly grey box (<i>Eucalyptus microcarpa</i>), yellow box (<i>Eucalyptus melliodora</i>), Blakely's red gum (<i>Eucalyptus blakelyii</i>) and white cypress pine (<i>Callitris glaucophylla</i>) woodland to open forest.
Coffin Rock Granite Hills	Rolling to steep rocky hills with broad crests on granite. General elevation 300 to 440m, local relief <50 m. Coarse gritty red and brown texture-contrast soils on crests and slopes merging to yellow harsh texture-contrast or gradational soils on flats. Woodlands of; tumbledown red gum (<i>Eucalyptus dealbata</i>), red ironbark (<i>Eucalyptus sideroxylon</i>), red stringybark (<i>Eucalyptus macrorhyncha</i>), white gum (<i>Eucalyptus rossii</i>), Blakely's red gum (<i>Eucalyptus blakelyii</i>) and white cypress pine (<i>Callitris glaucophylla</i>) with kangaroo grass (<i>Themeda triandra</i>) and plains grass (<i>Stipa aristiglumis</i>).
Murrumbidgee - Tarcutta Lakes, Swamps and Lunettes	Back plain swamps with Quaternary fluvial and lacustrine sediments filled by high river flows. General elevation 150 m, local relief <5 m. Heavy self-mulching and cracking grey or brown clay, loamy sand lunette with red-brown gradational profile. Swamp floor with lignum (<i>Muehlenbeckia cunninghamii</i>) and cane grass (<i>Eragrostis australasica</i>), margins with black box (<i>Eucalyptus largiflorens</i>) and river cooba (<i>Acacia stenophylla</i>), inlet/outlet channels with river red gum (<i>Eucalyptus camaldulensis</i>). Lunettes with black box and white cypress pine (<i>Callitris glaucophylla</i>).

4.3 Native vegetation cover

Native vegetation cover was mapped across the 1,500m buffer area surrounding the study area using the NSW SVTM (DPE 2023a). Figure 4.1 shows native vegetation cover within the study area and buffer area. Table 4.3 summarises the extent of native vegetation cover within the buffer area.

Table 4.3 Native vegetation cover

1,500 m buffer area (ha)	Native vegetation cover (ha)	Cover class
836	53 (6%)	0-10%



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Project No. 12614690
Revision No. 0
Date 01/08/2025

Location map

FIGURE 4.1

5. Native vegetation, threatened ecological communities and vegetation integrity

5.1 Native vegetation extent

The following section describes the extent of native vegetation at the study area that requires assessment according to Chapter 4 of the BAM (DPIE 2020a). Native vegetation extent was initially mapped across the study area using the SVTM (DPE 2023a) and high-resolution aerial photographs and then ground-truthed and adjusted based on the GHD site surveys as follows:

- The SVTM mapped the entire study area as PCT 0 non-native (Figure 5.1). Field surveys identified planted native vegetation in the north-western corner of the study area, which does not align with PCT 0. PCT 277 aligns more closely with the planted vegetation in this area.
- Field surveys confirmed that the remainder of the study area and proposal footprint is dominated by non-native groundcover, with no mid-story or overstory present. This aligns with the SVTM of PCT 0.

Areas that are non-native vegetation do not require assessment according to Chapter 4 of the BAM (DPE 2020). Areas that have been mapped as non-native vegetation include:

- Formed tracks and compacted bare earth
- Buildings
- Exotic vegetation.

5.1.1 Non-native vegetation

The majority (97%) of the study area contains large areas of cleared and degraded land that supports sheep grazing. Native vegetation is only associated with the planted native vegetation which intersects the north-western corner of the study area and does not occur in the proposal footprint.

Areas that are non-native vegetation do not require assessment according to Chapter 4 of the BAM. Areas that have been mapped as non-native vegetation include formed tracks, hard stand areas and compacted bare earth.

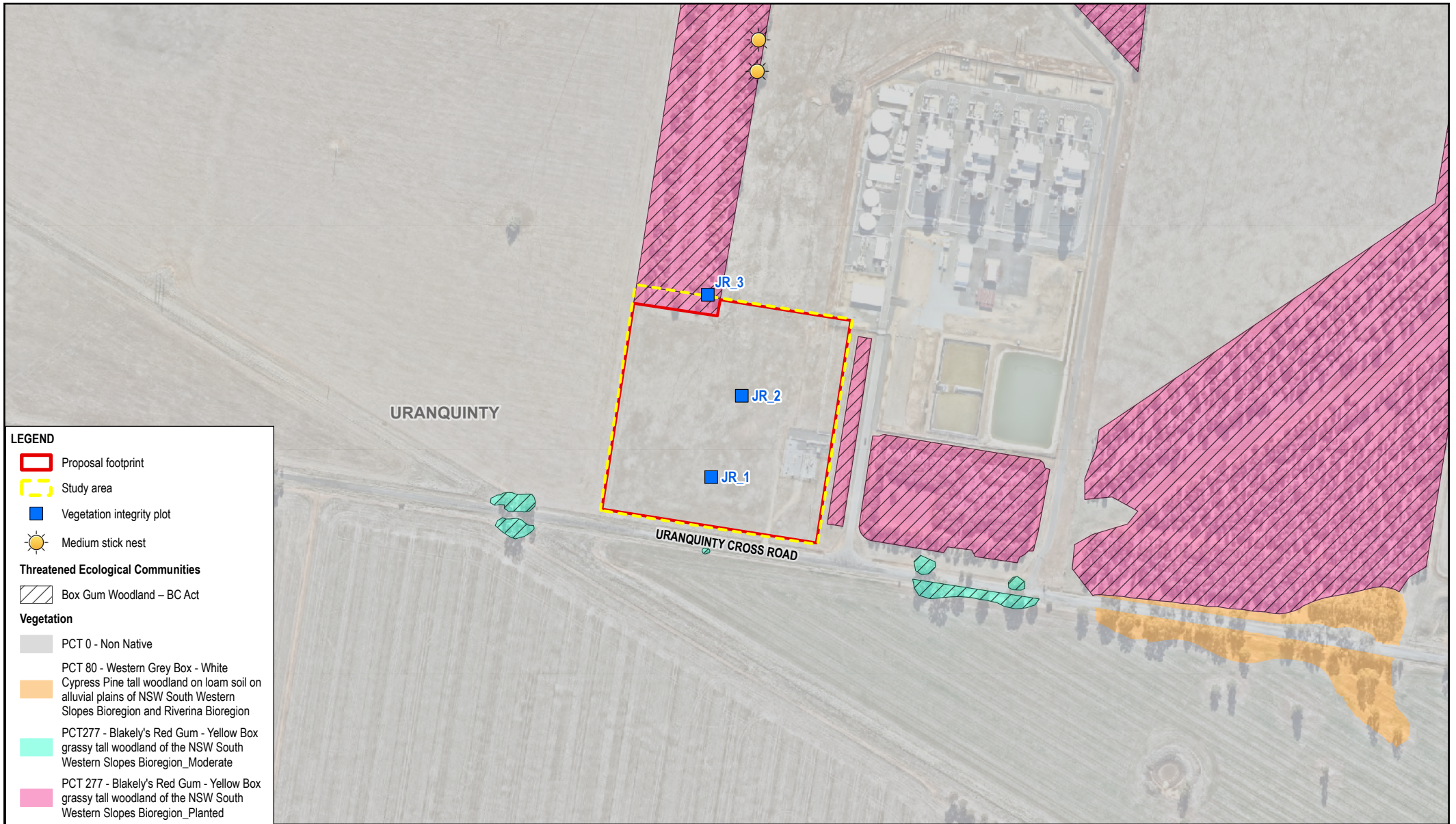
Non-native vegetation in the proposal footprint was sampled with VI plots JR_1 and JR_2 to help confirm that these areas do not meet the definition of native vegetation requiring further assessment under the BAM. These areas of non-native vegetation are described in Table 5.1 below.

Table 5.1 Non-native vegetation description

Non-native vegetation in agricultural land	
Plant community type	N/A
PCT ID	Non-native vegetation. Treated as PCT 277 for the purposes of calculating VI due to adjacent PCT 277 vegetation.
Photos	 <p>Photo 5.1 Example of PCT 0 within the proposal footprint</p>
Survey effort	JR_1, JR_2
Conservation significance	Non-native vegetation.
Patch size	0 ha
Condition	<p>Non-native</p> <p>Grass, forb, fern and shrub composition was well below benchmark.</p> <p>Grass, forb, fern and shrub structure was well below benchmark.</p> <p>No fallen logs recorded.</p> <p>No trees present.</p> <p>Total cover of native vegetation ranged between 5.6 and 9.1%. Guidance provided online by NSW DCCEEW (2024f), defines areas that are comprised of less than 15% native vegetation are to be mapped as 100% exotic and excluded from the calculation of native vegetation extent.</p>
Current vegetation integrity score	2.8
Landscape position	Mid elevations on the Billabong Creek and Forest Creek floodplains, outer floodplains and minor drainage channels with infrequent inundation by floodwater and the original native vegetation was cleared.
Structure	Non-native grassland or herb land derived from clearing of Box-Gum woodland. Certain areas were dominated by cover of exotic annual grasses, but this would be likely to vary with season and/or rainfall in recent months.
Over-storey	Absent.
Mid-storey	Absent.
Groundcover	<p>Dominated by exotic species (132.9 to 162.4% cover in plots sampled).</p> <p>Grasses: low species richness of very sparse cover of Common Couch (<i>Cynodon dactylon</i>), Ringed Wallaby Grass (<i>Rytidosperma caepitosum</i>), Redleg Grass (<i>Bothriochloa macra</i>) and Rough Speargrass (<i>Austrostipa scabra</i>).</p> <p>Herbs: low species richness and cover of Star Cudweed (<i>Euchiton sphaericus</i>) and <i>Rumex</i> sp.</p>

Non-native vegetation in agricultural land

Exotic species	Locally very high cover of annual grasses such as Perennial ryegrass (<i>Lolium perenne</i>), Rat's Tail Fescue (<i>Vulpia myuros</i>), and White Clover (<i>Trifolium repens</i>). Moderate cover of other environmental weeds such as Catsear (<i>Hypochaeris radicata</i>), Pattersons curse (<i>Echium plantagineum</i>), Capeweed (<i>Arctotheca calendula</i>), and Mouse-ear Chickweed (<i>Cerastium glomeratum</i>). High threat exotic weeds: Noogoora Burr (<i>Xanthium occidentale</i>).
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LEGEND

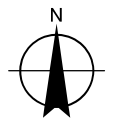
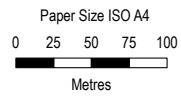
- Proposal footprint
- Study area
- Vegetation integrity plot
- Medium stick nest

Threatened Ecological Communities

- Box Gum Woodland – BC Act

Vegetation

- PCT 0 - Non Native
- PCT 80 - Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion
- PCT277 - Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion_Moderate
- PCT 277 - Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion_Planted



Map Projection: Transverse Mercator
 Horizontal Datum: GDA 1994
 Grid: GDA 1994 MGA Zone 55

APT Management Services Pty Ltd
Culcairn to Wagga Gas Pipeline –
MOD 1 Uranquinty Compressor Station
Biodiversity Development Assessment Report

Project No. **12614690**
 Revision No. **0**
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Vegetation and habitat resources

FIGURE 5.1

5.2 Plant community types

Vegetation within the study area has been assessed as aligning with the BioNet Vegetation Classification PCTs identified within Table 5.2 and their extent is shown in Figure 5.1.

5.2.1 Overview

The PCT mapped within the study area is summarised in Table 5.2. The vegetation profile for the one PCT that was identified in the study area and justification for selection of this PCT are in Table 5.6. PCTs within the study area, as well as in adjacent areas are shown on Figure 5.1. Further discussion of threatened ecological communities (TEC) is provided in sections 5.4.1 (BC Act) and 5.4.2 (EPBC Act).

Two PCTs were mapped in adjacent areas outside the study area. These are PCT 80 Western Grey Box – White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion, and PCT 277 Blakely’s Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion. A rapid assessment survey identifying the dominant canopy, mid-story and groundcover species was completed to determine the most suitable PCT to be assigned. This area was surveyed to obtain further information about the vegetation communities and habitat within the assessment area, and to confirm the potential indirect impacts on adjacent vegetation and habitats as a result of the proposal. Both of these PCTs have not been included in Table 5.3, Table 5.5 and Table 5.6 because it is outside the mapped study area of the proposal.

Table 5.2 Plant community types in the study area

PCT ID	PCT	BC Act status	EPBC Act status	FM Act status	Extent in study area (ha)	Extent in proposal footprint (ha)
277	Blakely’s Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	Critically endangered ecological community	PCT in the study area does not meet the condition thresholds for the EPBC Act listed TEC (DCCEEW 2023a)	Not listed	0.14	0

5.2.2 Justification of PCT selection

The SVTM (DPE 2023a) revealed the following candidate PCTs within the assessment area:

- PCT 70 White Cypress Pine woodland on sandy loams in central NSW wheatbelt.
- PCT 76 Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions.
- PCT 80 Western Grey Box – White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion.
- PCT 277 Blakelys Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion.

Plot data (refer Appendix D) and other site observation were considered against these candidate PCTs. Characteristic species, vegetation structure, soil type and landscape position were evaluated and compared with PCT descriptions in the BioNet vegetation classification. The native vegetation in the study area comprises a planted grassy woodland with evidence of sheep grazing and high exotic plant cover as described in Table 5.6. The planted native vegetation in the study area is floristically similar to PCT 277 based on the following consideration of BioNet descriptions of candidate PCTs (NSW DCCEEW 2024a):

- Landscape position:
 - The study area features fertile loam and clay soils on flats in the NSW South Western Slopes.
 - PCT 277 is present in adjacent stands to the south of the study area, comprising woodland with dominant canopy species of Yellow Box (*Eucalyptus mellidora*), Grey Box (*Eucalyptus microcarpa*) and the occasional White Cypress Pine (*Callitris glaucophylla*).

- Species composition including:
 - Presence of 40% cover of Yellow Box (*Eucalyptus melliodora*) and 8% White Cypress Pine (*Callitris glaucophylla*) as the tallest native plant growth forms in the plot sampled, which are listed as characteristic canopy species for PCT 277.
 - Presence of groundcover species of characteristic of PCT 277 including Redleg Grass (*Bothriochloa macra*), Rough Speargrass (*Austrostipa scabra*), and Wallaby Grass (*Rytidosperma* sp.).
 - Presence of high exotic ground cover is common in this PCT due to the extensive historical clearing of this PCT for agricultural practices.

5.3 Vegetation zones

5.3.1 Overview

The single PCT in the study area occurs as a single condition class, resulting in one vegetation zone as described in Table 5.3. No native vegetation occurs in the proposal footprint, hence no vegetation zones have been assigned in the proposal footprint. The vegetation integrity score of the vegetation zone is shown in Table 5.5. The structure, species composition and condition of the vegetation zone are described in Table 5.6. Plant species lists are provided in Appendix C and plot data is provided in Appendix D along with the wet season benchmark values used in this assessment.

Table 5.3 Vegetation zones

Zone ID	PCT ID	PCT name	Condition / other defining feature	Area in study area(ha)	Area in proposal footprint (ha)	Vegetation class	Patch size (ha)	Patch size class	No. vegetation integrity plots required	Vegetation integrity plots sampled
1	277	Blakelys Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	Planted	0.14	0	Western Slopes Grassy Woodlands	<5	0 – 5 ha	1	JR_3
-	0	N/A	Non-native	4.44	4.44	N/A	N/A	N/A	2	JR_1, JR_2

5.3.2 Vegetation integrity (vegetation condition)

The single vegetation zone of native vegetation in the study area is a moderate-condition patch of planted Blakely's Red Gum – Yellow Box grassy tall woodland (PCT 277). As shown in Table 5.4, less than 50% of the of the plant species vegetation cover in the plot sampled for vegetation zone 1 is made up of native plant species. There is locally dense cover of disturbance tolerant native grasses, Redleg Grass, Rough Speargrass and Common Couch, which are broadly representative of the PCT but frequently indicate degradation of vegetation through clearing and/or over-grazing (Table 5.5 identifies vegetation integrity scores of PCTs within the study area).

The remaining area within the study area and proposal footprint is non-native vegetation. Guidance provided online by NSW DCCEEW (2024f), defines areas that are comprised of less than 15% native vegetation are to be mapped as 100% exotic and excluded from the calculation of native vegetation extent. Table 5.4 shows less than 9.2% of the plant species vegetation cover in the plots sampled for non-native areas is made up of native plant species. These areas are heavily degraded and disturbed as a result of construction of the existing Uranquinty Power Station and are subject to sheep grazing and vehicle activity. Assuming these areas are derived from past clearing of PCT 277 for the purposes of estimating VI, these areas have a VI score of just 2.8. This is significantly lower than the threshold for calculating ecosystem credits for vegetation that is a TEC prescribed in the BAM (VI > 15) confirming that the proposal footprint has negligible biodiversity value.

Table 5.4 Relative proportion of native and non-native vegetation cover and species richness

Plot	Total vegetation	Exotic	Native	Percentage native	Tree	Shrub	Grass	Forb	Fern	Other
JR_1										
Number of species	18	13	5	27.78%	0	0	4	1	0	0
Cover	152.1%	142.90%	9.20%	6.04%	0.00%	0.00%	9.10%	0.10%	0.00%	0.00%
JR_2										
Number of species	17	13	4	23.53%	0	0	3	1	0	0
Cover	168	161.4%	5.6%	3.33%	0.00%	0.00%	5.50%	0.10%	0.00%	0.00%
JR_3										
Number of species	23	14	12	52.17%	3	1	4	4	0	0
Cover	159.70%	86.70%	73.00%	45.71%	68.00%	2.00%	2.30%	0.80%	0.00%	0.00%

Table 5.5 Vegetation integrity scores

Zone ID	Vegetation zone	Area in proposal footprint (ha)	Composition condition score	Structure condition score	Function condition score	Vegetation integrity score	Hollow bearing trees present?
1	PCT 277 – Blakely's Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion (277_Planted)	0	33.5	29.3	36.4	33	No
-	Non-native (277_exotic for VI estimation purposes)	4.44	10.3	3.7	2.2	2.8	No

5.3.3 Vegetation zone descriptions

Table 5.6 describes the vegetation zone in the study area.

Table 5.6 Zone 1 – PCT 277_Planted

Zone 1 – PCT 277 – Blakely’s Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion – Planted	
Plant community type (NSW DCCEE 2024a)	Blakely’s Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
PCT ID	277
Vegetation formation	Grassy Woodlands
Vegetation class	Western Slopes Grassy woodlands
PCT % cleared	94%
Survey effort	Plot JR_3
Area of impact	0
Conservation significance	This PCT is associated with <i>White Box – Yellow Box – Blakely’s Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands</i> – CEEC (BC Act), and <i>White Box – Yellow Box – Blakely’s Red Gum Grassy Woodland and Derived Native Grassland</i> – CEEC (EPBC Act). This PCT does not meet the key diagnostic characteristics and minimum condition thresholds set out in the conservation advice for the associated community listed under the EPBC Act (DCCEE 2023a).
Landscape position	This PCT occurs on the floodplain flats within the study area.
Structure	Open woodland
Over-storey	Planted Yellow Box (<i>Eucalyptus melliodora</i>), Grey Box (<i>Eucalyptus cucullata</i>), White Box (<i>Eucalyptus albens</i>), White Cypress Pine (<i>Callitris glaucophylla</i>) and Narrow-leaved Wattle (<i>Acacia linearifolia</i>).
Mid-storey	A planted mid-storey of Rosy Honey-myrtle (<i>Melaleuca diosmatifolia</i>) is present.
Groundcover	Grasses: Low species diversity of Common Couch (<i>Cynodon dactylon</i>), Redleg Grass (<i>Bothriochloa macra</i>), Wallaby Grass (<i>Rytidosperma</i> sp.), Rough Speargrass (<i>Austrostipa scabra</i>). Herbs: Low diversity and cover of Stonecrop (<i>Crassula</i> sp.), Star Cudweed (<i>Euchiton sphaericus</i>), Oxalis (<i>Oxalis perennans</i>) and Peppergrass (<i>Lepidium</i> sp.).
Exotic species	The understory has been disturbed and is subject to sheep grazing. As a result, there is a high diversity and cover of environmental weeds including Catsear (<i>Hypochaeris radicata</i>), Fescue (<i>Vulpis muralis</i>), White Clover (<i>Trifolium repens</i>), Wild oats (<i>Avena fatua</i>), Patterson’s Curse (<i>Echium plantagineum</i>), Capeweed (<i>Arctotheca calendula</i>), Sheep Sorrell (<i>Rumex acetosella</i>) and Witchgrass (<i>Panicum capillare</i>). High threat exotic plants: Noogoora Burr (<i>Xanthium occidentale</i>).

