Sunnybright Estate, Stage 2

Biodiversity Assessment Report

Bathurst Regional Council LGA, NSW

September 2020

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EXECUTIVE SUMMARY

Bathurst Regional Council (the proponent) is preparing a development application for a multiple lot residential subdivision at Lot 118 DP 1253021 Marsden Lane Kelso. The subject property is 36.3 hectares in size and is bounded by existing residential development to the west, Limekilns Road to the south, Marsden Lane to the north and a rural property to the east. The development envelope for Stage 2 is approximately 17.75 ha.

A Biodiversity Assessment Report (BAR) is required to:

- Assess impacts of the proposal on native vegetation at the site and any identified or potential threatened species, populations and ecological communities and their habitat.
- Identify the requirements relevant to the proposal under the following legislation:
    - Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act);
    - NSW *Biodiversity Conservation Act 2016* (BC Act);
    - NSW *Fisheries Management Act 1994* (FM Act);
    - NSW *Biosecurity Act 2015*.
    - Bathurst Regional LEP
- Provide recommendations to avoid, minimise and/or mitigate impacts of the proposal on biodiversity, including entry into the Biodiversity Offset Scheme (BOS) if required.

The BAR was completed in two stages:

1. A desktop review of available resources to provide landscape context for the subject site and inform aspects of the field survey, and
2. A field survey, including vegetation survey according to the Biodiversity Assessment Methods (BAM) and targeted searches for threatened species predicted to occur on the subject site.

The subject site consists of introduced grassland, typical of a site that has previously been used for intensive agriculture and it does not provide suitable habitat for threatened species that might occur in the area, including threatened ecological communities, key fish habitat and aquatic communities.

As a result, the BAR concluded that there will be no clearing of native vegetation and no significant impact to threatened entities under the proposal. As such, the proponent is not required to enter the Biodiversity Offset Scheme (BOS).

However, any change to project design may require further assessment against BOS entry thresholds.

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1 Introduction

Bathurst Regional Council (the proponent) is seeking to develop an area between Limekilns Road and Marsden Lane, Kelso, for the purposes of subdivision into multiple residential Lots.

1.1 Objectives

The objectives of the biodiversity assessment are as follows:

- Assess impacts of the proposal on native vegetation at the site and any identified or potential threatened species, populations and ecological communities and their habitat.
- Identify the requirements relevant to the proposal under the following legislation:
  - Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act);
  - NSW *Biodiversity Conservation Act 2016* (BC Act);
  - NSW *Fisheries Management Act 1994* (FM Act);
  - NSW *Biosecurity Act 2015*.
  - Bathurst Regional Council Local Environment Plan (LEP)
- Provide recommendations to avoid, minimise and/or mitigate impacts of the proposal on biodiversity, including entry into the Biodiversity Offset Scheme (BOS) if required.

1.2 Proposal location

The proposal is located within Bathurst Regional Council LGA at Lot 118 DP 1253021 Marsden Lane, Kelso. The land comprises an area of approximately 17.75 ha, formerly used for intensive agriculture, including an orchard and grazing activities.

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

10 km search area – the area within a 10 km radius of the subject site. This 10 km buffer has been used to search information sources to establish the landscape context of the subject site.

Study area – the area within a 500 m radius of the subject site. Native vegetation has been mapped within this 500 m buffer to provide some context in regards to the connectivity and cover of native vegetation in the area affected by the proposal, and to inform the impact assessment of the proposal.

Subject site – the footprint of the proposal and the area directly affected by the development activities.

The locations of the proposal and the study area and subject site are shown in Figure 1.

1.3 The proposal

Council is preparing a development application for a multiple lot residential subdivision at Lot 118 DP 1253021 Marsden Lane Kelso. The subject property is 36.3 ha hectares in size, and is bounded by existing residential development to the west, Limekilns Road to the south, Marsden Lane to the north and a rural property to the east. The development envelope for Stage 2 is approximately 17.75 ha.

The application seeks approval for the subdivision of the land into multiple lots. The lots are designed to allow for the diversity of housing designs. Each residential lot is of sufficient size and site area for

the construction of a dwelling house, with the provision for adequate setback, open space, and carpark, and to comply with Councils requirements.

A Biodiversity Assessment Report is required to adequately consider impacts, if any, to protected flora, fauna and habitat, in accordance with the requirements of relevant environmental legislation, associated policies and any specific clauses under the Council LEP.

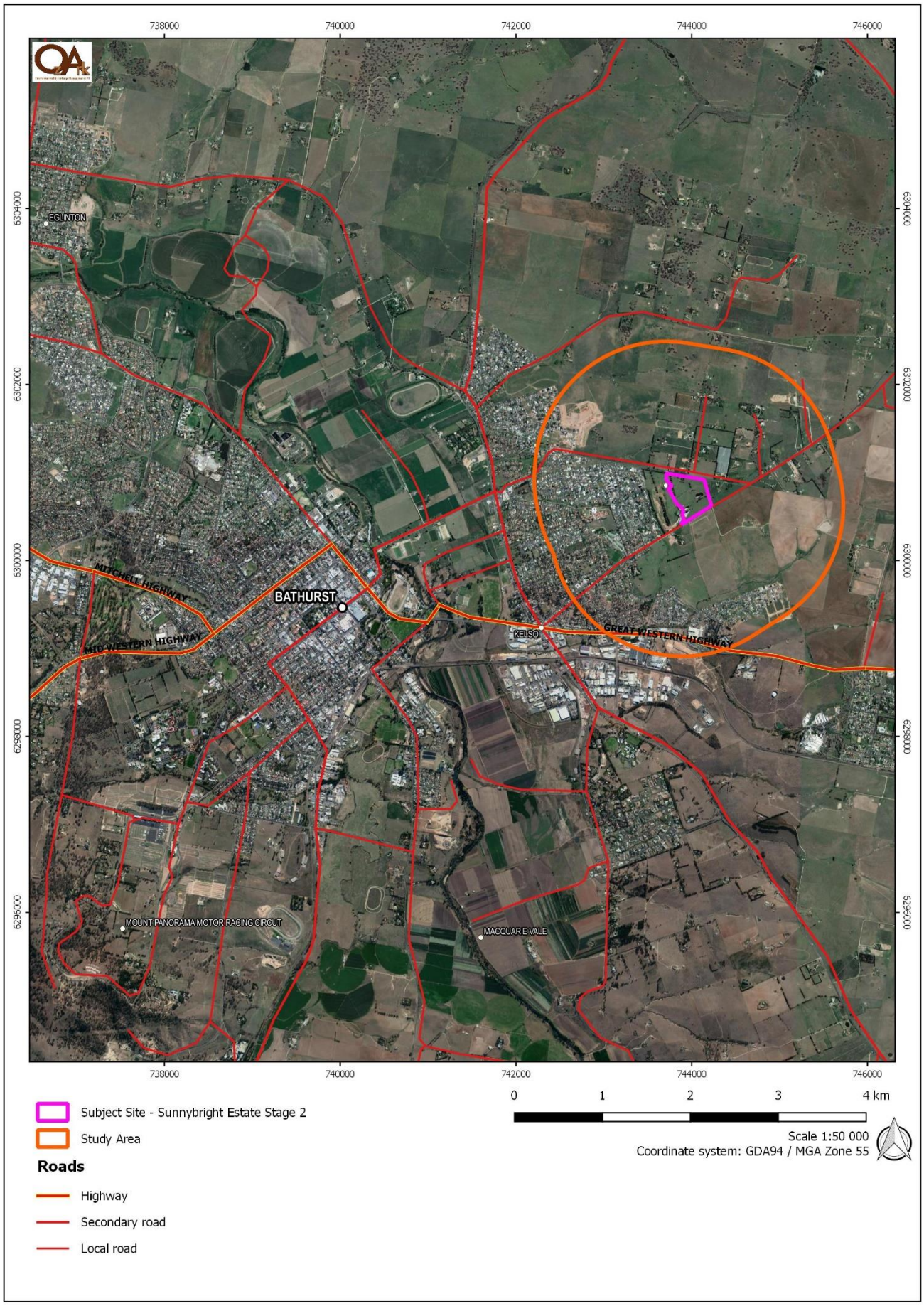

Figure 1. Regional context and location of the proposal.

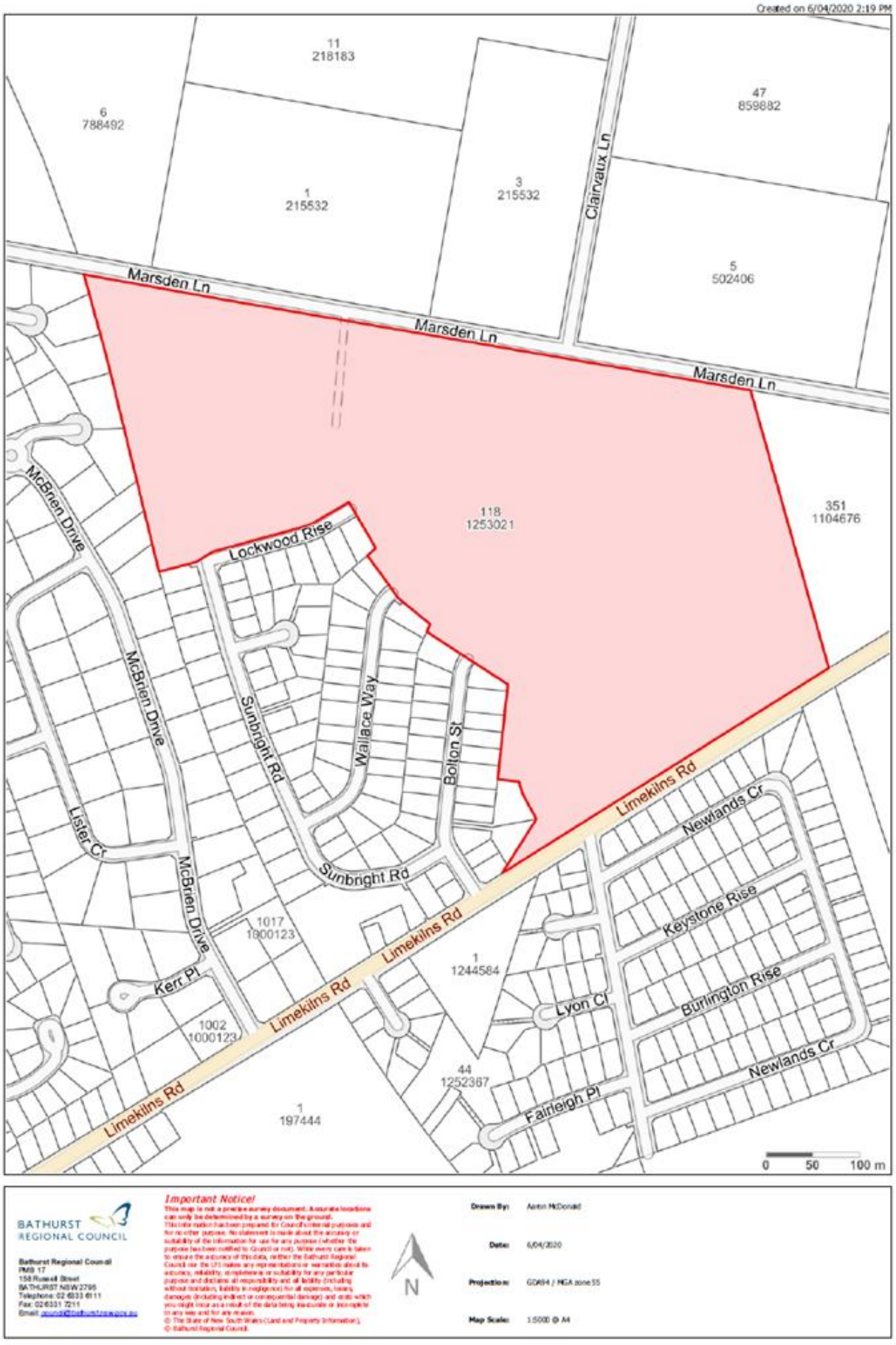

Figure 2: Study area of subdivision (supplied by Bathurst Regional Council)

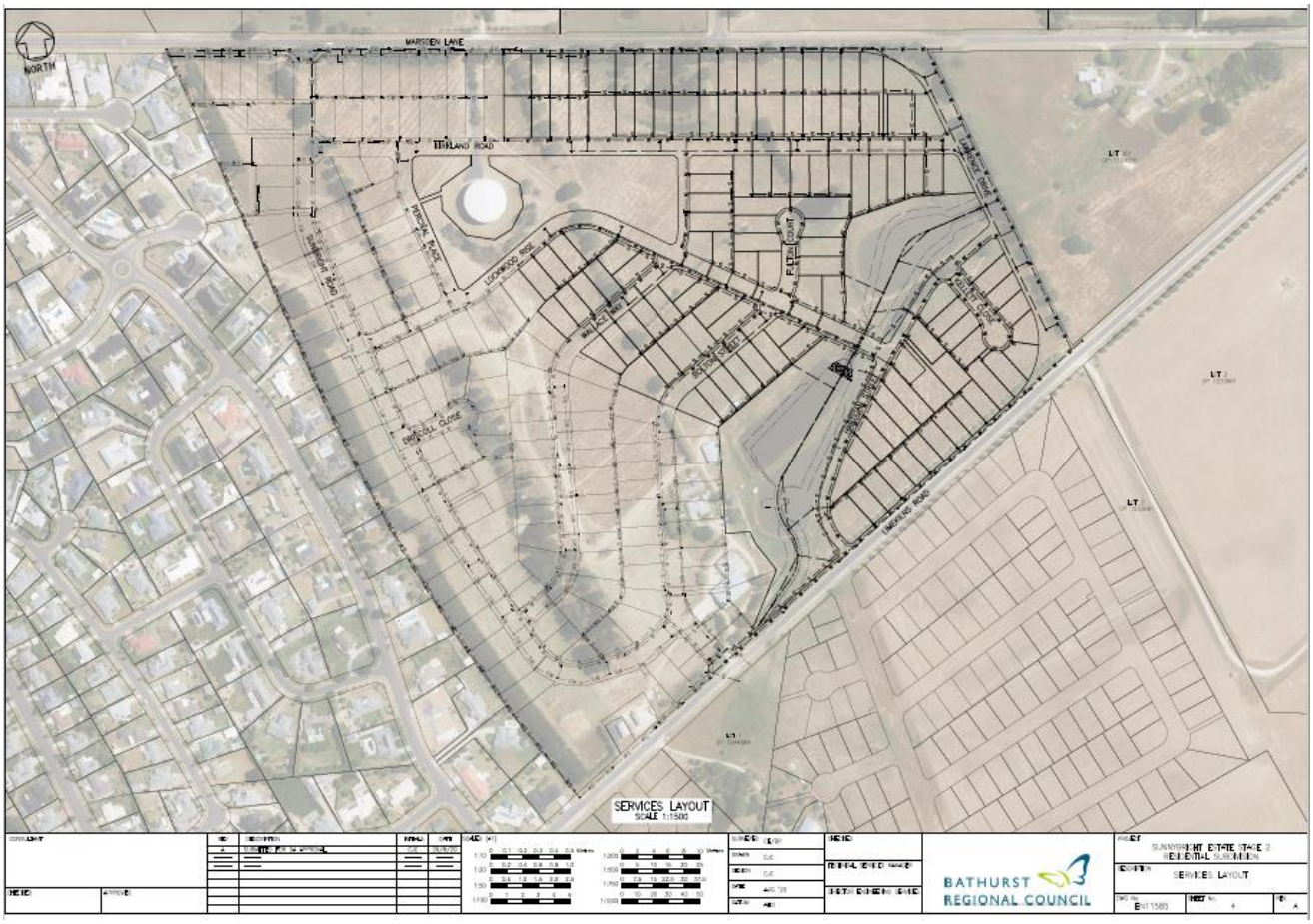

Figure 3. Proposal design (supplied by Bathurst Regional Council).

2 Methods

The ecological assessment was carried out in three stages:

1. Desktop searches and review of ecological databases and information to identify threatened species, populations or ecological communities listed in the NSW *Biodiversity Conservation Act 2016*, *Fisheries Management Act 1994* or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* that have the potential to occur in the study area.
2. Field survey of the subject site to collate species lists for the purposes of identifying the vegetation communities present and target predicted threatened species and ecological communities. Where a threatened species or community or habitat feature is identified, document the nature and extent of the protected matter and describe its 'viable local population' or occurrence.
3. Preparation of a written Biodiversity Assessment Report (BAR) that describes the impacts of the proposed activity on native vegetation and threatened species, populations and ecological communities, and provides recommendations to avoid, minimise and mitigate these impacts, including entry into the Biodiversity Offset Scheme (BOS) if required.

2.1 Personnel

OzArk Environmental and Heritage Management Pty Ltd (OzArk) operates under NSW Scientific Research License 101908, and NSW Department of Primary Industries (DPI) Accreditation of a corporation as an animal research establishment Ref No. AW2017/012.

Field survey and reporting components were completed by Senior Ecologist Jesse Carpenter with quality control provided by Ecologist Angela Carpenter. Bathurst Regional Council received feedback from the Department of Planning regarding the report. Subsequently the report was revised by Ecologist Adam Stone and reviewed by Ecologist Dr. Emma Gray. Key details of personnel are provided in Table 1.

Additional field inspection was completed by Ecologist Adam Stone to confirm the original findings of the BAR were still valid, as the original survey was completed during a period of prolonged drought. This August 2020 survey occurred after a period of rainfall and there were no significant differences found.

Table 1. Summary of OzArk personnel qualifications.

Name	Position	CV Details
Jesse Carpenter	Senior Ecologist	• Accredited BAM assessor – Accreditation #BAAS18122 • 10 years' experience as a consultant ecologist in public and private sector in NSW and NT • Master of Ornithology (in prep.) • Bachelor of Applied Science – Environmental Management – University of South Australia • 4WD Training • WH&S Induction Training for Construction Work
Angela Carpenter	Ecologist	• Bachelor of Applied Science – Environmental Management – University of Ballarat • 4WD Training • WH&S Induction Training for Construction Work
Dr. Emma Gray	Ecologist	• Doctor of Philosophy • Bachelor of Applied Science (Hons) – Ecology – Queensland University of Technology • Accredited BAM assessor – Accreditation #BAAS19069 • Rail Industry Worker Card • 4WD Training • WH&S Induction Training for Construction Work • TfN Regional Maintenance Worker on Foot certification
Adam Stone	Ecologist	• Master of Environmental Management – University of Queensland • Bachelor of Applied Science – Ecology and Environmental Science - Queensland University of Technology • WH&S Induction Training for Construction Work • Dangerous reptile handling licence

2.2 *Information sources*

Preliminary assessments drew on local experience, previous reporting and information held on government databases and archives. Results of database searches were used to assist in identifying distributions, suitable habitats and known records of threatened species to increase the effectiveness of field investigations. Information sources reviewed included the following.

- NSW Government online aerial imagery (www.maps.six.nsw.gov.au).
- NSW Government Biodiversity Values Map which identifies land with high biodiversity value, as defined by the *Biodiversity Conservation Regulation 2017* (https://www.lmbc.nsw.gov.au).
- Flora and fauna records and profiles contained in the NSW Threatened Species Database, EPBC Protected Matters Search Tool and DPI threatened fish distribution maps.
- BioNet (www.bionet.nsw.gov.au) Wildlife Atlas and Plant Community Type (VIS) databases.

- Flora of NSW (Harden 1991-2002) and Flora NSW Online (www.plantnet.rbgsyd.nsw.gov.au).
- Bathurst Regional Local Environment Plan (LEP) 2014
- Property report for 197 Limekilns Road generated from NSW Planning Portal website (www.planningportal.nsw.gov.au)
- *Regional Scale State Vegetation Map: Central Tablelands V1.0* (OEH, 2017)
- Field survey undertaken by OzArk, September 2018.

2.3 Desktop review

Database searches were undertaken before the field assessment to determine the predicted species and also those previously recorded within 10 km of the subject site. The results of these searches led to the identification of key species for field survey effort and targeted searches. Results of the database searches are provided in Appendix A.

2.4 Field survey

2.4.1 Survey objectives

The objectives of the field survey were to:

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

2.4.2 Vegetation survey methodology

The vegetation survey was as follows:

- Five vegetation plots were surveyed according to the Biodiversity Assessment Method (BAM) as follows:
  - Each survey plot consisted of nested 20m x 50m and 20m x 20m plots
  - Species composition and structure (species and percent cover) data collected from within 20m x 20m plot
  - Vegetation function data (size and number of trees, presence of hollow-bearing trees and woody debris) collected from within 20m x 50m plot
  - Percent of litter cover data collected within five 1m x 1m squares positioned at 5m, 15m, 25m, 35m and 45m points of 50m transect.
  - Plots were positioned within the subject site and their GPS locations recorded (GDA 94 / MGA Zone 55).
- Plot locations were randomly selected whilst ensuring adequate survey effort within each vegetation zone (Table 2).

All survey locations were recorded with a GPS device using GDA 94 / MGA Zone 55 coordinate system. The location of each BAM vegetation plot and threatened plant transects are shown in Figure 3.

Table 2. Minimum number of plots and transects required per zone area (OEH, 2017).

Vegetation zone area (ha)	Minimum number of plots/transects
<2	1 plot/transect
>2 – 5	2 plots/transects
>5 – 20	3 plots/transects
>20 – 50	4 plots/transects
>50 – 100	5 plots/transects
>100 – 250	6 plots/transects
>250 – 1000	7 plots/transects; more plots may be needed if the condition of the vegetation is variable across the zone
>1000	8 plots/transects; more plots may be needed if the condition of the vegetation is variable across the zone

Figure 4. Locations of vegetation plots and frog survey sites.

2.4.3 Fauna survey methodology

The subject site was searched for fauna while traversing the entire site by foot. Potential habitat such as rocks, loose bark and course woody debris was examined for cryptic species. Tracks and other areas of suitable substrate were searched for animal tracks and any other evidence of fauna present on the site was also recorded, such as scats, feather and sloughed skins.

A 20 minute bird survey was conducted at each vegetation plot. As vegetation on site was open grassland allowing good visibility, a stationary bird count method was used. Birds were recorded as either present on the site, or as incidental, if recorded only as flying over (and not using) the subject site. No trapping, nocturnal searches or acoustic bat surveys were undertaken.

At each dam on the subject site, frogs were surveyed using a static point call survey, as per the methods set out in *Threatened species survey and assessment guidelines: field survey methods for fauna – Amphibians* (NSW Department of Environment and Climate Change, 2009). The survey was conducted at twilight.

2.5 Native vegetation classification

Vegetation communities were identified in accordance with the online *NSW Master Plant Community Type Classification* (OEH, 2018b), which is the current state-wide vegetation classification system for Plant Community Types (PCT). This classification system is used for vegetation mapping, development assessment and site planning purposes. It describes over 1,500 PCTs across the state, and groups the vegetation communities into vegetation Class and Formation / Sub-formation as per Keith (2004).

In this study PCTs were identified on the basis of the following inputs:

- *Regional Scale State Vegetation Map: Central Tablelands V1.0* (OEH, 2017), which provides predictive mapping of PCTs in and around the subject site. This mapping is indicative only. It is not necessarily accurate at a fine scale for the purposes of the current study.
- Professional ecological knowledge about locally-occurring vegetation types and landscape, soil and topographic patterns, including transitions from one community to another and potential for intergrades between plant communities.
- Field survey results confirming the flora species present, vegetation structure, landscape position and soil type at the subject site and the extent and condition of native vegetation.
- The BioNet Vegetation Classification database was used to identify the candidate vegetation communities likely to be present based on the site conditions (flora species present, vegetation structure, bioregion, and landscape position and soil type) and the relevant published PCT descriptions.

If any of the PCTs were identified as having potential to be part of a Threatened Ecological Community (TEC), the relevant identification guidelines (NSW Scientific Committee listing criteria and Commonwealth identification guides) were consulted to determine the status of the vegetation community present on the subject site. These guidelines provide the identification criteria used to positively identify the community as being part of the TEC. The criteria include

location, species present, overstorey species, weed cover, number and type of native species including whether certain 'important' native species are present. The TEC decision process is documented in the results section of this report.

Plant identification followed nomenclature in the Royal Botanic Gardens PlantNet online database (Royal Botantic Gardens and Domain Trust, 2018).

2.6 Threatened species

The proposal site was assessed for its potential to provide habitat for threatened fauna known or predicted to occur in the study area. Habitat requirements of species were reviewed using a combination of ecological knowledge and the online threatened species profiles published by the NSW Office of Environment and Heritage (OEH), Department of Primary Industries (DPI) Fisheries, and the Australian Government Department of Environment and Energy (DoEE). Features such as rocky outcrops, overhangs and caves, water bodies, dense understorey vegetation and habitat trees were recorded, if present.

Any evidence of fauna (e.g. scats, tracks, calls, fur, feathers, sloughed skins) was recorded, if observed. Attention was given to identifying tree hollows with signs of breeding activity or the presence of nests which may indicate use of the site by threatened fauna species. Where habitat assessments indicate a threatened species potentially occurs on the subject site, it has been assumed as present if absence can't be established based on field survey effort.

Targeted surveying was undertaken for threatened frog species, as per the methods outlined in Section 2.4.3. Trees across the subject site were searched for hollows, nests and other important habitat features that might indicate the potential for threatened species to occur. Each tree was also searched for roosting birds, such as owls. An area within 2 m radius of the trunk of suitable tree was searched for scat of arboreal mammals, such as gliders and Koala.