Zone 1 – PCT 277 – Blakely’s Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion – Planted

Photo



Photo 5.2 Example of PCT 277 – planted within the study area

5.4 Threatened ecological communities

The presence or absence of TECs identified within the project site are outlined in section 5.3.3 and described in detailed in section 5.4.1 and 5.4.2 below. Table 5.7 below provides a summary of the extent of confirmed TEC Box Gum Woodland within the study area.

Table 5.7 TECs within the study area

TEC Name	Profile ID (from TBDC)	BC Act status	EPBC Act status	Associated vegetation zones within the study area	Area within study area (ha)	Area within proposal footprint (ha)
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	10837	CE	Vegetation in the study area did not meet the EPBC listing condition thresholds (DCCEEW 2023a)	PCT 277	0.14	0

5.4.1 TECs listed under the BC Act

According to BioNet Vegetation Classification PCT data, PCT 277 is associated with the CEEC *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* (Box Gum Woodland) listed under the BC Act. Table 5.8 provides an assessment against the NSW Scientific Committee final determination (2012).

Table 5.8 Assessment against the NSW Scientific Committee final determination (2012)

Key Indicators	Response
Is the site within the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands or NSW South Western Slopes Bioregions?	Yes, the proposal site is within the NSW South Western Slopes bioregion.
Is the site between the 400 and 800 mm isohyets extending from the western slopes, at an altitude of 170 m to c 1200 m, on the northern tablelands?	Yes, the proposal site is between the 400 and 800 mm rain isohyets.
Are any of the following characteristic tree species present at the site: <ul style="list-style-type: none"> – <i>Eucalyptus albens</i> (White Box) – <i>Eucalyptus melliodora</i> (Yellow Box), or – <i>Eucalyptus blakelyi</i> (Blakely's Red Gum) 	Yes, <i>Eucalyptus melliodora</i> and <i>Eucalyptus albens</i> are present.
Conclusion	PCT 277 corresponds to the Box Gum Woodland in accordance with the Final Determination for White Box Yellow Box Blakely's Red Gum Woodland. The proposal occurs within the NSW South Western Slopes bioregion, and the dominant overstory species include <i>Eucalyptus albens</i> and <i>Eucalyptus melliodora</i> .

5.4.2 TECs listed under the EPBC Act

PCT 277 is associated with the CEEC *White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland* (Box Gum Woodland) listed under the EPBC Act. Table 5.9 below provides an assessment against the DCCEEW Conservation Advice (2023a). Section 6.3 details further assessment of MNES.

Table 5.9 Assessment against the DCCEEW (2024a) conservation advice

Criteria	Response:
The ecological community occurs in the following bioregions: Brigalow Belt South, Murray Darling Depression, Nandewar, New England Tableland, NSW North Coast, NSW South Western Slopes, Riverina, South Eastern Queensland, South East Corner, South East Coastal Plain, South Eastern Highlands, Southern Volcanic Plain, Sydney Basin and Victorian Midlands.	Yes, the proposal site is within the NSW South Western Slopes bioregion.
It has, or previously had, an overstory dominated or co-dominated by: White Box, and/or Yellow Box and/or Blakely's Red Gum?	Yes, Yellow Box and White Box are present in varying abundance.
It has a predominantly native ground layer.	No, the patch within the study area has a groundcover layer of less than 50% native perennial vegetation cover. Therefore, the assessment ends at this level.
Conclusion	As the patch of vegetation does not have a predominately native understory, the vegetation does not meet the EPBC Act-listed community.

5.5 Groundwater dependent ecosystems

A search of the Groundwater Dependent Ecosystem Atlas (BOM 2024b) was undertaken to identify groundwater dependent ecosystems (GDEs) within a 10 km radius of the study area. The High Priority Groundwater Dependent Ecosystem Map was also reviewed for each of the relevant Water Sharing Plans to identify high priority GDEs. The search identifies locations of low, moderate and high potential terrestrial and aquatic GDE ecosystem interactions. Terrestrial GDEs are reliant on the presence of groundwater for survival and are not reliant on the expression of surface water. Aquatic GDEs encompass a diverse range of fauna that exist within groundwater environments, that rely on the surface expression of groundwater and may be connected to surface water ecosystems such as rivers, wetlands and springs (NSW Government 2022).

The search of the Atlas identified areas of low, moderate, and high potential terrestrial GDEs in the vicinity of the site. The closest high potential terrestrial GDE is located 6.7 km north from the proposal footprint. In the vicinity of the proposal footprint, both moderate and low potential GDEs, including stands of river red gums and various understory species have been identified within a 2.3 km radius.

The search of the Atlas identified areas of low, moderate, and high potential aquatic GDEs in the vicinity of the proposal footprint. The search indicated that Sandy Creek (located 1.8 km east of the proposal footprint) is a high potential aquatic GDE (BOM 2024b). This indicates that flows in Sandy Creek include alluvial surface expression of groundwater, in addition to water supplied by the surface water system through catchment runoff.

The High Priority Groundwater Dependent Ecosystem Map identified no high priority GDEs within 10 km of the proposal footprint in the Lachlan Fold Belt Murray Darling Basin groundwater source area.

The construction activities will be unlikely to intercept groundwater. Therefore, there will be no dewatering of footings during the construction phase for the compressor station. As such, construction of the proposal will not impact nearby GDEs.

Chemicals and fuelling activities will be undertaken within a bunded area to ensure the management of leaks and spills of hydrocarbons and other chemicals is effectively carried out, minimising environmental risks.

Water supply for all phases of the proposal will not be sourced from the local surface and groundwater systems. Therefore, the proposal will not impact the groundwater or surface water systems.

There are no activities proposed during the operational phase that would contribute to groundwater impacts. Spills of hydrocarbons or other chemicals on site are unlikely to infiltrate to the alluvium given the relatively flat topography of the site and proposed management and mitigation measures. Therefore, there are minimal anticipated impacts to groundwater during the site operational period, which would affect licenced groundwater users, GDEs or other receptors.

6. Habitat suitability for threatened and migratory species

6.1 Identification of threatened species for assessment

As described in section 5, the proposal footprint contains only non-native vegetation. Impact assessment relating to habitat suitability for threatened species and calculation of biodiversity credits for direct impacts is not required as part of this BDAR. Predicted threatened species have been considered in general and with reference to the BAM and preliminary BAM-C calculations to help inform the assessment of prescribed impacts and potential impacts to MNES.

6.1.1 Ecosystem credit species

Based on the bioregional context for the assessment and the PCTs, patch size, vegetation cover and habitat resources present in the study area, the BAM calculator generates a list of threatened fauna species that are predicted to utilise the study area (that is, potential 'predicted threatened species', or potential 'ecosystem credit species'). The potential for these predicted threatened species to occur within the proposal site was further refined based on the desktop assessment, habitat resources observed during field surveys, records during the surveys, and the knowledge and experience of the assessor. Targeted surveys are not required under the BAM for these species as they are assumed to be present. Table 6.1 lists all ecosystem credit species that are considered likely to occur on or use the study area. These species were derived using the following databases and reports:

- BAM-C (Biodiversity Assessment Method Calculator Version 1.4) (NSW DCCEEW 2024e)
- TBDC (Threatened Biodiversity Data Collection) (NSW DCCEEW 2024d)
- Previous surveys, BioNet Atlas threatened flora and fauna records (NSW DCCEEW 2024b).

Table 6.1 also identifies and provides justifications for the removal of species from the list generated by the BAM-C in accordance with BAM Subsections 5.2.1 and 5.2.2 (DPIE 2020a). Geographic limitations, habitat constraints and vagrant species are the only reasons used for excluding ecosystem credit species. No additional species were added.

Although this is not a formal requirement in this BDAR, this process provides a useful indication of the likelihood or otherwise of threatened species or their habitats occurring at the study area or being affected by the proposal. It should be noted that this assessment is conservative and does not reflect detailed consideration of the likelihood of these species occurring at the study area given the absence of trees and other habitat resources. A more detailed description of the habitat requirements of these species, likelihood of occurrence at the study area and potential for impacts is included in Appendix B.

Table 6.1 Predicted ecosystem credit species

Common name	Scientific name	BC Act status	EPBC Act status	Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Associated vegetation zone	Sensitivity to gain class
Regent Honeyeater (Foraging)	<i>Anthochaera phrygia</i>	CE	CE	Yes	<input checked="" type="checkbox"/> BAM-C <input type="checkbox"/> TBDC <input type="checkbox"/> Previous survey <input type="checkbox"/> Current survey	Yes	NA	277_Planted	High
Dusky Woodswallow	<i>Artamus cyanopterus cyanopterus</i>	V	Not listed	No	<input checked="" type="checkbox"/> BAM-C <input type="checkbox"/> TBDC <input type="checkbox"/> Previous survey <input type="checkbox"/> Current survey	Yes	NA	277_Planted	Moderate
Speckled Warbler	<i>Chthonicola sagittata</i>	V	Not listed	No	<input checked="" type="checkbox"/> BAM-C <input type="checkbox"/> TBDC <input type="checkbox"/> Previous survey <input type="checkbox"/> Current survey	Yes	NA	277_Planted	High
Brown Treecreeper (eastern subspecies)	<i>Climacteris picumnus victoriae</i>	V	Not listed	No	<input checked="" type="checkbox"/> BAM-C <input type="checkbox"/> TBDC <input type="checkbox"/> Previous survey <input type="checkbox"/> Current survey	Yes	NA	277_Planted	High
Spotted-tailed Quoll	<i>Dasyurus maculatus</i>	V	E	No	<input checked="" type="checkbox"/> BAM-C <input type="checkbox"/> TBDC <input type="checkbox"/> Previous survey <input type="checkbox"/> Current survey	Yes	NA	277_Planted	High
Black Falcon	<i>Falco subniger</i>	V	Not listed	No	<input checked="" type="checkbox"/> BAM-C <input type="checkbox"/> TBDC <input type="checkbox"/> Previous survey <input type="checkbox"/> Current survey	Yes	NA	277_Planted	Moderate

Common name	Scientific name	BC Act status	EPBC Act status	Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Associated vegetation zone	Sensitivity to gain class
Little Lorikeet	<i>Glossopsitta</i>	V	Not listed	No	<input checked="" type="checkbox"/> BAM-C <input type="checkbox"/> TBDC <input type="checkbox"/> Previous survey <input type="checkbox"/> Current survey	Yes	NA	277_Planted	High
White-bellied Sea-Eagle (foraging)	<i>Haliaeetus leucogaster</i>	V	C	Yes	<input checked="" type="checkbox"/> BAM-C <input type="checkbox"/> TBDC <input type="checkbox"/> Previous survey <input type="checkbox"/> Current survey	No	Habitat constraints: No rivers, lakes, large dams or creeks, wetlands or coastlines within 1 km	277_Planted	High
White-throated Needletail	<i>Hirundapus caudacutus</i>	P	V	No	<input checked="" type="checkbox"/> BAM-C <input type="checkbox"/> TBDC <input type="checkbox"/> Previous survey <input type="checkbox"/> Current survey	Yes	NA	277_Planted	High
Swift Parrot (Foraging)	<i>Lathamus discolor</i>	E	CE	Yes	<input checked="" type="checkbox"/> BAM-C <input type="checkbox"/> TBDC <input type="checkbox"/> Previous survey <input type="checkbox"/> Current survey	Yes	NA	277_Planted	Moderate
Hooded Robin (south-eastern form)	<i>Melanodryas cucullata cucullata</i>	V	Not listed	No	<input checked="" type="checkbox"/> BAM-C <input type="checkbox"/> TBDC <input type="checkbox"/> Previous survey <input type="checkbox"/> Current survey	Yes	NA	277_Planted	Moderate
Large Bent-winged Bat (Foraging)	<i>Minipterus orianae oceanensis</i>	V	Not listed	No	<input checked="" type="checkbox"/> BAM-C <input type="checkbox"/> TBDC <input type="checkbox"/> Previous survey <input type="checkbox"/> Current survey	Yes	NA	277_Planted	High

Common name	Scientific name	BC Act status	EPBC Act status	Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Associated vegetation zone	Sensitivity to gain class
Scarlet Robin	<i>Petroica boodang</i>	V	Not listed	No	<input checked="" type="checkbox"/> BAM-C <input type="checkbox"/> TBDC <input type="checkbox"/> Previous survey <input type="checkbox"/> Current survey	Yes	NA	277_Planted	Moderate
Flame Robin	<i>Petroica phoenicea</i>	V	Not listed	No	<input checked="" type="checkbox"/> BAM-C <input type="checkbox"/> TBDC <input type="checkbox"/> Previous survey <input type="checkbox"/> Current survey	Yes	NA	277_Planted	Moderate
Superb Parrot (foraging)	<i>Polytelis swainsonii</i>	V	V	Yes	<input checked="" type="checkbox"/> BAM-C <input type="checkbox"/> TBDC <input type="checkbox"/> Previous survey <input type="checkbox"/> Current survey	Yes	NA	277_Planted	Moderate
Grey-crowned Babbler (eastern subspecies)	<i>Pomatostomus temporalis temporalis</i>	V	Not listed	No	<input checked="" type="checkbox"/> BAM-C <input type="checkbox"/> TBDC <input type="checkbox"/> Previous survey <input type="checkbox"/> Current survey	Yes	NA	277_Planted	Moderate
Grey-headed Flying-fox (Foraging)	<i>Pteropus poliocephalus</i>	V	V	No	<input checked="" type="checkbox"/> BAM-C <input type="checkbox"/> TBDC <input type="checkbox"/> Previous survey <input type="checkbox"/> Current survey	Yes	NA	277_Planted	High
Diamond Firetail	<i>Stagonopleura guttata</i>	V	Not listed	No	<input checked="" type="checkbox"/> BAM-C <input type="checkbox"/> TBDC <input type="checkbox"/> Previous survey <input type="checkbox"/> Current survey	Yes	NA	277_Planted	Moderate

6.1.2 Species credit species

The likelihood of occurrence of potential candidate threatened species were reviewed, giving consideration to the habitats available in the study area (refer to threatened species for assessment tables in Appendix B). The list of potential candidate threatened species that could occur in the study area are assessed based on the habitat resources observed during field surveys. 'Confirmed' candidate threatened species generally require further assessment of species presence and the extent of occupied habitat in accordance with the BAM. The list of confirmed candidate threatened species is presented in in Table 6.2 along with the justification for excluding species from further assessment in accordance with BAM Subsections 5.2.1 and 5.2.2 (DPIE 2020a).

As described for predicted threatened species above, this is not a formal requirement in this BDAR but is included here as an indication of the likelihood or otherwise of threatened species occurring at the study area or being affected by the proposal. Notably the majority of species could be reliably discounted as occurring within the study area and proposal footprint based on the type and quality of habitat resources in the study area and the habitat requirements for the species identified in the TBDC. It should also be noted that the treatment of species retained for assessment is conservative. These fauna species would not occur at the study area on a long-term basis or rely on any of the habitat resources at the study area for their persistence in the local area. They are only likely to pass over or through the study area on a transient basis (if at all) while relying on better quality habitat resources in the surrounding area.

In accordance with Appendix C of the BAM (streamlined assessment module – small area) only confirmed candidate species that are at risk of a SAI require seasonal targeted survey (or an expert report); all other species if not incidentally recorded within the proposal site do not require further assessment.

One of the identified candidate species is listed as a species that is at risk of a SAI, *Prasophyllum* sp. Wybong. Targeted surveys for *Prasophyllum* sp. Wybong were completed across vegetation zone 1 within the study area on 18 September and 16 October 2023 (as described in section 3.2.2.3). No threatened species (including *Prasophyllum* sp. Wybong) were recorded within the study area during the surveys. There is no potential *Prasophyllum* sp. Wybong habitat in the proposal footprint.

Table 6.2 Candidate species credit species

Common name	Scientific name	Listing status		SAIL entity	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act					
Regent Honeyeater (Breeding)	<i>Anthochaera phrygia</i>	CE	CE	No	<input checked="" type="checkbox"/> BAM-C <input type="checkbox"/> TBDC <input type="checkbox"/> Previous survey <input type="checkbox"/> Current survey	No	– No areas identified on the important habitat occur within or adjacent to the study area.	N/A
Swift Parrot (Breeding)	<i>Lathamus discolor</i>	E	CE	No	<input checked="" type="checkbox"/> BAM-C <input type="checkbox"/> TBDC <input type="checkbox"/> Previous survey <input type="checkbox"/> Current survey	No	– No areas identified on the important habitat occur within or adjacent to the study area.	N/A
<i>Prasophyllum</i> sp. Wybong	<i>Prasophyllum</i> sp. Wybong	Not listed	CE	Yes	<input checked="" type="checkbox"/> BAM-C <input type="checkbox"/> TBDC <input type="checkbox"/> Previous survey <input type="checkbox"/> Current survey	Yes (in vegetation zone 1, outside the proposal footprint only)	– Species was not recorded during targeted surveys.	277_Planted

6.2 Presence of candidate species credit species

As detailed in section 3.2 no threatened flora or fauna species were recorded in the study area or proposal footprint during targeted field surveys conducted in September and October 2023.

All areas of native vegetation in the study area were traversed on foot, with no notable barriers to human movement or visibility encountered during the field survey.

6.3 Matters of National Environmental Significance

6.3.1 Threatened ecological communities

No threatened ecological communities (TECs) listed under the EPBC Act were recorded in the study area or proposal footprint (see section 5.4). There is no risk of direct or indirect impacts to any TECs listed under the EPBC Act.

6.3.2 Threatened species

No threatened species listed under the EPBC Act were recorded within the study area or proposal footprint. Based on the results of the site surveys and habitat assessments, all threatened species have been assessed to have low or no potential to occur given lack of suitable habitat and/or because the study area is outside of the known geographic range of the species (see Appendix B).

6.3.3 Migratory species listed under the EPBC Act

Migratory shorebird species

No migratory shorebird species listed under the EPBC Act were recorded during field surveys. The PMST predicted the presence of a number of migratory shorebird species (identified as 'Migratory Wetlands' or 'Migratory Marine') as listed in Appendix B. Based on the results of the site surveys and habitat assessments, all migratory shorebird / wetland bird species have been assessed to have low or no potential to occur given lack of suitable habitat and/or because the study area is outside of the known geographic range of the species (see Appendix B).

Migratory terrestrial species

No migratory terrestrial species listed under the EPBC Act were recorded during field surveys. The PMST predicted the presence of a number of migratory terrestrial bird species as listed in Appendix B). Based on the results of the site surveys and habitat assessments, all migratory terrestrial bird species have been assessed to have low or no potential to occur given lack of suitable habitat and/or because the study area is outside of the known geographic range of the species (see Appendix B). The study area may be flown over by migratory species on occasion but given its context with the limited native vegetation in the study area and lack of habitat resources, no individuals of any species are ever likely to land.

Referral guidelines have been published for 14 migratory terrestrial species, such as the Rufous Fantail (*Rhipidura rufifrons*) and Satin Flycatcher (*Myiagra cyanoleuca*) (DotE 2015). Important habitat for these species generally relates to breeding habitat. Based on the results of the site surveys and habitat assessments, the study area and proposal footprint does not provide important breeding habitat for these species. Vegetation within the proposal footprint is highly degraded, fragmented and would have only limited value for migratory species listed under the EPBC Act. Habitat in the proposal footprint would not support an ecologically significant proportion of the population of any of these species, be of critical importance to the species at particular life-cycle stages, is not located at the limit of any of the species' range, and/or located within an area where the species is declining. As such, potential habitat in the study area is not 'important habitat' for any of these species, as defined in the guidelines (DotE 2015).

7. Identifying prescribed impacts

The Biodiversity Conservation Regulation 2017 (section 6.1) identifies additional biodiversity impacts to which the BOS applies. 'Prescribed impacts' are impacts to threatened species arising from a proposal that are not related to, or are in addition to, native vegetation clearing and habitat loss. According to the BAM an accredited assessor must identify the prescribed impacts arising from a proposal along with the suite of potentially affected threatened species.

Table 7.1 summarises the prescribed impact features listed in the Biodiversity Conservation Regulation 2017 and BAM along with an assessment of their presence or otherwise in the study area, their characteristics and location, and the threatened entities that are associated with the feature at the study area. Justifications for features determined as not present are provided as appropriate.

Based on the results of the site surveys and habitat assessments, no threatened species have a moderate to high potential to occur in the study area given a lack of suitable habitat and/or because the study area is outside of the known geographic range of the species (see Appendix A).

Table 7.1 Identification of prescribed impacts and potentially affected threatened entities in the study area

Feature	Present	Description of feature characteristics and location	Threatened entities that use, are likely to use, or are part of the habitat feature. Where relevant, 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	<input type="checkbox"/> Yes / <input checked="" type="checkbox"/> No	There are no areas of karst, caves, crevices or cliffs in the study area.	N/A
Human-made structures	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	The study area includes agricultural land and infrastructure associated with the existing Uranquinty Power Station. This infrastructure would not be impacted by the proposal.	It is highly unlikely that any threatened fauna species would rely on habitat resources in these areas for their survival in the locality. The proposal would not result in the removal of any existing human-made structures.
Non-native vegetation	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	A majority of the study area, outside of human made structures, comprises non-native vegetation.	The study area may be travelled over or through by more mobile fauna species or used occasionally as foraging habitat. The areas of non-native vegetation are open, exposed areas which provide no shelter, or breeding habitat for threatened fauna species.
Habitat connectivity	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	Fauna movement across the study area and immediate study area is restricted and limited to highly mobile species given the existing degree of vegetation fragmentation throughout the predominantly agricultural landscape. Moderate condition planted native vegetation in the northern portion of the study area makes a minor contribution to habitat connectivity, as shown on Figure 5.1. The planted vegetation continues north outside the study area for approximately 346 m, where it then connects to a narrow strip of remnant woodland which terminates after approximately 812 m. No further connecting link between patches of native	The study area may be travelled over or through by mobile fauna species and the planted woodland vegetation may be used occasionally for foraging or shelter when passing through. The study area does not contain any habitat features which comprise of an important connecting link between any other areas of habitat within the surrounding landscape. The removal of 4.44 ha of non-native grassland would not result in any impacts to habitat connectivity or substantially fragment any areas of native vegetation that threatened fauna species would rely upon.

Feature	Present	Description of feature characteristics and location	Threatened entities that use, are likely to use, or are part of the habitat feature. Where relevant, threatened species or fauna that are part of a TEC or EC, that are at risk of vehicle strike
		vegetation within the study area continue beyond this. All remaining adjacent areas comprise of cleared agricultural land, roads and the existing Uranquinty Power Station.	The proposal would not result in the creation of a barrier to movement for highly mobile species.
Waterbodies, water quality and hydrological processes	<input type="checkbox"/> Yes / <input checked="" type="checkbox"/> No	There are no waterbodies in or adjacent to the study area as shown on Figure 4.1. There is no risk of use of the site or works associated with construction or operation of the proposal resulting in any tangible impacts to waterbodies or hydrological processes within this already highly modified landscape.	N/A
Wind turbine strikes (wind farm development only)	<input type="checkbox"/> Yes / <input checked="" type="checkbox"/> No	N/A	N/A
Vehicle strikes	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	The proposal footprint would be accessed via Uranquinty Cross Road. Vehicle movements would increase above current levels during construction but in the context of existing traffic and limited habitat within the study area, there is unlikely to be a tangible increase in risk to fauna. Vehicle movement within the site itself would increase but given the short distances, low speeds, and negligible habitat value there would be a negligible increase in the risk of vehicle strike.	The study area may be travelled over or through or used occasionally as foraging habitat by highly mobile fauna species.

Stage 2: Impact assessment (biodiversity values and prescribed impacts)

8. Avoid and minimise impacts

The proposal would result in direct impacts on non-native vegetation as shown in Figure 8.1. There is also the potential for indirect impacts on areas of native vegetation adjacent to the study area, both during construction and from the operation of the proposal (refer to section 9.1.3).

Specific mitigation measures are recommended to minimise likely impacts on biodiversity values. These measures are presented according to the hierarchy of avoidance and mitigation of impacts, and the identification of residual impacts of the proposal that cannot be avoided or mitigated.

8.1 Avoid and minimise direct and indirect impacts

8.1.1 Proposal location

APA initially selected Lot 781/DP878179 for the proposal based on proximity to the existing Uranquinty Power Station, Culcairn to Wagga pipeline and road access. The proposal footprint location was further refined through a detailed environmental constraints assessment carried out by GHD. A desktop assessment of biodiversity constraints was undertaken including:

- Review of the SVTM (DPE 2023a) to identify candidate PCTs in the study area and to help map native vegetation extent
- Review of the NSW BioNet Vegetation Classification (NSW DCCEEW 2024a) to identify candidate TECs
- BioNet Atlas records of threatened biota (NSW DCCEEW 2024b).

The desktop assessment was further refined based on GHD site inspections of the study area in August 2023, September 2023 and October 2023.

The proposal footprint was refined in order to avoid impacts to biodiversity values as far as possible. Specifically:

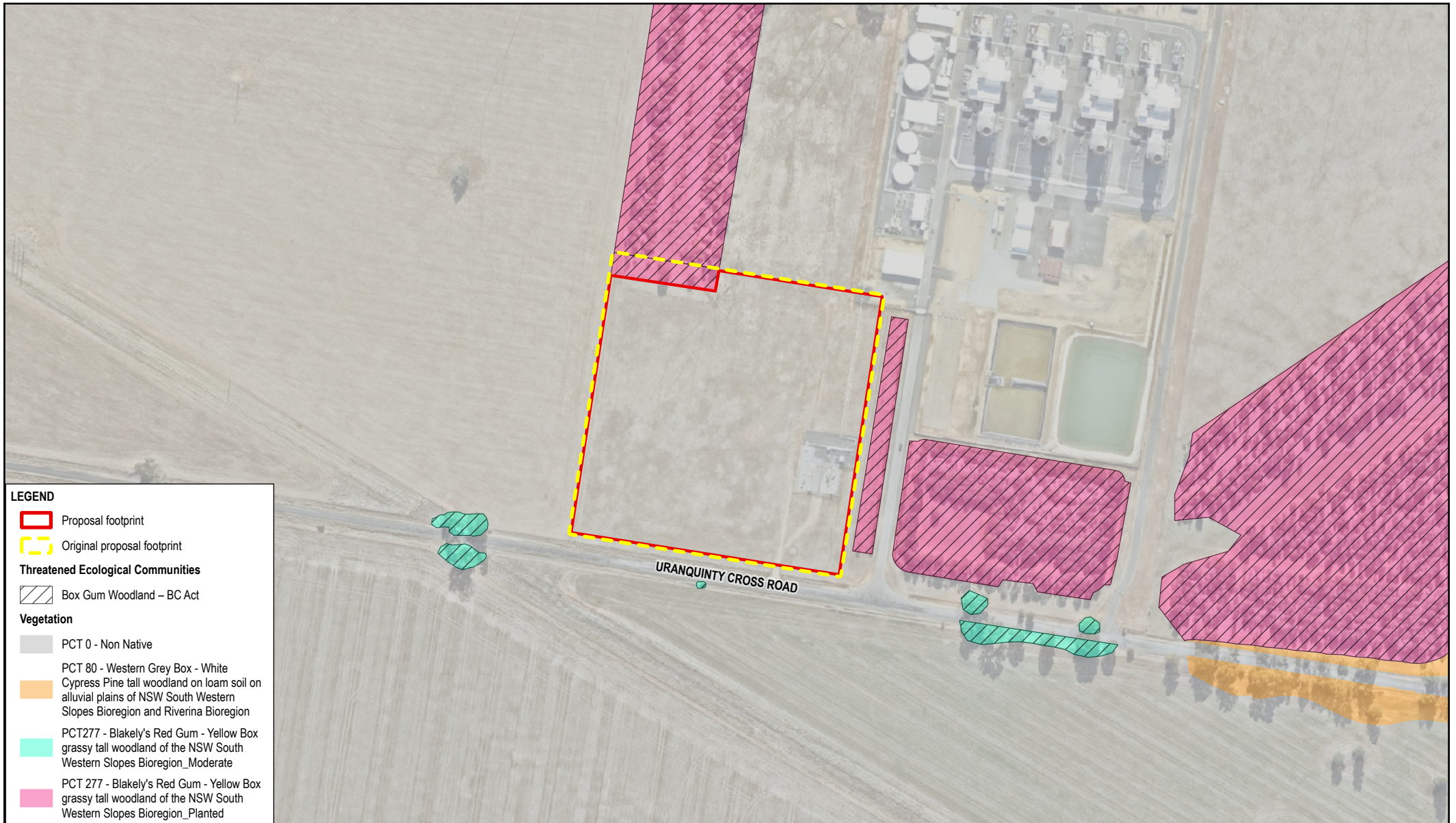
- Planted native vegetation was confirmed present in the north-western corner of the study area. The planted vegetation aligned with PCT 277 Blakely's Red Gum – Yellow Box grassy tall woodland, which is associated with a CEEC under the BC Act. APA decided to avoid construction work in this area and identified an alternative location within an area of non-native vegetation within the proposal footprint (see Figure 8.1).

8.1.2 Proposal design

The proposal has aimed to avoid impacts to native vegetation and habitat values by amending the original footprint layout and design in response to detailed understanding of the site's biodiversity values (see Figure 8.1).

The study area is heavily degraded and dominated by non-native grassland. The small patch of planted native vegetation in the north-western corner is the only area requiring consideration of the habitat value. Considering the degraded nature of the study area, measures to avoid and minimise impacts focused on avoiding impacts to the planted native vegetation and the design utilises existing access tracks and roads, reducing indirect construction impacts on non-native vegetation retained in proximity to site access.

The proposal layout will be further defined by the construction contractor including micro-siting of each of the features described in section 1.5.2 and shown in the indicative layout on Figure 1.2. Subject to detailed design, residual direct impacts of the proposal construction would affect a maximum of 4.44 ha of non-native vegetation. Impacts would be restricted to the proposal footprint polygon and within this area, infrastructure, carparking and laydown areas would be placed to ensure the minimum extent of vegetation removal and to maximise the distance from native vegetation on adjoining land.



LEGEND

Proposal footprint

Original proposal footprint

Threatened Ecological Communities

Box Gum Woodland – BC Act

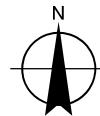
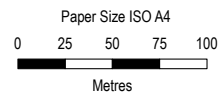
Vegetation

PCT 0 - Non Native

PCT 80 - Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion

PCT 277 - Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion_Moderate

PCT 277 - Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion_Planted



Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

APT Management Services Pty Ltd
Culcairn to Wagga Gas Pipeline –
MOD 1 Uranquinty Compressor Station
Biodiversity Development Assessment Report

Project No. **12614690**
Revision No. **0**
Date **01/08/2025**

Avoid and minimise

FIGURE 8.1

9. Impact assessment

9.1 Direct impacts

9.1.1 Summary

As described in section 5, the proposal footprint contains only non-native vegetation. Formal assessment of residual direct impacts and calculation of biodiversity credits is not required as part of this streamlined BDAR. Residual direct impacts to non-native vegetation are summarised in Table 9.1 for reference purposes to help inform the assessment of the proposal in general and assessment of prescribed impacts.

Table 9.1 Summary of residual direct impacts

Direct impact	BC Act status	EPBC Act status	SAIL entity	Proposal phase/timing of impact (e.g. construction, operation, rehabilitation)	Extent	Change in VI score
Non-native vegetation	Not listed	Not listed	No	Construction, decommissioning	4.44 ha	-2.8 (Non-native vegetation)

9.1.2 Removal of vegetation and habitat resources

The proposal would remove or modify a maximum of 4.44 ha of non-native grassland, comprising 27% of the maximum possible area of non-native grassland that could be affected by the proposal within the study area. The removal of this non-native vegetation would remove negligible habitat resources for native fauna species, including leaf litter and foraging resources. No trees or shrubs would be removed or otherwise directly affected at the study area. The proposal would remove a small proportion of the resources available in the local area, particularly in the context of the areas of better condition planted and remnant native vegetation in the study area and along Uranquinty Cross Road (see Figure 8.1).

As described in section 5 above, the proposal footprint contains only non-native vegetation. Formal assessment of impacts to vegetation integrity scores and calculation of biodiversity credits is not required as part of this BDAR.

9.1.3 Summary of measures to avoid and minimise impacts

A summary of measures undertaken to avoid and minimise impacts is provided in Table 9.2.

Table 9.2 Avoidance and minimisation measures for direct, indirect and prescribed impacts

Action	Outcome	Timing	Responsibility
Identification of a site with minimal biodiversity value	Avoidance of impacts to native vegetation and other biodiversity values achieved by selecting a site containing predominantly non-native vegetation.	Site selection	Proponent
Avoidance of impacts to vegetation through the proposed use of existing access to the proposal footprint.	Avoiding and minimising the amount of vegetation clearing required.	Site selection, proposal design	Proponent
Reducing the proposal footprint and concentrating development in non-native vegetation.	Avoiding and minimising the amount of native vegetation clearing required.	Design	Proponent, contractors

Action	Outcome	Timing	Responsibility
Preparation and implementation of a construction environmental management plan.	Minimising and managing direct and indirect impacts during construction.	Construction	Construction contractor
Implementation of the construction environmental management plan.	Minimising and managing direct and indirect impacts during operation of the compressor station.	Operation	Proponent, contractors

9.2 Indirect impacts

Table 9.3 documents the potential residual indirect impacts that could arise from the construction, operation and decommissioning of the proposal.

Table 9.3 Summary of potential residual indirect impacts

Indirect impact	Likelihood and potential consequences
Edge effects	<p>'Edge effects' can include increased noise and light or erosion and sedimentation at the interface of intact vegetation and cleared areas. Edge effects may result in impacts such as changes to vegetation type and structure, increased growth of exotic plants, increased predation of native fauna or avoidance of habitat by native fauna. Altered environmental conditions along new edges can allow invasion by pest animals specialising in edge habitats and/or change the behaviour of resident animals. Edge zones can be subject to higher levels of predation by introduced mammalian predators and native avian predators.</p> <p>The proposal footprint contains only non-native grassland. Vegetation within the study area and surrounding landscape is also predominantly non-native. Only one patch of planted native vegetation occurs adjacent to the proposal footprint. The construction and operation of the proposal may result in edge effects to the nearby planted vegetation and retained habitat features.</p>
Introduction and spread of weeds, pests and pathogens	<p>Disturbance associated with vegetation clearing and vehicle traffic during construction may, in general, increase the potential for the spread, introduction and establishment of weed and pest species, and diseases and pathogens.</p> <p>Construction and environmental management plans will specify measures for restricting access to native vegetation and minimising the risk of transmitting weed propagules.</p> <p>The proposal footprint is predominantly surrounded by non-native vegetation. There is a negligible risk of transmitting disease into any sensitive environments. Disturbance to the planted native vegetation adjoining the study area would be mitigated through environmental inductions and exclusion fencing or other visible barriers to entry to exclude personnel and vehicles from native vegetation outside the study area.</p> <p>To further mitigate the risk of pathogens being brought onto and/or spread through the site all vehicles, plant and equipment will be cleaned down (wash/blow down) and certified weed free prior to initial entry to site; all vehicles, plant and equipment will strictly adhere to the approved roads, tracks, easements and work areas to minimise contact with vegetation (DPIE 2020c). All construction activities will adhere to the requirements of the <i>Biosecurity Act 2015</i>.</p>
Noise and light impacts on fauna	<p>Noise levels during the construction period would result in an increase above existing background levels for the duration of construction. Noise levels would vary during the construction period, with some activities being louder and producing higher levels of vibration than others, although all construction noise and vibration will adhere to the <i>Interim Construction Noise Guideline</i> (EPA). Noise, vibration, and light have been shown to have a variety of impacts on fauna, including changing foraging behaviour, impacting breeding success and changing species occurrences.</p> <p>The study area is predominately surrounded by non-native vegetation in a heavily cleared agricultural landscape. The existing Uranquinty Power Station is also located adjacent to the proposal footprint. The Power Station is only operational at intermittent time periods when there is greater demand for energy. Any native fauna at or near the proposal footprint are likely to be habituated to the noise of human activity.</p>

Indirect impact	Likelihood and potential consequences
	<p>Lighting for night construction works has the potential to result in light spill into adjoining areas of native vegetation which may disturb resident fauna. Light generated during construction will be managed in general accordance with the requirements in Australian Standard AS 4282-1997 <i>Control of the Obtrusive Effects of Outdoor Lighting</i>. Directional lighting will be used to minimise the effects of light spill outside the proposal site as far as possible.</p> <p>The proposed compressor station would operate 24 hours per day, seven days a week, and would be controlled remotely with no on-site staff required for day-to-day operation. A Noise and Vibration Assessment has been undertaken in support of the proposal which outlines mitigation measures to minimise noise impacts, including a noise validation assessment during operations.</p> <p>Given the limited habitat available in the proposal footprint and study area, and the availability of alternate habitat in surrounding areas, it is unlikely the temporary increase in noise and light during construction and noise increase during operation would significantly affect fauna populations that occur in adjoining vegetation.</p>
Erosion and sedimentation	<p>Removal of vegetation, soil disturbance and excavation, and construction of the compressor station infrastructure would expose subsoil and generate spoil material and could, in general, result in erosion and sedimentation. The proposal would be undertaken in accordance with a Construction Environment Management Plan (CEMP) that would include a Soil and Water management Plan and would include industry best practice methods for excavating, handling and storing soils.</p> <p>Noting the gentle topography at the study area, relatively small proposed clearing areas, construction impacts based on the indicative proposal footprint layout are expected to be limited and are likely to be sufficiently mitigated by the construction methodology.</p> <p>Given the limited scale of works and the proposed environmental management measures the proposal is highly unlikely to result in a tangible increase in the degree of erosion or sedimentation.</p>

9.3 Prescribed impacts

Prescribed impacts are the impacts on biodiversity values which are not related to, or are in addition to, native vegetation clearing and habitat loss (Section 6 of the BAM). These types of impacts are used by the decision-maker to inform the determination and conditions of consent for developments. In general, these types of impacts affect habitat or features of the environment that are irreplaceable or otherwise important to the maintenance of biodiversity values.