The subject site was systematically searched for threatened plant species identified as potentially occurring by database searches. This followed methods described in the *NSW Guide to Surveying Threatened Plants* (OEH, 2016a), consisting of:

- A parallel field-traverse search along a grid of parallel transects spaced 20 m apart.

2.7 Habitat assessment

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

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

- 'Yes' – the species was observed or has been previously recorded on the site.
- 'Likely' – a medium to high probability that a species uses the site, based on nearby records and suitable habitat being present.

- ‘Potential’ – suitable habitat for a species occurs on the site, but the species has not been observed or previously recorded at the site.
- ‘Unlikely’ – a very low likelihood that the species uses the site, based on lack of the preferred type and size of habitat.
- ‘No’ – habitat on-site and in the vicinity is unsuitable for the species.

The species confirmed to be present, or considered likely or with potential to be present at the site, were then considered as to whether the extent and type of development would be likely to impact on them.

Tests of significance were then completed for these species and ecological communities in accordance with the BC Act and/or the assessment of significance under the EPBC Act, and the relevant guidelines for these assessments.

2.8 Limitations

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

- The field survey was completed over a single day in spring of 2018.
- Prevailing climatic conditions at the time of the field survey were extremely dry. Although recent rainfall had occurred, any regeneration and germination of grasses and forbs was not advanced. Some perennial grasses and forbs could not be positively identified as a result.
- Fauna trapping, nocturnal spotlighting were not undertaken for the current assessment.
- Microbat ultrasonic call capture and analysis was not undertaken due to access limitations at the site. However, species with suitable habitat on the subject site were assumed to be present.

To overcome some of these limitations, a ‘precautionary approach’ for species presence has been adopted where required. If suitable habitat for a particular threatened species is present on the site or known to occur in the study area, then the species is assumed to also be present and the impact assessment is completed on that basis. The above-mentioned constraints were also considered when preparing the recommendations of avoiding, minimising and mitigating potential impacts.

3 Results

3.1 Landscape context

3.1.1 Bioregion

The study area is situated in the Bathurst subregion of the South Eastern Highlands bioregion as per the Interim Biogeographic Regionalisation of Australia (IBRA) (Thackway & Cresswell, 1995). The Bathurst subregion is characterised by geology, landforms, soil types and vegetation as described in Table 3.

Table 3. Description of the South Eastern Highlands, Bathurst subregion (OEH, 2018c).

South Eastern Highlands Bioregion				
Subregion	**Geology**	**Landform**	**Soils**	**Vegetation**
Bathurst Subregion	Carboniferous granite with areas of Tertiary basalt caps and Quaternary sands along the Macquarie River	Rounded hills in a granite basin surrounded by steep slopes. Outcrops with tors near margins. Chain of ponds streams in wide, flat valleys. Terrace alluvium along the Macquarie River	Shallow red earths on yellow texture contrast soils on all slopes and deep coarse sands in alluvium	Yellow Box, Red Box and Blakely's Red Gum on lower areas. Red Stringybark, Broad-leaved Peppermint and White Gum on hills. Areas of White Box and River Oak along main streams.

3.1.2 Mitchell Landscapes

The landscapes of NSW, termed Mitchell Landscapes, were mapped in 2002 to provide a framework for reporting reserve establishment and for determining over-cleared landscapes. These landscapes broadly describe areas of similar topography, geology, soils and vegetation.

Only one Mitchell Landscape occurs within the study area: Bathurst Granites (Figure 4). The characteristics of this landscape are described in Table 4.

Table 4. Mitchell Landscapes of the study area and subject site (Mitchell, 2002).

Landscape Feature	Description
Mitchell Landscape	Bathurst Granites
Geology and soils	Carboniferous granites and ganodiorite. Tors and rock outcrops common. Shallow red earths on ridges, texture-contrast soils with yellow clay on the slopes, deep coarse sands along streamlines and dense black clays in small swamps.
Landform	Undulating to steep hills. General elevation 650 – 1000 m with local relief to 250 m.
Vegetation	Woodland to open forest; Yellow Box, Broad-leaved peppermint, Red Stringybark and White Box on ridges and slopes. Manna Gum and River Oak in valleys. Patches of Black Cypress Pine in rocky outcrops. Grasslands and patchy Snow Gum woodlands in cold-air drainage hollows.

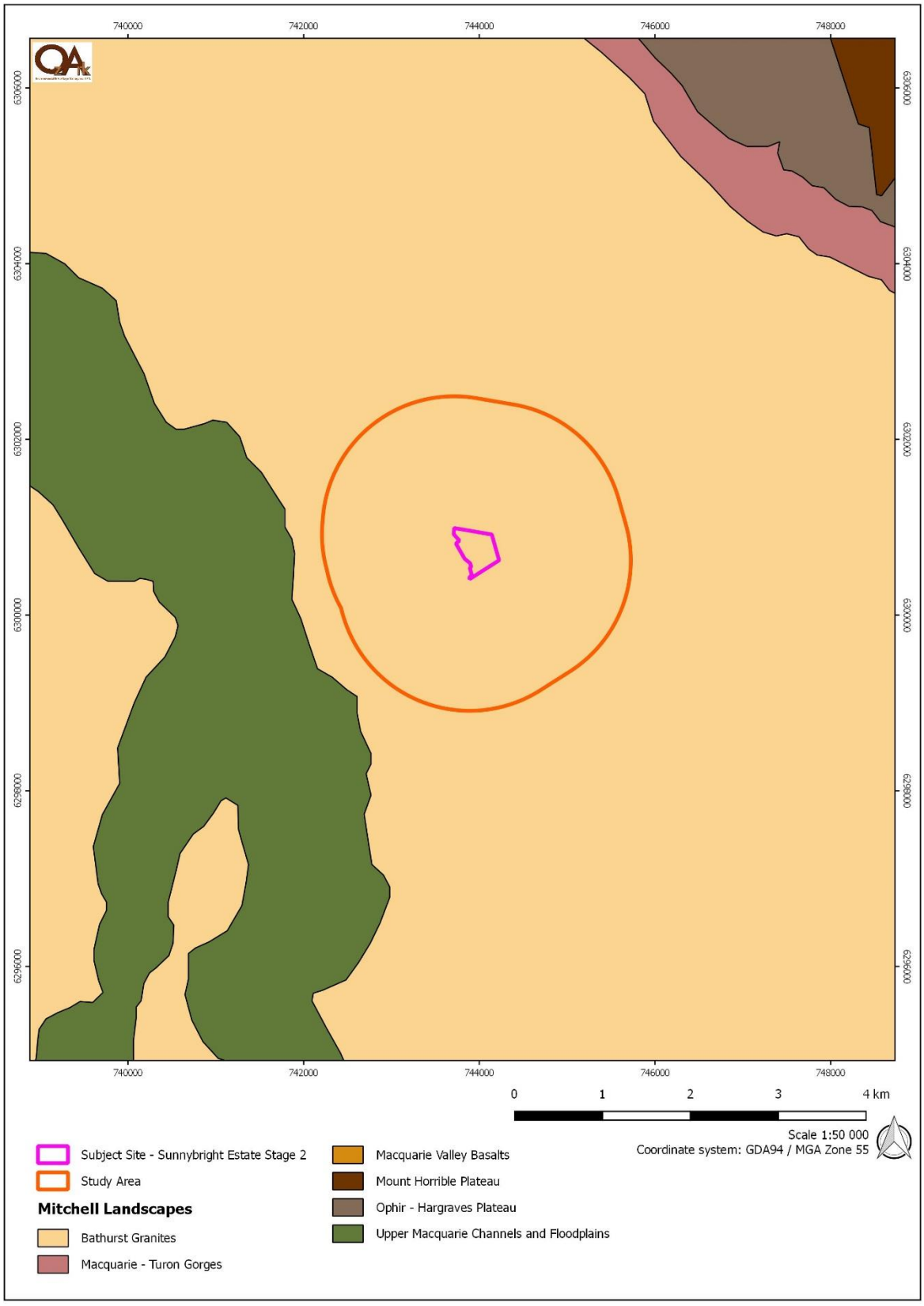

Figure 5. Mitchell Landscapes of the study area.

3.1.3 Climate

Climate statistics have been recorded at Bathurst Agricultural Station since 1908 by the Bureau of Meteorology (BOM).

The study area experiences warm to hot summers, with the highest mean maximum temperature of 28.1 ^{O}C experienced in January. Mild minimum temperatures are experienced during this summer period. Winters are cool to cold, with temperatures in the coolest month (July) ranging from a minimum of 0.5 ^{O}C to a mean maximum of 11.4 ^{O}C (Bureau of Meteorology, 2018).

An average of 638 mm of rainfall is recorded annually at Bathurst Agricultural Station. Although most rain on average is recorded during the summer period (November to March), BOM statistics show that consistent rainfall is experienced throughout the year, with no obvious wet or dry season (Bureau of Meteorology, 2018). The mean climate statistics recorded at Bathurst Agricultural Station are presented in Figure 6.

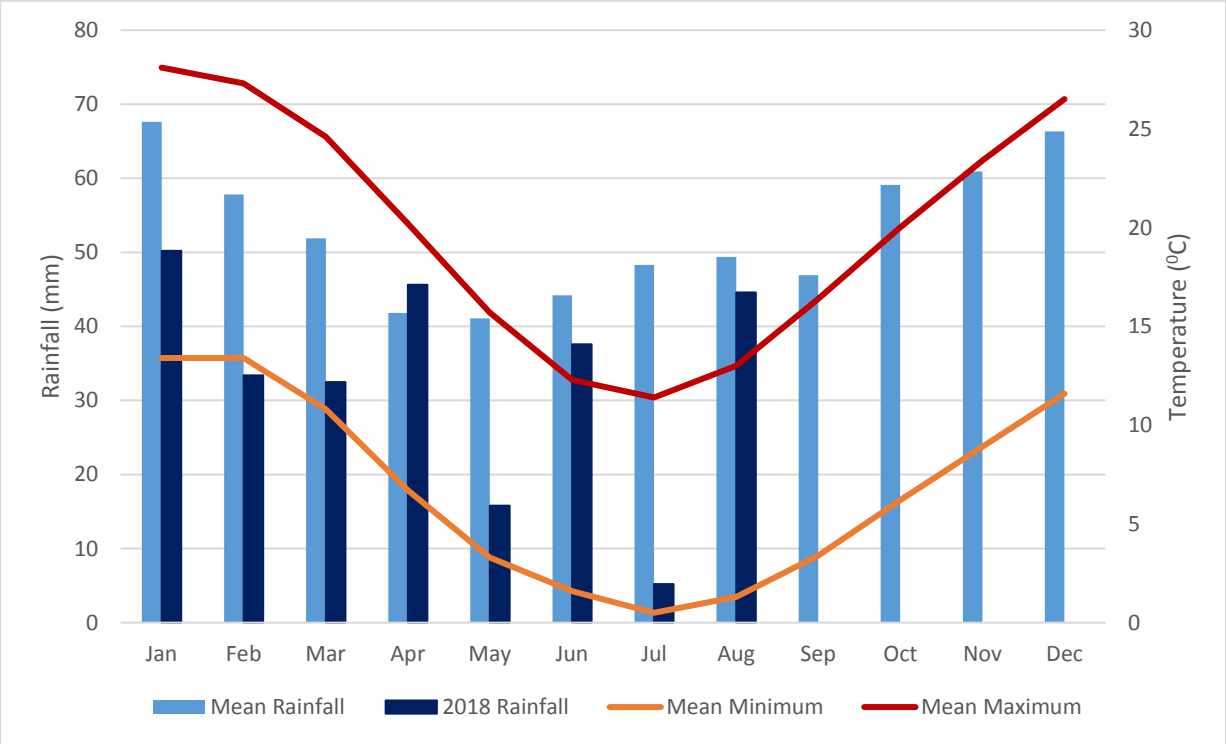

Figure 6. Climate data for Bathurst, showing mean minimum and maximum temperatures and rainfall (Bureau of Meteorology, 2018).

Weather during the field survey was cool and overcast. Some light shower activity was present. Although recent rainfall had fallen, with near average conditions experienced in August, prevailing conditions were dryer than normal, the study area having received below the mean rainfall in the preceding months (Figure 6).

3.1.4 Environmentally sensitive areas

The presence and/or proximity of environmentally sensitive areas relative to the proposal site is summarised in Table 5**.** The Bathurst Local Government Area (LGA) is listed under Schedule 1 of SEPP 44 – Koala Habitat Protection as an LGA to which the SEPP applies. However no other environmentally sensitive area occurs within the subject site or study area.

Table 5. Presence and/or proximity of environmentally sensitive areas.

Environmental Considerations	In the study area?
Land identified on the Biodiversity Values Map under the *NSW BC Act 2016*	No (Appendix A)
Area of Outstanding Biodiversity Value (AOBV) under the *NSW BC Act 2016*	No
Critical habitat nationally?	No
An area reserved or dedicated under the *National Parks and Wildlife Act 1974*?	No
Is the proposal located within land reserved or dedicated within the meaning of the *Crown Lands Act 1989* for preservation of other environmental protection purposes?	No
A World Heritage Area?	No
Environmental Protection Zones in environmental planning instruments?	No (Appendix A)
Lands protected under SEPP 14 – Coastal Wetlands?	No
Lands protected under SEPP 26 – Littoral Rainforests?	No
Lands protected under SEPP 71 – Coastal Protection?	No
Lands protected under SEPP 44 – Koala Protection?	**YES**
Lands protected under SEPP Sydney Drinking Water Catchment?	No
Land identified as wilderness under the *Wilderness Act 1987* or declared as wilderness under the *National Parks and Wildlife Act 1974*?	No
Aquatic reserves dedicated under the *Fisheries Management Act 1994*?	No
Wetland areas dedicated under the Ramsar Wetlands Convention?	No
Land subject to a conservation agreement under the *National Parks and Wildlife Act 1974*?	No
Land identified as State Forest under the *Forestry Act 1916*?	No
Acid sulphate area?	No
Protected riparian habitat?	No
Mapped Key Fish Habitat?	No.

3.1.5 Watercourses

The subject site is bisected by one unnamed, minor, ephemeral watercourse (Figure 7). This watercourse has previously been highly modified by intensive agricultural land use, including the construction of three water storage dams. It is not protected riparian habitat or mapped as Key Fish Habitat by the Department of Primary Industries (Fisheries).

3.1.6 Groundwater dependant ecosystems

Groundwater plays an important ecological role in directly and indirectly supporting terrestrial and aquatic ecosystems. Groundwater sustains terrestrial and aquatic ecosystems by supporting vegetation and providing discharge to channels, lacustrine and palustrine wetlands,

and both the estuarine and marine environment. Aquifer ecosystems are inherently groundwater dependent (QLD Department of Environment and Heritage Protection, 2017).

The Bureau of Meteorology (BoM) Atlas of Groundwater Dependant Ecosystems (Bureau of Meteorology, 2017) does not identify any terrestrial ecosystems that are potentially groundwater dependant within the study area (Figure 7).

Tributaries of the Macquarie River that occur within the study area (Raglan Creek) are identified by the Atlas of Groundwater Dependant Ecosystems (Bureau of Meteorology, 2017) as aquatic GDEs (Figure 7). However, none of these occur within the subject site. Activities associated with the proposal are not likely to affect any GDE.

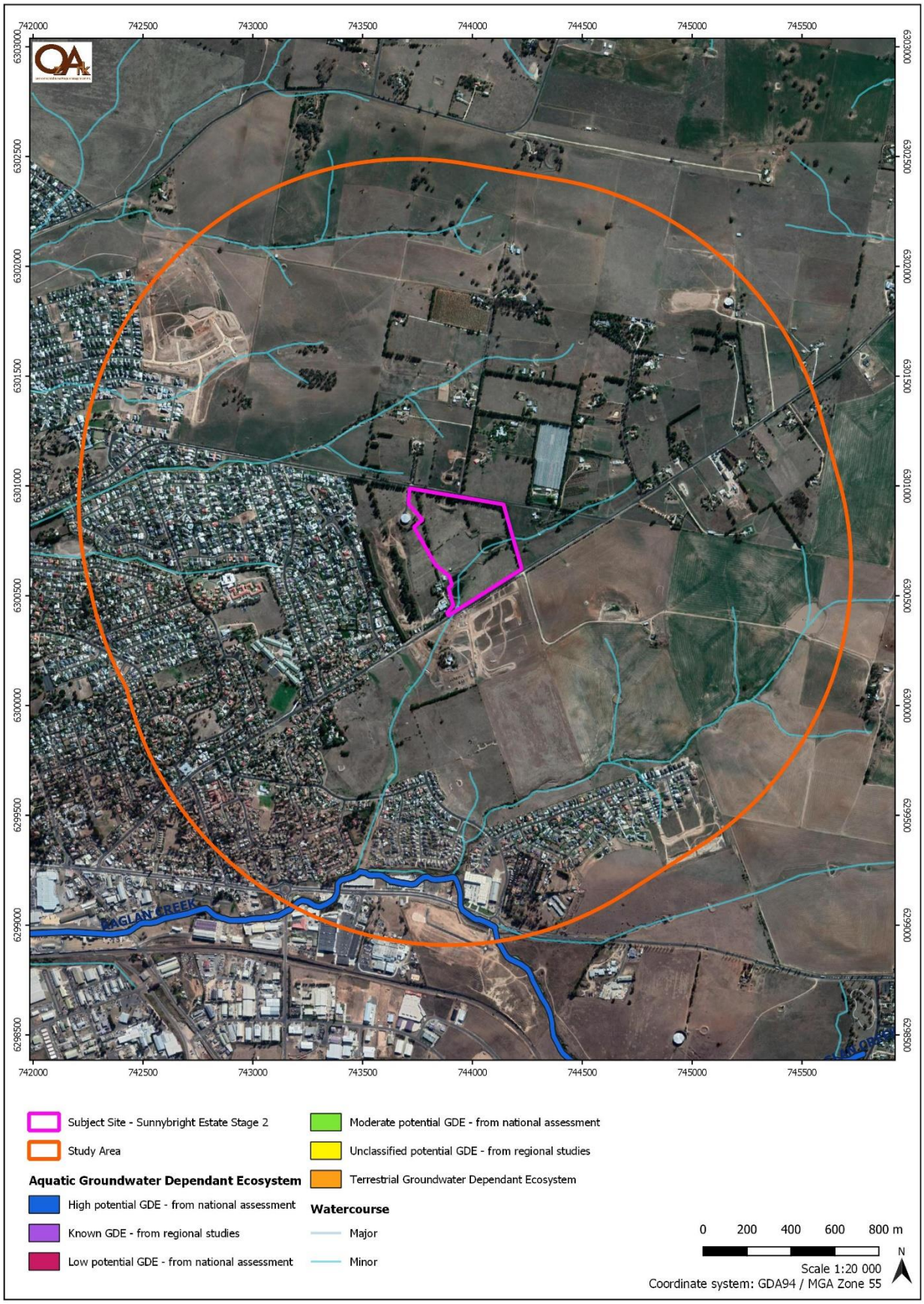

Figure 7. Watercourses and groundwater dependant ecosystems of the study area.

3.2 Native vegetation

3.2.1 Vegetation survey plots

Vegetation survey plots were distributed across the subject site according to the BAM. The subject site was divided into two vegetation zones: Zone 1 – grassland and Zone 2 – planted woodlot. Both zones were surveyed with the number of plots in each determined by BAM area thresholds. The locations of these plots, accompanying photographs and data sheets completed in the field are provided in Appendix B.

3.2.2 Flora species observed

Prevailing dry conditions at the time of the survey meant that many species that might be present under more favourable conditions may not have been detected. Recent rain had occurred, enabling germination of grasses and forbs, however the growth of many was not advanced enough to enable identification.

Thirty seven plant species were recorded during the field survey (Appendix C). Of these, only nine were native species. These were all grasses or forbs; there were no native trees or shrubs present on the subject site.

Species present were indicative of the disturbance level within the study area and included those typical of degraded pasture formerly used for intensive agriculture purposes. Native species were nowhere dominant, with the highest cover of native species only 0.7% at SB03 (Figure 8).

Trees and shrubs were limited to narrow planted windbreaks on the boundaries of the subject site and old orchard sites. Species within these treed areas were all exotic and included *Pinus radiata* (Radiata Pine) and *Lycium ferocissimum* (African Boxthorn).

There was no emergent aquatic vegetation in any of the dams on the subject site. However, water level was low, and the native *Juncus flavidus* was present at the high water mark (Figure 10). Exotic forbs, such as *Scolymus hispanicus* (Golden Thistle) and the sedge *Cyperus eragrostis* (Umbrella Sedge) occurred in the same area (Figure 12).

No threatened plant species were recorded.

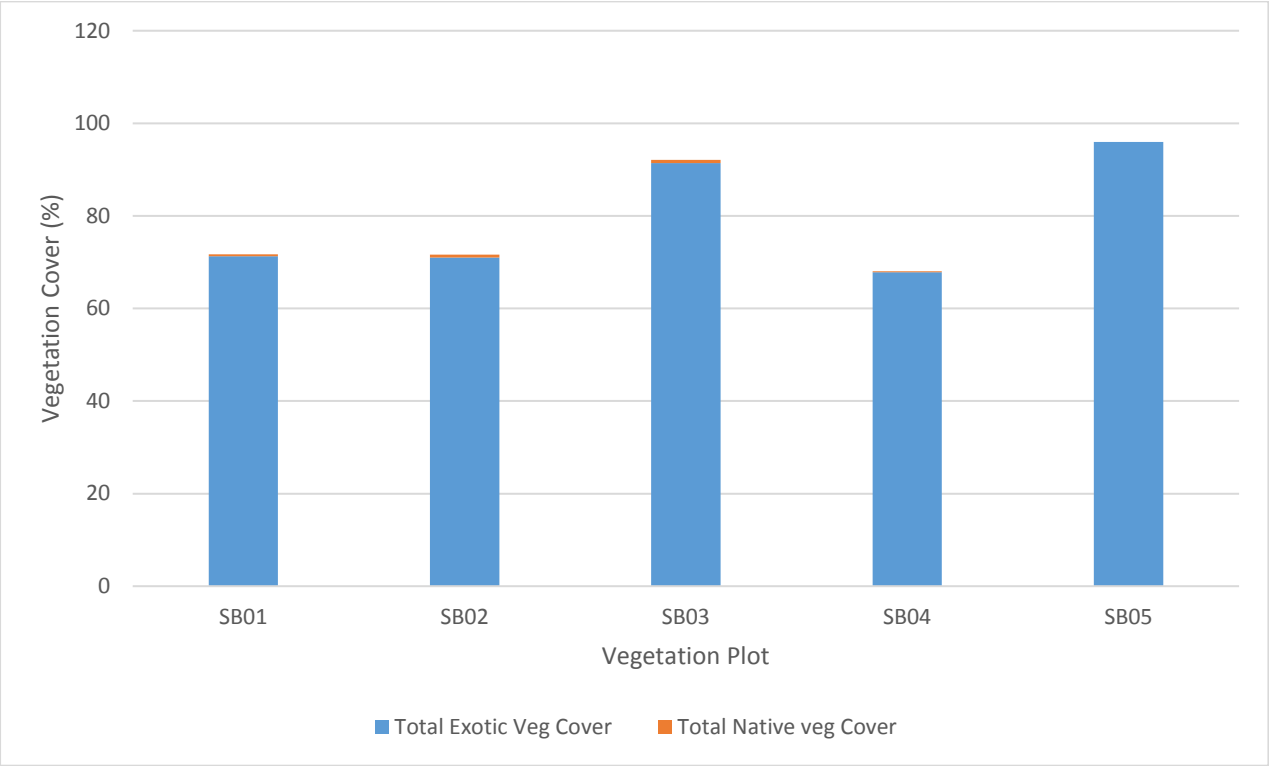

Figure 8. Percent cover of native and exotic plant species at vegetation plots.

Figure 9. Recent rain had caused the germination of exotic forbs and grasses, such as those shown here (*Medicago polymorpha*, *Brassica* sp. and the grass *Phalaris aquaticus*).

Figure 10. The grass *Rytidosperma bipartitum* (Wallaby Grass) was one of the few native plants recorded.

Figure 11. Dam A, showing *Juncus flavidus* growing at the high water mark. Trees in the background are *Pinus radiata* (Radiata Pine).

Figure 12. Umbrella Sedge (*Cyperus eragrostis*).

3.2.3 Vegetation communities

The study area has previously been mapped as a non-native vegetation community (Figure 13). The field survey confirms that, at least for the subject site, this mapping is correct. There is no native plant community on the subject site.

Figure 13. Plant Community Types previously mapped within the study area (OEH, 2015).

3.2.4 Introduced plants and weeds

Introduced grasses and forbs were dominant throughout the subject site, with 28 species of introduced plants recorded during the survey (Appendix C). The grass *Phalaris aquatic* (Phalaris) was particularly prevalent, reaching up to 25% cover at SB03, SB04 and SB05 (Figure 8).

One species listed under the *Biosecurity Act 2015* as a Priority Weed for the Central Tablelands was recorded – *Lycium Ferocissimum* (African Boxthorn). This shrub was recorded as an understorey species in planted wind breaks of Radiata Pine and near dams, such as at plot SB05.

Under the above legislation, the proponent has a General Biosecurity Duty to prevent, eliminate or minimise any biosecurity risk African Boxthorn may pose. There is a prohibition on dealings of the plant and land managers are required

The proponent is also required to mitigate the risk of new weeds being introduced to their land and prevent spread to new areas.