The BC Regulation (clause 6.1) identifies actions that are prescribed as impacts to be assessed under the biodiversity offsets scheme. The likelihood, extent and magnitude of prescribed impacts must be assessed using the approach specified in the BAM Section 8.3. The likely effect of prescribed impacts that are relevant to the proposal is presented in Table 9.4. The suite of threatened species that may be affected by these prescribed impacts are presented in section 6. Measures to minimise the effect of prescribed impacts on threatened species and other biodiversity values are presented in Table 9.5.

Table 9.4 Summary of residual prescribed impacts on the proposal footprint

Prescribed impact	Likelihood and consequences
Human made structures	<p>Nature The proposal footprint contains existing human-made structures associated with the existing Uranquinty Power Station. These structures are solely comprised of metal materials and do not provide roosting habitat for threatened microbats.</p> <p>Extent The proposal would not remove this existing human-made structures.</p> <p>Duration Not calculated. Likely to be equivalent to pre-construction levels.</p> <p>Consequences Nil. The proposal would not remove existing human-made structures in the proposal footprint.</p>
Non-native vegetation	<p>Nature The proposal footprint contains only non-native vegetation. Use of the site for the construction of a compressor station would involve the removal of non-native grassland and an increase in the area of hard stand and human made structures. This non-native vegetation provides limited habitat resources for any threatened species with potential to occur in the locality.</p> <p>Extent There is 4.44 ha of non-native grassland within the study area and proposal footprint.</p> <p>Duration This impact will last for 25 years during the construction and operational phase of the proposal. Upon decommissioning the proposal footprint would be completely rehabilitated.</p> <p>Consequences The proposal footprint may be travelled over or through or used occasionally as foraging habitat by threatened microbats, threatened woodland or raptor birds. The areas of non-native grassland in the proposal footprint and study area provides no shelter, roosting or breeding habitat for the species that could potentially occur and have negligible value for these species. The consequences of removal or modification of this non-native vegetation on threatened species that may occur in the local area would be negligible.</p>
Vehicle strike	<p>Likelihood The Traffic and Transport Assessment (GHD 2025) concluded that the proposal is expected to have minimal impact on the roads within the vicinity of the proposal footprint, during peak hours of operation. Vehicle movement would increase above current levels but in the context of existing traffic and limited habitat within the proposal footprint there is unlikely to be a tangible increase in risk to fauna. Vehicle movement within the proposal footprint itself would increase but given the short distances, low speeds, and negligible habitat value there would be a negligible increase in the risk of vehicle strike.</p> <p>Estimated rate of vehicle strike Not calculated. Likely to be equivalent to pre-construction levels.</p> <p>Consequences Likely to be equivalent to pre-construction levels. Given the context of the surrounding study area, few if any native fauna would be at particular risk from vehicle strike and as such the consequences are likely to be negligible.</p>
Habitat connectivity	<p>Nature Planted native vegetation in the north-western corner of the study area provides a minor contribution to habitat connectivity within the surrounding locality, as shown on Figure 5.1. The planted vegetation continues north outside the study area for approximately 346 m, where it then connects to a narrow strip of remanent woodland which terminates after approximately 812 m. No further connecting links between patches of native vegetation within the study area continue beyond this. All remaining adjacent areas comprise cleared agricultural land, fences, roads and the existing Uranquinty Power Station, creating a barrier to less mobile fauna.</p> <p>Extent The proposal would not involve clearing of the planted native vegetation.</p> <p>Duration Not calculated. Would be equivalent to pre-construction levels.</p> <p>Consequences Nil. All areas of planted vegetation within the study area would be retained.</p>

9.4 Mitigating residual impacts – management measures and implementation

The proposal will include implementation of measures to mitigate residual impacts, specified in a Construction Environmental Management Plan (CEMP). The CEMP will provide detailed environmental controls to manage key environmental issues. The CEMP will be reviewed and updated as necessary throughout the relevant phases of the modification.

The CEMP will include, as a minimum, industry-standard measures for the management of soil, surface water, weeds and pollutants, as well as site-specific measures for the management of flora and fauna. The mitigation and harm minimisation measures for direct, indirect and prescribed impacts are detailed in Table 9.5 including timing, responsibility and outcomes.

Table 9.5 Summary of proposed mitigation and management measures for residual impacts (direct, indirect and prescribed)

ID	Impact	Mitigation measures	Timing/ responsibility	Likely effectiveness
B01	General biodiversity impacts	Flora and fauna management controls will be included within the CEMP. It would include measures, processes, and responsibilities to minimise the potential for biodiversity impacts during construction, operation and decommissioning of the compressor station incorporating recommendations below and expanding on specific details where necessary.	Pre-construction, operation, decommissioning/ Project ecologist	High
B02		All workers will be provided with an environmental induction prior to starting work on site. This would include information on the biodiversity values of the site, protection measures to be implemented to protect native biota and penalties for breaches.	Construction, operation, decommissioning / Contractor and Project ecologist	High
B03		Measures to suppress dust implemented during clearing works during construction and decommissioning.	Construction, decommissioning / Contractor	High
Direct impacts				
B04	Removal of vegetation and habitat resources	Plans will be prepared showing areas to be cleared and areas to be protected, including exclusion zones and protected habitat features in the vicinity of work areas.	Pre-construction, decommissioning / Project ecologist	High
B05		Prior to the commencement of any work in or adjoining areas of native vegetation, including planted native vegetation, a survey will be carried out to mark the construction impact boundary. The perimeter of this area would be fenced using high visibility fencing and clearly marked as the limits of clearing. All vegetation outside this fence line will be clearly delineated as an exclusion zone to avoid unnecessary vegetation and habitat removal and the transmission of weeds or disease. Fencing and signage will be maintained for the duration of the construction period. Fencing will be designed to allow fauna to exit the site during clearing activities.	Pre-construction, construction, decommissioning / Project ecologist	High
B06	Unexpected direct impacts to threatened flora and fauna	As described throughout this BDAR the proposal footprint does not contain any known populations of threatened species or habitat resources that indicate any species are likely to be resident during construction. An Unexpected Finds Protocol will be prepared to detail measures to be undertaken if threatened flora and fauna not previously recorded on site are detected during clearing, construction or decommissioning activities.	Construction, decommissioning / Project ecologist	High

ID	Impact	Mitigation measures	Timing/ responsibility	Likely effectiveness
B07	Harm to resident fauna	<p>Protocols for the management of fauna and habitats will be included in the CEMP. These will include (if required):</p> <ul style="list-style-type: none"> – salvage of woody debris where practicable – management of any trenches or excavation sites to prevent fauna from becoming trapped or injured. 	Construction and decommissioning / Contractor and Project ecologist	High
Indirect impacts				
B08	Pathogen spread and establishment	<p>All machinery entering the site will be appropriately washed down and disinfected prior to work on site to prevent the potential spread of weeds and disease in accordance with the <i>NSW best practice Protocols to protect priority biodiversity areas</i> (DPIE 2020c).</p> <p>Protocols to prevent introduction or spread of chytrid fungus will be implemented following the <i>NSW hygiene guidelines for wildlife</i> (DPIE 2020c).</p>	Construction, operation and decommissioning / Contractor	High
B09	Spread of weeds	<p>Declared priority weeds will be managed according to requirements of the <i>NSW Biosecurity Act 2015</i>.</p> <p>Soil material and stripped groundcover vegetation with the potential to contain priority weeds will not be removed from the study area unless if the soil material is being transported to a suitably licensed waste facility. Soil disturbance would be avoided as much as possible to minimise the potential for spreading weeds.</p>	Construction, operation and decommissioning / Contractor	High
B10	Soil loss hazard – erosion of soils and sediment due to clearing during construction	Erosion and sediment control measures will be established prior to construction in accordance with the principles and guidelines included in <i>Managing Urban Stormwater: Soils and Construction – Volume 1</i> (Landcom 2004).	Pre-construction, construction, decommissioning / Contractor	High
B11	Reduction in surface water quality due to sedimentation	Erosion and sediment controls throughout the site will be inspected regularly and maintained to ensure they are operating effectively.	Construction, operation and decommissioning / Contractor	High
		Stockpiles of fill or vegetation should be placed within existing cleared areas (and not within areas of adjoining native vegetation).	Construction, decommissioning / Contractor	High
B12	Vehicle strike	Appropriate speeds for all construction and contractor vehicles will be enforced to limit dust generation and minimise chances of fauna mortality through vehicle strike throughout construction and decommissioning and during operational use of the compressor station.	Construction, operation, decommissioning / Contractor, APA	Moderate
B13	Light spill – displacement of fauna from habitat adjoining the study area	<p>Light generated during construction and decommissioning will be managed in general accordance with the requirements in Australian Standard (AS) 4282-1997 <i>Control of the Obtrusive Effects of Outdoor Lighting</i>.</p> <p>Directional lighting will be used to minimise the effects of light spill outside the compressor station as far as possible.</p>	Construction, operation, decommissioning / Contractor, APA	Moderate

ID	Impact	Mitigation measures	Timing/ responsibility	Likely effectiveness
B14	Noise and vibration generation – displacement of fauna from habitat adjoining the study area	All activities on site are to be undertaken as per the approved CEMP, with works confined between the following hours: daytime hours of 7:00 am to 6:00 pm, Monday to Sunday (including public holidays), with the exception of the following activities: <ul style="list-style-type: none"> – The delivery of materials as requested by the NSW Police Force or other authorities for safety reasons; emergency work to avoid the loss of life or damage to property, or to prevent environmental harm. – Emergency work to avoid the loss of life, property and/or material harm to the environment. – Works as approved through the out-of-hours works protocol as approved through the CEMP. Additional, specific controls will be included within the CEMP and should consider the project specific management measures outlined in the <i>Noise and Vibration Impact Assessment</i> (GHD 2024).	Construction, operation, decommissioning / Contractor, APA	Moderate
B15	Water quality, chemical and fuel impacts on flora and fauna	Specific measures will be incorporated into the CEMP to minimise the potential for chemical spills and associated impacts on natural environments adjacent to and downstream of the areas of impact. Spill kits will be made available to construction vehicles. A management protocol for accidental spills will be put in place. Chemicals will be stored in bunded areas.	Construction, operation, decommissioning / Construction contractor	High
Decommissioning				
B16	Longer term potential for soil, water and biodiversity impacts listed above	The site will be fully rehabilitated following decommissioning of the compressor station at the end of its project life. A rehabilitation strategy will be prepared to guide rehabilitation planning, implementation, monitoring and maintenance of the disturbed areas.	Decommissioning / Construction contractor	High

9.5 Serious and irreversible impacts

Under the BC Act, Section 6.7 of the Biodiversity Conservation Regulation 2017 sets out principles for determining whether an impact on a specific threatened species or ecological community is serious and irreversible. If an impact is likely to contribute significantly to the risk of a threatened species or ecological community becoming extinct, this is deemed serious and irreversible. This likelihood is assessed based on the following four principles:

1. The impact will cause a further decline of a species or ecological community that is currently observed, estimated, inferred or reasonably suspected to be in a rapid rate of decline.
2. The impact will further reduce the population size of the species or ecological community that is currently observed, estimated, inferred or reasonably suspected to have a very small population size.
3. The impact is made on the habitat of the species or ecological community that is currently observed, estimated, inferred or reasonably suspected to have a very limited geographic distribution.
4. The impacted species or ecological community is unlikely to respond to measures to improve its habitat and vegetation integrity, and therefore its members are not replaceable.

A set of criteria have been developed and are included in the DPHI *Guidelines to assist a decision-maker to determine a SAIL* (DPIE 2019). Threatened biota that meet the criteria under one or more of the above principles have been identified as SAIL entities. Each potential SAIL entity has an impact threshold identified which can be used to help determine if a development will result in SAIL. The decision-maker must determine whether or not an impact on biodiversity values is likely to be SAIL. The framework allows for decision-makers to take into account

the scale of an impact and the potential for avoidance and mitigation. These factors are weighed against the status and vulnerabilities of the potential SAI entity to ultimately determine if a proposal would result in a SAI.

Of the threatened biota of relevance to this assessment, no threatened species or ecological communities considered known or likely to occur are candidate SAI entities. The proposal would not result in any impacts to known or potential SAI entities or their habitat. Therefore, no further consideration of potential SAIs is required.

9.6 Matters of National Environmental Significance

9.6.1 Threatened ecological communities

The proposal would not result in any direct or indirect impacts to any TECs listed under the EPBC Act.

9.6.2 Threatened species

No threatened species listed under the EPBC Act were recorded at the study area. There are no known records of any of EPBC Act-listed species, or specific habitat features or resources at the study area or proposal footprint that suggest that it would be important to any populations of any EPBC Act-listed species.

Impacts on threatened species resulting from the proposal have been assessed with reference to the *Significant impact guidelines 1.1 Environment Protection and Biodiversity Conservation Act 1999* (DoE 2013a). The outcome of this assessment is that the proposal would not result in a significant impact on any threatened species listed under the EPBC Act noting:

- The only potential habitat to be removed or modified is non-native vegetation with minimal resources and value for species in the locality (see Figure 5.1).
- The habitat resources to be removed or modified are unlikely to be important to the long-term survival of the species in the locality.
- The study area and proposal footprint does not contain any known or potential nest or roost sites or any other habitat resources that would be important to the ecology of any threatened species and as such is unlikely to have an adverse effect on the life cycle of these species such that a viable local population is likely to be placed at risk of extinction.
- The study area and proposal footprint does not function as a connecting link between any areas of important habitat. The proposal does not include the erection of any structures that would increase the risk or energy cost of movement of any threatened or migratory fauna. Removal of vegetation and construction of the compressor station would only result in a minor increase in the degree of fragmentation between retained areas of habitat for species in the locality and would not result in the isolation of any habitat. The reduction in extent of habitat would be negligible and would not interrupt any ecological process such as migration or pollination.

9.6.3 Migratory species

There is limited potential foraging habitat within the study area or proposal footprint for terrestrial migratory bird species habitats, and no foraging habitat for migratory wetland bird species. None of the terrestrial migratory species would be reliant upon habitats within the study area for any part of their life cycle, and habitat within the study area and proposal footprint does not comprise important habitat for these species as defined in the significance criteria for listed migratory species (DoE 2017) (see section 6.3.3).

Given the absence of important habitat and the very low risk of impacts to these migratory species, no specific assessments of significance have been prepared for migratory species.

The proposal would not result in a significant impact on any migratory species listed under the EPBC Act noting the negligible impacts of the proposal on the extent and quality of habitat as described for threatened species above.

10. Impact summary

10.1 Offset requirement for impacts under the BC Act

10.1.1 Impacts on native vegetation and TECs (ecosystem credits)

As described in section 4, the proposal footprint contains only non-native vegetation. Impact assessment relating to removal or modification of native vegetation and calculation of ecosystem credits is not required as part of this streamlined BDAR.

10.1.2 Impacts on threatened species and their habitat (species credits)

The proposal footprint contains only non-native vegetation. Impact assessment for removal or modification of habitat for threatened species and calculation of species credits is not required as part of this streamlined BDAR.

10.1.3 Indirect and prescribed impacts

Significant residual indirect and prescribed impacts that remain after measures to avoid, minimise and mitigate have been applied, may require calculation of biodiversity offsets using additional biodiversity credits (above the credit requirement generated by the BAM C for direct impacts) and/or other conservation measures. The process for determining whether there are any significant residual impacts is documented in this BDAR as follows:

- Table 9.2, which shows how the potential for impacts to biodiversity values has been substantially avoided.
- Table 9.3 and Table 9.4, which presents the minor extent and consequence of potential impacts to biodiversity values.
- Table 9.5, which describes how potential residual impacts would be mitigated with generally high confidence of success.

The proposal may result in residual indirect impacts through light spill and noise and vibration generation causing displacement of threatened species and other native fauna from habitat adjoining the proposal footprint. The proposal would result in residual prescribed impacts through the removal or modification of non-native vegetation at the proposal that would have limited habitat value for threatened fauna species and other native fauna. The proposal may also result in residual prescribed impacts through a low to moderate risk of vehicle strike causing harm to threatened fauna species and other native fauna using habitats in the vicinity of the proposal footprint.

Given the limited value of habitat resources in the proposal footprint and study area, limited extent of impacts and areas of alternate habitat resources, the consequences of these residual impacts are likely to be minor. No biodiversity credits or conservation measures are proposed for these residual impacts.

10.2 Impacts that do not need further assessment under the BC Act

Impacts that do not need further assessment for biodiversity credits are listed in Table 10.1 (as per BAM Section 9.3 (1–2)) and shown on Figure 10.1.

Table 10.1 *Impacts that do not need further assessment for biodiversity credits*

Impact	Location within subject land	Justification why no further assessment is required
Removal of non-native vegetation.	The entire proposal footprint comprises non-native vegetation as shown on Figure 10.1.	Impact assessment relating to removal or modification of habitat and calculation of biodiversity offsets is not required for non-native vegetation (other than consideration of prescribed impacts, as described above).



10.3 Offsets for MNES

Under the *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy* (DSEWPaC, 2012) (the EPBC Act Environmental Offsets Policy) biodiversity offsets are required to compensate for significant residual impacts on MNES. This BDAR includes the identification and assessment of potentially affected MNES, consideration of the potential significance of impacts on MNES pursuant to the EPBC Act significant impact guidelines 1.1 (DotE 2013). The outcome of these assessments is that the proposal would not result in a significant impact on any MNES. No biodiversity offsets for impacts on MNES are therefore required in accordance with the EPBC Act Environmental Offsets Policy.

11. Summary and conclusions

East Australian Pipeline Pty Ltd, part of APA, own and operate the Culcairn to Wagga Wagga Pipeline. The Culcairn to Wagga Wagga Pipeline is authorised by PL23 and SSI-65512969. The pipeline forms part of APA's East Coast Grid of gas transmission pipelines. APA are now seeking to modify the SSI approval to construct and operate a compressor station at Uranquinty.

This BDAR has been prepared by GHD as part of the Modification Report for the proposal and addresses the environmental assessment requirements for SSI modification. This report:

- Describes the existing environment of the proposal footprint and study area and assesses the value and conservation significance of native vegetation and habitats at the study area and the potential for threatened biota including MNES to occur or be affected by the proposal.
- Provides a description of the proposal, including potential impacts on biodiversity values and measures to avoid or minimise impacts.
- Assesses the significance of residual impacts on threatened biota and MNES under the BC Act (NSW) and EPBC Act (Cth).
- Determines the need or otherwise for biodiversity offsets for residual impacts of the proposal in accordance with the Biodiversity Assessment Method.
- Recommends measures to mitigate and manage the impacts identified including decommissioning and rehabilitation of the compressor site after use.

There is no native vegetation in the proposal footprint. The proposal footprint is located on a predominately cleared lot in an agricultural area containing cleared grazing land, residential dwellings and agricultural infrastructure. An existing industrial facility, known as the Uranquinty Power Station, also occurs in an adjoining lot to the immediate east of the proposal footprint.

The proposed footprint of the proposal was refined in order to avoid impacts to biodiversity values as far as possible. Specifically, the original footprint included a small area of planted native vegetation in the north west corner of the site. APA refined the proposal footprint to avoid any impacts or removal of the planted native vegetation to ensure that the proposal footprint comprises only non-native vegetation.

The proposal would remove or modify a maximum of 4.44 ha of non-native vegetation.

The proposal footprint does not contain any known or potential nest or roost sites or any other habitat resources that would be important to the ecology of any threatened species. The proposal footprint does not function as a connecting link between any areas of habitat. The proposal does not include the erection of any structures that would increase the risk or energy cost of movement of any threatened or migratory fauna. There is no suitable habitat within the proposal footprint for any threatened flora species, and the non-native vegetation present is not commensurate with any threatened ecological communities listed under the BC Act or EPBC Act.

Specific mitigation measures are recommended to minimise likely impacts on biodiversity values. These measures are presented according to the hierarchy of avoidance and mitigation of impacts, and the identification of residual impacts of the proposal that cannot be avoided or mitigated. The proposal will include, as a minimum, industry-standard measures for the management of soil, surface water, weeds and pollutants, as well as site-specific measures for the management of flora and fauna.

The proposal may result in minor residual indirect impacts through light spill and noise and vibration generation causing displacement of threatened species and other native fauna from habitat adjoining the study area. The proposal would result in negligible residual prescribed impacts through the removal or modification of non-native vegetation that has limited habitat value for threatened fauna species and other native fauna. The proposal may also result in residual prescribed impacts through a low risk of vehicle strike causing harm to threatened fauna species and other native fauna using habitats in the vicinity of the study area.

Given the limited value of habitat resources at the study area, limited extent of impacts and extensive areas of alternative habitat resources, the consequences of these residual impacts are likely to be minor or negligible. No biodiversity credits or conservation measures are proposed for these residual impacts.

The proposal footprint does not contain important habitat for any migratory species listed under the EPBC Act. Impacts on threatened species listed under the EPBC Act resulting from the proposal have been considered with reference to the *Matters of National Environmental Significance Significant impact guidelines 1.1 Environment Protection and Biodiversity Conservation Act 1999* (DotE 2013). The proposal is unlikely to have a significant impact on any threatened or migratory species. No additional assessment or approval under the EPBC Act is required.

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Appendices

Appendix A

BDAR requirements compliance

Table A.1 below specifies where each component of the BDAR minimum information requirements has been addressed in accordance with Appendix K of the BAM.

Table A.1 *BDAR Compliance requirements*

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
Introduction	Sections 2 and 3	Information	-
		Introduction to the biodiversity assessment including:	-
		<input checked="" type="checkbox"/> brief description of the proposal	Section 1 and 1.5
		<input checked="" type="checkbox"/> identification of subject land boundary, including: <input checked="" type="checkbox"/> operational footprint <input checked="" type="checkbox"/> construction footprint indicating clearing associated with temporary/ancillary construction facilities and infrastructure	Section 1.4
		<input checked="" type="checkbox"/> general description of the subject land	Section 4.1
		<input checked="" type="checkbox"/> sources of information used in the assessment, including reports and spatial data	Section 3.1, Appendix B
		<input checked="" type="checkbox"/> identification and justification for entering the BOS	Section 1.1 and 2.1
		Maps and tables	-
		<input checked="" type="checkbox"/> 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 1.2
Landscape	Sections 3.1 and 3.2, Appendix E	Information	-
		Identification of site context components and landscape features, including:	-
		<input checked="" type="checkbox"/> general description of subject land topographic and hydrological setting, geology and soils	Section 4.1
		<input checked="" type="checkbox"/> per cent native vegetation cover in the assessment area (as described in BAM Section 3.2)	Section 4.3, Table 4.1, Table 4.3
		<input checked="" type="checkbox"/> IBRA bioregions and subregions (as described in BAM Subsection 3.1.3(2.))	Section 4.1, Table 4.1
		<input checked="" type="checkbox"/> rivers and streams classified according to stream order (as described in BAM Subsection 3.1.3(3.) and Appendix E)	Section 4.2.1, Table 4.1
		<input checked="" type="checkbox"/> wetlands within, adjacent to and downstream of the site (as described in BAM Subsection 3.1.3(3.))	Section 4.2.1, Table 4.1

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		<input checked="" type="checkbox"/> connectivity of different areas of habitat (as described in BAM Subsection 3.1.3(5–6.))	Section 4.2.2, Table 4.1
		<input checked="" type="checkbox"/> 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.))	Section 4.2.3
		<input checked="" type="checkbox"/> areas of outstanding biodiversity value occurring on the subject land and assessment area (as described in BAM Subsection 3.1.3(8–9.))	Table 4.1
		<input checked="" type="checkbox"/> any additional landscape features identified in any SEARs for the proposal	N/A
		<input checked="" type="checkbox"/> NSW (Mitchell) landscape on which the subject land occurs	Section 4.2.4
		<input checked="" type="checkbox"/> 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)	Section 3.2
		Maps and tables	-
		<input checked="" type="checkbox"/> Site Map <input checked="" type="checkbox"/> Property boundary <input checked="" type="checkbox"/> Boundary of subject land <input checked="" type="checkbox"/> Cadastre of subject land (including labelling of Lot and DP or section plan if relevant) <input checked="" type="checkbox"/> Landscape features identified in BAM Subsection 3.1.3	Figure 1.1 Figure 1.2
		<input checked="" type="checkbox"/> Location Map <input checked="" type="checkbox"/> Digital aerial photography at 1:1,000 scale or finer <input checked="" type="checkbox"/> Boundary of subject land <input checked="" type="checkbox"/> Assessment area (i.e. the subject land and either 1500 m buffer area or 500 m buffer for linear development) <input checked="" type="checkbox"/> Landscape features identified in BAM Subsection 3.1.3 <input checked="" type="checkbox"/> Additional detail (e.g. local government area boundaries) relevant at this scale	Figure 1.2 Figure 4.1
		Landscape features identified in BAM Subsection 3.1.3 and to be shown on the Site Map and/or Location Map include:	–
		<input checked="" type="checkbox"/> IBRA bioregions and subregions <input checked="" type="checkbox"/> rivers, streams and estuaries <input checked="" type="checkbox"/> wetlands and important wetlands <input checked="" type="checkbox"/> connectivity of different areas of habitat	Figure 4.1

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		<input checked="" type="checkbox"/> karst, caves, crevices, cliffs, rocks and other geological features of significance and if required, soil hazard features <input checked="" type="checkbox"/> areas of outstanding biodiversity value occurring on the subject land and assessment area <input checked="" type="checkbox"/> any additional landscape features identified in any SEARs for the proposal <input checked="" type="checkbox"/> NSW (Mitchell) landscape on which the subject land occurs	
		Data	
		<input checked="" type="checkbox"/> All report maps as separate jpeg files	–
		Individual digital shape files of:	–
		<input checked="" type="checkbox"/> subject land boundary	–
		<input checked="" type="checkbox"/> assessment area (i.e. subject land and 1500 m buffer area) boundary	–
		<input checked="" type="checkbox"/> cadastral boundary of subject land	–
		<input checked="" type="checkbox"/> areas of native vegetation cover	–
		<input checked="" type="checkbox"/> landscape features	–
Native vegetation	Section 4, Appendix A and Appendix H	Information	-
		<input checked="" type="checkbox"/> 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)	Section 5.1, Table 4.3, Figure 4.1
		<input checked="" type="checkbox"/> Provide justification for all parts of the subject land that do not contain native vegetation (as described in BAM Subsection 4.1.2)	Section 5.1.1
		<input checked="" type="checkbox"/> 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)	Section 3.1, section 3.2
		<input checked="" type="checkbox"/> Describe the systematic field-based floristic vegetation survey undertaken in accordance with BAM Section 4.2	Section 3.2.2
		<input type="checkbox"/> 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)	N/A

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		For each PCT within the subject land, describe:	–
		<input checked="" type="checkbox"/> PCT name and ID	Section 5.2 and 5.3, Table 5.2 and Table 5.3
		<input checked="" type="checkbox"/> vegetation class	Section 5.2 and 5.3, Table 5.2 and Table 5.3
		<input checked="" type="checkbox"/> extent (ha) within subject land	Section 5.2 and 5.3, Table 5.2 and Table 5.3
		<input checked="" type="checkbox"/> evidence used to identify a PCT including any analyses undertaken, references/sources, existing vegetation maps (BAM Section 4.2(1–3.))	Section 5.2 and 5.3, Table 5.2, Table 5.3 and Table 5.6
		<input checked="" type="checkbox"/> plant species relied upon for identification of the PCT and relative abundance of each species	Section 5.2 and 5.3, Table 5.2, Table 5.3 and Table 5.6
		<input checked="" type="checkbox"/> if relevant, TEC status including evidence used to determine vegetation is the TEC (BAM Subsection 4.2.2(1–2.))	Section 5.3 and 5.4 Table 5.2, Table 5.3, Table 5.7, Table 5.8, Table 5.9
		<input checked="" type="checkbox"/> estimate of per cent cleared value of PCT (BAM Subsection 4.2.1(5.))	Table 5.6
		Describe the vegetation integrity assessment of the subject land, including:	–
		<input checked="" type="checkbox"/> identification and mapping of vegetation zones (as described in BAM Subsection 4.3.1)	Section 3.2.2, 5.3, Table 5.5
		<input checked="" type="checkbox"/> description of vegetation zones within the subject land (as described in Operational Manual Stage 1 Table 2 and Subsection 3.3.2)	Section 5.3.3 Table 5.6
		<input checked="" type="checkbox"/> area (ha) of each vegetation zone	Section 5.3, Table 5.3
		<input checked="" type="checkbox"/> assessment of patch size (as described in BAM Subsection 4.3.2)	Section 5.3, Table 5.3
		<input checked="" type="checkbox"/> survey effort (i.e. number of vegetation integrity survey plots) as described in BAM Subsection 4.3.4(1–2.)	Section 3.2.2.2 Table 5.3
		<input checked="" type="checkbox"/> use of relevant benchmark data from BioNet Vegetation Classification (as described in BAM Subsection 4.3.3(5.))	Section 3.3 Appendix D
		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):	–
		<input type="checkbox"/> identify the PCT or vegetation class for which local benchmark data will be applied	N/A
		<input type="checkbox"/> identify published sources of local benchmark data (if benchmarks obtained from published sources)	
		<input type="checkbox"/> describe methods of local benchmark data collection (if reference plots used to determine local benchmark data)	

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		<input type="checkbox"/> provide justification for use of local data rather than BioNet Vegetation Classification benchmark values	N/A
		<input type="checkbox"/> provide written confirmation from the decision-maker that they support the use of local benchmark data	N/A
		Maps and tables	
		<input checked="" type="checkbox"/> 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)	
		<input checked="" type="checkbox"/> Map of PCTs within the subject land (as described in BAM Section 4.2(1.))	Figure 5.1
		<input checked="" type="checkbox"/> Map of vegetation zones within the subject land (as described in BAM Subsection 4.3.1)	Figure 4.1
		<input checked="" type="checkbox"/> Map the location of floristic vegetation survey plots and vegetation integrity survey plots relative to PCT boundaries	Figure 3.1
		<input checked="" type="checkbox"/> Map of TEC distribution on the subject land and table of TEC listing, status and area (ha)	Figure 5.1
		<input checked="" type="checkbox"/> 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 4.1
		Table of current vegetation integrity scores for each vegetation zone within the site and including:	–
		<input checked="" type="checkbox"/> composition condition score	Table 5.5
		<input checked="" type="checkbox"/> structure condition score	
		<input checked="" type="checkbox"/> function condition score	
		<input checked="" type="checkbox"/> presence of hollow bearing trees	
		Data	
		<input checked="" type="checkbox"/> All report maps as separate jpeg files	–
		<input checked="" type="checkbox"/> Plot field data (MS Excel format)	
		<input checked="" type="checkbox"/> Plot field datasheets	
		Digital shape files of:	–
		<input checked="" type="checkbox"/> PCT boundaries within subject land	–
		<input checked="" type="checkbox"/> TEC boundaries within subject land	-
		<input checked="" type="checkbox"/> vegetation zone boundaries within subject land	–

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		<input checked="" type="checkbox"/> floristic vegetation survey and vegetation integrity plot locations	–
Threatened species	Section 5	Information	-
		Identify ecosystem credit species likely to occur on the subject land, including:	–
		<input checked="" type="checkbox"/> list of ecosystem credit species derived from the BAM-C (as described in BAM Subsection 5.1.1 and Section 5.2(1.))	Section 6.1.1, Table 6.1
		<input checked="" type="checkbox"/> 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)	Section 6.1.1, Table 6.1
		<input checked="" type="checkbox"/> justification for addition of any ecosystem credit species to the list	Section 6.1.1,
		Identify species credit species likely to occur on the subject land, including:	–
		<input checked="" type="checkbox"/> list of species credit species derived from the BAM-C (as described in BAM Subsection 5.1.1)	Section 6.1.2 Table 6.2
		<input checked="" type="checkbox"/> 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)	Section 6.1.2 Table 6.2
		<input checked="" type="checkbox"/> 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)	Section 6.1.2 Table 6.2
		<input checked="" type="checkbox"/> justification for addition of any species credit species to the list	Section 6.1.2 Table 6.2
		From the list of candidate species credit species, identify:	–
		<input checked="" type="checkbox"/> species assumed present within the subject land (if relevant) (as described in BAM Subsection 5.2.4(2.a.))	Section 6.1.2 Table 6.2
		<input checked="" type="checkbox"/> 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.))	
		<input checked="" type="checkbox"/> species for which targeted surveys are to be completed to determine species presence (BAM Subsection 5.2.4(2.b.))	
		<input checked="" type="checkbox"/> species for which an expert report is to be used to determine species presence (BAM Subsection 5.2.4(2.c.))	
Present the outcomes of species credit species assessments from:	–		
<input checked="" type="checkbox"/> threatened species survey (as described in BAM Section 5.2.4)	Section 3.2 and 6.2		
<input checked="" type="checkbox"/> 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)	N/A		

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		Where survey has been undertaken include detailed information on:	–
		<input checked="" type="checkbox"/> survey method and effort (as described in BAM Section 5.3)	Section 3.2 Table 3.1
		<input checked="" type="checkbox"/> 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	N/A
		<input checked="" type="checkbox"/> 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	Section 3.2 and 3.3 Table 3.1
		<input checked="" type="checkbox"/> survey personnel and relevant experience	Section 3.8
		<input checked="" type="checkbox"/> describe any limitations to surveys and how these were addressed/overcome	Section 3.5
		Where an expert report has been used in place of survey (as described in BAM Section 5.3, Box 3), include:	–
		<input type="checkbox"/> justification of the use of an expert report	N/A
		<input type="checkbox"/> identify the expert, provide evidence of their expert credentials and departmental approval of expert status	
		<input type="checkbox"/> all requirements of Box 3 have been addressed in the expert report	
		Where use of local data is proposed (BAM Subsection 1.4.2):	–
		<input type="checkbox"/> identify relevant species	N/A
		<input type="checkbox"/> identify data to be amended	
		<input type="checkbox"/> identify source of information for local data, e.g. published literature, additional survey data, etc.	
		<input type="checkbox"/> justify use of local data in preference to VIS Classification or TBDC data	
		<input type="checkbox"/> provide written confirmation from the decision-maker that they support the use of local data	N/A
		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:	–
		<input type="checkbox"/> the unit of measure for each species is documented	N/A
		for species assessed by area:	–
		<input type="checkbox"/> the polygon includes the extent of suitable habitat for the target species within the subject land (as described in BAM Subsection 5.2.5)	N/A

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		<input type="checkbox"/> 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	N/A
		for species assessed by counts of individuals:	–
		<input type="checkbox"/> the number of individual plants present on the subject land (as described in BAM Subsection 5.2.5(3.))	N/A
		<input type="checkbox"/> the method used to derive this number (i.e. threatened species survey or expert report) and evidence-based justification for the approach taken	N/A
		<input type="checkbox"/> 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	N/A
		<input type="checkbox"/> Identify the biodiversity risk weighting for each species credit species identified as present within the subject land (as described in BAM Section 5.4)	N/A
		Maps and tables	
		<input checked="" type="checkbox"/> Table showing ecosystem credit species in accordance with BAM Subsection 5.1.1, and identifying:	Table 6.1
		<input checked="" type="checkbox"/> the ecosystem credit species removed from the list	Table 6.1
		<input checked="" type="checkbox"/> the sensitivity to gain class of each species	Table 6.1
		<input checked="" type="checkbox"/> Table detailing species credit species in accordance with BAM Section 5.2 and identifying:	Table 6.2
		<input checked="" type="checkbox"/> 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 6.2
		<input checked="" type="checkbox"/> the candidate species credit species not recorded on the subject land as determined by targeted survey, expert report or important habitat map	Table 6.2
		<input checked="" type="checkbox"/> 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 6.2 Section 6.2
		<input type="checkbox"/> 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)	N/A
		Data	
		<input checked="" type="checkbox"/> Digital shape files of suitable habitat identified for survey for each candidate species credit species	
		<input checked="" type="checkbox"/> Survey locations including GPS coordinates of any plots, transects, grids	

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		<input type="checkbox"/> Digital shape files of each species polygon including GPS coordinates of located individuals	N/A
		<input type="checkbox"/> Species polygon map in jpeg format	N/A
		<input type="checkbox"/> Expert reports and any supporting data used to support conclusions of the expert report	N/A
		<input checked="" type="checkbox"/> Field datasheets detailing survey information including prevailing conditions, date, time, equipment used, etc.	
Prescribed impacts	Section 6	Information	
		Identify potential prescribed biodiversity impacts on threatened entities, including:	–
		<input checked="" type="checkbox"/> karst, caves, crevices, cliffs, rocks and other geological features of significance (as described in BAM Subsection 6.1.1)	Section 7 Table 7.1
		<input checked="" type="checkbox"/> occurrences of human-made structures and non-native vegetation (as described in BAM Subsection 6.1.2)	
		<input checked="" type="checkbox"/> corridors or other areas of connectivity linking habitat for threatened entities (as described in BAM Subsection 6.1.3)	
		<input checked="" type="checkbox"/> waterbodies or any hydrological processes that sustain threatened entities (as described in BAM Subsection 6.1.4)	
		<input checked="" type="checkbox"/> 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)	Section 7 Table 7.1
		<input checked="" type="checkbox"/> 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)	Section 7 Table 7.1
		<input checked="" type="checkbox"/> Identify a list of threatened entities that may be dependent upon or may use habitat features associated with any of the prescribed impacts	Section 7 Table 7.1
		<input checked="" type="checkbox"/> 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)	Section 7 Table 7.1
		Where the proposed development is for a wind farm:	–
<input type="checkbox"/> 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		
<input type="checkbox"/> 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		

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		<input type="checkbox"/> 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:	–
		<input checked="" type="checkbox"/> 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	Section 7 Table 7.1
		Maps and tables	
		<input checked="" type="checkbox"/> Map showing location of any prescribed impact features (i.e. karst, caves, crevices, cliffs, rocks, human-made structures, etc.)	Figure 8.1
		<input type="checkbox"/> Map showing location of potential vehicle strike locations	N/A
		<input type="checkbox"/> 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)	N/A
		Data	
		<input checked="" type="checkbox"/> Digital shape files of prescribed impact feature locations	–
		<input checked="" type="checkbox"/> Prescribed impact features map in jpeg format	–
Avoid and minimise impacts	Section 7	Information	
		Demonstration of efforts to avoid and minimise impacts on biodiversity values (including prescribed impacts) associated with the proposal location in accordance with section 7, including an analysis of alternative:	–
		<input checked="" type="checkbox"/> modes or technologies that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed mode or technology	Section 8.1
		<input checked="" type="checkbox"/> routes that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed route	Section 8.1
		<input checked="" type="checkbox"/> alternative locations that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed location	Section 8.1
		<input checked="" type="checkbox"/> 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	Figure 8.1
		<input checked="" type="checkbox"/> 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)	Section 8.1