3.3 Fauna

3.3.1 Fauna species observed

Twenty-nine fauna species were recorded during the field survey. This included one crustacean, one amphibian, one reptile, three mammal and 23 bird species. A list of these species is provided in Appendix C.

No threatened fauna were recorded.

Figure 14. The Eastern Sign-bearing froglet (*Crinia parinsignifera*) was recorded at dams during the field survey. No threatened frog species were recorded by call identification or active search.

Figure 15. A family of Eastern Grey Kanagroos (*Macropus giganteus*) were present on the subject site during the survey.

3.3.2 Important habitat attributes

The dams on the property provide habitat for common water birds, such as *Anus gracilis* (Grey Teal) and *Elseyornis melanops* (Black-fronted Dotterel). Although these dams provide habitat for species that prefer open water conditions, they contain no emergent vegetation or provide any marsh/swamp habitats.

Large pine trees that have been planted around the boundaries of the subject site are not hollow-bearing. However, some threatened species, such as *Ninox connivens* (Barking Owl) are known to use the dense canopy of introduced conifers as roosting sites. These trees also provide potential nesting habitat for more common species – an Australian Magpie nest was found in one of these trees during the field survey.

3.4 Threatened biodiversity

3.4.1 Aquatic ecological communities

Endangered aquatic ecological communities are determined by the NSW Fisheries Scientific Committee and listed on under the FM Act as aquatic systems that have undergone a very large reduction in ecological function, geographic distribution or genetic diversity, and continue to be affected by a threatening process (NSW Department of Primary Industries, 2016).

The dams on the subject site are all ephemeral, being susceptible to drying out during periods of low rainfall. They are unlikely to support any fish populations, although at least the largest (Dam B in Figure 4) does support a population of Common Yabby.

The proposal does not have the capacity to affect any watercourse identified as Key Fish Habitat or mapped as part of any threatened fish's distribution. It does not require a permit from DPI Fisheries or DPI water to affect or modify.

3.4.2 Threatened ecological communities

No native vegetation communities are present on the subject site. Therefore, the proposal will not impact any threatened ecological community.

3.4.3 Threatened flora

Review of the Threatened Species Profiles database has found that 18 threatened flora species listed under the BC Act and EPBC Act are predicted or are known to occur in the South Eastern Highlands, Bathurst subregion (Appendix A). Only one – *Persoonia marginata* (Clandulla Geebung) has been recorded from within the 10 km search area. Based on proximity of past records, habitat requirements and the results of the field survey (Appendix D), three species were assessed as having a low potential to occur on the subject site. These are listed in Table 6.

Table 6. Threatened plant species with potential to be impacted by the proposal

Species Name	Common Name	NSW Status*	Comm. Status.+	Records within 10 km	Nature of Occurrence
Lepidium hyssopifolium	Aromatic Peppercress	E1,P	E	YES	Unlikely
Eucalyptus aggregata	Black Gum	V,P	V	NO	Unlikely
Persoonia marginata	Clandulla Geebung	V,P	V	YES	Unlikely

***Listed under the BC Act, where E1 = Endangered, P = Protected and V = Vulnerable**

+Listed under the EPBC Act, where V = Vulnerable

The field survey of the site did not detect any of the predicted threatened flora species, despite a thorough search conducted according to methods described in Section 2.6, and at the appropriate season to detect herbaceous plants such as Aromatic Peppercress. It is extremely unlikely that any threatened flora species occurs on the subject site, although the probability of occurrence can never be assessed as zero.

3.4.4 Threatened fauna

Review of the Threatened Species Profiles database found 68 BC Act and EPBC Act listed threatened fauna species are predicted or known to occur in the Bathurst IBRA subregion (Appendix A).

The EPBC Act protected matters search has identified four wetlands of international importance, two TECs, 31 threatened species and 12 migratory species that could possibly occur in the study area.

The likelihood of the occurrence and impact to all BC Act and EBPC Act listed threatened and migratory fauna species was assessed according to methods described in Section 2.7.

No threatened fauna species were recorded during the field surveys. However, 18 species were assessed as potentially occurring based on habitat requirements. These species are listed in Table 7.

One record of Flame Robin (Listed as Vulnerable under the BC Act, but not listed under EPBC Act) comes from a property 300 m north of the subject site. This record has been supplied by Bathurst Regional Council. It does not appear in the BioNet Wildlife Atlas. Habitat features on

the subject site are broadly similar to those at the location of this record. Therefore, Flame Robin has been assessed as potentially occurring on the subject site.

Table 7. BC Act and EPBC Act listed threatened species assessed as potentially occurring on the subject site.

Scientific Name	Common Name	NSW status	Comm. status	Record within 10 km	Likelihood of Occurrence
Litoria aurea	Green and Golden Bell Frog	E1,P	V	YES	Potential
Litoria booroolongensis	Booroolong Frog	E1, P	E	YES	Unlikely
Litoria castanea	Yellow-spotted Tree Frog	E4A, P	E	YES	Unlikely
Oxyura australis	Blue-billed Duck	V, P		NO	Potential
Stictonetta naevosa	Freckled Duck	V, P		NO	Potential
Apus pacificus	Fork-tailed Swift	P	C, J, K	NO	Potential
Plegadis falcinellus	Glossy Ibis	P	C	YES	Potential
Circus assimilis	Spotted Harrier	V,P		YES	Potential
Petroica phoenicea	Flame Robin	V, P		YES	Potential
Hieraaetus morphnoides	Little Eagle	V,P		YES	Potential
Falco subniger	Black Falcon	V,P		YES	Potential
Calidris acuminata	Sharp-tailed Sandpiper	P	C,J,K	YES	Potential
Calidris ferruginea	Curlew Sandpiper	E1,P	CE,C,J,K	NO	Potential
Gallinago hardwickii	Latham's Snipe	P	C,J,K	YES	Potential
Ninox connivens	Barking Owl	V,P,3		YES	Potential
Ninox strenua	Powerful Owl	V,P,3		NO	Potential
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	V,P		NO	Potential
Merops ornatus	Rainbow Bee-eater	P	J	YES	Potential

***Listed under the BC Act, where E1 = Endangered, P = Protected and V = Vulnerable**

⁺Listed under the EPBC Act, where V = Vulnerable, CE = Critically Endangered, J = JAMBA, K = ROKAMBA

4 Impact Assessment

4.1 Aquatic habitat

The proposal site contains one ephemeral, un-named watercourse. The watercourse has been historically modified by the construction of several farm dams on the subject site and, downstream of the subject site, by culverts associated with Limekilns Road. A permit is not required to modify this watercourse, and no impacts are expected on aquatic ecological communities or key fish habitat.

4.2 SEPP 44 – Koala Habitat Protection

There is no potential Koala habitat, as there are no trees listed under Schedule 2 of SEPP 44 on the subject site.

4.3 Bathurst Regional Council LEP

No areas indicated as important for biodiversity in the Bathurst Regional Council LEP are within the subject site (NSW Government, 2014) (Appendix A).

4.4 Native vegetation

Although some native plant species were recorded, the subject site is dominated by introduced pasture and planted woodlots of exotic trees. The subject site's history of intensive agriculture means that native species are nowhere dominant. It is therefore not possible to assign a Plant Community Type to any part of the subject site.

Subsequently, there is no impact to native vegetation associated with the proposal.

4.6 Habitat value of remaining trees

The potential habitat quality provided by the remaining trees at the site is very low. The only tree species currently present at the site is the exotic Monterey Pine (*Pinus radiata*) which is aggregated into narrow planted windbreaks on the boundaries of the subject site and old orchard sites. The species is not declared, significant weed at state or federal level, however it is considered a significant weed in several NSW council areas including the neighbouring Blue Mountains region as it inhibits native tree community formation and does not provide significant habitat. It is relatively uncommon for Australian animals to utilize Monterey Pine as habitat. The pine, as with most true pines, is highly resinous, this resin acts as a deterrent for many mammal and reptile species as it can irritate skin upon contact and is difficult to groom out of fur. Some birds are known to utilize Monterey Pine, although largely as a perching site, with raptors and particularly owls using the relatively open canopy to search for prey. There is some evidence suggesting that yellow-tailed black-cockatoo (*Calyptorhynchus funereus*) may opportunistically feed on the seed baring cones produced by Monterey Pine. Other than this, Monterey Pine offers no significant habitat value.

The removal of all remaining Monterey Pine will have a negligible impact on the overall arboreal habitat quality of the site and surrounding area. Assuming recommendations provided in the

VMP associated with stage one of this project are adhered to the arboreal habitat quality of this site will likely, significantly improve from its current state.

4.7 Threatened ecological communities

No Threatened Ecological Communities will be impacted (see Section 3.4.2).

4.8 Threatened species

The BC Act tests of significance and EPBC Act test of significance have been completed for all threatened flora species listed in Table 6 and all threatened fauna species listed in Table 7. The results of these tests are set out in full in Appendix E and F. The study finds that, based on the absence of any native vegetation community on the subject site, the habitat requirements of potentially occurring threatened species and survey results, no significant impact is expected.

4.9 Protected species

The list of protected species occurring on, or within 10km of the site, the estimated impact of development on the species and the justification for this are set out in appendix I. Records used to compile the species presence list were taken from the NSW Bionet database for records from the Bathurst IBRA Subregion and species deemed likely to be impacted were defined as those occurring within 10km of the site. As above, the study finds that, based on the absence of any native vegetation community on the subject site, the habitat requirements of potentially occurring threatened species and survey results, no significant impact is expected.

4.10 Short term indirect impacts

The main impacts of the proposal are expected to be contained within the subject site, provided there is adequate demarcation of the construction area and identification of all non-construction areas.

The site is situated within the highly disturbed and fragmented peri-urban outskirts of a major centre (Bathurst). It is situated on land previously used for intensive agriculture and will not result in any fragmentation or isolation of habitat remnants (as there are none on the site).

Disturbance from machinery and construction activities will occur, such as noise and dust. However, as the subject site occurs in an area of open paddocks, any impact from noise and/or dust on the community or environment will be minimal. These impacts will be further minimised by following environmental safeguards proposed in Section 5.

Removal and disturbance of vegetation and soil may result in increased sediment runoff into the ephemeral watercourse that bisects the subject site. This watercourse is already modified by three water bodies (farm dams), which will be efficient as sediment traps, preventing excess sediment from travelling further downstream until all surface water bodies (farm dams) have been filled. Further sediment control measures are proposed in Section 5.3.

4.11 Long term general impacts (climate)

The removal of the water bodies (farm dams) and vegetation currently present at the site will have a variety of indirect impacts on the local thermal system, local environment, ecosystem, local human population as well as the global environment and its nested systems.

Surface water is known to have a significant local cooling effect by acting as a thermal sink and increasing local humidity. This cooling effect is particularly prevalent in urban and suburban areas. Evidence suggests that, depending on the waterbody surface area and depth, local microclimate, waterbody health, reflectivity and type (flowing/standing, disturbed/still etc.) the cooling effect can be as high as 6^{o}c. Manteghi et al. (2015) reviewed a number of studies which tested this effect and found that urban and suburban areas with surface water were between 2^{o}c and 6 ^{o}c cooler when compared to areas where no surface water was present. The extent of the cooling effect associated with water bodies is heavily dependent on the local microclimate and the vegetation community immediately surrounding the waterbody. This cooling effect is reduced in the case of shallow, still water and reduced further in the absence of significant water adjacent vegetation as is the case with this site. Despite this the water bodies (farm dams) present on site would likely still be producing a significant cooling effect of ~2^{o}c in the local area. This loss of cooling would be exacerbated by global temperature increase associated with anthropogenic climate change and would likely be more acute during times of drought when water levels are lower.

There is a significant and well supported link between vegetation cover and local ambient temperature. Depending on the type of vegetation, the effect on peak temperature can range from 2^{o}c when sparse grass is present to 25^{o}c where mature, broad canopy, shade producing trees are maintained. The cooling effects associated with vegetation cover are a result of both evapotranspiration and shading. The site is largely dominated by grassland with very little shading provided by canopy level trees suggesting that shading plays only a nominal role in the sites current thermal system. The cooling effects of evapotranspiration (the process of forced evaporation from leaves as a result of heating from direct sunlight) associated with grass dominated areas is difficult to quantify, as such it is difficult to predict the cooling effects of vegetation cover at a majority of the site. It is, however, likely that removal of all vegetation currently present at the site will disrupt the local thermal system leading to higher temperatures than in surrounding vegetated areas.

Converting vegetated areas to an urban matrix will result in the creation of an urban heat island. The urban heat island effect refers to higher temperatures in urban and suburban environments when compared to analogous, often remnant vegetated areas. The urban heat sink effect is primarily a result of the increased thermal bulk and conductivity of materials associated with human settlements such as concrete, asphalt and metal. This effect can be exhausted by activities such as air conditioning, domestic power generation and vehicle use. Urban heat island effects are generally considered unavoidable when developing vegetated areas however it can be mitigated through appropriate planting and through the use of energy efficient materials.

The broader impacts of the modification of this site on both local and regional ecological communities will likely be relatively mild. The removal of the water bodies (farm dams) and vegetated areas at the site will lead to the further fragmentation of the regional habitat matrix adding to the cumulative effects associated with ongoing development in the region. Despite the marginal condition of the sites three farm dams their removal does represent the loss of a potential foraging and water resource for regional animal communities, particularly mobile groups such as birds, bats, macropods and wombats. Despite this, the impact of the landscape conversion at this site will likely not have a significant impact on regional or local biodiversity

and any short term impacts could be mitigated through revegetation and intentional improvement of habitat features at the site following development.

In summary:

- The removal of the water bodies (farm dams) at the site will increase the local temperature and reduce the drought tolerance of the site specifically by reducing its capacity to hold water. It will likely have a significant impact on the temperature of the site; however, this is unlikely to have a significant impact on either human health or biodiversity.
- The conversion of vegetated to built environment will increase the temperature at the site through loss of vegetation associated cooling effects and increased thermal bulk, reduce drought tolerance through increased water runoff and reduced water capacity in both the plant and soil reservoirs.
- There will be no site-specific effects resulting from ongoing climate change.

4.12 Key threatening processes

Key Threatening Processes (KTP's) at the NSW State and Federal level will be exacerbated by the proposal. A summary of the proposed impacts relating to the relevant key threatening processes is given in Table 8. Appendix G lists all KTP and includes explanations as to why many have been assessed as not being present in the study area or exacerbated by the proposal.

Threats exacerbated by poor biosecurity controls will be potentially exacerbated by the proposal. However, implementing the measures for preventing the introduction and spread of weeds described in Section 5.3, this potential is removed.

The proposal requires the removal of some dead wood during clearing activities. As the subject site does not contain important habitat for threatened species or any plant community type, this is not likely to seriously exacerbate this KTP.

Table 8. Key Threatening Processes exacerbated by the proposal.

Name	NSW status	Comm. status	KTP Present in Study Area?	Exacerbated by Proposal?
Anthropogenic Climate Change	KTP	KTP	YES	**NEGLIGIBLE**
Invasion and establishment of exotic vines and scramblers	KTP		POTENTIAL	**POTENTIAL** Machinery used on site can potentially act as a transport for biosecurity risks
Invasion and establishment of Scotch Broom (*Cytisus scoparius*)	KTP		POTENTIAL	**POTENTIAL** Machinery used on site can potentially act as a transport for biosecurity risks
Removal of dead wood and dead trees	KTP		YES	**NEGLIGIBLE** Some dead wood will be removed

4.13 Matters of National Environmental Significance

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

The EPBC Act protected matters search has identified four wetlands of international importance, two TECs, 31 threatened species and 12 migratory species that could possibly occur in the study area (Appendix A). A summary of these matters and whether the proposal is likely to impact them is provided in Table 9. It is concluded that no MNES will be impacted by the proposal.

Table 9. Impacts to matters of national environmental significance.

Factor	Potential impact
Any impact on a World Heritage property?	NIL
Any impact on a National Heritage place?	NIL
Any impact on a wetland of international importance?	NIL
Any impact on a listed threatened species or communities?	NIL (Appendix F).
Any impacts on listed migratory species?	NIL (Appendix F)
Any impact on a Commonwealth marine area?	NIL
Does the proposal involve a nuclear action (including uranium mining)?	NIL
Additionally, any impact (direct or indirect) on Commonwealth land?	NIL
Any impact on a water resource, in relation to coal seam gas development and large coal mining development?	NIL

5 Impact mitigation

The following recommendations have been proposed to inform the design of the project and further survey of the study area.

5.1 Avoid impact

The proposal already avoids significant impacts by occurring within a site formerly used for intensive agriculture, where no native vegetation communities exist. The following impact avoidance methods are also recommended to be implemented:

- To avoid impacts associated with weed introduction and spread, wash down and inspect all machinery before entering and exiting the subject site. Machinery must be clean of all mud, soil and vegetation material.

5.2 Minimise impact

Proposed impact minimisation measures:

- The construction works and vehicle access to the construction site is to be constrained to the minimum area practical and will use as few entry/exit points as possible.
- Material stockpiles, equipment and machinery storage and laydown areas will be consolidated within a defined impact area to minimise the overall impact footprint.
- The impact footprint will be minimised by restricting access across the site to the defined development footprint, including avoiding unnecessary vehicle and personnel movements across unused land.
- Excavation of rock and soil and construction activities will occur only during daylight hours to limit impacts on nearby residents due to noise.

5.3 Mitigate and offset

The proposal does not involve the clearing of native vegetation and will not have any significant impact on threatened species or communities. The proponent is therefore not required to enter into the Biodiversity Offset Scheme (BOS).

However, impact on biodiversity from the proposal can never be zero. Therefore, measures, or environmental safeguards, should be implemented to mitigate these impacts. These measures are detailed in Table 10.

Table 10. Summary of impact mitigation measures and environmental safeguards.

Impact	Environmental safeguards	Responsibility	Timing
General	1. All personnel would be inducted to be aware that any impacts to threatened species have legislative consequences if deliberately or accidentally impacted without development approval under the EP&A Act. Evidence of all personnel receiving an induction would be kept on file (signed induction sheets etc.). 2. Any change in design outside the assessed impact footprint within the study area will require further ecological survey.	Proponent	Pre-construction, construction, operation
Clearing and prevention of over-clearing	3. All personnel would be inducted to be aware any stand of native vegetation outside the subject site has legislative consequences if deliberately or accidentally impacted without approval under Part 4 or 5 of the EP&A Act. Evidence of all personnel receiving an induction would be kept on file (signed induction sheets etc). 4. Where possible, vegetation to be removed would be mulched on-site and re-used to stabilise disturbed areas. 5. If any of the threatened flora species listed in section 3.4.4 are found within the subject site during construction, construction is to stop in the immediate area and contact a qualified ecologist for advice and management guidance.	Constructor	Pre-construction and construction
Threatened Species	6. Provide identification resources for personnel to enable identification of threatened species that might occur on the work site, i.e. those species listed in Sections 3.4.3. and 3.4.4. 7. Keep records of any threatened species recorded on site during works. 8. Construction work to occur only during daylight hours to avoid indirect impacts on threatened fauna such as vehicle strikes. 9. If unexpected threatened fauna or flora species are discovered, stop works immediately and contact a suitably qualified ecologist for advice.	Constructor	Pre-construction and construction
Tree removal	10. Clearly mark trees to be removed. 11. Clear surrounding vegetation at least one night before removing the tree. 12. Before felling, knock tree along the trunk with an excavator or loader (substantially shake the tree) to scare fauna that might be roosting. Repeat several times. 13. Ensure a fauna spotter catcher is present for any tree felling activities, 14. Install artificial habitat features i.e; nest boxes, reptile habitat walls and features, invertebrate habitat structures, flowering native street trees, microbat roost boxes etc. This will encourage recolonization of the site after development and likely reduce the negative impacts of any controversy associated with tree clearing at the site. 15. Encourage and facilitate the planting of native tree species at the site to improve habitat quality in the future. As the site is dominated by exotic pine, which have limited habitat value it would likely be possible to improve the habitat	Constructor	Construction

	potential of trees at the site beyond current or recent levels.		
Soil Management	16. Install erosion and sediment controls in line with Landcom's Managing Urban Stormwater, Soils & Construction Guidelines (The Blue Book. Landcom 2004) are required. 17. Where practicable, spread mulch made from vegetation cleared on site on areas of bare soil to stabilise, preventing dust and erosion. 18. Erosion and sedimentation controls are to be checked and maintained on a regular basis. This includes clearing of sediment from behind barriers and after heavy rainfall events. 19. Erosion and sediment control measures are not to be removed until the works are complete and areas are stabilised. 20. Stockpile topsoil removed to be redistributed across site at completion of construction 21. Implement dust suppression activities.	Constructor	Pre-construction and construction
Introduction and spread of priority weeds and pathogens	22. Construction crew should be briefed on the identification of priority weeds that occur on site during inductions (see Section 3.2.4.). 23. If declared priority weeds are identified during construction they would be managed according to the requirements of the *Biosecurity Act 2016*. 24. Construction machinery (bulldozers, excavators, trucks, loaders and graders) would be cleaned using a high-pressure washer (or other suitable device) before entering and exiting work sites. 25. Machinery will be inspected by designated personnel following washdown to ensure no soil, mud, vegetative material present. Records of inspections to be maintained. 26. All pesticides would be used in accordance with the requirements on the label. Any person carrying out pesticide (including herbicide) application would be trained to do so and have the proper certificate of completion/competency or statement of attainment issued by a registered training organisation. 27. Keep records of any weed control activities that take place.	Constructor	Construction
Increased risk of fire	28. Where possible, avoid 'hot work' during days of extreme fire danger.	Constructor	Construction
Introduction of invasive fauna	29. All food scraps and rubbish are to be appropriately disposed of in sealed receptacles to prevent providing forage habitats for foxes, rats, dogs and cats.	Constructor	Construction
Removal of farm dams	30. Ensure a fauna spotter catcher is present for the draining of all dams to safely relocate any native fauna	Constructor	Construction

6 Summary and conclusions

The following summary of findings and conclusions are provided to assist with ongoing project planning.

- The subject site does not contain any native plant community types. Vegetation is dominated by introduced grasses and forbs that are common in areas with a land use history of intensive agriculture. The proposal does not impact on any native vegetation and no clearing of native vegetation is required
- The subject site does not provide significant habitat for any BC Act or EPBC Act threatened flora and/or fauna or any EPBC Act listed migratory species. No threatened species were recorded on the subject site, despite dedicated searches.
- Some habitat features on the site, notably the dams and planted exotic trees, may provide marginal and temporary habitat for some species. However, if impact mitigation measures are implemented, there will be no significant impact from the proposal on any threatened species.
- There is no potential Koala habitat on the subject site.
- The proposal does not impact on or occur within any protected riparian area or key fish habitat or threatened fish habitat.
- As no native vegetation is required to be cleared and no significant impact to threatened species will occur, it is not necessary to enter the Biodiversity Offset Scheme.

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Appendix A: Database search results

EPBC Protected matters report

Australian Government
Department of the Environment and Energy

EPBC Act Protected Matters Report

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

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

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

Report created: 21/09/18 14:34:01

This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

Coordinates
Buffer: 10.0Km

Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	4
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	31
Listed Migratory Species:	12

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Land:	8
Commonwealth Heritage Places:	None
Listed Marine Species:	19
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	30
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar)	[Resource Information]
Name	Proximity
Barrock station wetland complex	800 - 900km upstream
Riverland	700 - 800km upstream
The coorong, and lakes alexandrina and albert wetland	900 - 1000km upstream
The macquarie marshes	300 - 400km upstream

Listed Threatened Ecological Communities	[Resource Information]

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

Name	Status	Type of Presence
Natural Temperate Grassland of the South Eastern Highlands	Critically Endangered	Community likely to occur within area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area

Listed Threatened Species	[Resource Information]
Name	Status	Type of Presence
Birds		
Anthochaera phrygia		
Regent Honeyeater [82338]	Critically Endangered	Breeding known to occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Grantiella picta		
Painted Honeyeater [470]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor		
Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Leipoa ocellata		
Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
Numenius madagascariensis		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Polytelis swainsonii		
Superb Parrot [738]	Vulnerable	Species or species habitat may occur within area
Rostratula australis		
Australian Painted-snipe, Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Fish		
Maccullochella macquariensis		
Trout Cod [26171]	Endangered	Species or species habitat may occur within
Maccullochella peelii		
Murray Cod [66633]	Vulnerable	Species or species habitat may occur within area
Macquaria australasica		
Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area
Frogs		
Litoria aurea		
Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat may occur within area
Litoria booroolongensis		
Booroolong Frog [1844]	Endangered	Species or species habitat known to occur within area
Litoria castanea		
Yellow-spotted Tree Frog, Yellow-spotted Bell Frog [1848]	Endangered	Species or species habitat likely to occur within area
Insects		
Paralucia spinifera		
Bathurst Copper Butterfly, Purple Copper Butterfly, Bathurst Copper, Bathurst Copper Wing, Bathurst-Lithgow Copper, Purple Copper [26335]	Vulnerable	Species or species habitat likely to occur within area
Mammals		
Chalinolobus dwyeri		
Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
Dasyurus maculatus maculatus (SE mainland population)		
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area
Petauroides volans		
Greater Glider [254]	Vulnerable	Species or species habitat may occur within area
Petrogale penicillata		
Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat may occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)		
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Pteropus poliocephalus		
Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area
Plants		
Dichanthium setosum		
bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area
Eucalyptus pulverulenta		
Silver-leaved Mountain Gum, Silver-leaved Gum [21537]	Vulnerable	Species or species habitat likely to occur within area
Euphrasia arguta		
[4325]	Critically Endangered	Species or species habitat may occur within area
Lepidium hyssopifolium		
Basalt Pepper-cress, Peppercress, Rubble Pepper-cress, Pepperweed [16542]	Endangered	Species or species habitat known to occur within area
Leucochrysum albicans var. tricolor		
Hoary Sunray, Grassland Paper-daisy [56204]	Endangered	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Philotheca ericifolia [64942]	Vulnerable	Species or species habitat may occur within area
Swainsona recta Small Purple-pea, Mountain Swainson-pea, Small Purple Pea [7580]	Endangered	Species or species habitat may occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area
Reptiles		
Aprasia parapulchella Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat may occur within area
Delma impar Striped Legless Lizard [1649]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species [Resource Information]

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

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

Name	Threatened	Type of Presence
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [Resource Information]

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

Name
Commonwealth Land - Australian Postal Commission
Commonwealth Land - Australian Telecommunications Commission
Commonwealth Land - Australian Telecommunications Corporation
Commonwealth Land - Defence Housing Authority
Commonwealth Land - Defence Service Homes Corporation
Commonwealth Land - Telstra Corporation Limited
Defence - KELSO ORDNANCE DEPOT
Defence - RACECOURSE DEPOT (BATHURST TRAINING/STORES DEPOT)

Listed Marine Species [Resource Information]

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

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within

Name	Threatened	Type of Presence
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat likely to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat likely to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area

Extra Information

Invasive Species [Resource Information]

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

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Alauda arvensis Skylark [656]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Capra hircus Goat [2]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur

Name	Status	Type of Presence within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Cytisus scoparius Broom, English Broom, Scotch Broom, Common Broom, Scottish Broom, Spanish Broom [5934]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Nassella neesiana Chilean Needle grass [67699]		Species or species habitat likely to occur within area
Nassella trichotoma Serrated Tussock, Yass River Tussock, Yass Tussock, Nassella Tussock (NZ) [18884]		Species or species habitat likely to occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Ulex europaeus Gorse, Furze [7693]		Species or species habitat likely to occur within area

Caveat

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

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

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

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

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

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

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

- migratory and
- marine

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

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

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

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

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

Coordinates

-33.409033 149.620832,-33.409033 149.620832,-33.402387 149.617506,-33.403587 149.627677,-33.404787 149.628385,-33.409015 149.620832,-33.409033 149.620832

Acknowledgements

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

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

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

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

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BioNET Atlas search – threatened species predicted to occur within the Bathurst IBRA subregion.