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		<input checked="" type="checkbox"/> 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.))	Section 8.1
		<input checked="" type="checkbox"/> Detail measures or options considered but not implemented because they are not feasible and/or practical (e.g. due to site constraints)	Section 8.1
		Maps and tables	
		<input checked="" type="checkbox"/> Table of measures to be implemented to avoid and minimise the impacts of the proposal, including action, outcome, timing and responsibility	Table 9.2
		<input checked="" type="checkbox"/> Map of alternative footprints considered to avoid or minimise impacts on biodiversity values; and of the final proposal footprint, including construction and operation	Figure 8.1
		<input type="checkbox"/> Maps demonstrating indirect impact zones where applicable	N/A
		Data	
		Digital shape files of:	–
		<input checked="" type="checkbox"/> alternative and final proposal footprint	–
		<input checked="" type="checkbox"/> direct and indirect impact zones	–
		<input checked="" type="checkbox"/> Maps in jpeg format	–
Assessment of impacts	Section 8, Sections 8.1 and 8.2	Information	
		<input checked="" type="checkbox"/> 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)	Section 9.1 Table 9.1
		Assessment of indirect impacts on vegetation and threatened species and their habitat including (as described in BAM Section 8.2):	–
		<input checked="" type="checkbox"/> description of the nature, extent, frequency, duration and timing of indirect impacts of the proposal	Section 9.1.3 Table 9.3
		<input checked="" type="checkbox"/> documenting the consequences to vegetation and threatened species and their habitat including evidence-based justifications	Section 9.1.3 Table 9.3
		<input checked="" type="checkbox"/> reporting any limitations or assumptions, etc. made during the assessment	Section 9.1 and 9.1.3 Table 9.3
		<input checked="" type="checkbox"/> identification of the threatened entities and their habitat likely to be affected	Section 9.1 and 9.1.3

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		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:	–
		<input type="checkbox"/> karst, caves, crevices, cliffs, rocks and other features of geological significance	N/A
		<input checked="" type="checkbox"/> human-made structures	Section 9.3 Table 9.4
		<input checked="" type="checkbox"/> non-native vegetation	Section 9.3 Table 9.4
		<input checked="" type="checkbox"/> connectivity of different areas of habitat of threatened species that facilitates the movement of those species across their range	Section 9.3 Table 9.4
		<input type="checkbox"/> movement of threatened species that maintains their life cycle	N/A
		<input type="checkbox"/> water quality, waterbodies and hydrological processes that sustain threatened species and threatened ecological communities	N/A
		<input type="checkbox"/> assessment of the impacts of wind turbine strikes on protected animals	N/A
		<input checked="" type="checkbox"/> assessment of the impacts of vehicle strikes on threatened species of animals or on animals that are part of a TEC	Section 9.3 Table 9.4
		<input checked="" type="checkbox"/> evaluate the consequences of prescribed impacts	Section 9.3 Table 9.4
		<input checked="" type="checkbox"/> describe impacts that are uncertain	Section 9.3 Table 9.4
		<input checked="" type="checkbox"/> document limitations to data, assumptions and predictions	Section 9.3 Table 9.4
		Maps and tables	-
		<input type="checkbox"/> Table showing change in vegetation integrity score for each vegetation zone as a result of identified impacts	N/A
		Data	
		N/A	–

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
Mitigation and management of impacts	Section 8, Sections 8.4 and 8.5	Information	-
		Identification of measures to mitigate or manage impacts in accordance with the recommendations in BAM Sections 8.4 and 8.5 including:	-
		<input checked="" type="checkbox"/> techniques, timing, frequency and responsibility <input checked="" type="checkbox"/> identify measures for which there is risk of failure <input checked="" type="checkbox"/> evaluate the risk and consequence of any residual impacts	Section 9.4 Table 9.5
		<input type="checkbox"/> document any adaptive management strategy proposed	N/A
		Identification of measures for mitigating impacts related to:	-
		<input checked="" type="checkbox"/> displacement of resident fauna (as described in BAM Subsection 8.4.1(2.)) <input checked="" type="checkbox"/> indirect impacts on native vegetation and habitat (as described in BAM Subsection 8.4.1(3.)) <input checked="" type="checkbox"/> mitigating prescribed biodiversity impacts (as described in BAM Subsection 8.4.2)	Section 9.4 Table 9.5
		<input type="checkbox"/> Details of the adaptive management strategy proposed to monitor and respond to impacts on biodiversity values that are uncertain (BAM Section 8.5)	N/A
		Maps and tables	
		<input checked="" type="checkbox"/> 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 9.5
		Data	
		N/A	-
		Impact summary	Section 9
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:	-		
<input checked="" type="checkbox"/> addressing all criteria in Subsection 9.1.1 for each TEC listed as at risk of an SAII present on the subject land	Section 9.5		
<input type="checkbox"/> for each TEC, report the extent of the TEC in NSW	N/A		
<input type="checkbox"/> addressing all criteria in Subsection 9.1.2 for each threatened species at risk of an SAII present on the subject land	N/A		
<input type="checkbox"/> for each threatened species, report the population size in NSW	N/A		

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		<input type="checkbox"/> documenting assumptions made and/or limitations to information <input type="checkbox"/> documenting all sources of data, information, references used or consulted <input type="checkbox"/> clearly justifying why any criteria could not be addressed	N/A
		<input checked="" type="checkbox"/> Identification of impacts requiring offset in accordance with BAM Section 9.2	Section 10.1
		<input checked="" type="checkbox"/> Identification of impacts not requiring offset in accordance with BAM Subsection 9.2.1(3.)	Section 10.1
		<input checked="" type="checkbox"/> Identification of areas not requiring assessment in accordance with BAM Section 9.3	Section 10.2
		Maps and tables	
		<input type="checkbox"/> Map showing the extent of TECs at risk of an SAIL within the subject land	N/A
		<input type="checkbox"/> Map showing location of threatened species at risk of an SAIL within the subject land	N/A
		Map showing location of:	-
		<input type="checkbox"/> impacts requiring offset	N/A
		<input type="checkbox"/> impacts not requiring offset	N/A
		<input checked="" type="checkbox"/> areas not requiring assessment	Figure 10.1
		Data	
		Digital shape files of:	-
		<input type="checkbox"/> extent of TECs at risk of an SAIL within the subject land	N/A
		<input type="checkbox"/> location of threatened species at risk of an SAIL within the subject land	N/A
		<input type="checkbox"/> boundary of impacts requiring offset	N/A
		<input checked="" type="checkbox"/> boundary of impacts not requiring offset	-
		<input checked="" type="checkbox"/> boundary of areas not requiring assessment	-
		<input checked="" type="checkbox"/> Maps in jpeg format	-

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
Impact summary	Section 10	Information	-
		Ecosystem credits and species credits that measure the impact of the development on biodiversity values, including:	-
		<input type="checkbox"/> future vegetation integrity score for each vegetation zone within the subject land (Equation 25 and Equation 26 in BAM Appendix H)	N/A
		<input type="checkbox"/> change in vegetation integrity score (BAM Subsection 8.1.1)	
		<input type="checkbox"/> 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)	
		<input type="checkbox"/> biodiversity risk weighting for each	N/A
		<input type="checkbox"/> number of required species credits for each candidate threatened species that is directly impacted on by the proposal (BAM Subsection 10.1.3)	N/A
		Maps and tables	
		<input type="checkbox"/> Table of PCTs requiring offset and the number of ecosystem credits required	N/A
		<input type="checkbox"/> Table of threatened species requiring offset and the number of species credits required	N/A
Biodiversity credit report	Section 10	Data	
		<input type="checkbox"/> Submitted proposal in the BAM Calculator	N/A
		Information	
		<input type="checkbox"/> 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)	N/A - The proposal footprint contains only non-native vegetation. Impact assessment relating to removal or modification of habitat for threatened species and calculation of species credits is not required as part of this streamlined BDAR.
		<input type="checkbox"/> BAM credit report in pdf format	N/A
		Maps and tables	-
		<input type="checkbox"/> Table of credit class and matching credit profile	N/A
Data	-		
<input type="checkbox"/> BAM credit report in pdf format	N/A - The proposal footprint contains only non-native		

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
			vegetation. Impact assessment relating to removal or modification of habitat for threatened species and calculation of species credits is not required as part of this streamlined BDAR.

Appendix B

Threatened species for assessment

Table B.1 Key for likelihood of occurrence descriptions

Likelihood	Definition
Recorded	The species was observed in the proposal footprint during the current survey.
High	<p>Species has been previously recorded in or adjacent to the proposal footprint.</p> <p>Species dependent on habitat types or resources that are present in the proposal footprint that are abundant and/or in good condition within the proposal footprint.</p> <p>Species likely to maintain resident populations surrounding the proposal footprint.</p> <p>Species likely to visit the proposal footprint or surrounds during regular seasonal movements or migration.</p>
Moderate	<p>Species infrequently recorded previously in the proposal footprint and surrounds (i.e. vagrant individuals).</p> <p>Species use habitat types or resources that are present in the proposal footprint, although generally in a poor or modified condition.</p> <p>Species unlikely to maintain sedentary populations however may seasonally utilise resources within the proposal footprint opportunistically during variable seasons or migration.</p>
Low	<p>Species not been recorded previously in the proposal footprint and surrounds which are beyond the current known geographic range.</p> <p>Species dependent on specific habitat types or resources that are not present in the proposal footprint.</p> <p>Species considered extinct in the locality.</p>
Nil	Suitable habitat is absent from the proposal footprint.

Table B.2 Likelihood of occurrence of threatened biota within the proposal footprint

Scientific name	Common name	BC Act Status	EPBC Act Status	Records	Description	Identified by calculator	Credit type	Likelihood of occurrence
BIRDS								
<i>Actitis hypoleucos</i>	Common Sandpiper		C,J,K	Species or species habitat may occur within 10 km (DCCEEW 2023)	Does not breed in Australia. When in Australia it is found on all coastlines and in inland areas, but is concentrated in the north and west with important areas in WA, the NT and Qld. Utilises a wide range of coastal and inland wetlands with varying salinity levels.	No	N/A	Nil. No wetlands present. Species not previously recorded within 10 km of the site.
<i>Anthochaera phrygia</i>	Regent Honeyeater	CE	CE	Species likely to occur within 10 km (Commonwealth DCCEEW 2024a)	Mainly inhabits temperate woodlands and open forests of the inland slopes of south-east Australia. Only three known key breeding regions remaining: north-east Victoria (Chiltern-Albury), and in NSW at Capertee Valley and the Bundarra-Barraba region. Very patchy distribution in NSW, mainly confined to the two main breeding areas and surrounding fragmented woodlands. In some years flocks converge on flowering coastal woodlands and forests. Inhabits dry open forest and woodland, particularly Box-Ironbark woodland, and riparian forests of River Sheoak. Inhabit woodlands that support a significantly high abundance and species richness of bird species. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes. Key eucalypt species include Mugga Ironbark, Yellow Box, White Box and Swamp Mahogany. Flowering of associated species such as Thin-leaved Stringybark <i>Eucalyptus eugenioides</i> and other Stringybark species, and Broad-leaved Ironbark <i>E. fibrosa</i> can also contribute important nectar flows at times.	Yes	Species and Ecosystem	Nil. No Box Gum woodland in proposal footprint. Species not previously recorded within 10 km of the proposal footprint.

Scientific name	Common name	BC Act Status	EPBC Act Status	Records	Description	Identified by calculator	Credit type	Likelihood of occurrence
					Nectar and fruit from the mistletoes <i>Amyema miquelii</i> , <i>A. pendula</i> and <i>A. cambagei</i> are also utilised.			
<i>Aphelocephala leucopsis</i>	Southern Whiteface	P	V	Species likely to occur within 10 km (Commonwealth DCCEEW 2024a)	Occur across most of mainland Australia south of the tropics, from the north- eastern edge of the Western Australian wheatbelt, east to the Great Dividing Range. Lives in a wide range of open woodlands and shrublands where there is an understorey of grasses or shrubs, or both. These areas are usually in habitats dominated by acacias or eucalypts on ranges, foothills and lowlands, and plains. Forages almost exclusively on the ground, favouring habitat with low tree densities and an herbaceous understorey litter cover.	No	N/A	Nil. No native woodland or shrubland in proposal footprint. Species not previously recorded within 10 km of the proposal footprint.
<i>Apus pacificus</i>	Fork-tailed Swift	P	C, J, K	Species likely to occur within 10 km (Commonwealth DCCEEW 2024a)	The Fork-tailed Swift is almost exclusively aerial, flying from less than 1 m to at least 300 m above ground and probably much higher. In Australia, they mostly occur over inland plains but sometimes above foothills or in coastal areas. They often occur over cliffs and beaches and also over islands and sometimes well out to sea. They also occur over settled areas, including towns, urban areas and cities. They mostly occur over dry or open habitats, including riparian woodland and tea-tree swamps, low scrub, heathland or saltmarsh. They are also found at treeless grassland and sandplains covered with spinifex, open farmland and inland and coastal sand-dunes.	No	N/A	Nil. No native woodland or shrubland in proposal footprint. This species may opportunistically use the site if passing through the area, however this species is almost exclusively aerial. No records within 10 km of the proposal footprint.

Scientific name	Common name	BC Act Status	EPBC Act Status	Records	Description	Identified by calculator	Credit type	Likelihood of occurrence
<i>Botaurus poiciloptilus</i>	Australasian Bittern	P	E	Species likely to occur within 10 km (Commonwealth DCCEEW 2024a)	Widespread but uncommon over south-eastern Australia. Found over most of NSW except for the far north-west. Favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (<i>Typha</i> spp.) and spikerushes (<i>Eleocharis</i> spp.). Hides during the day amongst dense reeds or rushes and feed mainly at night on frogs, fish, yabbies, spiders, insects and snails. May construct feeding platforms over deeper water from reeds trampled by the bird; platforms are often littered with prey remains.	No	Ecosystem	Nil. No suitable habitat present. Species not previously recorded within 10 km of the site.
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper		C,J,K	Species or species habitat known to occur within 10 km (DCCEEW 2023)	Spends the non-breeding season in Australia with small numbers occurring regularly in New Zealand. Most of the population migrates to Australia, mostly to the south-east and are widespread in both inland and coastal locations and in both freshwater and saline habitats. Many inland records are of birds on passage. In Australasia, prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation. Breeds in northern Siberia.	No	N/A	Nil. No suitable habitat present. Species not previously recorded within 10 km of the proposal footprint.

Scientific name	Common name	BC Act Status	EPBC Act Status	Records	Description	Identified by calculator	Credit type	Likelihood of occurrence
<i>Calidris ferruginea</i>	Curlew Sandpiper	P	CE	Species may occur within 10 km (Commonwealth DCCEEW 2024a)	Distributed around most of the Australian coastline. Occurs along the entire coast of NSW, particularly in the Hunter Estuary, and sometimes in freshwater wetlands in the Murray-Darling Basin. Inland records are probably mainly of birds pausing for a few days during migration. Migrates to Australia for the non-breeding period, arriving between August and November, and departing between March and mid-April. Generally, occupies littoral and estuarine habitats, and is mainly found in intertidal mudflats of sheltered coasts in NSW. Also occurs in non-tidal swamps, lakes and lagoons on the coast and sometimes inland. Forages in or at the edge of shallow water, occasionally on exposed algal mats or waterweed, or on banks of beach-cast seagrass or seaweed.	No	Species and Ecosystem	Nil. No suitable habitat present. Species not previously recorded within 10 km of the proposal footprint.
<i>Calidris melanotos</i>	Pectoral Sandpiper		J,K	Species or species habitat may occur within 10 km (DCCEEW 2023)	Widespread but scattered records across NSW, east of the divide and in the Riverina and Lower Western regions. Breeds in the northern hemisphere. In Australasia, prefers shallow fresh to saline wetlands and is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands. Usually in coastal or near coastal habitats and prefers wetlands with open mudflats and low emergent or fringing vegetation such as grass or samphire.	No	N/A	Nil. No suitable habitat present. Species not previously recorded within 10 km of the proposal footprint.

Scientific name	Common name	BC Act Status	EPBC Act Status	Records	Description	Identified by calculator	Credit type	Likelihood of occurrence
<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	V	E	Species likely to occur within 10 km (Commonwealth DCCEEW 2024a)	Distributed from the south-east coast to the Hunter region, and inland to the Central Tablelands and south-west slopes in NSW. Occurs regularly in the ACT. Rare at the extremities of its range, with isolated records known from as far north as Coffs Harbour and as far west as Mudgee. In spring and summer, the species is generally found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. In autumn and winter, the species often moves to lower altitudes in drier more open eucalypt forests and woodlands, particularly box-gum and box-ironbark assemblages, or in dry forest in coastal areas and often found in urban areas.	No	Species and Ecosystem	Nil. No native woodland or shrubland in proposal footprint. Species not previously recorded within 10 km of the site. species may opportunistically use the non-native grassland if passing through the area.
<i>Calyptorhynchus lathami lathami</i>	South-eastern Glossy Black-Cockatoo	V	V	Species likely to occur within 10 km (Commonwealth DCCEEW 2024a)	Uncommon although widespread throughout suitable forest and woodland habitats. Occurs from the central Queensland coast to East Gippsland in Victoria, and inland to the southern tablelands and central western plains of NSW, with a small population in the Riverina. Feeds almost exclusively on the seeds of several species of she-oak (<i>Casuarina</i> and <i>Allocasuarina</i>) species.	No	Species and Ecosystem	Nil. No native woodland or shrubland in proposal footprint. Species not previously recorded within 10 km of the site. species may opportunistically use the non-native grassland if passing through the area.

Scientific name	Common name	BC Act Status	EPBC Act Status	Records	Description	Identified by calculator	Credit type	Likelihood of occurrence
<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (south-eastern)	V	V	Species likely to occur within 10 km (Commonwealth DCCEEW 2024a)	The western boundary of the species range runs approximately through Corowa, Wagga Wagga, Temora, Forbes, Dubbo and Inverell. Often found in eucalypt woodlands (including Box-Gum Woodland) and dry open forest of the inland slopes and plains inland of the Great Dividing Range; mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey, sometimes with one or more shrub species. Also found in mallee and River Red Gum Forest bordering wetlands with an open understorey of acacias, saltbush, lignum, cumbungi and grasses. Usually not found in woodlands with a dense shrub layer. Fallen timber is an important habitat component for foraging. Also recorded, though less commonly, in similar woodland habitats on the coastal ranges and plains.	Yes	Ecosystem	Low. Marginal foraging habitat present in the proposal footprint in the form of non-native grassland which this species may opportunistically use if passing through the area. However, species not previously recorded within 10 km of the proposal footprint.
<i>Epthianura albifrons</i>	White-fronted Chat	V,P	-	1 record within 10 km, last recorded 1979 (NSW DCCEEW 2024b)	Found mostly in temperate to arid climates and very rarely sub-tropical areas. Occurs mostly in the southern half of NSW, in damp open habitats along the coast, and near waterways in the western part of the state. Along the coastline, it is found predominantly in saltmarsh vegetation but also in open grasslands and sometimes in low shrubs bordering wetland areas. Typically, usually found foraging on bare or grassy ground in wetland areas, singly or in pairs.	No	Ecosystem	Nil. No suitable habitat present. One historic record within 10 km of the proposal footprint.

Scientific name	Common name	BC Act Status	EPBC Act Status	Records	Description	Identified by calculator	Credit type	Likelihood of occurrence
<i>Falco hypoleucos</i>	Grey Falcon	V	V	Species likely to occur within 10 km (Commonwealth DCCEEW 2024a)	Sparsely distributed in NSW, chiefly throughout the Murray-Darling Basin, with the occasional vagrant east of the Great Dividing Range. Usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast. Also occurs near wetlands where surface water attracts prey.	No	Ecosystem	Nil. No suitable habitat present. Species not previously recorded within 10 km of the proposal footprint.
<i>Gallinago hardwickii</i>	Latham's Snipe		J,K, Bonn	Species or species habitat may occur within 10 km (DCCEEW 2023)	Non-breeding migrant to the southeast of Australia. Breeds in Japan and on the east Asian mainland. Seen in small groups or singly in freshwater wetlands on or near the coast, generally among dense cover. Found in any vegetation around wetlands, in sedges, grasses, lignum, reeds and rushes and also in saltmarsh and creek edges on migration. Also uses crops and pasture.	No	N/A	Nil. No suitable habitat present. Species not previously recorded within 10 km of the proposal footprint.
<i>Grantiella picta</i>	Painted Honeyeater	V	V	Species likely to occur within 10 km (Commonwealth DCCEEW 2024a)	Nomadic species occurring at low densities throughout its range. Most commonly found on the inland slopes of the Great Dividing Range in NSW, where almost all breeding occurs. More likely to be found in the north of its distribution in winter. Inhabits Boree/ Weeping Myall (<i>Acacia pendula</i>), Brigalow (<i>A. harpophylla</i>) and Box-Gum Woodlands and Box-Ironbark Forests. Specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Prefers mistletoes of the genus <i>Amyema</i> .	No	Ecosystem	Nil. No suitable habitat present; no native woodland or mistletoes in proposal footprint. Species not previously recorded within 10 km of the proposal footprint.

Scientific name	Common name	BC Act Status	EPBC Act Status	Records	Description	Identified by calculator	Credit type	Likelihood of occurrence
<i>Grus rubicunda</i>	Brolga	V	-	1 record within 10 km, last recorded 1977 (NSW DCCEEW 2024b)	Formerly found across Australia, except for the south-east corner, Tasmania and the south-western third of the country. Very sparse distribution across the southern part of its range. Dependent on wetlands for foraging, especially shallow swamps, but also feed in dry grassland, ploughed paddocks and even desert claypans.	No	Ecosystem	Nil. No suitable habitat present. One historic record within 10 km of the proposal footprint.
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	V,P	-	1 record within 10 km, last recorded 1977 (NSW DCCEEW 2024b)	Widespread along the NSW coast, and along all major inland rivers and waterways. Habitats characterised by the presence of large areas of open water including larger rivers, swamps, lakes, and the sea. Occurs at sites near the sea or sea-shore, such as around bays and inlets, beaches, reefs, lagoons, estuaries and mangroves; and at, or in the vicinity of freshwater swamps, lakes, reservoirs, billabongs and saltmarsh. Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, and forest (including rainforest). Breeding habitat consists of mature tall open forest, open forest, tall woodland, and swamp sclerophyll forest close to foraging habitat.	Yes	Species and ecosystem	Low. No native woodland in proposal footprint. species may opportunistically use the non-native grassland if passing through the area. One historic record within 10 km of the proposal footprint.

Scientific name	Common name	BC Act Status	EPBC Act Status	Records	Description	Identified by calculator	Credit type	Likelihood of occurrence
<i>Hirundapus caudacutus</i>	White-throated Needletail		V	Species likely to occur within 10 km (Commonwealth DCCEEW 2024a)	Migrates to eastern Australia from October to April. Almost exclusively aerial and most often seen before storms, low pressure troughs and approaching cold fronts and occasionally bushfire. Occurs over most habitats, but mostly recorded above wooded areas, including open forest and rainforest. May also fly between trees or in clearings, below the canopy. Recorded roosting in trees, in forests and woodlands, both among dense foliage in the canopy or in hollows.	No	Ecosystem	Nil. No suitable habitat present. This species may opportunistically use the site if passing through the area, however this species is almost exclusively aerial. No records within 10 km of the proposal footprint.
<i>Lathamus discolor</i>	Swift Parrot	E	CE	Species Probability occur within 10 km (Commonwealth DCCEEW 2024a)	Migrates from Tasmania to south-eastern Australia in the autumn and winter months. Mostly occurs on the coast and south west slopes in NSW. Occurs on the mainland in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. Favoured feed trees include winter flowering species such as Swamp Mahogany, Spotted Gum, Red Bloodwood, Forest Red Gum, Mugga Ironbark, and White Box.	Yes	Species and ecosystem	Low. No native woodland in proposal footprint. species may opportunistically use the non-native grassland if passing through the area No records within 10 km of the site. No mapped areas of important habitat occur within or adjacent to the proposal footprint.

Scientific name	Common name	BC Act Status	EPBC Act Status	Records	Description	Identified by calculator	Credit type	Likelihood of occurrence
<i>Leipoa ocellata</i>	Malleefowl	E	V	Species may occur within 10 km (Commonwealth DCCEEW 2024a)	Stronghold in the mallee in the south west centred on Mallee Cliffs NP and extending east to near Balranald and scattered records as far north as Mungo NP. Eastern boundary distribution follows a line from Wagga Wagga-Grenfell-Orange. Typically occurs in mallee eucalypt woodlands with a dense but discontinuous canopy and varied shrubby understorey, especially where the mallee trees are multi-stemmed. Prefers areas of light sandy to sandy loam soils. Occasionally occur in other types of dry eucalypt forests. Found in unburnt habitat, with habitat unburnt for 40–60 years preferred. Also occurs in Red Ironbark <i>E. sideroxylon</i> woodland at the eastern limit of their distribution	No	Ecosystem	Nil. No mallee-eucalypt woodland present. No records within 10 km of the proposal footprint.
<i>Lophochroa leadbeateri leadbeateri</i>	Major Mitchell's Cockatoo (eastern), Eastern Major Mitchell's Cockatoo	V	E	Species likely to occur within 10 km (Commonwealth DCCEEW 2024a)	Found across the arid and semi-arid inland, from south-western Queensland south to north-west Victoria, through most of South Australia, north into the south-west Northern Territory and across to the west coast between Shark Bay and about Jurien. In NSW it is found regularly as far east as about Bourke and Griffith, and sporadically further east than that. Inhabits a wide range of treed and treeless inland habitats, always within easy reach of water. Feeds mostly on the ground, especially on the seeds of native and non-native melons and on the seeds of species of saltbush, wattles and cypress pines. Normally found in pairs or small groups, though flocks of hundreds may be found where food is abundant. Nesting, in tree hollows, occurs throughout the second half of the year; nests are at	No	Species and ecosystem	Nil. No suitable habitat present. This species may opportunistically use the site if passing through the area. No records within 10 km of the proposal footprint.

Scientific name	Common name	BC Act Status	EPBC Act Status	Records	Description	Identified by calculator	Credit type	Likelihood of occurrence
					least 1 km apart, with no more than one pair every 30 square kilometres.			
<i>Melanodryas cucullata cucullata</i>	South-eastern Hooded Robin, Hooded Robin (south-eastern)	V	E	Species likely to occur within 10 km (Commonwealth DCCEEW 2024a)	Found throughout much of inland NSW, with the exception of the extreme north-west, where it is replaced by subspecies <i>picata</i> . Prefers lightly wooded country, usually open eucalypt woodland, Acacia scrub and mallee, often in or near clearings or open areas. Requires structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses.	Yes	Ecosystem	Nil. No suitable habitat present. This species may opportunistically use the site if passing through the area. No records within 10 km of the proposal footprint.
<i>Motacilla flava</i>	Yellow Wagtail	-	C,J,K	Species or species habitat may occur within 10 km (DCCEEW 2023)	Occurs within Australia in open country habitat with disturbed ground and some water. Recorded in short grass and bare ground, swamp margins, sewage ponds, saltmarshes, playing fields, airfields, ploughed land and town lawns. Breeds in temperate Europe and Asia.	No	N/A	Nil. No suitable habitat present. This species may opportunistically use the site if passing through the area. No records within 10 km of the proposal footprint.
<i>Myiagra cyanoleuca</i>	Satin Flycatcher	P	C	Species likely to occur within 10 km (Commonwealth DCCEEW 2024a)	Satin Flycatchers mainly inhabit eucalypt forests, often near wetlands or watercourses. They generally occur in moister, taller forests than the Leaden Flycatcher, <i>Myiagra rebeccula</i> , often occurring in gullies. They also occur in eucalypt woodlands with open understorey and grass ground cover and are generally absent from rainforest. In south-eastern Australia, they occur at elevations of up to 1400 m above sea level, and in the ACT, they occur mainly between 800 m above sea level and the tree line.	No	N/A	Nil. No suitable habitat present. This species may opportunistically use the site if passing through the area. No records within 10 km of the proposal footprint.

Scientific name	Common name	BC Act Status	EPBC Act Status	Records	Description	Identified by calculator	Credit type	Likelihood of occurrence
<i>Neophema chrysostoma</i>	Blue-winged Parrot	V	V	1 record within 10 km, last recorded 1996 (NSW DCCEEW 2024b)	Extends from southern Queensland through to northern Victoria, from the coastal plains to the western slopes of the Great Dividing Range. Typically lives on the edges of eucalypt woodland adjoining clearings, timbered ridges and creeks in farmland.	No	Ecosystem	Nil. No suitable habitat present. This species may opportunistically use the site if passing through the area. One historic record within 10 km of the proposal footprint.
<i>Numenius madagascariensis</i>	Eastern Curlew, Far Eastern Curlew	P	CE	1 record within 10 km (NSW DCCEEW 2024b), Species known to occur within 10 km (Commonwealth DCCEEW 2024a)	It generally occupies coastal lakes, inlets, bays and estuarine habitats, and in New South Wales is mainly found in intertidal mudflats and sometimes saltmarsh of sheltered coasts. Occasionally, the species occurs on ocean beaches (often near estuaries), and coral reefs, rock platforms, or rocky islets. It forages in or at the edge of shallow water, occasionally on exposed algal mats or waterweed, or on banks of beach-cast seagrass or seaweed. It roosts on sandy spits and islets, especially on dry beach sand near the high-water mark, and among coastal vegetation including low saltmarsh or mangroves. May also roost on wooden oyster leases or other similar structures	No	Species and ecosystem	Nil. No suitable habitat present. No wetlands or mudflats present within or adjacent to proposal footprint.
<i>Neophema pulchella</i>	Turquoise Parrot	V	-	1 record within 10 km, last recorded 1996 (NSW DCCEEW 2024b)	Extends from southern Queensland through to northern Victoria, from the coastal plains to the western slopes of the Great Dividing Range. Typically lives on the edges of eucalypt woodland adjoining clearings, timbered ridges and creeks in farmland.	No	Ecosystem	Nil. No suitable habitat present. This species may opportunistically use the site if passing through the area. One historic record within 10 km of the proposal footprint.

Scientific name	Common name	BC Act Status	EPBC Act Status	Records	Description	Identified by calculator	Credit type	Likelihood of occurrence
<i>Polytelis swainsonii</i>	Superb Parrot	V	V	8 records within 10 km (OEH 2014a), Community known to occur within 10 km (Commonwealth DCCEEW 2024a)	<p>Inhabit Box-Gum, Box-Cypress-pine and Boree woodlands and River Red Gum forest.</p> <p>In the Riverina superb parrots nest in the hollows of large trees (dead or alive) mainly in tall riparian River Red Gum forest or woodland. On the South West Slopes and Southern Tablelands nest trees can be in open Box-Gum woodland or isolated living or dead paddock trees. Species known to be used are Blakely's Red Gum, Yellow Box, Apple Box and Red Box.</p> <p>Superb Parrots nest in tree hollows with an entrance diameter of 6 cm or wider, and that are at least 3.5 m above the ground</p> <p>Nest in small colonies, often with more than one nest in a single tree.</p>	Yes	Species and ecosystem	<p>Low.</p> <p>Marginal foraging habitat present in the form of non-native grassland. This species may opportunistically use the site if passing through the area. Records within 10 km of the site.</p>
<i>Rostratula australis</i>	Australian Painted Snipe	E	E	Species likely to occur within 10 km (Commonwealth DCCEEW 2024a)	<p>The Australian Painted Snipe generally inhabits shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans. They also use inundated or waterlogged grassland or saltmarsh, dams, rice crops, sewage farms and bore drains. Typical sites include those with rank emergent tussocks of grass, sedges, rushes or reeds, or samphire; often with scattered clumps of lignum Muehlenbeckia or canegrass or sometimes tea-tree (Melaleuca).</p>	No	Ecosystem	<p>Nil.</p> <p>No suitable habitat present.</p> <p>This species may opportunistically use the site if passing through the area. No records within 10 km of the proposal footprint.</p>

Scientific name	Common name	BC Act Status	EPBC Act Status	Records	Description	Identified by calculator	Credit type	Likelihood of occurrence
<i>Stagonopleura guttata</i>	Diamond Firetail	V	V	Species Likely occur within 10 km (Commonwealth DCCEEW 2024a)	Found in grassy eucalypt woodlands, including Box-Gum Woodlands and Snow Gum Eucalyptus pauciflora Woodlands. Also occurs in open forest, mallee, Natural Temperate Grassland, and in secondary grassland derived from other communities. Often found in riparian areas (rivers and creeks), and sometimes in lightly wooded farmland.	Yes	Ecosystem	Nil. No suitable habitat present. This species may opportunistically use the site if passing through the area. One historic record within 10 km of the proposal footprint.
<i>Tringa stagnatilis</i>	Marsh Sandpiper	P	C, J, K	1 record within 10 km, last recorded 1979 (NSW DCCEEW 2024b) Species likely to occur within 10 km (Commonwealth DCCEEW 2024a)	The Marsh Sandpiper is found on coastal and inland wetlands throughout Australia. The species is widespread in coastal Queensland, but few records exist north of Cooktown. It is recorded in all regions of NSW but especially the central and south coasts and (inland) on the western slopes of Great Divide and western plains. In Victoria, most are found in Port Phillip Bay, but also Gippsland, Westernport Bay and the Western Districts. Inland records exist for Murray Valley, round Barmah, Kerang-Swan Hill and Mildura; also some from around Shepparton, west to Rupanyup and Hindmarsh and Albacutya Lakes.	No	N/A	Nil. No suitable habitat in proposal footprint. This species may opportunistically use the site if passing through the area. One historic record within 10 km of the proposal footprint.

Scientific name	Common name	BC Act Status	EPBC Act Status	Records	Description	Identified by calculator	Credit type	Likelihood of occurrence
Mammals								
<i>Dasyurus maculatus maculatus</i> (SE mainland population)	Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population)	V	E	Species Likely occur within 10 km (Commonwealth DCCEEW 2024a)	<p>Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline.</p> <p>Quolls use hollow-bearing trees, fallen logs, other animal burrows, small caves and rock outcrops as den sites.</p> <p>Mostly nocturnal, although will hunt during the day; spend most of the time on the ground, although also an excellent climber and will hunt possums and gliders in tree hollows and prey on roosting birds.</p> <p>Use communal 'latrine sites', often on flat rocks among boulder fields, rocky cliff-faces or along rocky stream beds or banks. Such sites may be visited by multiple individuals and can be recognised by the accumulation of the sometimes characteristic 'twisty-shaped' faeces deposited by animals."</p>	No	Ecosystem	<p>Nil.</p> <p>No suitable hollow bearing trees, fallen logs, animal burrows, caves or rocky outcrops within the study area or proposal footprint.</p> <p>No records within 10 km of the proposal footprint.</p>
<i>Nyctophilus corbeni</i>	Corben's Long-eared Bat	V	V	Species may occur within 10 km (Commonwealth DCCEEW 2024a)	<p>Found throughout the Murray-Darling Basin and the Pilliga Scrub region. Inhabits a variety of vegetation types, including mallee, bulloke <i>Allocasuarina leuhmanni</i> and box eucalypt dominated communities, but it is distinctly more common in box/ironbark/cypress-pine vegetation that occurs in a north-south belt along the western slopes and plains of NSW and southern Queensland. Roosts in tree hollows, crevices, and under loose bark.</p>	No	Ecosystem	<p>Nil.</p> <p>No suitable habitat in proposal footprint.</p> <p>No records within 10 km of the proposal footprint.</p>

Scientific name	Common name	BC Act Status	EPBC Act Status	Records	Description	Identified by calculator	Credit type	Likelihood of occurrence
<i>Petaurus norfolcensis</i>	Squirrel Glider	V	-	1 record within 10 km (NSW DCCEEW 2024b)	Widely though sparsely distributed in eastern Australia, from northern Queensland to western Victoria. Inhabits mature or old growth Box, Box-Ironbark woodlands and River Red Gum forest west of the Great Dividing Range and Blackbutt-Bloodwood forest with heath understory in coastal areas. Prefers mixed species stands with a shrub or Acacia midstorey. Require abundant tree hollows for refuge and nest sites.	No	Species	Nil. No suitable habitat in proposal footprint. One record within 10 km of the proposal footprint.
<i>Petaurus norfolcensis</i>	Squirrel Glider in the Wagga Wagga Local Government Area	E2	-	1 record within 10 km (NSW DCCEEW 2024b)	Widely though sparsely distributed in eastern Australia, from northern Queensland to western Victoria. Inhabits mature or old growth Box, Box-Ironbark woodlands and River Red Gum forest west of the Great Dividing Range and Blackbutt-Bloodwood forest with heath understory in coastal areas. Prefers mixed species stands with a shrub or Acacia midstorey. Require abundant tree hollows for refuge and nest sites.	No	Species	Nil. No suitable habitat in proposal footprint. One record within 10 km of the proposal footprint.
<i>Phascolarctos cinereus</i>	Koala	E	E	Species May occur within 10 km (Commonwealth DCCEEW 2024a)	Found on the central and north coasts, southern highlands, southern and northern tablelands, Blue Mountains, southern coastal forests of NSW, with some smaller populations on the plains west of the Great Dividing Range. Inhabits eucalypt woodlands and forests, and feeds on the foliage of more than 70 eucalypt species and 30 non-eucalypt species but will select preferred browse species in any one area.	No	Species	Nil. No suitable habitat in proposal footprint. No records within 10 km of the proposal footprint.

Scientific name	Common name	BC Act Status	EPBC Act Status	Records	Description	Identified by calculator	Credit type	Likelihood of occurrence
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	V	1 record within 10 km (OEH 2014a), Species May occur within 10 km (Commonwealth DCCEEW 2024a)	Generally found within 200 km of the eastern coast of Australia, from Rockhampton to Adelaide. May be found in unusual locations in times of natural resource shortage. Occurs in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy.	Yes	Species and ecosystem	Nil. No suitable habitat in proposal footprint. No roosting camps located within or adjacent to study area. One record within 10 km of the site.
Reptiles								
<i>Aprasia parapulchella</i>	Pink-tailed Worm-lizard, Pink-tailed Legless Lizard	V	V	Species may occur within 10 km (Commonwealth DCCEEW 2024a)	Only known from the Central and Southern Tablelands, and the South Western Slopes. There is a concentration of populations in the Canberra/Queanbeyan Region. Other populations have been recorded near Cooma, Yass, Bathurst, Albury and West Wyalong. This species is also found in the Australian Capital Territory. Inhabit sloping, open woodland areas with predominantly native grassy groundlayers, particularly those dominated by Kangaroo Grass (<i>Themeda australis</i>). Sites are typically well-drained, with rocky outcrops or scattered, partially-buried rocks. Commonly found beneath small, partially-embedded rocks and appear to spend considerable time in burrows below these rocks; the burrows have been constructed by and are often still inhabited by small black ants and termites.	No	Species	Nil. No suitable habitat in proposal footprint. No records within 10 km of the proposal footprint.