***NSW Status: P=Protected, P13=Protected native plant, V=Vulnerable, E1=Endangered, E2=Endangered population, E4=Extinct, E4A=Critically endangered, 2=Category 2 sensitive species, 3=Category 3 sensitive species.**

+Comm. Status: C=CAMBA, J=JAMBA, K=ROKAMBA, CE=Critically endangered, E=Endangered, V=Vulnerable.

-Number of Records: P = predicted to occur.

Class	Scientific Name	Common Name	NSW status*	Comm. Status+	Number of Records-
Amphibia	*Mixophyes balbus*	Stuttering Frog	E1,P,2	V	P
Amphibia	*Pseudophryne australis*	Red-crowned Toadlet	V,P		P
Amphibia	*Litoria aurea*	Green and Golden Bell Frog	E1,P	V	8
Amphibia	*Litoria booroolongensis*	Booroolong Frog	E1,P	E	24
Amphibia	*Litoria castanea*	Yellow-spotted Tree Frog	E4A,P	E	2
Amphibia	*Litoria littlejohni*	Littlejohn's Tree Frog	V,P	V	P
Amphibia	*Litoria raniformis*	Southern Bell Frog	E1,P	V	P
Reptilia	*Aprasia parapulchella*	Pink-tailed Legless Lizard	V,P	V	P
Reptilia	*Delma impar*	Striped Legless Lizard	V,P	V	P
Reptilia	*Varanus rosenbergi*	Rosenberg's Goanna	V,P		P
Reptilia	*Hoplocephalus bungaroides*	Broad-headed Snake	E1,P,2	V	P
Aves	*Anseranas semipalmata*	Magpie Goose	V,P		3
Aves	*Oxyura australis*	Blue-billed Duck	V,P		P
Aves	*Stictonetta naevosa*	Freckled Duck	V,P		P
Aves	*Phaethon rubricauda*	Red-tailed Tropicbird	V,P	C	1
Aves	*Apus pacificus*	Fork-tailed Swift	P	C,J,K	1
Aves	*Hirundapus caudacutus*	White-throated Needletail	P	C,J,K	2
Aves	*Botaurus poiciloptilus*	Australasian Bittern	E1,P	E	P
Aves	*Plegadis falcinellus*	Glossy Ibis	P	C	1
Aves	*Circus assimilis*	Spotted Harrier	V,P		2
Aves	*Haliaeetus leucogaster*	White-bellied Sea-Eagle	V,P	C	1
Aves	*Hieraaetus morphnoides*	Little Eagle	V,P		4
Aves	*Lophoictinia isura*	Square-tailed Kite	V,P,3		P
Aves	*Falco subniger*	Black Falcon	V,P		2
Aves	*Grus rubicunda*	Brolga	V,P		P
Aves	*Burhinus grallarius*	Bush Stone-curlew	E1,P		P
Aves	*Rostratula australis*	Australian Painted Snipe	E1,P	E	K
Aves	*Calidris acuminata*	Sharp-tailed Sandpiper	P	C,J,K	8
Aves	*Calidris ferruginea*	Curlew Sandpiper	E1,P	CE,C,J,K	K
Aves	*Gallinago hardwickii*	Latham's Snipe	P	C,J,K	10
Aves	*Limosa limosa*	Black-tailed Godwit	V,P	C,J,K	P
Aves	*Callocephalon fimbriatum*	Gang-gang Cockatoo	V,P,3		13
Aves	*Calyptorhynchus lathami*	Glossy Black-Cockatoo	V,P,2		2
Aves	*Glossopsitta pusilla*	Little Lorikeet	V,P		1
Aves	*Lathamus discolor*	Swift Parrot	E1,P,3	CE	P
Aves	*Polytelis swainsonii*	Superb Parrot	V,P,3	V	P

Aves	*Ninox connivens*	Barking Owl	V,P,3		1
Aves	*Ninox strenua*	Powerful Owl	V,P,3		2
Aves	*Tyto novaehollandiae*	Masked Owl	V,P,3		2
Aves	*Merops ornatus*	Rainbow Bee-eater	P	J	4
Aves	*Climacteris picumnus victoriae*	Brown Treecreeper (eastern subspecies)	V,P		1
Aves	*Chthonicola sagittata*	Speckled Warbler	V,P		1
Aves	*Anthochaera phrygia*	Regent Honeyeater	E4A,P	CE	4
Aves	*Epthianura albifrons*	White-fronted Chat	V,P		P
Aves	*Grantiella picta*	Painted Honeyeater	V,P	V	K
Aves	*Melithreptus gularis gularis*	Black-chinned Honeyeater (eastern subspecies)	V,P		1
Aves	*Daphoenositta chrysoptera*	Varied Sittella	V,P		1
Aves	*Artamus cyanopterus cyanopterus*	Dusky Woodswallow	V,P		4
Aves	*Melanodryas cucullata cucullata*	Hooded Robin (south-eastern form)	V,P		P
Aves	*Petroica boodang*	Scarlet Robin	V,P		3
Aves	*Petroica phoenicea*	Flame Robin	V,P		K
Aves	*Stagonopleura guttata*	Diamond Firetail	V,P		6
Mammalia	*Dasyurus maculatus*	Spotted-tailed Quoll	V,P	E	11
Mammalia	*Phascogale tapoatafa*	Brush-tailed Phascogale	V,P		P
Mammalia	*Phascolarctos cinereus*	Koala	V,P	V	64
Mammalia	*Cercartetus nanus*	Eastern Pygmy-possum	V,P		P
Mammalia	*Petaurus australis*	Yellow-bellied Glider	V,P		7
Mammalia	*Petaurus norfolcensis*	Squirrel Glider	V,P		P
Mammalia	*Petauroides volans*	Greater Glider	P	V	9
Mammalia	*Petrogale penicillata*	Brush-tailed Rock-wallaby	E1,P	V	K
Mammalia	*Pteropus poliocephalus*	Grey-headed Flying-fox	V,P	V	5
Mammalia	*Saccolaimus flaviventris*	Yellow-bellied Sheathtail-bat	V,P		1
Mammalia	*Mormopterus norfolkensis*	Eastern Freetail-bat	V,P		1
Mammalia	*Chalinolobus dwyeri*	Large-eared Pied Bat	V,P	V	P
Mammalia	*Falsistrellus tasmaniensis*	Eastern False Pipistrelle	V,P		2
Mammalia	*Miniopterus schreibersii oceanensis*	Eastern Bentwing-bat	V,P		4
Mammalia	*Myotis macropus*	Southern Myotis	V,P		4
Mammalia	*Scoteanax rueppellii*	Greater Broad-nosed Bat	V,P		2
Insecta	*Paralucia spinifera*	Purple Copper Butterfly, Bathurst Copper Butterfly	E1	V	8
Flora	*Leucochrysum albicans var. tricolor*	Hoary Sunray	P	E	P
Flora	*Lepidium hyssopifolium*	Aromatic Peppercress	E1,P	E	6
Flora	*Swainsona sericea*	Silky Swainson-pea	V,P		3
Flora	*Acacia clunies-rossiae*	Kanangra Wattle	V,P		3
Flora	*Acacia flocktoniae*	Flockton Wattle	V,P	V	3
Flora	*Callistemon megalongensis*	Megalong Valley Bottlebrush	E4A,P	CE	6
Flora	*Eucalyptus aggregata*	Black Gum	V,P	V	2
Flora	*Eucalyptus pulverulenta*	Silver-leafed Gum	V,P	V	48
Flora	*Eucalyptus robertsonii subsp. hemisphaerica*	Robertson's Peppermint	V,P	V	P
Flora	*Caladenia attenuata*	Duramana Fingers	E4A,P,2	CE	P
Flora	*Veronica blakelyi*		V,P		P
Flora	*Grevillea divaricata*		E1,P,3		P
Flora	*Persoonia marginata*	Clandulla Geebung	V,P	V	1
Flora	*Asterolasia buxifolia*		E1,P		4

Flora	*Boronia deanei*	Deane's Boronia	V,P	V	P
Flora	*Zieria obcordata*		E1,P	E	41
Flora	*Thesium australe*	Austral Toadflax	V,P	V	P
Flora	*Euphrasia scabra*	Rough Eyebright	E1,P,3		1

BioNET Atlas search – threatened ecological communities predicted to occur within the Bathurst IBRA subregion.

***NSW Status: P=Protected, P13=Protected native plant, V=Vulnerable, E1=Endangered, E2=Endangered population, E4=Extinct, E4A=Critically endangered, 2=Category 2 sensitive species, 3=Category 3 sensitive species.**

+Comm. Status: CE=Critically endangered, E=Endangered, V=Vulnerable.

Community	NSW Status*	Comm. Status+	Records
Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions	E3	E	K
Tableland Basalt Forest in the Sydney Basin and South Eastern Highlands Bioregions	E3		K
White Box Yellow Box Blakely's Red Gum Woodland	E3	CE	K

BioNET Atlas search – key threatening processes predicted to occur within the Bathurst IBRA subregion.

Threat	NSW Status*	Comm. Status+	Records
Aggressive exclusion of birds from woodland and forest habitat by abundant Noisy Miners Manorina melanocephala	KTP	KTP	P
Alteration of habitat following subsidence due to longwall mining	KTP		P
Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands	KTP		P
Anthropogenic Climate Change	KTP	KTP	P
Bushrock removal	KTP		P
Clearing of native vegetation	KTP	KTP	P
Competition and grazing by the feral European Rabbit, *Oryctolagus cuniculus*	KTP	KTP	P
Competition and habitat degradation by Feral Goats, *Capra hircus*	KTP	KTP	P
Competition from feral honey bees, *Apis mellifera*	KTP		P
Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners	KTP		P
Herbivory and environmental degradation caused by feral deer	KTP		P
High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition	KTP		P
Importation of Red Imported Fire Ants Solenopsis invicta Buren 1972	KTP	KTP	P
Infection by Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species and populations	KTP	KTP	P
Infection of frogs by amphibian chytrid causing the disease chytridiomycosis	KTP	KTP	P
Infection of native plants by *Phytophthora cinnamomi*	KTP	KTP	P
Introduction and establishment of Exotic Rust Fungi of the order *Pucciniales pathogenic* on plants of the family Myrtaceae	KTP		P

Introduction of the Large Earth Bumblebee *Bombus terrestris*	KTP		P
Invasion and establishment of exotic vines and scramblers	KTP		P
Invasion and establishment of Scotch Broom (*Cytisus scoparius*)	KTP		P
Invasion and establishment of the Cane Toad (*Bufo marinus*)	KTP	KTP	P
Invasion of native plant communities by African Olive *Olea europaea* subsp. *cuspidata*	KTP		P
Invasion of native plant communities by *Chrysanthemoides monilifera*	KTP		P
Invasion of native plant communities by exotic perennial grasses	KTP		P
Invasion of the Yellow Crazy Ant, *Anoplolepis gracilipes* into NSW	KTP		P
Invasion, establishment and spread of Lantana (*Lantana camara*)	KTP		P
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants	KTP	KTP	P
Loss of Hollow-bearing Trees	KTP		P
Loss or degradation (or both) of sites used for hill-topping by butterflies	KTP		P
Predation and hybridisation by Feral Dogs, *Canis lupus familiaris*	KTP		P
Predation by *Gambusia holbrooki* (Plague Minnow or Mosquito Fish)	KTP		P
Predation by the European Red Fox *Vulpes Vulpes*	KTP	KTP	P
Predation by the Feral Cat *Felis catus*	KTP	KTP	P
Predation, habitat degradation, competition and disease transmission by Feral Pigs, *Sus scrofa*	KTP	KTP	P
Removal of dead wood and dead trees	KTP		P

NSW Planning Portal property report.

NSW GOVERNMENT Planning & Environment

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Property Report for 197 Limekilns Road, Kelso, 2795

Property Details

Address:	197 Limekilns Road, Kelso, 2795
Lot/Section/Plan no:	5/-/DP847225
Council:	BATHURST REGIONAL

Council Details

BATHURST REGIONAL COUNCIL

Website	http://www.bathurst.nsw.gov.au/
Phone Number	02 6333 6111
Email Address	council@bathurst.nsw.gov.au
Council Address	158 Russell Street Bathurst 2795

Planning Controls associated with this property

Land Zoning

- R1 - General Residential : (pub. 2018-04-13)
- RE1 - Public Recreation : (pub. 2018-04-13)

Contribution Plans (LGA-Based)

- Bathurst Regional CP 1992 - Hereford Street
- Bathurst Regional CP 1992 - Raglan Creek Stormwater Drainage Management - Amendment 1
- Bathurst Regional CP 1993 - Jordan Creek Stormwater Drainage Management - Amendment 1
- Bathurst Regional CP 1995 - Sawpit Creek (East) Stormwater Drainage Management - Amendment 1
- Bathurst Regional CP 1997 - Roadworks New Residential Subdivisions - Amendment 4
- Bathurst Regional CP 2012 - Eglinton Drainage and Open Space - Amendment 1
- Bathurst Regional CP 2014 - Bathurst CBD Car Parking - Amendment 1
- Bathurst Regional CP 2014 - Bathurst Regional Community Facilities - Amendment 1
- Bathurst Regional CP 2014 - Bathurst Regional Rural Roadworks - Amendment 2
- Bathurst Regional CP 2014 - Regional Open Space
- Bathurst Regional CP 2014 - Regional Traffic Generating Development 2014 - Amendment 1
- Bathurst Regional CP - Robin Hill Road and Drainage Construction - Amendment 2

Development Control Plans (LGA-Based)

- Bathurst Regional DCP 2014 - as amended 30 Sep 2017

Future Residential Growth Area

- Future Residential Growth Area (pub. 2014-01-28)

Height of Building

- J - 9.0 m : Range [9.0 - 9.9 m] (pub. 2018-04-13)

Land Application LEP

- Included : Bathurst Regional Local Environmental Plan 2014 (pub. 2014-11-19)

Land Reservation Acquisition

- Local Open Space (RE1) (pub. 2018-04-13)

Local Provisions

- Miscellaneous : Former LGA Boundaries : Class (Former LGA Boundaries) (pub. 2014-11-19)

Minimum Lot Size

- K - 550.00 m² : Range [550 - 574 sqm] (pub. 2018-04-13)

Obstacle Limitation Surface

- 770-779.5 mm (pub. 2014-11-19)
- 779.5-779.5 mm (pub. 2014-11-19)

Urban Release Area

- Urban Release Area (pub. 2018-04-13)

Other spatial data associated with this property

Local Government Area

- Bathurst Regional

Suburbs

- Kelso

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State Environmental Planning Policies which apply at 197 Limekilns Road, Kelso, 2795

State Environmental Planning Policy (Affordable Rental Housing) 2009 : (pub. 2009-07-31)
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004 : (pub. 2004-06-25)
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 : (pub. 2008-12-12)
State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 : (pub. 2004-03-31)
State Environmental Planning Policy (Infrastructure) 2007 : (pub. 2007-12-21)
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 : (pub. 2007-02-16)
State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007 : (pub. 2007-09-28)
State Environmental Planning Policy No 1-Development Standards : (pub. 1980-10-17)
State Environmental Planning Policy No 21-Caravan Parks : (pub. 1992-04-24)
State Environmental Planning Policy No 30-Intensive Agriculture : (pub. 1989-12-08)
State Environmental Planning Policy No 33-Hazardous and Offensive Development : (pub. 1992-03-13)
State Environmental Planning Policy No 36-Manufactured Home Estates : (pub. 1993-07-16)
State Environmental Planning Policy No 44-Koala Habitat Protection : (pub. 1995-01-06)
State Environmental Planning Policy No 50-Canal Estate Development : (pub. 1997-11-10)
State Environmental Planning Policy No 55-Remediation of Land : (pub. 1998-08-28)
State Environmental Planning Policy No 62-Sustainable Aquaculture : (pub. 2000-08-25)
State Environmental Planning Policy No 64-Advertising and Signage : (pub. 2001-03-16)
State Environmental Planning Policy No 65-Design Quality of Residential Apartment Development : (pub. 2002-07-26)
State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017 : Subject Land (pub. 2017-08-25)

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Planning Controls contained in the Bathurst Regional Local Environmental Plan 2014

Height of Building

(1) The objectives of this clause are as follows:

- (a)

to establish the maximum height limit to which buildings may be erected in certain locations.

(2) The height of a building on any land is not to exceed the maximum height shown for the land on the Height of Buildings Map.

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Planning Controls contained in the Bathurst Regional Local Environmental Plan 2014

Land Zoning

Zone R1 General Residential

1 Objectives of zone

- To provide for the housing needs of the community.
- To provide for a variety of housing types and densities.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To provide housing choice and affordability by enabling opportunities for medium density forms of housing in locations and at densities that complement the surrounding residential environment.
- To protect and conserve the historic significance and scenic quality of the urban villages of Eglinton, Raglan and Perthville.
- To enable commercial development that is compatible with the amenity of the area and does not prejudice the status and viability of the Bathurst central business district as the retail, commercial and administrative centre of Bathurst.

2 Permitted without consent

Environmental protection works; Extensive agriculture; Home-based child care; Home businesses; Home occupations; Roads

3 Permitted with consent

Attached dwellings; Boarding houses; Centre-based child care facilities; Community facilities; Dwelling houses; Food and drink premises; Garden centres; Group homes; Home industries; Hostels; Kiosks; Markets; Multi dwelling housing; Neighbourhood shops; Places of public worship; Plant nurseries; Residential flat buildings; Respite day care centres; Roadside stalls; Semi-detached dwellings; Seniors housing; Shop top housing; Waste or resource transfer stations; Any other development not specified in item 2 or 4

4 Prohibited

Air transport facilities; Amusement centres; Boat building and repair facilities; Correctional centres; Crematoria; Depots; Electricity generating works; Extractive industries; Forestry; Freight transport facilities; Heavy industrial storage establishments; Home occupations (sex services); Industrial training facilities; Industries; Intensive livestock agriculture; Open cut mining; Restricted premises; Retail premises; Rural industries; Sex services premises; Storage premises; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Warehouse or distribution centres; Waste or resource management facilities; Wholesale supplies

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Planning Controls contained in the Bathurst Regional Local Environmental Plan 2014

Land Zoning

Zone RE1 Public Recreation

1 Objectives of zone

- To enable land to be used for public open space or recreational purposes.
- To provide a range of recreational settings and activities and compatible land uses.
- To protect and enhance the natural environment for recreational purposes.
- To protect and conserve the historical and scenic quality of Bathurst's open space areas.
- To provide a network of open space that encourages walking and cycling.

2 Permitted without consent

Environmental protection works; Extensive agriculture; Intensive plant agriculture; Roads

3 Permitted with consent

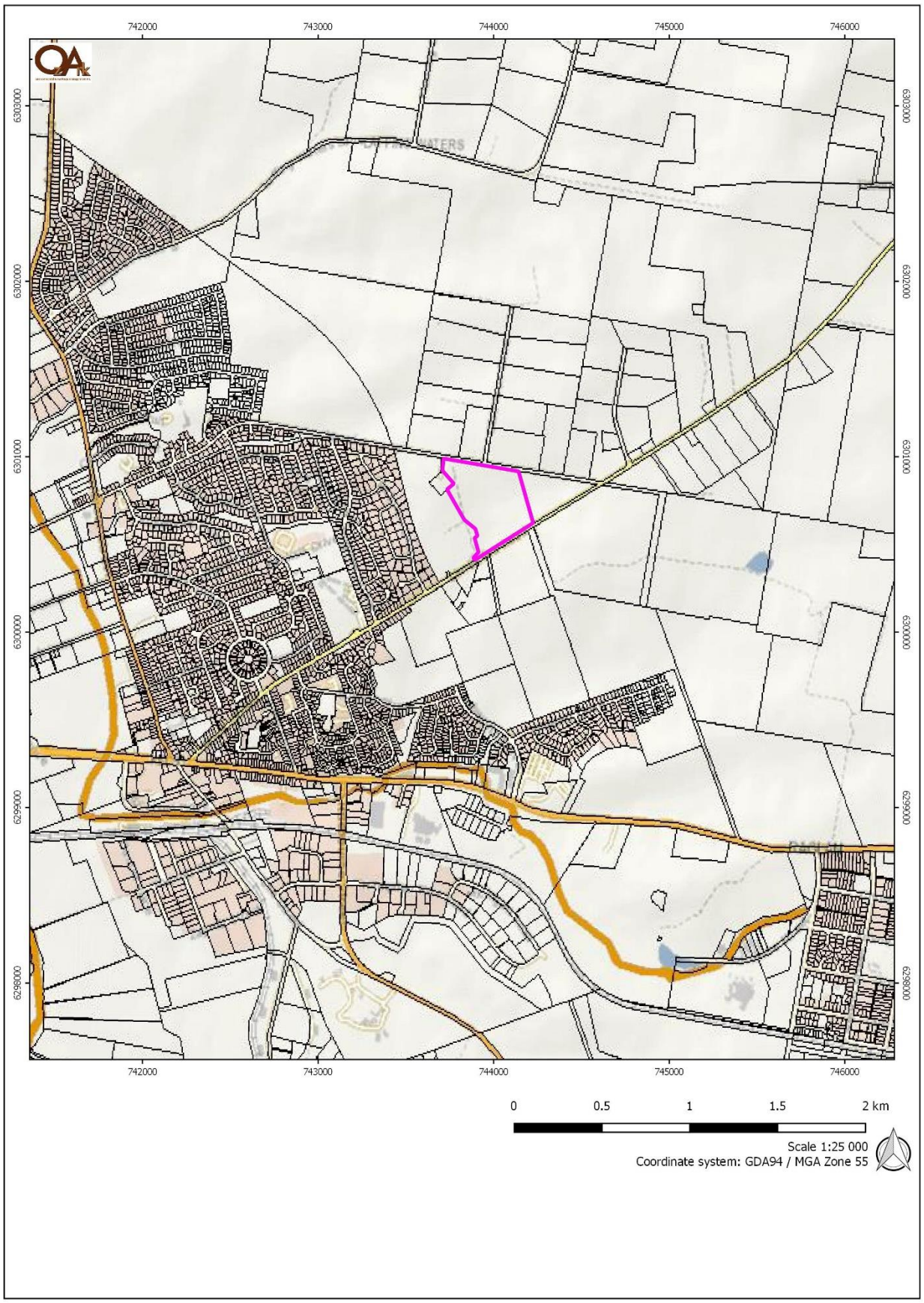
Boat launching ramps; Camping grounds; Car parks; Caravan parks; Cemeteries; Community facilities; Emergency services facilities; Entertainment facilities; Environmental facilities; Extractive industries; Flood mitigation works; Food and drink premises; Function centres; Helipads; Information and education facilities; Jetties; Kiosks; Markets; Open cut mining; Places of public worship; Recreation areas; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Roadside stalls; Sewerage systems; Signage; Waste or resource transfer stations; Water recreation structures; Water supply systems

4 Prohibited

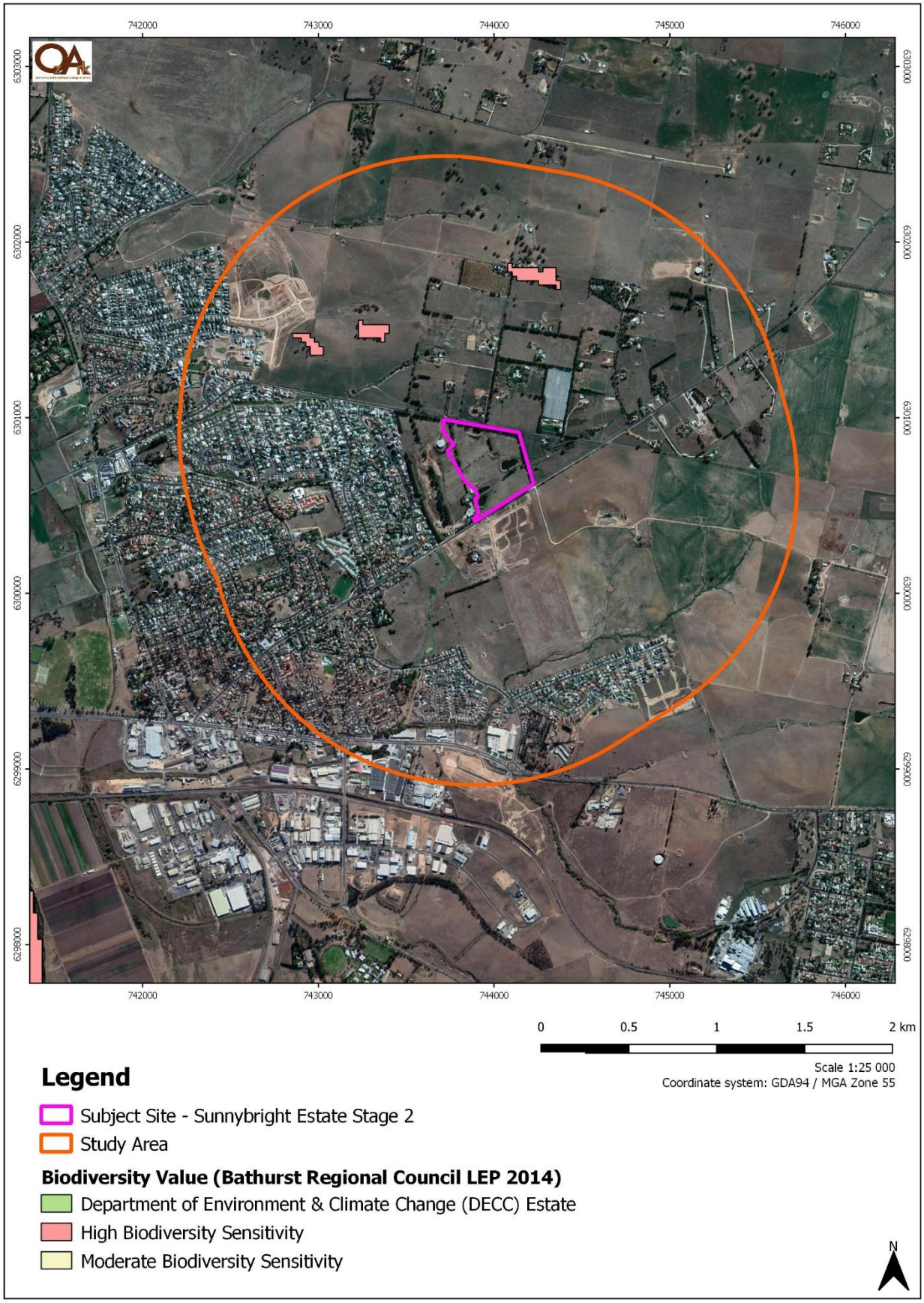
Any development not specified in item 2 or 3

Biodiversity Values Map.

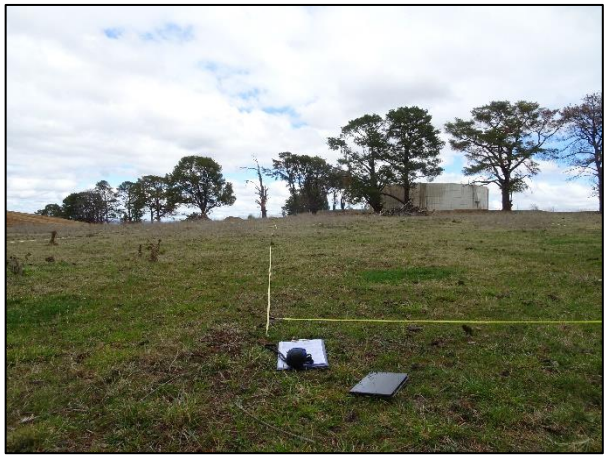
Areas marked as orange are areas of high biodiversity value. The pink polygon indicates the subject site.

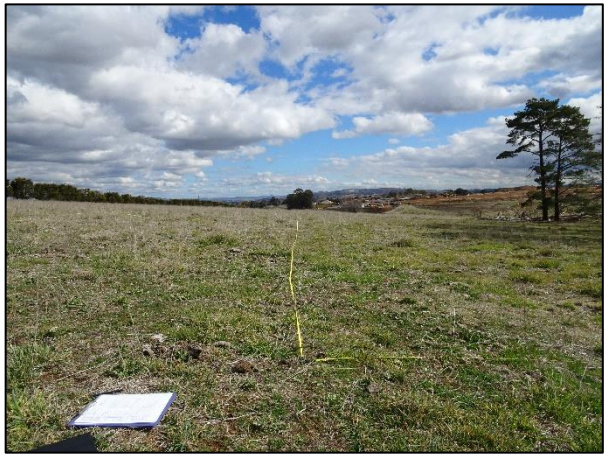
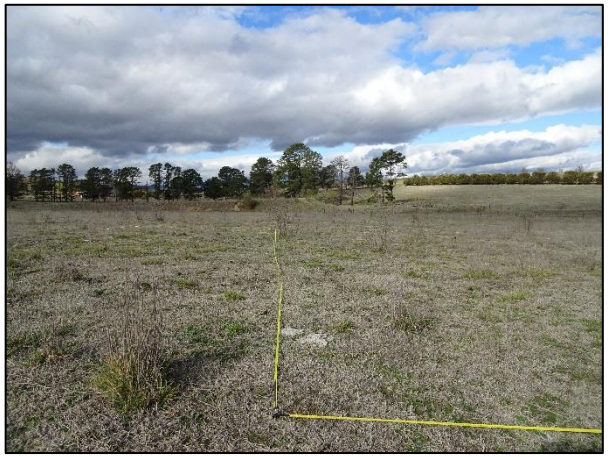


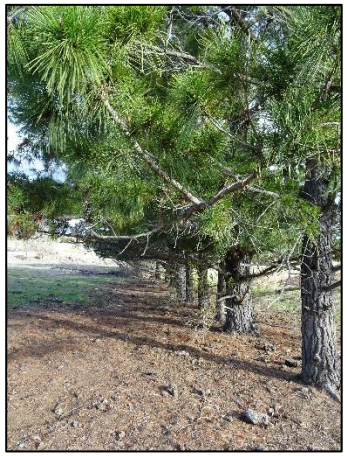
Bathurst Regional Local Environment Plan Biodiversity Values.



Appendix B: Vegetation plot data

Plot Name	Vegetation Zone	Easting (MGA Zone 55)	Northing (MGA Zone 55)	Photographs	
SB01	1	743824	6300956		
SB02	1	744070	6300872		

SB03	1	744140	6300686		
SB04	1	743918	6300704		

SB05	2	743973	6300884		

BAM Plot - Field Survey Sheet

Page 1 of ( )

Date 7/9/18	Survey Name SUNNYBRIGHT STAGE 2		
Recorders JESSE CARPENTER		Plot ID # SB01	Zone ID 1
Photo # 225 - 226		Plot dimensions 20x50	
Datum GDA 94	Zone MGA 55	Plot bearing along midline 180	
Easting 743824	Northing 6300956	Record magnetic bearing along midline from 0 m point	

Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region	STH. EAST HIGHLANDS
Subregion	BATHURST
Likely Vegetation Class	
Plant Community Type	NO PCT.
Condition state	Poor.

Floristics plot is centred on the midline, at 0 m point, 10 m either side

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

BAM Composition / Structure plot (400 m²)

Dimensions (circle applicable size): 20 x (20) m | 10 x 40 m

		Sum values*
Native Richness (count of native species)	Trees	–
	Shrubs	–
	Grasses etc	3
	Forbs	1
	Ferns	–
	Other	–
Cover (sum of cover of natives species)	Trees	–
	Shrubs	–
	Grasses etc	0·3
	Forbs	0·1
	Ferns	0
	Other	0
High threat weed cover		0·1

*These values summarise the floristic data for input into BAM calculator

BAM Function plot (1000 m²)

Dimensions (circle applicable size): 20 x (50) m | 10 x 100 m

Tree stem DBH (cm)		
>80	(#)	–
50 - 79	(#)	–
30 - 49	(+/-)	–
20 - 29	(+/-)	–
10 - 19	(+/-)	–
5 - 9	(+/-)	–
< 5	(+/-)	–

Notes on function attributes:
- Stem size class records # large trees (cf. benchmark)
- Record stems for living trees only, and for all species
- For multistemmed trees, record only the largest stem
- Presence of <5cm stems records regeneration
- Record # trees with hollows, not number of hollows
- Count as one stem where tree is multistemmed
- Hollow bearing stem may be a dead stem (incl. stag)

# Trees with hollows	<20cm	Total #
	>20cm**	0
Length of logs		Total (m) 0

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots)

Litter cover is used for BAM, other attributes are useful for recording site condition in general

		1	2	3	4	5	Average
Sub-plot score (% cover)	Litter	30	60	60	80	80	62
	Bare ground	15	10	15	10	5	11
	Cryptogam	0	0	0	0	0	0
	Rock	0	0	0	0	0	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	3	O	Microrelief
Cultivation	0		Slope Moderate
Grazing (native / stock)	2	R	Aspect North facing
Soil erosion	0		Soil surface texture sandy loam
Firewood removal	0		Soil colour red-brown
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage run off
Storm damage	0		Distance to nearest water 50m
Weediness	3	R	Distance to nearest rock outcrop /cave >5 km.

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes Prevailing dry conditions, but recent rain has germinated mostly exotic herbs. Some perennial grasses beginning to re-shoot. Predominantly exotic species on former agricultural paddocks.

BAM Plot - Field Survey Sheet

Page 2 of ( )

Date 7/9/18 | Survey Name SUNNYBRIGHT STAGE 2 | Recorders J. C | Plot ID # SB01 | Zone ID 1

GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum
FG	Plantago sp.	5		E	L
FG	Medicago polymorpha	20		E	L
FG	Brassica tournefortii	10		E	L
GG	Phalaris aquatica	5		E	L
GG	Cynodon dactylon	30		E	L
FG	Rumex obtusifolia	0·1	50	E	L
FG	Malva neglecta	0·1	20	E	L
GG	Panicum effusum	0·1	5	N	L
FG	Linum marginale	0·1	10	N	L
FG	Helminthotheca echioides	0·5	100	E	L
GG	Eragrostis leptostachya	0·1	10	N	L
FG	Hypochaeris glabra	0·1	100	E	L
FG	Onopordum acanthium	0·1	10	E	L
FG	Cirsium vulgare	0·1	5	E	L
FG	Erodium cicutarium	0·1	30	E	L
GG	Enteropogon ramosus	0·1	3	N	L
FG	Rumex pulcher	0·1	50	E	L
X FG	Xanthium spinosum	0·1	1	E	L

Growth Form (see BAM Appendix 4) - Tree (TG), Shrub (SG), Grass & grasslike (GG), Forb (FG), Fern (EG), Other (OG)

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4. ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use [illegible] stratum definitions)

Cover area examples: 0.1% = 63x63cm, 0.5% = 1.4x1.4m, 1% =2x2 m, 5%=4x5m, 25%=10x10m

BAM Plot - Field Survey Sheet

Page 1 of ( )

Date 4/9/18	Survey Name Sunnybright Stage 2		
Recorders JC		Plot ID # SB02	Zone ID 1
Photo # 248 - 249		Plot dimensions 20x50	
Datum GDA94	Zone NGA 55	Plot bearing along midline 159	
Easting 744062	Northing 6300903	Record magnetic bearing along midline from 0 m point	

Record easting, northing at plot marker (0 m point), Photos take 1 vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region	South Eastern Highlands
Subregion	Bathurst
Likely Vegetation Class	
Plant Community Type	No PCT — Condition state Poor.

Floristics plot is centred on the midline, at 0 m point, 10 m either side

BAM Composition / Structure plot (400m²)

Dimensions (circle applicable size): 20 x (20) m | 10 x 40 m

		Sum values*
Native Richness (count of native species)	Trees	–
	Shrubs	–
	Grasses etc	2
	Forbs	–
	Ferns	–
	Other	–
Cover (sum of cover of natives species)	Trees	–
	Shrubs	–
	Grasses etc	0.6
	Forbs	–
	Ferns	–
	Other	–
High threat weed cover		0.1

*These values summarise the floristic data for input into BAM calculator

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

BAM Function plot (1000m²)

Dimensions (circle applicable size): 20 x (50) m | 10 x 100 m

Tree stem DBH (cm)		Notes on function attributes:
>80	(#)	Stem size class records # large trees (cf. benchmark)
50 - 79	(#)	Record stems for living trees only, and for all species
30 - 49	(+/-)	For multistemmed trees, record only the largest stem
20 - 29	(+/-)	Presence of <5cm stems records regeneration
10 - 19	(+/-)	Record # trees with hollows, not number of hollows
5 - 9	(+/-)	Count as one stem where tree is multistemmed
< 5	(+/-)	Hollow bearing stem may be a dead stem (incl. stag)

# Trees with hollows	<20cm	Total # 0
	>20cm**	
Length of logs		Total (m) 0

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots) Litter cover is used for BAM, other attributes are useful for recording site condition in general

		1	2	3	4	5	Average
Sub-plot score (% cover)	Litter	20	40	80	10	60	42
	Bare ground	5	5	0	0	5	3
	Cryptogam	0	0	0	0	0	0
	Rock	0	0	0	0	0	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	3	O	Microrelief
Cultivation	0		Slope Moderate slope
Grazing (native / stock)	2	R	Aspect SSE
Soil erosion	0		Soil surface texture As SB01 " "
Firewood removal	0		Soil colour
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage Run off
Storm damage	0		Distance to nearest water 100m
Weediness	3	R	Distance to nearest rock outcrop /cave 75km.

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes Site conditions as SB01.

BAM Plot - Field Survey Sheet

Page 2 of ( )

Date 4/9/18 | Survey Name Sunnybright Stage 2

Recorders JC | Plot ID # SB02 | Zone ID 1

GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum
GG	Phalaris aquatica	10		E	L
GG	Cynodon dactylon	25		E	L
FG	Medicago polymorpha	25		E	L
FG	Brassica tournefortii	5		E	L
FG	Plantago sp	0.5	200	E	L
FG	Malva neglecta	0.1	50	E	L
FG	Trifolium repens	5		E	L
FG	Cirsium vulgare	0.1	1	E	L
GG	Dactylactenium radulans	0.5	100	N	L
FG	Erodium cicutarium	0.1	150	E	L
GG	Poa sieberiana	<0.1	1	N	L
SG	Rosa rubignosa	<0.1	1	E	M
FG	Stachys arvensis	0.1	20	E	L

Growth Form (see BAM Appendix 4) - Tree (TG), Shrub (SG), Grass & grasslike (GG), Forb (FG), Fern (EG), Other (OG)

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. *Genus* sp1, *Genus* sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions) Cover area examples: 0.1% = 63x63cm, 0.5% = 1.4x1.4m, 1% =2x2 m, 5%=4x5m, 25%=10x10m

XH - Version 1.1 - Date 1/12/2017

BAM Plot - Field Survey Sheet

Page 1 of ( )

Date 4/9/18	Survey Name Sunnybright Stage 2		
Recorders JC		Plot ID # SB03	Zone ID 1
Photo # 270 - 271		Plot dimensions 20x50	
Datum GDA 94	Zone MGA 55	Plot bearing along midline 214	
Easting 744190	Northing 6300686	Record magnetic bearing along midline from 0 m point	

Record easting, northing at plot marker (0 m point). Photos taken vertically and horizontally at 0m point and 50 m point, looking intc plot

IBRA region	South East Highlands
Subregion	Bathurst
Likely Vegetation Class	
Plant Community Type	No PCT.
Condition state	Poor

Floristics plot is centred on the midline, at 0 m point, 10 m either side

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

BAM Composition / Structure plot (400m²)

Dimensions (circle applicable size): 20 x 20 m | 10 x 40 m

		Sum values*
Native Richness (count of native species)	Trees	–
	Shrubs	–
	Grasses etc	2
	Forbs	1
	Ferns	–
	Other	–
Cover (sum of cover of natives species)	Trees	–
	Shrubs	–
	Grasses etc	0.6
	Forbs	0.1
	Ferns	–
	Other	–
High threat weed cover		

*These values summarise the floristic data for input into BAM calculator

BAM Function plot (1000m²)

Dimensions (circle applicable size): 20 x 50 m | 10 x 100 m

Tree stem DBH (cm)		Notes on function attributes:
>80	(#) –	Stem size class records # large trees (cf. benchmark)
50 - 79	(#) –	Record stems for living trees only, and for all species
30 - 49	(+/-) –	For multistemmed trees, record only the largest stem
20 - 29	(+/-) –	Presence of <5cm stems records regeneration
10 - 19	(+/-) –	Record # trees with hollows, not number of hollows
5 - 9	(+/-) –	Count as one stem where tree is multistemmed
< 5	(+/-)	Hollow bearing stem may be a dead stem (incl. stag)

# Trees with hollows	<20cm	Total # 0
	>20cm**	
Length of logs		Total (m) 0

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots) Litter cover is used for BAM, other attributes are useful for recording site condition in general

		1	2	3	4	5	Average
Sub-plot score (% cover)	Litter	25	40	40	70	40	43
	Bare ground	5	5	10	0	5	5
	Cryptogam	0	0	0	0	0	0
	Rock	0	0	0	0	0	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform	
Clearing (incl. logging)	3	O	Microrelief	Moderate slope
Cultivation	0		Slope	
Grazing (native / stock)	2	R	Aspect	WNW
Soil erosion	0		Soil surface texture	Sandy loam.
Firewood removal	0		Soil colour	red brown
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage	run off
Storm damage	0		Distance to nearest water	30m
Weediness	3	R	Distance to nearest rock outcrop /cave	75km.

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes

Site conditions as SB01

BAM Plot - Field Survey Sheet

Page 2 of ( )

Date 4/9/18	Survey Name Sunnybright Stage 2		
Recorders JC		Plot ID # SB03	Zone ID 1

GF code	Genus species (tick if photcgraphed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum
GG	Phalaris aquaticus	25		E	L
FG	Brassica tournefortii	10		E	L
FG	Eroliium circutarium	0.5	300	E	L
GG	Dactyloctenium radulans	0.5	200	N	L
GG	Cynodon dactylon	15		E	L
FG	Medicago polymorpha	20		E	L
FG	Plantago sp.	20		E	L
FG	Trifolium repens	0.5	300	E	L
GG	Avena sp.	0.1	10	E	L
GG	Enteropogon ramosus	0.1	5	N	L
FG	Sisymbrium hispanicum	0.1	12	E	L
FG	Wahlenbergia sp.	0.1	5	N	L
FG	Conyza bonariensis	0.1	10	E	L
FG	Stachys arvensis	0.1	50	E	L

Growth Form (see BAM Appendix 4) - Tree (TG), Shrub (SG), Grass & grasslike (GG), Forb (FG), Fern (EG), Other (OG)

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. *Genus* sp1, *Genus* sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions) Cover area examples: 0.1% = 63x63cm, 0·5% = 1.4x1.4m, 1% =2x2 m, 5%=4x5m, 25%=10x10m

KH - Version 1.1 - Date 1/12/2017

BAM Plot - Field Survey Sheet

Page 1 of ( )

Date 4/9/18	Survey Name Sunnybright Stage 2		
Recorders JC		Plot ID # SB09	Zone ID 1
Photo # 279-280		Plot dimensions 20x50	
Datum GDA94	Zone MGA55	Plot bearing along midline 71	
Easting 743918	Northing 6300709	Record magnetic bearing along midline from 0 m point	

Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m point and 50 m point, looking intc plot

IBRA region	South East Highlands
Subregion	Bathurst
Likely Vegetation Class	
Plant Community Type	No PCT,
Condition state	Poor,

Floristics plot is centred on the midline, at 0 m point, 10 m either side

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

BAM Composition / Structure plot (400m²)

Dimensions (circle applicable size): 20 x 20m | 10 x 40 m

		Sum values*
Native Richness (count of native species)	Trees	–
	Shrubs	–
	Grasses etc	2
	Forbs	–
	Ferns	–
	Other	–
Cover (sum of cover of natives species)	Trees	–
	Shrubs	–
	Grasses etc	0.2
	Forbs	–
	Ferns	–
	Other	–
High threat weed cover		–

*These values summarise the floristic data for input into BAM calculator

BAM Function plot (1000m²)

Dimensions (circle applicable size): 20 x 50m | 10 x 100 m

Tree stem DBH (cm)	(#)	Notes on function attributes:
>80	(#) –	Stem size class records # large trees (cf. benchmark)
50 - 79	(#) –	Record stems for living trees only, and for all species
30 - 49	(+/-) –	For multistemmed trees, record only the largest stem
20 - 29	(+/-) –	Presence of <5cm stems records regeneration
10 - 19	(+/-) –	Record # trees with hollows, not number of hollows
5 - 9	(+/-)	Count as one stem where tree is multistemmed
< 5	(+/-)	Hollow bearing stem may be a dead stem (incl. stag)

# Trees with hollows	<20cm	Total # 0
	>20cm**	
Length of logs		Total (m) 0

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots) Litter cover is used for BAM, other attributes are useful for recording site condition in general

		1	2	3	4	5	Average
Sub-plot score (% cover)	Litter	80	80	90	80	95	85
	Bare ground	5	5	10	5	5	6
	Cryptogam	6	0	0	0	0	0
	Rock	0	0	0	0	0	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	3	O	Microrelief
Cultivation	0		Slope Moderate slope.
Grazing (native / stock)	2	R	Aspect ESE
Soil erosion	0		Soil surface texture Sandy loam
Firewood removal	0		Soil colour Red-brown
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage run off
Storm damage	0		Distance to nearest water 100m.
Weediness	3	R	Distance to nearest rock outcrop /cave 25 km.

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes

Site conditions as SB09

BAM Plot - Field Survey Sheet

Page 2 of ( )

Date 4/9/18	Survey Name Sunnybright Stage 2,		
Recorders JC		Plot ID # SB09	Zone ID 1

GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum
FG	Scolymus hispanicus	0.1	5	E	L
FG	Brassica borneforti	5		E	L
GG	Phalaris aquatica	25		E	L
FG	Trifolium repens	1	500	E	L
FG	Medicago polymorpha	10		E	L
GG	Cynodon dactylon	25		E	L
FG	Erodium cicutarium	1	300	E	L
TG	Malus pumila	0.5	8	E	M
GG	Dactyloctenium radulans	0.1	10	N	L
GG	Eragrostis leptostachya	0.1	5	N	L
FG	Plantago sp	0.1	100	E	L
FG	Sonchus asper	0.1	5	E	L

Growth Form (see BAM Appendix 4) - Tree (TG), Shrub (SG), Grass & grasslike (GG), Forb (FG), Fern (EG), Other (OG)

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4. ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions) Cover area examples: 0.1% = 63x63cm, 0.5% = 1.4x1.4m, 1% =2x2 m, 5%=4x5m, 25%=10x10m

KH - Version 1.1 - Date 1/12/2017

BAM Plot - Field Survey Sheet

Page 1 of ( )

Date 4/9/18	Survey Name Sunnybright Stage 2		
Recorders JC		Plot ID # SB05	Zone ID 2
Photo # 294 - 295		Plot dimensions 20x50	
Datum GDA 94	Zone MGA 55	Plot bearing along midline 152	
Easting 743973	Northing 6300884	Record magnetic bearing along midline from 0 m point	

Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region	South Eastern Highlands
Subregion	Bathurst
Likely Vegetation Class	
Plant Community Type	No PCT — Condition state Poor

Floristics plot is centred on the midline, at 0 m point, 10 m either side

BAM Composition / Structure plot (400m²)

Dimensions (circle applicable size): ~~20 x 20 m~~ | 10 x 40 m

		Sum values*
Native Richness (count of native species)	Trees	—
	Shrubs	—
	Grasses etc	—
	Forbs	—
	Ferns	—
	Other	—
Cover (sum of cover of natives species)	Trees	—
	Shrubs	—
	Grasses etc	—
	Forbs	—
	Ferns	—
	Other	—
High threat weed cover		5

*These values summarise the floristic data for input into BAM calculator

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

BAM Function plot (1000m²)

Dimensions (circle applicable size): ~~20 x 50 m~~ | 10 x 100 m

Tree stem DBH (cm)		Notes on function attributes:
>80	(#)	Stem size class records # large trees (cf. benchmark)
50 - 79	(#)	Record stems for living trees only, and for all species
30 - 49	(+/-)	For multistemmed trees, record only the largest stem
20 - 29	(+/-)	Presence of <5cm stems records regeneration
10 - 19	(+/-)	Record # trees with hollows, not number of hollows
5 - 9	(+/-)	Count as one stem where tree is multistemmed
< 5	(+/-)	Hollow bearing stem may be a dead stem (incl. stag)

# Trees with hollows	<20cm	Total #
	>20cm**	0
Length of logs		Total (m)
IIII IIII IIII IIII IIII IIII IIII IIII IIII IIII		50

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots) Litter cover is used for BAM, other attributes are useful for recording site condition in general

		1	2	3	4	5	Average
Sub-plot score (% cover)	Litter	80	20	70	95	80	69
	Bare ground	0	80	0	0	5	17
	Cryptogam	0	0	0	0	0	0
	Rock	0	0	0	0	0	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	3	O	Microrelief
Cultivation	0		Slope Moderate slope
Grazing (native / stock)	2	R	Aspect ~~North~~ SSE
Soil erosion	0		Soil surface texture Sandy loam
Firewood removal	0		Soil colour red-brown
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage run off
Storm damage	0		Distance to nearest water 150
Weediness	2	R	Distance to nearest rock outcrop /cave >5km.