Scientific name	Common name	BC Act Status	EPBC Act Status	Records	Description	Identified by calculator	Credit type	Likelihood of occurrence
Amphibians								
<i>Crinia sloanei</i>	Sloane's Froglet	E	E	Species May occur within 10 km (Commonwealth DCCEEW 2024a)	Most records are from the Darling Riverine Plains, NSW South Western Slopes and Riverina bioregions. It has not been recorded recently in the northern part of its range and has only been recorded infrequently in the southern part of its range in NSW. Typically associated with periodically inundated areas in grassland, woodland and disturbed habitats.	No	Species	Nil. No wetlands or periodically inundated areas within proposal footprint. No records within 10 km of the site.
<i>Litoria raniformis</i>	Growling Grass Frog, Southern Bell Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog	E	V	Species may occur within 10 km (Commonwealth DCCEEW 2024a)	Currently known to exist only in isolated populations in the Coleambally Irrigation Area, the Lowbidgee floodplain and around Lake Victoria. A few yet unconfirmed records have also been made in the Murray Irrigation Area in recent years. Usually found in or around permanent or ephemeral Black Box/Lignum/Nitre Goosefoot swamps, Lignum/Typha swamps and River Red Gum swamps or billabongs along floodplains and river valleys. Also found in irrigated rice crops, particularly where there is no available natural habitat. Breeding occurs during the warmer months and is triggered by flooding or a significant rise in water levels. The species has been known to breed anytime from early spring through to late summer/early autumn	No	Species	Nil. No wetland areas or rice crops within proposal footprint. No records within 10 km of the site.

Scientific name	Common name	BC Act Status	EPBC Act Status	Records	Description	Identified by calculator	Credit type	Likelihood of occurrence
Fish								
<i>Bidyanus bidyanus</i>	Silver Perch	P	CE	Species Known occur within 10 km (Commonwealth DCCEEW 2024a)	Now absent from much of their former range across the Murray-Darling. Most abundant remaining natural population occurs in the central Murray River downstream of Yarrawonga Weir as well as several of its anabranches and tributaries including the Edward River - an anabranch of the Murray River that flows through Deniliquin, and the Murrumbidgee River. Prefer fast-flowing, open waters, especially where there are rapids and races, however they will also inhabit warm, sluggish water with cover provided by large woody debris and reeds. Information on habitat preferences is scarce for this species.	No	N/A	Nil. No waterways within proposal footprint or study area.
<i>Galaxias rostratus</i>	Flathead Galaxias	P	CE	Species May occur within 10 km (Commonwealth DCCEEW 2024a)	Known from the southern part of the Murray Darling Basin. Recorded in the Macquarie, Lachlan, Murrumbidgee and Murray Rivers in NSW. Found in still or slow moving water bodies such as wetlands and lowland streams. Associated with a range of habitats including rock and sandy bottoms and aquatic vegetation.	No	N/A	Nil. No waterways within proposal footprint or study area.
<i>Maccullochella macquariensis</i>	Trout Cod	P	E	Species Likely occur within 10 km (Commonwealth DCCEEW 2024a)	Endemic to the Murray-Darling Basin. Once widespread in the southern tributaries, the species has declined dramatically in both abundance and distribution and are now known only from scattered localities. The last remaining natural populations in the wild are in the Murray River between Yarrawonga, Barmah and Seven Creeks. Occurs in a range of habitats but is strongly associated with the presence of woody debris and snags.	No	N/A	Nil. No waterways within proposal footprint or study area.

Scientific name	Common name	BC Act Status	EPBC Act Status	Records	Description	Identified by calculator	Credit type	Likelihood of occurrence
<i>Maccullochella peelii</i>	Murray Cod	P	V	Species Likely occur within 10 km (Commonwealth DCCEEW 2024a)	Endemic to river systems of the Murray–Darling Basin in south-eastern Australia. Once widespread throughout the Murray-Darling system, it is now uncommon in much of its range and restricted to the lower Murray-Darling. Found in a variety of habitats ranging from clear, rocky streams to slow flowing turbid rivers, lakes and billabongs and are more common in waterways with large rocks, snags and undercut banks with overhanging vegetation.	No	N/A	Nil. No waterways within proposal footprint or study area.
<i>Macquaria australasica</i>	Macquarie Perch	P	E	Species Likely occur within 10 km (Commonwealth DCCEEW 2024a)	Known only from scattered localities in the cool upper reaches of the Murray-Darling system of NSW, including the Hawkesbury-Nepean and Shoalhaven catchments, Victoria and ACT. Also found in man-made lakes on the NSW coast and in lakes and reservoirs, where adults aggregate in small shoals during the spawning season. Inhabits cool, clear freshwaters of rivers with deep holes and shallow riffles.	No	N/A	Nil. No waterways within proposal footprint or study area.
<i>Nannoperca australis</i> Murray-Darling Basin lineage	Southern Pygmy Perch (Murray-Darling Basin lineage)	P	V	Species Likely occur within 10 km (Commonwealth DCCEEW 2024a)	Often found in small systems with a low flow rate and quiet vegetated areas in streams, billabongs, lakes. They prefer covered habitats and are not usually found in open water.	No	N/A	Nil. No waterways within proposal footprint or study area.

Scientific name	Common name	BC Act Status	EPBC Act Status	Records	Description	Identified by calculator	Credit type	Likelihood of occurrence
Insects								
<i>Keyacris scurra</i>	Key's Matchstick Grasshopper	E	E	Species Likely occur within 10 km (Commonwealth DCCEEW 2024a)	Typically found in native grassland in cemeteries, travelling stock routes and along railway easements. Associated with Kangaroo Grass and known food plants such as species of the Asteraceae family, but also recorded at sites where these species are absent. Found in wet sclerophyll forest, montane low forest, dry woodlands, heath land and montane grasslands. Appears to be absent from site that are disturbed during the short non-overlapping lifecycle of the species.	No	Species	Nil. No native grassland within the study area or proposal footprint. No records within 10 km of study area.
Plants								
<i>Austrostipa wakoolica</i>	A Spear-grass	E	E	Species May occur within 10 km (Commonwealth DCCEEW 2024a)	Confined to floodplains of the Murray River tributaries of central and south western NSW, in open woodland on grey, silty clay or sandy loam soils. Habitats include the edges of a lignum swamp with box and mallee; creek banks in grey, silty clay; mallee and lignum sandy-loam flat; open Cypress Pine forest on low sandy range; and a low, rocky rise. Associated species include White Cypress Pine, Grey Box, Bimble Box, <i>Austrostipa eremophila</i> , <i>A. drummondii</i> , <i>Austrodanthonia eriantha</i> and Climbing Saltbush. Flowers from October to December.	No	Species	Nil. No lignum swamp with box and mallee or mallee and lignum or open Cypress Pine forest communities within proposal footprint or study area. No records within 10 km.

Scientific name	Common name	BC Act Status	EPBC Act Status	Records	Description	Identified by calculator	Credit type	Likelihood of occurrence
<i>Brachyscome muelleroides</i>	Mueller Daisy	V	V	Species Known occur within 10 km (Commonwealth DCCEEW 2024a)	Occurs in the Wagga Wagga, Narranderra, Tocumwal and Walbundrie areas. Grows in damp areas on the margins of claypans in moist grassland with <i>Pycnosorus globosus</i> , <i>Agrostis avenacea</i> and <i>Austrodanthonia duttoniana</i> . Also recorded from the margins of lagoons in mud or water, and in association with <i>Calotis anthemoides</i> ."	No	Species	Nil. No damp native grasslands, claypan areas or lagoons within the proposal footprint. No records within 10 km.
<i>Caladenia arenaria</i>	Sand-hill Spider-orchid	E	E	Species May occur within 10 km (Commonwealth DCCEEW 2024a)	Found mostly on the south west plains and western south west slopes. Currently only known to occur in the Riverina between Urana and Narranderra. Occurs in woodland with sandy soil, especially that dominated by White Cypress Pine.	No	Species	Nil. No sandy soils dominate by White Cypress Pines in proposal footprint. No records within 10 km.
<i>Lepidium aschersonii</i>	Spiny Peppergrass	V	V	Species Likely occur within 10 km (Commonwealth DCCEEW 2024a)	Occurring in the marginal central-western slopes and north-western plains regions of NSW. Found on ridges of gilgai clays dominated by <i>Acacia harpophylla</i> , <i>Casuarina cristata</i> , <i>Allocasuarina luehmanii</i> and <i>Eucalyptus microcarpa</i> , with the understorey often dominated by introduced plants. Grows as a component of the ground flora, in grey loamy clays. Vegetation structure varies from open to dense, with sparse grassy understorey with introduced plants and occasional heavy litter.	No	Species	Nil. No gilgai clays dominated by <i>Acacia harpophylla</i> , <i>Casuarina cristata</i> , <i>Allocasuarina luehmanii</i> and <i>Eucalyptus microcarpa</i> in proposal footprint. No records within 10 km.

Scientific name	Common name	BC Act Status	EPBC Act Status	Records	Description	Identified by calculator	Credit type	Likelihood of occurrence
<i>Lepidium monoplacoides</i>	Winged Pepper- cress	E	E	Species likely occur within 10 km (Commonwealth DCCEEW 2024a)	Widespread in the semi-arid western plains regions of NSW. Occurs on seasonally moist to waterlogged sites, on heavy fertile soils, with a mean annual rainfall of around 300-500 mm. Highly dependent on seasonal conditions, particularly rainfall. Occurs in periodically flooded and waterlogged habitats and does not tolerate grazing disturbance.	No	Species	Low Seasonally moist fertile soils in proposal footprint. Site is subject to sheep grazing. No records within 10 km.
<i>Prasophyllum petilum</i>	Tarengo Leek Orchid	E	E	Species May occur within 10 km (Commonwealth DCCEEW 2024a)	Known from five sites near Boorowa, Queanbeyan area, Ilford, Delegate and west of Muswellbrook. Grows in open sites within Natural Temperate Grassland at the Boorowa and Delegate sites. Grows in grassy woodland in association with River Tussock, Black Gum and tea-trees near Queanbeyan and within grassy groundlayer dominated by Kangaroo Grass under Box-Gum Woodland at Ilford. Flowers in October at Boorowa and Ilford, and December at sites near Queanbeyan and Delegate.	No	Species	Nil No native grassland in proposal footprint. No records within 10 km.
<i>Swainsona murrayana</i>	Slender Darling- pea, Slender Swainson, Murray Swainson-pea	V	V	Species may occur within 10 km (Commonwealth DCCEEW 2024a)	Found throughout NSW, recorded in the Jerilderie and Deniliquin areas of the southern riverine plain, the Hay plain as far north as Willandra National Park, near Broken Hill and in various localities between Dubbo and Moree. Grows in a variety of soil and vegetation types including bladder saltbush, black box and grassland communities on level plains, floodplains and depressions and is often found with <i>Maireana</i> species. Also found in remnant native grasslands or grassy woodlands that have been intermittently grazed or cultivated.	No	Species	Nil No native grassland or woodlands in proposal footprint. No records within 10 km.

Scientific name	Common name	BC Act Status	EPBC Act Status	Records	Description	Identified by calculator	Credit type	Likelihood of occurrence
<i>Swainsona recta</i>	Small Purple-pea, Mountain Swainson-pea, Small Purple Pea	E	E	Species Known occur within 10 km (Commonwealth DCCEEW 2024a)	Current populations exist in the Queanbeyan and Wellington-Mudgee areas, previous populations thought extinct include Carcoar, Culcairn and Wagga Wagga. Inhabits grassy woodlands and open-forests dominated by Blakely's Red Gum, Yellow Bloodwood, Candlebark and Long-leaved Box and in association with understory dominants that include <i>Themeda australis</i> , <i>Poa</i> spp. and <i>Aurolastipa</i> spp. Flowers throughout spring, with a peak in October.	No	Species	Nil No native grassland or woodlands in proposal footprint. No records within 10 km.

Notes: V= vulnerable, E= endangered, CE= critically endangered, Ex= currently presumed extinct in NSW, C= listed as migratory under the China-Australia Migratory Bird Agreement (CAMBA), J= listed as migratory under the Japan-Australia Migratory Bird Agreement (JAMBA), K= listed as migratory under the Republic of Korea-Australia Migratory Bird Agreement (KAMBA)

Appendix C

Species recorded in the study area.

Table C.1 Flora recorded within study area

Family	Scientific name	Common name	Exotic	Plot JR_1 Cover	Plot JR_1 Abundance	Plot JR_2 Cover	Plot JR_2 Abundance	Plot JR_3 Cover	Plot JR_3 Abundance
Asteraceae	<i>Hypochaeris radicata</i>	Catsear	*	5	400	15	500	18	600
Asteraceae	<i>Xanthium occidentale</i>	Noogoora Burr	*	20	450	15	200	8	150
Asteraceae	<i>Euchiton sphaericus</i>	Star Cudweed	*	0.1	25			0.1	5
Asteraceae	<i>Arctotheca calendula</i>	Capeweed	*	5	500	5	200	1	100
Asteraceae	<i>Onopordum acanthium</i> subsp. <i>acanthium</i>	Scotch Thistle	*	-	-				
Asteraceae	<i>Vittadinia</i> sp.	A Fuzzweed		-	-				
Boraginaceae	<i>Echium Plantagineum</i>	Patterson's Curse	*	4	150	5	200	4	200
Brassicaceae	<i>Lepidium</i> sp. (dead)							0.1	3
Caryophyllaceae	<i>Cerastium glomeratum</i>	Mouse-ear Chickweed	*	1	100	0.4	80	1	100
Crassulaceae	<i>Crassula</i> sp. (no flower)							0.5	600
Cupressaceae	<i>Callitris glaucophylla</i>	White Cypress Pine		-	-				
Fabaceae (Faboideae)	<i>Trifolium repens</i>	White Clover	*	80	1000	80	1000	10	100
Fabaceae (Faboideae)	<i>Chamaecytisus palmensis</i>	Tree Lucerne	*	-	-				
Fabaceae (Mimosoideae)	<i>Acacia linearifolia</i>	Narrow-leaved Wattle						20	8
Geraniaceae	<i>Erodium cicutarium</i>	Common Crowfoot	*	0.1	8	0.1	30	0.1	30
Iridaceae	<i>Romulea rosea</i> var. <i>australis</i>	Onion Grass	*	-	-				
Lamiaceae	<i>Salvia verbenaca</i>	Vervain	*	6	500	1	40		
Malvaceae	<i>Malva parviflora</i>	Small-flowered Mallow	*	-	-				
Myrtaceae	<i>Eucalyptus melliodora</i>	Yellow Box						40	3
Myrtaceae	<i>Melaleuca erubescens</i>	Pink Honey-myrtle						2	5
Myrtaceae	<i>Eucalyptus albens</i>	White Box		-	-				
Oxalidaceae	<i>Oxalis perennans</i>	Oxalis						0.1	10
Poaceae	<i>Vulpia muralis</i>	Wall Fescue	*	20	500	40	1000	10	1000

Family	Scientific name	Common name	Exotic	Plot JR_1 Cover	Plot JR_1 Abundance	Plot JR_2 Cover	Plot JR_2 Abundance	Plot JR_3 Cover	Plot JR_3 Abundance
Poaceae	<i>Avena fatua</i>	Wild Oats	*	0.2	40	0.2	300	35	500
Poaceae	<i>Cynodon dactylon</i>	Common Couch		5	50	4	50	2	50
Poaceae	<i>Bothriochloa macra</i>	Red Grass		3	100	0.5	20	0.1	5
Poaceae	<i>Panicum capillare</i>	Witchgrass	*	-	-				
Poaceae	<i>Rytidosperma</i> sp							0.1	10
Poaceae	<i>Lolium perenne</i>		*	400			1	500	400
Poaceae	<i>Austrostipa scabra</i>	Speargrass		1	40	1	50	0.1	2
Poaceae	<i>Eragrostis cilianensis</i>	Stinkgrass	*			0.1	10		
Poaceae	<i>Rytidosperma caespitosum</i>	Ringed Wallaby Grass		0.1	5				
Poaceae	<i>Hordeum leporinum</i>	Barley Grass	*	-	-				
Poaceae	<i>Bromus molliformis</i>	Soft Brome	*	-	-				
Polygonaceae	<i>Rumex acetosella</i>	Sheep sorrel	*	0.1	30	0.1	35	0.5	100
Polygonaceae	<i>Rumex</i> sp. (no seeds)					0.1	5		

Notes: * denotes exotic species

Table C.2 Fauna recorded within study area

Class	Common name	Scientific name	Exotic	BC Act Status	EPBC Status
Aves	Australian Magpie	<i>Gymnorhina tibicen</i>		-	-
	Australian Raven	<i>Corvus coronoides</i>		-	-
	Eastern Rosella	<i>Platycercus eximius</i>		-	-
	European Starling	<i>Sturnus vulgaris</i>	*	-	-
	Galah	<i>Eolophus roseicapilla</i>		-	-
	Nankeen Kestrel	<i>Falco cenchroides</i>		-	-
	Masked Lapwing	<i>Vanellus miles</i>		-	-
	Noisy Miner	<i>Manorina melanocephala</i>		-	-
	Pied Currawong	<i>Strepera graculina</i>		-	-
	Red Wattlebird	<i>Anthochaera carunculata</i>		-	-
	Sulphur-crested Cockatoo	<i>Cacatua galerita</i>		-	-
	Superb Fairywren	<i>Malurus cyaneus</i>		-	-
	Willie-wagtail	<i>Rhipidura leucophrys</i>		-	-
	Yellow-rumped Thornbill	<i>Acanthiza chrysorrhoa</i>		-	-
Mammalia	Eastern Grey Kangaroo	<i>Macropus giganteus</i>		-	-
	European Hare	<i>Lepus europaeus</i>	*	-	-

Notes: * denotes exotic species

Appendix D

Vegetation integrity plot data

Table D.1 Vegetation integrity plot composition and structure data

PCT	Condition	Plot	Composition (species richness)							Structure (% cover)					
			TG	SG	GG	FG	EG	OG	Total	TG	SG	GG	FG	EG	OG
Benchmark (wet year)	-	-	4	4	9	14	1	2	34	24	1	52	9	0	0
0	Exotic	JR_1	0	0	4	1	0	0	5	0	0	9.1	0.1	0	0
0	Exotic	JR_2	0	0	3	1	0	0	4	0	0	5.5	0.1	0	0
277	Planted	JR_3	3	1	4	4	0	10	22	2	68	2.3	0.8	0	0

Notes: *TG=Tree; SG=Shrub; GG=Grass and grass-like; FG=forb; EG=Fern; OG=Other; HTE=High Threat Exotic
DBH – diameter at breast height

Table D.2 Vegetation integrity plot function data

Plot	Function											Zone	Easting	Northing	Bearing	
	Large trees	Hollow trees	Litter cover (%)	Fallen logs (m)	Tre reg en	Tre e DB H 5-10 (c m)	Tre e DB H 10-20 (c m)	Tre e DB H 20-30 (c m)	Tre e DB H 30-50 (c m)	Tre e DB H 50-80 (c m)	HTE cov er (tot al %)					
Benchmark (wet year)																
JR_1	0	0	6	0	0	0	0	0	0	0	20	55	519373	6106758	11	
JR_2	0	0	4.8	0	0	0	0	0	0	0	15	55	519398	6106851	329	
JR_3	0	0	36.4	0	0	0	0	1	1	0	8	55	519373	6106943	56	



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