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes

Site condition as SB01.

BAM Plot - Field Survey Sheet

Page 2 of ( )

Date 4/9/18	Survey Name Sunnybright Stage 2		
Recorders JC		Plot ID # SB05	Zone ID 2

GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum
TG	Pinus radiata	60		E	U
# SG	Lycium ferocissimum	5		E	M
FG	Lepidium sp	0.1	5	E	L
GG	Phalaris aquatica	25		E	L
FG	Brassica tournefortii	0.1	100	E	L
FG	Erodium cicutarium	0.1	300	E	L
FG	Sonchus oleraceus	0.1	50	E	L
FG	Hypochaeris glabra	0.1	100	E	L
FG	Malva neglecta	0.1	100	E	L
FG	Geranium molle	0.1	5	E	L
GG	Eragrostis cilianensis	0.1	5	E	L
FG	Stachys arvensis	0.1	100	E	L
OG	Avena sp	0.1	10	E	L
FG	Medicago polymorpha	5		E	L

Growth Form (see BAM Appendix 4) - Tree (TG), Shrub (SG), Grass & grasslike (GG), Forb (FG), Fern (EG), Other (OG)

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions) Cover area examples: 0.1% = 63x63cm, 0·5% = 1.4x1.4m, 1% =2x2 m, 5%=~~4.5~~5m, 25%=10x10m

Appendix C: Field survey results

Flora species list

These species were identified on the site during the September 2018 field survey:

***FG = Forb, GG = Grass and Grass-like, SG = Shrub, TG = Tree**

[+]N = Native, P = Priority Weed, W = Introduced

Growth Form*	Species Name	Common Name	Exotic+	High Threat Weed
FG	*Plantago sp.*		E	
FG	*Medicago polymorpha*	Burr Medic	E	
FG	*Brassica tournefortii*	Mediterranean Turnip	E	
FG	*Rumex obtusifolius*	Broad-leaf Dock	E	
FG	*Malva neglecta*	Dwarf Mallow	E	
FG	*Linum marginale*	Native Flax	N	
FG	*Helminthotheca echioides*	Ox-tongue	E	
FG	*Hypochaeris glabra*	Smooth Catsear	E	
FG	*Onopordum acanthium*	Scotch Thistle	E	
FG	*Erodium cicutarium*	Common Storksbill	E	
FG	*Rumex pulcher*	Fiddle Dock	E	
FG	*Xanthium spinosum*	Bathurst Burr	E	
FG	*Trifolium repens*	White Clover	E	
FG	*Cirsium vulgare*	Spear Thistle	E	
FG	*Stachys arvensis*	Stagger Weed	E	
FG	*Scolymus hispanicus*	Golden Thistle	E	
FG	*Conyza bonariensis*	Fleabane	E	
FG	*Lepidium sp*	peppercress	E	
FG	*Sonchus oleraceus*	Common Sowthistle	E	
FG	*Geranium molle*	Cranesbill Geranium	E	
GG	*Phalaris aquatica*	Phalaris	E	
GG	*Cynodon dactylon*	Couch	E	
GG	*Panicum effusum*	Hairy Panic	N	
GG	*Eragrostis leptostachya*	Paddock Lovegrass	N	
GG	*Enteropogon ramosus*	Curly Windmill Grass	N	
GG	*Dactyloctenium radulans*	Button Grass	N	
GG	*Poa sieberiana*	Snow Grass	N	
GG	*Avena sp.*	Oats	E	
GG	*Eragrostis cilianensis*	Stinkgrass	E	
SG	*Lycium ferocissimum*	African Boxthorn	E	
SG	*Rosa rubignosa*	Sweet Briar	E	
TG	*Pinus radiata*	Radiata Pine	E	
TG	*Malus pumila*	Apple	E	
GG	*Juncus flavidus*		N	
GG	*Cyperus eragrostis*	Umbrella Sedge	E	
FG	*Chrysocpalum apiculatum*	Common Everlasting	N	
GG	*Rytidosperma bipartitum*	Wallaby Grass	N	

Fauna species list.

These species were identified on the site during the July 2018 field survey:

Class	Species Name	Common Name	Exotic
CRUSTACEA	*Cherax destructor*	Yabby	N
AMPHIBIA	*Crinia parinsignifera*	Eastern Sign-bearing froglet	N
REPTILIA	*Cryptoblepharus sp.*	snake-eyed skink	N
AVES	*Corvus coronoides*	Australian Raven	N
AVES	*Gymnorhina tibicen*	Australian Magpie	N
AVES	*Acanthiza chrysorrhoa*	Yellow-rumped Thornbill	N
AVES	*Platycercus eximus*	Eastern Rosella	N
AVES	*Strepera graculina*	Pied Currawong	N
AVES	*Cracticus torquatus*	Grey Butcherbird	N
AVES	*Grallina cyanoleuca*	Magpie Lark	N
AVES	*Alauda arvensis*	Skylark	E
AVES	*Manorina melanocephala*	Noisy Miner	N
AVES	*Anus gracilis*	Grey Teal	N
AVES	*Tachybaptus novaehollandiae*	Australian Grebe	N
AVES	*Malurus cyaneus*	Superb Fairy-wren	N
AVES	*Anus superciliosa*	Pacific Black Duck	N
AVES	*Himantopus himantopus*	Black-winged Stilt	N
AVES	*Elseyornis melanops*	Black-fronted Dotterel	N
AVES	*Gallinula tenebrosa*	Dusky Moorhen	N
AVES	*Fulica atra*	Eurasian Coot	N
AVES	*Hirundo neoxena*	Welcome Swallow	N
AVES	*Microcarbo melanoleucos*	Little Pied Cormorant	N
AVES	*Phalacrocorax sulcirostris*	Little Black Cormorant	N
AVES	*Aythya australis*	Hardhead	N
AVES	*Chenonetta jubata*	Australian Wood Duck	N
AVES	*Vanellus miles*	Masked Lapwing	N
MAMMALIA	*Macropus giganteus*	Eastern Grey Kangaroo	N
MAMMALIA	*Vulpes vulpes*	Red Fox	E
MAMMALIA	*Oryctorlargtos cuniculus*	European Rabbit	E

Appendix D: Habitat Assessment for threatened species and communities predicted to occur

Habitat assessment table for BC Act listed threatened species and EPBC Act migratory species within the Bathurst IBRA subregion, NSW Bionet records and incorporating sightings of species within 10 km. Unless otherwise indicated, habitat information has been taken from OEH Threatened Biodiversity Profiles, available at https://www.environment.nsw.gov.au/threatenedSpeciesApp/. Likelihood of occurrence has been determined based on professional judgement, observations made during field surveys and information available in species profiles and other sources.

NSW Status: P=Protected, P13=Protected native plant, V=Vulnerable, E1=Endangered, E2=Endangered population, E4=Extinct, E4A=Critically endangered, 2=Category 2 sensitive species, 3=Category 3 sensitive species.

Commonwealth Status: C=CAMBA, J=JAMBA, K=ROKAMBA, CE=Critically endangered, E=Endangered, V=Vulnerable.

THREATENED FLORA

Species Name	Common Name	NSW Status	Comm. Status	Record within 10km	Likelihood of Occurrence	Potential Impact
Leucochrysum albicans var. tricolor	Hoary Sunray	P	E	P	In NSW it currently occurs on the Southern Tablelands, in an area roughly bounded by Albury, Bega and Goulburn, with a few scattered localities known from beyond this region. Occurs in a wide variety of grassland, woodland and forest habitats, generally on relatively heavy soils. Can occur in modified habitats such as semi-urban areas and roadsides. Highly dependent on the presence of bare ground for germination. In some areas, disturbance is required for successful establishment. **No – the subject site is not within the distribution of this species**	No impact
Lepidium hyssopifolium	Aromatic Peppercress	E1,P	E	6	In NSW, the Aromatic Peppercress has a small population near Bathurst, one population at Bungendore, and one near Crookwell. The species occurs in a variety of habitats including woodland with a grassy understorey and grassland. Appears to respond to disturbance, having appeared after soil disturbance at one site. **Unlikely – The species is known near Bathurst and occurs in disturbed sites.**	Unlikely
Swainsona sericea	Silky Swainson-pea	V,P		3	Found in Natural Temperate Grassland and Snow Gum *Eucalyptus pauciflora* Woodland on the Monaro. Found in Box-Gum Woodland in the Southern Tablelands and South West Slopes. Sometimes found in association with cypress-pines *Callitris* spp. Habitat on plains unknown. Regenerates from seed after fire	No impact

					No – Correct vegetation community does not occur on site. Fire has been excluded from the subject site for many years, meaning no opportunity for regeneration.	
Acacia clunies-rossiae	Kanangra Wattle	V,P		3	Kanangra Wattle grows in the Kowmung and Coxs River areas entirely within Kanangra-Boyd and Blue Mountains National Parks **No – The subject site is outside the plant's area of distribution**	No impact
Acacia flocktoniae	Flockton Wattle	V,P	V	3	The Flockton Wattle is found only in the Southern Blue Mountains (at Mt Victoria, Megalong Valley and Yerranderie) and grows in dry sclerophyll forest on sandstone. **No – The subject site is outside the plant's area of distribution**	No impact
Callistemon megalongensis	Megalong Valley Bottlebrush	E4A,P	CE	6	Occurs in shrubby swamp habitat and swampy woodland. Associated species include *Callistemon citrinus, Leptospermum morrisonii, L. juniperinum, L. polygalifolium, L. obovatum, Empodisma minus* and *Grevillea asplenifolia* with occasional emergent *Melaleuca linearifolia* and *Eucalyptus camphora*. **No – Associated vegetation community does not occur on site.**	No impact
Eucalyptus aggregata	Black Gum	V,P	V	2	In NSW Black Gum occurs in the South Eastern Highlands Bioregion and on the western fringe of the Sydney Basin Bioregion. Black Gum has a moderately narrow distribution, occurring mainly in the wetter, cooler and higher parts of the tablelands, for example in the Blayney, Crookwell, Goulburn, Braidwood and Bungendore districts. Grows in the lowest parts of the landscape, on alluvial soils, on cold, poorly-drained flats and hollows adjacent to creeks and small rivers. Also occurs as isolated paddock trees in modified native or exotic pastures and particularly in TSRs. **Unlikely – Although associated vegetation communities are not present, the species sometimes occurs as a paddock tree in introduced pasture.**	Unlikely
Eucalyptus pulverulenta	Silver-leafed Gum	V,P	V	48	The Silver-leafed Gum is found in two quite separate areas, the Lithgow to Bathurst area and the Monaro (Bredbo to Bombala). Grows in shallow soils as an understorey plant in open forest, typically dominated by Brittle Gum, Red Stringybark, Broad-leafed Peppermint, Silvertop Ash and Apple Box. **No – Associated vegetation community does not occur on the subject site**	No impact

Eucalyptus robertsonii subsp. hemisphaerica	Robertson's Peppermint	V,P	V	P	Robertson's Peppermint is known only from the central tablelands of NSW, at small disjunct localities from north of Orange to Burraga. Locally frequent in grassy or dry sclerophyll woodland or forest, on lighter soils and often on granite. Usually found in closed grassy woodlands in locally sheltered sites. Habitats include quartzite ridges, upper slopes and a slight rise of shallow clay over volcanics. **No – Associated vegetation and soil types do not exist on the subject site**	No impact
Caladenia attenuata	Duramana Fingers	E4A,P,2	CE	P	*Caladenia attenuata* is endemic to NSW. It has a highly restricted distribution, having been recorded from 2 localities within the Bathurst Ilford region with an area of occupancy estimated to be 8 square kilometres. **No - The subject site is outside the plant's area of distribution**	No impact
Veronica blakelyi		V,P		P	*Veronica blakeyi* is restricted to the western Blue Mountains, near Clarence, near Mt Horrible, on Nullo Mountain and in the Coricudgy Range. Occurs in eucalypt forest, often in moist and sheltered areas. Associated canopy species include *Eucalyptus dives, E. dalrympleana, E. rossii and E. pauciflora.* **No - The subject site is outside the plant's area of distribution**	No impact
Grevillea divaricata		E1,P,3		P	*Grevillea divaricata* is known only from the type collection made in 1823 by Allan Cunningham, from "north of Bathurst". Specimen notes describe the plant as occurring frequently in dry open forest lands and as possibly growing on rocky river margins. **No – Associated habitat characteristics do not occur on the subject site**	No impact
Persoonia marginata	Clandulla Geebung	V,P	V	1	The Clandulla Geebung occurs between Kandos and Clarence in the western Blue Mountains. Populations are largely disjunct and include Clandulla, Ben Bullen and Sunny Corner State Forests; isolated populations have also been recorded from Turon and Gardens of Stone National Parks. Grows in dry sclerophyll forest and woodland communities on sandstone. **Unlikely – although associated vegetation and soil types do not exist on the subject site, the plant has been recorded within the 10 km search area.**	Unlikely
Asterolasia buxifolia		E1,P		4	Rediscovered in 2000, little is known about the species. The growth rate appears to be very slow, and the flowering season short. Apparently restricted to the riparian zone of a granitic rocky section of the Lett River.	No impact

					No - The subject site is outside the plant's area of distribution	
Boronia deanei	Deane's Boronia	V,P	V	P	Grows in wet heath, often at the margins of open forest adjoining swamps or along streams. Also found in drier open forest on poorly drained peat soils over granite or sandstone. Fire ecology is uncertain, but too intense or too frequent fires can hinder survival and recruitment. **No – associated habitat and vegetation does not occur on subject site**	No impact
Zieria obcordata		E1,P	E	41	*Zieria obcordata* occurs at two sites with a geographic range of 105 km. These are in the Wuuluman area near Wellington, comprising of a single subpopulation over 3 sites comprising 209 plants and Crackerjack Rock/Rock Forests area NW of Bathurst. Grows in eucalypt woodland or shrubland dominated by species of Acacia on rocky hillsides. Also occurs in Eucalyptus and Callitris dominated woodland with an open, low shrub understorey, on moderately steep, mainly west to north-facing slopes in sandy loam amongst granite boulders. The altitude range of sites is 500 to 830 metres. In wild populations, plants tend to grow in crevices between granite boulders. *Zieria obcordata* is extremely sensitive to grazing and browsing disturbances by domestic stock and native herbivores. Heavily browsed plants and vigorous regrowth (following severe browsing by wallabies) have been recorded at sites. **No – associated habitat does not occur on the subject site**	No impact
Thesium australe	Austral Toadflax	V,P	V	P	Austral Toad-flax is found in very small populations scattered across eastern NSW, along the coast, and from the Northern to Southern Tablelands. It is also found in Tasmania and Queensland and in eastern Asia. Although originally described from material collected in the SW Sydney area, populations have not been seen in a long time. It may persist in some areas in the broader region. Occurs in grassland on coastal headlands or grassland and grassy woodland away from the coast. **No – associated habitat and vegetation does not occur on subject site**	No impact
Euphrasia scabra	Rough Eyebright	E1,P,3		1	There are three extant populations of the Rough Eyebright in NSW: Bondi State Forest, South East Forests National Park and near Nunnock Swamp. Occurs in or at the margins of swampy grassland or in sphagnum bogs, often in wet, peaty soil. An annual species, with most flowering collections of the species have been made between January and April. **No – associated habitat does not occur on subject site**	No impact

THREATENED FAUNA

Species Name	Common Name	NSW Status	Comm. Status	Record within 10km	Likelihood of Occurrence	Potential Impact
Mixophyes balbus	Stuttering Frog	E1,P,2	V	P	Stuttering Frogs occur along the east coast of Australia from southern Queensland to north-eastern Victoria. Considered to have disappeared from Victoria and to have undergone considerable range contraction in NSW, particularly in south-east NSW. It is the only *Mixophyes* species that occurs in south-east NSW and in recent surveys it has only been recorded at three locations south of Sydney. The Dorrigo region, in north-east NSW, appears to be a stronghold for this species. Found in rainforest and wet, tall open forest in the foothills and escarpment on the eastern side of the Great Dividing Range. Outside the breeding season adults live in deep leaf litter and thick understorey vegetation on the forest floor. **No – habitat does not occur on the subject site**	No impact
Pseudophryne australis	Red-crowned Toadlet	V,P		P	The Red-crowned Toadlet has a restricted distribution. It is confined to the Sydney Basin, from Pokolbin in the north, the Nowra area to the south, and west to Mt Victoria in the Blue Mountains. Occurs in open forests, mostly on Hawkesbury and Narrabeen Sandstones. Inhabits periodically wet drainage lines below sandstone ridges that often have shale lenses or cappings. Shelters under rocks and amongst masses of dense vegetation or thick piles of leaf litter. **No – habitat does not occur on the subject site**	No impact
Litoria aurea	Green and Golden Bell Frog	E1,P	V	8	The Green and Golden Bell Frog main populations in NSW are located around the metropolitan areas of Sydney, Shoalhaven and mid north coast (one an island population). There is only one known population on the NSW Southern Tablelands. Inhabits marshes, dams and stream-sides, particularly those containing bullrushes (*Typha* spp.) or spikerushes (*Eleocharis* spp.). Optimum habitat includes water-bodies that are unshaded, free of predatory fish such as Plague Minnow (*Gambusia holbrooki*), have a grassy area nearby and diurnal sheltering sites available. Some sites, particularly in the Greater Sydney region occur in highly disturbed areas. **Potential – Known records occur within the 10 km search area. Some elements of habitat might be present**	Potential
Litoria booroolongensis	Booroolong Frog	E1,P	E	24	The Booroolong Frog is restricted to NSW and north-eastern Victoria, predominantly along the western-flowing streams of the Great Dividing Range. It has disappeared from much of the Northern Tablelands,	Unlikely

					however several populations have recently been recorded in the Namoi catchment. The species is rare throughout most of the remainder of its range. Live along permanent streams with some fringing vegetation cover such as ferns, sedges or grasses. **Unlikely – although correct habitat does not occur on the subject site, there are known records within 10 km of the subject site.**	
Litoria castanea	Yellow-spotted Tree Frog	E4A,P	E	2	Yellow-spotted Tree frog has only one known population near Yass. Require large permanent ponds or slow flowing 'chain-of-ponds' streams with abundant emergent vegetation such as bulrushes and aquatic vegetation. **Unlikely – although correct habitat does not occur on the subject site, there are known records within 10 km of the subject site.**	Unlikely
Litoria littlejohni	Littlejohn's Tree Frog	V,P	V	P	Littlejohn's Tree Frog has a distribution that includes the plateaus and eastern slopes of the Great Dividing Range from Watagan State Forest (90 km north of Sydney) south to Buchan in Victoria. This species breeds in the upper reaches of permanent streams and in perched swamps. Non-breeding habitat is heath based forests and woodlands where it shelters under leaf litter and low vegetation, and hunts for invertebrate prey either in shrubs or on the ground. **No – habitat does not occur on the subject site**	No impact
Litoria raniformis	Southern Bell Frog	E1,P	V	P	The Southern Bell Frog is known to exist only in isolated populations in the Coleambally Irrigation Area, the Lowbidgee floodplain and around Lake Victoria. 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. They are also found in irrigated rice crops, particularly where there is no available natural habitat. **No – habitat does not occur on the subject site**	No impact
Aprasia parapulchella	Pink-tailed Legless Lizard	V,P	V	P	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. Inhabits sloping, open woodland areas with predominantly native grassy groundlayers, particularly those dominated by Kangaroo Grass (*Themeda australis*). 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	No impact

					constructed by and are often still inhabited by small black ants and termites. **No – habitat does not occur on the subject site**	
Delma impar	Striped Legless Lizard	V,P	V	P	The Striped Legless Lizard occurs in the Southern Tablelands, the South West Slopes and possibly on the Riverina. Populations are known in the Goulburn, Yass, Queanbeyan, Cooma and Tumut areas. Found mainly in Natural Temperate Grassland but has also been captured in grasslands that have a high exotic component. Habitat is where grassland is dominated by perennial, tussock-forming grasses such as Kangaroo Grass, spear-grasses. and Poa tussocks Poa spp., and occasionally wallaby grasses. Sometimes present in modified grasslands with a significant content of exotic grasses. Usually found where soils are predominantly basalt with a high clay content and a propensity for cracking. Favoured habitat typically contains little bare ground, with plant litter to a depth of approximately 3 cm. **No – habitat (cracking soils, deep plant/leaf litter) does not occur on the subject site**	No impact
Varanus rosenbergi	Rosenberg's Goanna	V,P		P	Rosenberg's Goanna occurs on the Sydney Sandstone in Wollemi National Park to the north-west of Sydney, in the Goulburn and ACT regions and near Cooma in the south. Found in heath, open forest and woodland. Associated with termites, the mounds of which this species nests in and requires a large habitat range. **No – habitat does not occur on the subject site**	No impact
Hoplocephalus bungaroides	Broad-headed Snake	E1,P,2	V	P	The Broad-headed Snake is largely confined to Triassic and Permian sandstones, including the Hawkesbury, Narrabeen and Shoalhaven groups, within the coast and ranges in an area within approximately 250 km of Sydney. Shelters in rock crevices and under flat sandstone rocks on exposed cliff edges during autumn, winter and spring. Moves from the sandstone rocks to shelters in crevices or hollows in large trees within 500m of escarpments in summer. **No – habitat does not occur on the subject site**	No impact
Anseranas semipalmata	Magpie Goose	V,P		3	The Magpie Goose is mainly found in shallow wetlands (less than 1 m deep) with dense growth of rushes or sedges. Equally at home in aquatic or terrestrial habitats; often seen walking and grazing on land; feeds on grasses, bulbs and rhizomes. Activities are centred on wetlands, mainly those on floodplains of rivers and large shallow wetlands formed by run-	No impact

					off. Often seen in trios or flocks on shallow wetlands, dry ephemeral swamps, wet grasslands and floodplains; roosts in tall vegetation. **No – habitat does not occur on the subject site**	
Oxyura australis	Blue-billed Duck	V,P		P	The Blue-billed Duck is endemic to south-eastern and south-western Australia. It is widespread in NSW, but most common in the southern Murray-Darling Basin area. Birds disperse during the breeding season to deep swamps up to 300 km away. It is generally only during summer or in drier years that they are seen in coastal areas. The Blue-billed Duck prefers deep water in large permanent wetlands and swamps with dense aquatic vegetation. The species is completely aquatic, swimming low in the water along the edge of dense cover. **Potential – dams on the subject site might provide marginal, temporary habitat**	Potential
Stictonetta naevosa	Freckled Duck	V,P		P	The Freckled Duck is found primarily in south-eastern and south-western Australia, occurring as a vagrant elsewhere. It breeds in large temporary swamps created by floods in the Bulloo and Lake Eyre basins and the Murray-Darling system, particularly along the Paroo and Lachlan Rivers, and other rivers within the Riverina. The duck is forced to disperse during extensive inland droughts when wetlands in the Murray River basin provide important habitat. The species may also occur as far as coastal NSW and Victoria during such times. Prefer permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. During drier times they move from ephemeral breeding swamps to more permanent waters such as lakes, reservoirs, farm dams and sewage ponds. **Potential – dams on the subject site might provide marginal, temporary habitat**	Potential
Phaethon rubricauda	Red-tailed Tropicbird	V,P	C	1	The Tropicbird ranges throughout tropical and subtropical zones of the Indian and West Pacific Oceans, breeding on oceanic islands. Lord Howe Island is said to have the greatest breeding concentration in the world. Breeds in coastal cliffs and under bushes in tropical Australia. Nests on cliffs of the northern hills and southern mountains on the main island at Lord Howe Island. Nest consists of a mere scrape on the ground on an inaccessible cliff ledge. Vagrant birds occur in coastal NSW waters, and occasionally even inland, particularly after storm events **No – habitat does not occur on the subject site**	No impact

Apus pacificus	Fork-tailed Swift	P	C,J,K	1	In NSW, the Fork-tailed Swift is recorded in all regions. Many records occur east of the Great Divide, however, a few populations have been found west of the Great Divide. The Fork-tailed Swift is almost exclusively aerial, flying from < 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. The sometimes occur above rainforests, wet sclerophyll forest or open forest or plantations of pines. **Potential**	Potential
Hirundapus caudacutus	White-throated Needletail	P	C,J,K	2	In Australia, the White-throated Needletail is almost exclusively aerial, from heights of less than 1 m up to more than 1000 m above the ground. Because they are aerial, it has been stated that conventional habitat descriptions are inapplicable (Cramp 1985), but there are, nevertheless, certain preferences exhibited by the species. They are probably recorded most often above wooded areas, including open forest and rainforest, and may also fly between trees or in clearings, below the canopy, but they are less commonly recorded flying above woodland. **No– occur mostly over wooded areas**	No impact
Botaurus poiciloptilus	Australasian Bittern	E1,P	E	P	The Australasian Bittern favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes and. Hides during the day amongst dense reeds or rushes and feed mainly at night on frogs, fish, yabbies, spiders, insects and snails. Feeding platforms may be constructed over deeper water from reeds trampled by the bird; platforms are often littered with prey remains. Breeding occurs in summer from October to January; nests are built in secluded places in densely-vegetated wetlands on a platform of reeds; there are usually six olive-brown eggs to a clutch. **No – habitat does not occur on the subject site**	No impact
Plegadis falcinellus	Glossy Ibis	P	C	1	The Glossy Ibis' preferred habitat for foraging and breeding are fresh water marshes at the edges of lakes and rivers, lagoons, flood-plains, wet meadows, swamps, reservoirs, sewage ponds, rice-fields and cultivated areas under irrigation. The species is occasionally found in coastal locations such as estuaries, deltas, saltmarshes and coastal lagoons.	Potential

					Potential – dams on the subject site might provide marginal, temporary habitat	
Circus assimilis	Spotted Harrier	V,P		2	The Spotted Harrier occurs throughout the Australian mainland, except in densely forested or wooded habitats of the coast, escarpment and ranges, and rarely in Tasmania. Individuals disperse widely in NSW and comprise a single population. Occurs in grassy open woodland including Acacia and mallee remnants, inland riparian woodland, grassland and shrub steppe. It is found most commonly in native grassland, but also occurs in agricultural land, foraging over open habitats including edges of inland wetlands. **Potential – vagrant individuals might forage over the subject site**	Potential
Haliaeetus leucogaster	White-bellied Sea-Eagle	V,P	C	1	The White-bellied Sea-Eagle is distributed along the coastline (including offshore islands) of mainland Australia and Tasmania. It also extends inland along some of the larger waterways, especially in eastern Australia. The habitats occupied by the sea-eagle are characterised by the presence of large areas of open water (larger rivers, swamps, lakes, the sea and sewage ponds). Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, forest (including rainforest) and even urban areas. Breeding territories are located close to water, and mainly in tall open forest or woodland, although nests are sometimes located in other habitats such as dense forest (including rainforest), closed scrub or in remnant trees on cleared land. **No – habitat does not occur on the subject site**	No impact
Hieraaetus morphnoides	Little Eagle	V,P		4	The Little Eagle is found throughout the Australian mainland excepting the most densely forested parts of the Dividing Range escarpment. It occurs as a single population throughout NSW. Occupies open eucalypt forest, woodland or open woodland. She-oak or Acacia woodlands and riparian woodlands of interior NSW are also used. Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter. **Potential – vagrant individuals might forage over the subject site**	Potential
Lophoictinia isura	Square-tailed Kite	V,P,3		P	The Square-tailed Kite ranges along coastal and subcoastal areas from south-western to northern Australia, Queensland, NSW and Victoria. In NSW, scattered records of the species throughout the state indicate that the species is a regular resident in the north, north-east and along the major west-flowing river systems. Found in a variety of timbered habitats including dry woodlands and open forests. Shows a particular preference for timbered watercourses. In arid north-western NSW, has been observed in stony country with a ground cover of chenopods and grasses, open acacia scrub and patches of low open eucalypt woodland.	No impact

					No – habitat does not occur on the subject site	
Falco subniger	Black Falcon	V,P		2	The Black Falcon is widely, but sparsely, distributed in New South Wales, mostly occurring in inland regions. In New South Wales there is assumed to be a single population that is continuous with a broader continental population, given that falcons are highly mobile, commonly travelling hundreds of kilometres. Populations are likely to occur in most substantial reserve of flat, open habitats in the arid and semi-arid zones, particularly those with riparian habitats. The Black Falcon inhabits woodland, shrubland and grassland in the arid and semi-arid zones, especially wooded (eucalypt dominated) watercourses; it also uses agricultural land with scattered remnant trees. The Falcon is often associated with streams or wetlands, visiting them in search of prey. It uses standing dead trees as lookout posts. **Potential – vagrant individuals might forage over the subject site**	Potential
Grus rubicunda	Brolga	V,P		P	The Brolga was formerly found across Australia, except for the south-east corner, Tasmania and the south-western third of the country. It is still abundant in the northern tropics, but very sparse across the southern part of its range. Though Brolgas often feed in dry grassland or ploughed paddocks or even desert claypans, they are dependent on wetlands too, especially shallow swamps, where they will forage with their head entirely submerged. **No – habitat does not occur on the subject site**	No impact
Burhinus grallarius	Bush Stone-curlew	E1,P		P	The Bush Stone-curlew is found throughout Australia except for the central southern coast and inland, the far south-east corner, and Tasmania. Only in northern Australia is it still common however and in the south-east it is either rare or extinct throughout its former range. Inhabits open forests and woodlands with a sparse grassy ground layer and fallen timber. **No – habitat does not occur on the subject site**	No impact
Rostratula australis	Australian Painted Snipe	E1,P	E	K	Most records of the Australian Painted Snipe are from the south east, particularly the Murray Darling Basin, with scattered records across northern Australia and historical records from around the Perth region in Western Australia. In NSW many records are from the Murray-Darling Basin including the Paroo wetlands, Lake Cowal, Macquarie Marshes, Fivebough Swamp and more recently, swamps near Balldale and Wanganella. Other important locations with recent records include wetlands on the Hawkesbury River and the Clarence and lower Hunter	No impact

					Valleys. Prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber. Nests on the ground amongst tall vegetation, such as grasses, tussocks or reeds. **No – habitat does not occur on the subject site**	
Calidris acuminata	Sharp-tailed Sandpiper	P	C,J,K	8	The Sharp-tailed Sandpiper spends the non-breeding season in Australia with small numbers occurring regularly in New Zealand. Most of the population migrates to Australia, mostly to the south-east and are widespread in both inland and coastal locations and in both freshwater and saline habitats. Many inland records are of birds on passage. In Australasia, the Sharp-tailed Sandpiper prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation. This includes lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, saltpans and hypersaline salt lakes inland. **Potential – dams on the subject site might provide marginal, temporary habitat**	Potential
Calidris ferruginea	Curlew Sandpiper	E1,P	CE,C,J,K	K	In Australia, Curlew Sandpipers occur around the coasts and are also quite widespread inland, though in smaller numbers. Records occur in all states during the non-breeding period, and also during the breeding season when many non-breeding one year old birds remain in Australia rather than migrating north. Curlew Sandpipers mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in salt works and sewage farms. They are also recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand. They occur in both fresh and brackish waters. Occasionally they are recorded around floodwaters. **Potential – dams on the subject site might provide marginal, temporary habitat**	Potential
Gallinago hardwickii	Latham's Snipe	P	C,J,K	10	Latham's Snipe is a non-breeding visitor to south-eastern Australia, and is a passage migrant through northern Australia. The species has been recorded along the east coast of Australia from Cape York Peninsula through to south-eastern South Australia. In Australia, Latham's Snipe occurs in permanent and ephemeral wetlands up to 2000 m above sea-level. They usually inhabit open, freshwater wetlands with low, dense vegetation (e.g. swamps, flooded grasslands or heathlands, around bogs and other water bodies). However, they can also occur in habitats with	Potential

					saline or brackish water, in modified or artificial habitats, and in habitats located close to humans or human activity. **Potential – dams on the subject site might provide marginal, temporary habitat**	
Limosa limosa	Black-tailed Godwit	V,P	C,J,K	P	The Black-tailed Godwit is found in all states and territories of Australia, however, it prefers coastal regions and the largest populations are found on the north coast between Darwin and Weipa. In Australia the Black-tailed Godwit has a primarily coastal habitat environment. The species is commonly found in sheltered bays, estuaries and lagoons with large intertidal mudflats or sandflats, or spits and banks of mud, sand or shell-grit; occasionally recorded on rocky coasts or coral islets. **No – suitable habitat does not occur on the subject site**	No impact
Callocephalon fimbriatum	Gang-gang Cockatoo	V,P,3		13	The Gang-gang Cockatoo is distributed from southern Victoria through south- and central-eastern New South Wales. In New South Wales, the Gang-gang Cockatoo is distributed from the south-east coast to the Hunter region, and inland to the Central Tablelands and south-west slopes. It occurs regularly in the Australian Capital Territory. It is 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, 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 – suitable habitat does not occur on the subject site**	No impact
Calyptorhynchus lathami	Glossy Black-Cockatoo	V,P,2		2	The Glossy Black-Cockatoo is uncommon although widespread throughout suitable forest and woodland habitats, from the central Queensland coast to East Gippsland in Victoria, and inland to the southern tablelands and central western plains of NSW, with a small population in the Riverina. Inhabits open forest and woodlands of the coast and the Great Dividing Range where stands of she-oak occur. Black Sheoak and Forest Sheoak are important foods. Feeds almost exclusively on the seeds of several species of she-oak (*Casuarina* and *Allocasuarina* species), shredding the cones with the massive bill. Dependent on large hollow-bearing eucalypts for nest sites. **No – suitable habitat does not occur on the subject site**	No impact

Glossopsitta pusilla	Little Lorikeet	V,P		1	The Little Lorikeet is distributed widely across the coastal and Great Divide regions of eastern Australia from Cape York to South Australia. NSW provides a large portion of the species' core habitat, with lorikeets found westward as far as Dubbo and Albury. Forages primarily in the canopy of open Eucalyptus forest and woodland, yet also finds food in Angophora, Melaleuca and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity. Isolated flowering trees in open country, e.g. paddocks, roadside remnants and urban trees also help sustain viable populations of the species. **No – no native, flowering trees exist on the subject site**	No impact
Lathamus discolor	Swift Parrot	E1,P,3	CE	P	The Swift Parrot breeds in Tasmania during spring and summer, migrating in the autumn and winter months to south-eastern Australia from Victoria and the eastern parts of South Australia to south-east Queensland. In NSW mostly occurs on the coast and south west slopes. Migrates to the Australian south-east mainland between March and October. On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. Favoured feed trees include winter flowering species such as Swamp Mahogany, Spotted Gum, Red Bloodwood, Mugga Ironbark, and White Box. **No – no native, flowering trees exist on the subject site**	No impact
Polytelis swainsonii	Superb Parrot	V,P,3	V	P	The Superb Parrot is found throughout eastern inland NSW. On the South-western Slopes their core breeding area is roughly bounded by Cowra and Yass in the east, and Grenfell, Cootamundra and Coolac in the west. Birds breeding in this region are mainly absent during winter, when they migrate north to the region of the upper Namoi and Gwydir Rivers. The other main breeding sites are in the Riverina along the corridors of the Murray, Edward and Murrumbidgee Rivers where birds are present all year round. Inhabit Box-Gum, Box-Cypress-pine and Boree Woodlands and River Red Gum Forest. In the Riverina the birds 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 nest trees can be in open Box-Gum Woodland or isolated paddock trees. Species known to be used are Blakely's Red Gum, Yellow Box, Apple Box and Red Box. **No – no suitable habitat exists on the subject site**	No impact
Ninox connivens	Barking Owl	V,P,3		1	The Barking Owl occurs in a wide but sparse distribution in NSW. Core populations exist on the western slopes and plains (especially the Pilliga) and in some northeast coastal and escarpment forests. Sometimes extend	Potential

					their home range into urban areas, hunting birds in garden trees and insects attracted to streetlights. Inhabits woodland and open forest, including fragmented remnants and partly cleared farmland. It is flexible in its habitat use, and hunting can extend in to closed forest and more open areas. Sometimes able to successfully breed along timbered watercourses in heavily cleared habitats (e.g. western NSW) due to the higher density of prey on these fertile soils. Roost in shaded portions of tree canopies, including tall midstorey trees with dense foliage such as Acacia and Casuarina species. **Potential – known to roost in dense canopies of introduced trees such as conifers**	
Ninox strenua	Powerful Owl	V,P,3		2	The Powerful Owl is endemic to eastern and south-eastern Australia, mainly on the eastern side of the Great Dividing Range, from south-eastern Queensland to Victoria. The Powerful Owl is found in open forests and woodlands, as well as along sheltered gullies in wet forests with dense understoreys, especially along watercourses. Will sometimes be found in open areas near forests such as farmland, parks and suburban areas, as well as in remnant bushland patches. Needs old growth trees to nest. **Potential – known to roost in dense canopies of introduced trees such as conifers**	Potential
Tyto novaehollandiae	Masked Owl	V,P,3		2	The Masked Owl extends from the coast where it is most abundant to the western plains. Overall records for this species fall within approximately 90% of NSW, excluding the most arid north-western corner. There is no seasonal variation in its distribution. Lives in dry eucalypt forests and woodlands from sea level to 1100 m. A forest owl, but often hunts along the edges of forests, including roadsides. Roosts and breeds in moist eucalypt forested gullies, using large tree hollows or sometimes caves for nesting. **No – no suitable habitat on subject site**	No impact
Merops ornatus	Rainbow Bee-eater	P	J	4	The Rainbow Bee-eater is most often found in open forests, woodlands and shrublands, and cleared areas, usually near water. It will be found on farmland with remnant vegetation and in orchards and vineyards. It will use disturbed sites such as quarries, cuttings and mines to build its nesting tunnels (Birdlife Australia, 2018c). **Potential – although not recorded during bird surveys on site, habitat is suitable for this species.**	Potential

Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	V,P		1	The Brown Treecreeper occurs in eucalypt forests and woodlands of inland plains and slopes of the Great Dividing Range. It is less commonly found on coastal plains and ranges. The western boundary of the range of the species runs approximately through Corowa, Wagga Wagga, Temora, Forbes, Dubbo and Inverell. The eastern subspecies lives in eucalypt woodlands through central NSW and in coastal areas with drier open woodlands. Found in eucalypt woodlands (including Box-Gum Woodland) and dry open forest; mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey; also found in mallee and River Red Gum (*Eucalyptus camaldulensis*) 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. **No – no suitable habitat on subject site**	No impact
Chthonicola sagittata	Speckled Warbler	V,P		1	The Speckled Warbler has a patchy distribution throughout south-eastern Queensland, the eastern half of NSW and into Victoria, as far west as the Grampians. The species is most frequently reported from the hills and tablelands of the Great Dividing Range, and rarely from the coast. The Speckled Warbler lives in a wide range of Eucalyptus dominated communities that have a grassy understorey, often on rocky ridges or in gullies. Typical habitat would include scattered native tussock grasses, a sparse shrub layer, some eucalypt regrowth and an open canopy. Large, relatively undisturbed remnants are required for the species to persist in an area. **No – no suitable habitat on subject site**	No impact
Anthochaera phrygia	Regent Honeyeater	E4A,P	CE	4	The Regent Honeyeater mainly inhabits temperate woodlands and open forests of the inland slopes of south-east Australia. Birds are also found in drier coastal woodlands and forests in some years. Range is between north-eastern Victoria and south-eastern Queensland. There are only three known key breeding regions remaining: north-east Victoria (Chiltern-Albury), and in NSW at Capertee Valley and the Bundarra-Barraba region. In the last 10 years Regent Honeyeaters have been recorded in urban areas around Albury where woodland tree species such as Mugga Ironbark and Yellow Box were planted 20 years ago. The Regent Honeyeater is a generalist forager, although it feeds mainly on the nectar from a relatively small number of eucalypts that produce high volumes of nectar.	No impact

					No – no suitable habitat on subject site	
Epthianura albifrons	White-fronted Chat	V,P		P	The distribution of the White-fronted Chat extends across the southern half of Australia, from the southernmost areas of Queensland to southern Tasmania and across to Western Australia as far north as Carnarvon. Found mostly in temperate to arid climates and very rarely seen in sub-tropical areas, the White-fronted Chat occupies foothills and lowlands below 1000 m above sea level. In New South Wales the White-fronted Chat occurs mostly in the southern half of the state, occurring in damp open habitats along the coast, and near waterways in the western part of the state. Along the coastline, White-fronted Chats are found predominantly in saltmarsh vegetation although they are also observed in open grasslands and sometimes in low shrubs bordering wetland areas. These birds are unlikely to fly over urbanised areas. **No – no suitable habitat on subject site**	No impact
Grantiella picta	Painted Honeyeater	V,P	V	K	The greatest concentrations of the bird and almost all breeding occurs on the inland slopes of the Great Dividing Range in NSW, Victoria and southern Queensland. During the winter it is more likely to be found in the north of its distribution. Inhabits Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests. A specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Prefers mistletoes of the genus *Amyema*. **No – no suitable habitat on subject site**	No impact
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	V,P		1	In NSW it is widespread, with records from the tablelands and western slopes of the Great Dividing Range to the north-west and central-west plains and the Riverina. It is rarely recorded east of the Great Dividing Range, although regularly observed from the Richmond and Clarence River areas. It has also been recorded at a few scattered sites in the Hunter, Central Coast and Illawarra regions, though it is very rare in the latter. Occupies mostly upper levels of drier open forests or woodlands dominated by box and ironbark eucalypts, especially Mugga Ironbark (*Eucalyptus sideroxylon*), White Box (*E. albens*), Inland Grey Box (*E. microcarpa*), Yellow Box (*E. melliodora*), Blakely's Red Gum (*E. blakelyi*) and Forest Red Gum (*E. tereticornis*). Also inhabits open forests of smooth-barked gums, stringybarks, ironbarks, river sheoaks (nesting habitat) and tea-trees. **No – no suitable habitat on subject site**	No impact
Daphoenositta chrysoptera	Varied Sittella	V,P		1	The Varied Sittella is sedentary and inhabits most of mainland Australia except the treeless deserts and open grasslands. Distribution in NSW is	No impact

					nearly continuous from the coast to the far west. Inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and Acacia woodland. **No – no suitable habitat on subject site**	
Artamus cyanopterus cyanopterus	Dusky Woodswallow	V,P		4	The Dusky Woodswallow is a woodland dependant bird. It is found in woodlands and dry open sclerophyll forests, usually dominated by eucalypts, including mallee associations. It has also been recorded in shrublands and heathlands and various modified habitats, including regenerating forests. Common habitat requirements are an open understorey with sparse eucalypt saplings, acacias and other shrubs, including heath. The ground cover may consist of grasses, sedges or open ground, often with coarse woody debris. Birds are also often observed in farm land, road sides and golf courses, usually at the edges of forest or woodland or wind breaks with dead timber. **No – no suitable habitat on subject site**	No impact
Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	V,P		P	The Hooded Robin is widespread, found across Australia, except for the driest deserts and the wetter coastal areas - northern and eastern coastal Queensland and Tasmania. However, it is common in few places, and rarely found on the coast. 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. Often perches on low dead stumps and fallen timber or on low-hanging branches, using a perch-and-pounce method of hunting insect prey. **No – no suitable habitat on subject site**	No impact
Petroica boodang	Scarlet Robin	V,P		3	The Scarlet Robin is found from south east Queensland to south east South Australia and also in Tasmania and south west Western Australia. In NSW, it occurs from the coast to the inland slopes. After breeding, some Scarlet Robins disperse to the lower valleys and plains of the tablelands and slopes. Some birds may appear as far west as the eastern edges of the inland plains in autumn and winter. The Scarlet Robin lives in dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs. This species lives in both mature and regrowth vegetation. It occasionally occurs in mallee or wet forest communities, or in wetlands and tea-tree swamps.	No impact

					No – no suitable habitat on subject site	
Petroica phoenicea	Flame Robin	V,P		K	Breeds in upland tall moist eucalypt forests and woodlands, often on ridges and slopes. Prefers clearings or areas with open understoreys. The groundlayer of the breeding habitat is dominated by native grasses and the shrub layer may be either sparse or dense. Occasionally occurs in temperate rainforest, and also in herbfields, heathlands, shrublands and sedgelands at high altitudes. In winter, birds migrate to drier more open habitats in the lowlands (i.e. valleys below the ranges, and to the western slopes and plains). Often occurs in recently burnt areas; however, habitat becomes unsuitable as vegetation closes up following regeneration. In winter lives in dry forests, open woodlands and in pastures and native grasslands, with or without scattered trees. In winter, occasionally seen in heathland or other shrublands in coastal areas. **Potential – no suitable breeding habitat, but over-wintering birds may use the area for foraging.**	Potential
Stagonopleura guttata	Diamond Firetail	V,P		6	The Diamond Firetail is endemic to south-eastern Australia, extending from central Queensland to the Eyre Peninsula in South Australia. It is widely distributed in NSW, with a concentration of records from the Northern, Central and Southern Tablelands, the Northern, Central and South Western Slopes and the North West Plains and Riverina. Not commonly found in coastal districts, though there are records from near Sydney, the Hunter Valley and the Bega Valley. This species has a scattered distribution over the rest of NSW, though is very rare west of the Darling River. Found in grassy eucalypt woodlands, including Box-Gum Woodlands and Snow Gum *Eucalyptus pauciflora* Woodlands. **No – no suitable habitat on subject site**	No impact
Dasyurus maculatus	Spotted-tailed Quoll	V,P	E	11	The spotted-tailed Quoll is recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Individual animals use hollow-bearing trees, fallen logs, small caves, rock outcrops and rocky-cliff faces as den sites. **No – no suitable habitat on subject site**	No impact
Phascogale tapoatafa	Brush-tailed Phascogale	V,P		P	The Brush-tailed Phascogale has a patchy distribution around the coast of Australia. In NSW it is mainly found east of the Great Dividing Range	No impact

					although there are occasional records west of the divide. Prefer dry sclerophyll open forest with sparse groundcover of herbs, grasses, shrubs or leaf litter. Also inhabit heath, swamps, rainforest and wet sclerophyll forest. **No – no suitable habitat on subject site**	
Phascolarctos cinereus	Koala	V,P	V	64	The Koala has a fragmented distribution throughout eastern Australia from north-east Queensland to the Eyre Peninsula in South Australia. In NSW it mainly occurs on the central and north coasts with some populations in the west of the Great Dividing Range. Inhabit eucalypt woodlands and forests. **No – no suitable habitat on subject site**	No impact
Cercartetus nanus	Eastern Pygmy-possum	V,P		P	The Eastern Pygmy-possum is found in south-eastern Australia, from southern Queensland to eastern South Australia and in Tasmania. In NSW it extends from the coast inland as far as the Pilliga, Dubbo, Parkes and Wagga Wagga on the western slopes. Found in a broad range of habitats from rainforest through sclerophyll (including Box-Ironbark) forest and woodland to heath, but in most areas woodlands and heath appear to be preferred, except in north-eastern NSW where they are most frequently encountered in rainforest. Shelters in tree hollows, rotten stumps, holes in the ground, abandoned bird-nests, Ringtail Possum (*Pseudocheirus peregrinus*) dreys or thickets of vegetation, (e.g. grass-tree skirts). **No – no suitable habitat on subject site**	No impact
Petaurus australis	Yellow-bellied Glider	V,P		7	The Yellow-bellied Glider is found along the eastern coast to the western slopes of the Great Dividing Range, from southern Queensland to Victoria. Occur in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. **No – no suitable habitat on subject site**	No impact
Petaurus norfolcensis	Squirrel Glider	V,P		P	The Squirrel Glider is 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 understorey in coastal areas. Prefers mixed species stands with a shrub or Acacia midstorey. **No – no suitable habitat on subject site**	No impact
Petauroides volans	Greater Glider	P	V	9	The greater glider is restricted to eastern Australia, occurring from the Windsor Tableland in north Queensland through to central Victoria	No impact

					(Wombat State Forest), with an elevational range from sea level to 1200 m above sea level. The greater glider favours forests with a diversity of eucalypt species, due to seasonal variation in its preferred tree species. Roosts in tree hollows and is more common in areas abundant in tree hollows. **No – no suitable habitat on subject site**	
Petrogale penicillata	Brush-tailed Rock-wallaby	E1,P	V	K	The range of the Brush-tailed Rock-wallaby extends from south-east Queensland to the Grampians in western Victoria, roughly following the line of the Great Dividing Range. However the distribution of the species across its original range has declined significantly in the west and south and has become more fragmented. In NSW they occur from the Queensland border in the north to the Shoalhaven in the south, with the population in the Warrumbungle Ranges being the western limit. Occupy rocky escarpments, outcrops and cliffs with a preference for complex structures with fissures, caves and ledges, often facing north. Browse on vegetation in and adjacent to rocky areas eating grasses and forbs as well as the foliage and fruits of shrubs and trees. **No – no suitable habitat on subject site**	No impact
Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	5	Grey-headed Flying-foxes are generally found within 200 km of the eastern coast of Australia, from Rockhampton in Queensland to Adelaide in South Australia. In times of natural resource shortages, they may be found in unusual locations. Occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy. **No – no suitable habitat on subject site**	No impact
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	V,P		1	The Yellow-bellied Sheathtail-bat is a wide-ranging species found across northern and eastern Australia. In the most southerly part of its range - most of Victoria, south-western NSW and adjacent South Australia - it is a rare visitor in late summer and autumn. There are scattered records of this species across the New England Tablelands and North West Slopes. Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows. Forages in most habitats across its very wide range, with and without trees; appears to defend an aerial territory. **Potential – possibly uses the subject site for foraging**	Potential

Mormopterus norfolkensis	Eastern Freetail-bat	V,P		1	The Eastern Freetail-bat is found along the east coast from south Queensland to southern NSW. Occurs in dry sclerophyll forest, woodland, swamp forests and mangrove forests east of the Great Dividing Range. Roost mainly in tree hollows but will also roost under bark or in man-made structures. **No – no suitable habitat on subject site**	No impact
Chalinolobus dwyeri	Large-eared Pied Bat	V,P	V	P	Found mainly in areas with extensive cliffs and caves, from Rockhampton in Queensland south to Bungonia in the NSW Southern Highlands. It is generally rare with a very patchy distribution in NSW. There are scattered records from the New England Tablelands and North West Slopes. Roosts in caves (near their entrances), crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the Fairy Martin (*Petrochelidon ariel*), frequenting low to mid-elevation dry open forest and woodland close to these features. Found in well-timbered areas containing gullies. **No – no suitable habitat on subject site**	No impact
Falsistrellus tasmaniensis	Eastern False Pipistrelle	V,P		2	The Eastern False Pipistrelle is found on the south-east coast and ranges of Australia, from southern Queensland to Victoria and Tasmania. Prefers moist habitats, with trees taller than 20 m. Generally roosts in eucalypt hollows, but has also been found under loose bark on trees or in buildings. **No – no suitable habitat on subject site**	No impact
Miniopterus schreibersii oceanensis	Eastern Bentwing-bat	V,P		4	Eastern Bentwing-bats occur along the east and north-west coasts of Australia. Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings and other man-made structures. Form discrete populations centred on a maternity cave that is used annually in spring and summer for the birth and rearing of young. **No – no suitable habitat on subject site**	No impact
Myotis macropus	Southern Myotis	V,P		4	The Southern Myotis is found in the coastal band from the north-west of Australia, across the top-end and south to western Victoria. It is rarely found more than 100 km inland, except along major rivers. Generally roost in groups of 10 - 15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage. Forage over streams and pools catching insects and small fish by raking their feet across the water surface. **No – no suitable habitat on subject site**	No impact
Scoteanax rueppellii	Greater Broad-nosed Bat	V,P		2	In NSW it is widespread on the New England Tablelands, however does not occur at altitudes above 500 m. Utilises a variety of habitats from	No impact

					woodland through to moist and dry eucalypt forest and rainforest, though it is most commonly found in tall wet forest. Although this species usually roosts in tree hollows, it has also been found in buildings. Forages after sunset, flying slowly and directly along creek and river corridors at an altitude of 3 - 6 m. Open woodland habitat and dry open forest suits the direct flight of this species as it searches for beetles and other large, slow-flying insects; this species has been known to eat other bat species. **No – no suitable habitat on subject site**	

THREATENED ECOLOGICAL COMMUNITY

Community	NSW Status	Comm. Status	Record within 10km	Likelihood of Occurrence	Potential Impact
Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions	E3	E	K	Does not occur on subject site	No impact
Tableland Basalt Forest in the Sydney Basin and South Eastern Highlands Bioregions	E3		K	Does not occur on subject site	No impact
White Box Yellow Box Blakely's Red Gum Woodland	E3	CE	K	Does not occur on subject site	No impact

Appendix E: BC Act 5-part test of significance

Biodiversity Conservation Act 2016 Test of significance

The threatened species 'test of significance' (or '5-part test') is used to determine if a development or activity is likely to significantly affect threatened species or ecological communities, or their habitats. The test of significance is set out in s.7.3 of the *Biodiversity Conservation Act 2016*, and is completed in accordance with the questions set out below:

The following is to be taken into account for the purposes of determining whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats:

a. in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

b. in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:

   i. is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

   ii. is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

c. in relation to the habitat of a threatened species or ecological community:

   i. the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and

   ii. whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

   iii. the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,

d. whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

e. whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

BC Act Test of Significance

Species Name	Common Name	a.	b.	c.	d.	e.	Impact Significance
Litoria aurea	Green and Golden Bell Frog	The species does not occur on the subject site	N/A	There is no habitat on the subject site for this species. Water bodies on the site are already fragmented from areas of suitable habitat by urban development.	N/A	Appendix G	No impact
Oxyura australis	Blue-billed Duck	Habitat on the subject site is only likely to be suitable for vagrants of this species. It is not suitable breeding habitat and is unlikely to support important numbers during non-breeding season.	N/A	The removal of all ephemeral surface water on the site will act to further fragment the aquatic habitat in the area. The marginal nature of the water bodies on the site will likely limit the severity of this impact. Similar habitat occurs throughout the Bathurst rural area and any modification of the subject site is not likely to impact the long-term viability of the species population	N/A	Appendix G	No impact
Stictonetta naevosa	Freckled Duck	Habitat on the subject site is only likely to be suitable for vagrants of this species. It is not suitable breeding habitat and is unlikely to support important numbers during non-breeding season.	N/A	The removal of all ephemeral surface water on the site will act to further fragment the aquatic habitat in the area. The marginal nature of the water bodies on the site will likely limit the severity of this impact. Similar habitat occurs throughout the Bathurst rural area and any modification of the subject site is	N/A	Appendix G	No impact

				not likely to impact the long-term viability of the species population.			
Apus pacificus	Fork-tailed Swift		N/A		N/A	Appendix G	
Plegadis falcinellus	Glossy Ibis	Habitat on the subject site is only likely to be suitable for vagrants of this species. It is not suitable breeding habitat and is unlikely to support important numbers during non-breeding season.	N/A	The removal of all ephemeral surface water on the site will act to further fragment the aquatic habitat in the area. The marginal nature of the water bodies on the site will likely limit the severity of this impact. Similar habitat occurs throughout the Bathurst rural area and any modification of the subject site is not likely to impact the long-term viability of the species population.	N/A	Appendix G	No impact
Circus assimilis	Spotted Harrier	Habitat on the subject site may provide marginal foraging habitat only. Modification of the subject site will not impact on any breeding population of Spotted Harriers	N/A	Similar rural, non-native habitat is extensive throughout the Bathurst rural area. Modification of the subject site will not significantly reduce the available habitat in the area for this species. The subject site is already fragmented and isolated from other areas by urban development on the outer suburbs of Bathurst.	N/A	Appendix G	No impact
Hieraaetus morphnoides	Little Eagle	Habitat on the subject site may provide marginal foraging habitat for this species. While large planted exotic trees may provide some nesting	N/A	Similar rural, non-native habitat is extensive throughout the Bathurst rural area. Modification of the subject site will not significantly	N/A	Appendix G	No impact

		opportunities, no potential nests were recorded during the field survey, despite dedicated searches.		reduce the available habitat in the area for this species. The subject site is already fragmented and isolated from other areas by urban development on the outer suburbs of Bathurst.			
Falco subniger	Black Falcon	Habitat on the subject site may provide marginal foraging habitat for this species. While large planted exotic trees may provide some nesting opportunities, no potential nests were recorded during the field survey, despite dedicated searches.	N/A	Similar rural, non-native habitat is extensive throughout the Bathurst rural area. Modification of the subject site will not significantly reduce the available habitat in the area for this species. The subject site is already fragmented and isolated from other areas by urban development on the outer suburbs of Bathurst.	N/A	Appendix G	No impact
Calidris acuminata	Sharp-tailed Sandpiper	Habitat on the subject site may provide short-term habitat for vagrant individuals. It is not habitat that is suitable for over-wintering of significant numbers of this migrant species.	N/A	The removal of all ephemeral surface water on the site will act to further fragment the aquatic habitat in the area. The marginal nature of the water bodies on the site will likely limit the severity of this impact. Similar habitat is available within the local area, including protected wetlands such as the Macquarie River. Modification caused by this proposal will not affect the species population within the local area.	N/A	Appendix G	No impact
Calidris ferruginea	Curlew Sandpiper	Habitat on the subject site may provide short-term habitat for	N/A	The removal of all ephemeral surface water on the site will act to	N/A	Appendix G	No impact

		vagrant individuals. It is not habitat that is suitable for over-wintering of significant numbers of this migrant species.		further fragment the aquatic habitat in the area. The marginal nature of the water bodies on the site will likely limit the severity of this impact. Similar habitat is available within the local area, including protected wetlands such as the Macquarie River. Modification caused by this proposal will not affect the species population within the local area.			
Gallinago hardwickii	Latham's Snipe	Habitat on the subject site may provide short-term habitat for vagrant individuals. It is not habitat that is suitable for over-wintering of significant numbers of this migrant species.	N/A	The removal of all ephemeral surface water on the site will act to further fragment the aquatic habitat in the area. The marginal nature of the water bodies on the site will likely limit the severity of this impact. Similar habitat is available within the local area, including protected wetlands such as the Macquarie River. Modification caused by this proposal will not affect the species population within the local area.	N/A	Appendix G	No impact
Ninox connivens	Barking Owl	Large, planted exotic conifer trees at the subject site's boundaries potentially provide roosting habitat. However, no breeding habitat exists on the subject site, with minimal foraging resources associated with the site.	N/A	No population of Barking Owls was detected despite dedicated searches for roosting sites.	N/A	Appendix G	No significant impact

		Removal of potential roosting trees will not impact on the lifecycle of the species. No Barking Owls were detected during the field survey, despite dedicated searches.					
Ninox strenua	Powerful Owl	Large, planted exotic conifer trees at the subject site's boundaries potentially provide roosting habitat. However, no breeding habitat exists on the subject site, with minimal foraging resources associated with the site. Removal of potential roosting trees will not impact on the lifecycle of the species. No Powerful Owls were detected during the field survey, despite dedicated searches.	N/A	No population of Barking Owls was detected despite dedicated searches for roosting sites.	N/A	Appendix G	No significant impact
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	The species is likely to occur throughout extensive areas of similar habitat within the local area. Any impact to the species within the subject area is not likely to impact on the species so as to place it at risk of local extinction. Significant roosting habitat exists in the surrounding areas but does not exist at the site. The species is capable of covering a large range to feed each night. There is a potential that the species may	N/A	The habitat being modified by the proposal is not important to the long term survival of the species. Existing habitat within the study area is already fragmented by previous clearing and development.	N/A	Appendix G	

		feed over the site, particularly over the dams on site.					
Merops ornatus	Rainbow Bee-eater	The species is likely to occur throughout extensive areas of similar habitat within the local area. Any impact to the species within the subject area is not likely to impact on the species so as to place it at risk of local extinction. At completion of development, open space areas that form part of the proposal will continue to provide habitat for the species.	N/A	The habitat being modified by the proposal is not important to the long term survival of the species. Existing habitat within the study area is already fragmented by previous clearing and development.	N/A	Appendix G	No significant impact
Petroica phoenicea	Flame Robin	The subject site does not provide suitable breeding habitat. The species may occasionally forage on the site over winter during post-breeding dispersal, however surrounding landscape provides abundant similar habitat and green spaces that will form part of the proposed development will also continue to provide foraging habitat for this species.	N/A	The habitat being modified by the proposal is not important to the long term survival of the species. Existing habitat within the study area is already fragmented by previous clearing and development.	N/A	Appendix G	No significant impact

Appendix F: EPBC Act test of significance

The EPBC Act protects nationally and internationally important flora, fauna, ecological communities and heritage places, which are defined in the EPBC Act as matters of national environmental significance. The EPBC Act policy *Matters of National Environmental Significance: Significant Impact Guidelines 1.1* (DoE, 2013) forms the basis of determining if impact to protected matters is significant.

A Protected Matters Search identified five Endangered Ecological Communities, 28 threatened species and 15 migratory species as potentially occurring within 10 km of the subject site.

The following tables give an overview of the assessments of these threatened entities and shows that the Proposed activity:

1. Is not likely to have a significant impact on a matter of national environmental significance. The matters of national environmental significance are:
    i. World heritage properties.
    ii. National heritage places.
    iii. Wetlands of international importance.
    iv. Threatened species and ecological communities.
    v. Migratory species.
    vi. Commonwealth marine areas.
    vii. The Great Barrier Reef Marine Park. And;
    viii. Nuclear actions (including uranium mines).
    ix. A water resource, in relation to coal seam gas development and large coal mining development.
2. Is not likely to have a significant impact on the environment in general (for actions by Commonwealth agencies or actions on Commonwealth land) or the environment on Commonwealth land (for actions outside Commonwealth land).

Notes:

Important Population as determined by the *Environment Protection and Biodiversity Conservation Act 1999*, is one that for a vulnerable species:

a) is likely to be key source populations either for breeding or dispersal
b) is likely to be necessary for maintaining genetic diversity
c) is at or near the limit of the species range.

A ‘significant impact’ is an impact which is important, notable, or of consequence, having regard to its context or intensity (DoE, 2013).

Wetlands of International Importance

Name	Proximity	Significance of Impact
Banrock Station wetland complex	800 - 900 km	The proposal is not within close proximity of the Macquarie Marshes **No Impact**
Riverland	700 – 800 km	The proposal is not within close proximity of the Macquarie Marshes **No Impact**
The Coorong, and lakes Alexandrina and Albert Wetland	900 – 1000 km	The proposal is not within close proximity of the Macquarie Marshes **No Impact**
The Macquarie Marshes	300 – 400 km	The proposal is not within close proximity of the Macquarie Marshes **No Impact**

Threatened Ecological Communities

Name	Status	Significance of Impact
Natural temperate grasslands of the South Eastern Highlands	Critically Endangered	The community does not occur on the subject site, or within the study site **No Impact**
White Box – Yellow Box – Blakely's Red Gum grassy woodland and derived native grassland	Critically Endangered	The community does not occur on the subject site, or within the study site **No Impact**

Threatened Fauna

CE = Critically Endangered, E = Endangered, V = Vulnerable

Species Name	Common Name	Status	Significance of Impact
Anthochaera phygia	Regent Honeyeater	**CE**	There is no habitat on the subject site for this species (Appendix D) **No impact**
Calidris ferruginea	Curlew Sandpiper	**CE**	Habitat on the subject site may provide short-term habitat for vagrant individuals. It is not habitat that is suitable for over-wintering of significant numbers of this migrant species. **No impact**
Grantiella picta	Painted Honeyeater	**V**	There is no habitat on the subject site for this species (Appendix D) **No impact**
Lathamus discolor	Swift Parrot	**CE**	There is no habitat on the subject site for this species (Appendix D) **No impact**
Leipoa ocellata	Malleefowl	**V**	There is no habitat on the subject site for this species (Appendix D) **No impact**
Numenius madagascariensis	Eastern Curlew	**CE**	Habitat on the subject site may provide short-term habitat for vagrant individuals. It is not habitat that is suitable for over-wintering of significant numbers of this migrant species.

			No impact
Polytelis swainsonii	Superb Parrot	**V**	There is no habitat on the subject site for this species (Appendix D) **No impact**
Rostratula australis	Australian Painted-snipe	**E**	There is no habitat on the subject site for this species (wetlands, swamps with emergent vegetation) **No impact**
Maccullochella macquariensis	Trout Cod	**E**	No endangered fish habitat exists on the subject site. There are no indirect impacts to nearby watercourses associated with the proposal. **No impact**
Maccullochella peelii	Murray Cod	**V**	No endangered fish habitat exists on the subject site. There are no indirect impacts to nearby watercourses associated with the proposal. **No impact**
Macquaria australasica	Macquarie Perch	**E**	No endangered fish habitat exists on the subject site. There are no indirect impacts to nearby watercourses associated with the proposal. **No impact**
Litoria aurea	Green and Golden Bell Frog	**V**	There is no habitat on the subject site for this species. Water bodies on the site are already fragmented from areas of suitable habitat by urban development. The species was not recorded during targeted searches. **No impact**
Litoria booroolongensis	Booroolong Frog	**E**	There is no habitat on the subject site for this species. Water bodies on the site are already fragmented from areas of suitable habitat by urban development. The species was not recorded during targeted searches. **No impact**
Litoria castanea	Yellow-spotted Bell Frog	**E**	There is no habitat on the subject site for this species. Water bodies on the site are already fragmented from areas of suitable habitat by urban development. The species was not recorded during targeted searches. **No impact**
Paralucia spinifera	Bathurst Copper Butterfly	**V**	There is no habitat on the subject site for this species (absence of host plant *Bursaria spinosa*). **No impact**
Chalinolobus dwyeri	Large-eared Pied Bat	**V**	There is no suitable habitat on the subject site for this species (Appendix D). **No impact**
Dasyurus maculatus maculatus (SE mainland population)	Spot-tailed quoll (south-eastern mainland population)	**E**	There is no habitat for this species on the subject site (Appendix D) **No impact**
Petauroides volans	Greater Glider	**V**	There is no habitat for this species on the subject site (Appendix D) **No impact**
Petrogale penicillata	Brush-tailed Rock Wallaby	**V**	There is no habitat for this species on the subject site (Appendix D) **No impact**
Phascolarctos cinereus	Koala	**V**	There is no habitat for this species on the subject site (Appendix D) **No impact**
Pteropus poliocephalus	Grey-headed Flying Fox	**V**	There is no habitat for this species on the subject site (Appendix D) **No impact**

Aprasia parapulchella	Pink-tailed Worm Lizard	**V**	There is no habitat on the subject site for this species (grassy native woodlands with exposed bushrock). **No impact**
Delma impar	Striped Legless Lizard	**v**	There is no habitat on the subject site for this species (cracking soils, deep plant/leaf litter). **No impact**

Threatened Flora
CE = Critically Endangered, E = Endangered, V = Vulnerable

Species Name	Common Name	Status	Significance of Impact
Dichanthium setosum	Bluegrass	**V**	The species was not detected during searches of the subject site. **No impact**
Eucalyptus pulverulenta	Silver-leaved Mountain Gum	**V**	Associated vegetation community does not occur on the subject site (Appendix D). **No impact**
Euphrasia arguta		**CE**	Occurs in eucalypt forest with a mixed grassy understorey (Department of the Environment , 2018a). This habitat does not occur on the subject site. **No impact**
Lepidium hyssopifolium	Basalt Peppercress	**E**	The species was not detected on the subject site during field surveys and its presence is unlikely based on the nature of the site (Appendix D) **No impact**
Leucochrysum albicans var. *tricolor*	Hoary Sunray	**E**	The subject site is not within the distribution of this species (Appendix D) **No impact**
Philotheca ericifolia		**V**	Grows in dry sclerophyll forest and heath in gullies and on damp sandy flats (Department of the Environment, 2018b). This habitat does not occur on the subject site. **No impact**
Swainsona recta	Small Purple-pea	**E**	Associated with Box Gum grassy woodlands (Department of the Environment, 2018c)**.** Habitat does not exist on the subject site. **No impact**
Thesium australe	Austral Toadflax	**V**	Associated habitat and vegetation does not occur on subject site (Appendix D) **No impact**

Migratory, Wetland and Marine Species

Species Name	Common Name	Significance of Impact
Actitis hypoleucos	Common Sandpiper	Habitat on the subject site may provide short-term habitat for vagrant individuals. It is not habitat that is suitable for over-wintering of significant numbers of this migrant species. **No impact**
Calidris acuminata	Sharp-tailed Sandpiper	Habitat on the subject site may provide short-term habitat for vagrant individuals. It is not habitat that is important or suitable for over-wintering of significant numbers of this migrant species. **No impact**
Calidris ferruginea	Curlew Sandpiper	Habitat on the subject site may provide short-term habitat for vagrant individuals. It is not habitat that is important or suitable for over-wintering of significant numbers of this migrant species. **No impact**
Calidris melanotos	Pectoral Sandpiper	Habitat on the subject site may provide short-term habitat for vagrant individuals. It is not habitat that is important or suitable for over-wintering of significant numbers of this migrant species. **No impact**
Gallinago hardwickii	Latham's Snipe	Habitat on the subject site may provide short-term habitat for vagrant individuals. It is not habitat that is important or suitable for over-wintering of significant numbers of this migrant species. **No impact**
Apus pacificus	Fork-tailed Swift	Potential non-breeding habitat only: Found across a range of habitats, from inland open plains to wooded areas, where it is exclusively aerial. No significant impact.
Ardea alba	Great Egret	The Eastern Great Egret has been reported in a wide range of wetland habitats (for example inland and coastal, freshwater and saline, permanent and ephemeral, open and vegetated, large and small, natural and artificial). The Eastern Great Egret may retreat to permanent wetlands or coastal areas when other wetlands are dry (Department of the environment, 2018e). It is possible that this species occasionally utilises the artificial dams on the subject site. However these dams are not permanent, would not support a significant population and contain no breeding habitat. **No impact**
Ardea ibis	Cattle Egret	The Cattle Egret occurs in tropical and temperate grasslands, wooded lands and terrestrial wetlands. High numbers have been observed in moist, low-lying poorly drained pastures with an abundance of high grass; it avoids low grass pastures. It has been recorded on earthen dam walls and ploughed fields. It is commonly associated with the habitats of farm

		animals, particularly cattle, but also pigs, sheep, horses and deer. It uses predominately shallow, open and fresh wetlands including meadows and swamps with low emergent vegetation and abundant aquatic flora (Department of the Environment, 2018d). Habitat on site is marginal for this species. Therefore, the subject site is not likely to support a locally significant population **No impact**
Chrysococcyx osculans	Black-eared Cuckoo	The Black-eared Cuckoo is found in drier country where species such as mulga and mallee form open woodlands and shrublands. It is often found in vegetation along creek beds (Birdlife Australia, 2018a). There is no habitat for this species on the subject site. **No impact**
Haliaeetus leucogaster	White-bellied Sea-eagle	There is no habitat on the subject site for this species (Appendix D) **No impact**
Hirundapus caudacutus	White-throated Needletail	There is no habitat on the subject site for this species (Appendix D) **No impact**
Lathamus discolor	Swift Parrot	There is no habitat on the subject site for this species (Appendix D) **No impact**
Merops ornatus	Rainbow Bee-eater	See Appendix D and Appendix E. **No impact**
Monarcha melanopsis	Black-faced Monarch	Found in rainforests, eucalypt woodlands, damp gullies and coastal scrub (Birdlife Australia, 2018b). There is no habitat on the subject site. **No impact**
Motacilla flava	Yellow Wagtail	Non-breeding migrant only: mostly well-watered open grasslands and the fringes of wetlands. Roosts in mangroves and other dense vegetation (Department of the Environment, 2015). No suitable habitat on the subject site. **No impact**
Myiagra cyanoleuca	Satin Flycatcher	Found in tall forests and wetter habitats, such as forested gullies (Birdlife Australia, 2018d). There is no habitat on the subject site. **No impact**
Numenius madagascariensis	Eastern Curlew	Habitat on the subject site may provide short-term habitat for vagrant individuals. It is not habitat that is suitable or important for over-wintering of significant numbers of this migrant species. **No impact**
Rhipidura rufifrons	Rufous Fantail	Habitat includes dense, wet forests, rainforests and swamp woodlands (Birdlife Australia, 2018e).
Rostratula benghalensis	Painted Snipe	Habitat on the subject site may provide short-term habitat for vagrant individuals. It is not habitat that is suitable or important for over-wintering of significant numbers of this migrant species. **No impact**

Appendix G: Key Threatening Processes

Key Threatening Processes (KTP) predicted as acting on the study area that may be exacerbated by the proposal.

Class	Name	NSW status	Comm. status	Likelihood of Occurrence	Exacerbated by Proposal
Threat	Aggressive exclusion of birds from woodland and forest habitat by abundant Noisy Miners *Manorina melanocephala.*	KTP	KTP	**NO** There is no woodland or forest habitat on the subject site	NO IMPACT
Threat	Alteration of habitat due to subsidence caused by longwall mining	KTP		**NO** Mining is not part of the proposal	NO IMPACT
Threat	Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands	KTP		**NO** The only watercourse on site will not be modified further by the proposal. There are no floodplains or wetlands on the site.	NO IMPACT
Threat	Anthropogenic Climate Change	KTP	KTP	**YES** Some unavoidable emissions that contribute to climate change will occur from construction machinery. Loss of sequestered carbon resulting from tree clearing. Loss of water body cooling effect resulting from removal of surface water. Ongoing emissions associated with low-medium density residential zones.	NO SIGNIFICANT IMPACT
Threat	Bushrock removal	KTP		**NO** No surface bushrock exists on the site.	NO IMPACT
Threat	Clearing of native vegetation	KTP	KTP	**NO** There are no native vegetation or remnant trees on the site	NO IMPACT
Threat	Competition and grazing by the feral European Rabbit, *Oryctolagus cuniculus*	KTP	KTP	**NO** The site is already severely impacted by grazing, with rabbits present	NO IMPACT
Threat	Competition and habitat degradation by Feral Goats, *Capra hircus*	KTP	KTP	**NO** Feral goats will not be introduced to the site as a result of the proposal	NO IMPACT

Threat	Competition from feral honey bees, *Apis mellifera*	KTP		**NO** There are no hollow-bearing trees on the site	NO IMPACT
Threat	Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners	KTP		**NO** Bell Miners do not occur at the site. There are no forest Eucalypts on site	NO IMPACT
Threat	Herbivory and environmental degradation caused by feral deer	KTP		**NO** Feral deer do not have access to the subject site	NO IMPACT
Threat	High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition	KTP		**NO** Fire frequency will not increase due to activities undertaken as part of the proposal	NO IMPACT
Threat	Importation of Red Fire Ants *Solenopsis invicta*	KTP	KTP	**NO** The proposal does not include any activities that might import Red Fire Ants	NO IMPACT
Threat	Infection by *Psittacine Circoviral* (beak and feather) Disease affecting endangered psittacine species and populations	KTP	KTP	**NO** There are no endangered parrot populations on site and the proposal does not include any activities that would exacerbate this threat	NO IMPACT
Threat	Infection of frogs by amphibian chytrid causing the disease chytridiomycosis	KTP	KTP	**NO** No threatened frogs or habitat for threatened frogs exists on site	NO IMPACT
Threat	Infection of native plants by *Phytophthora cinnamomi*	KTP	KTP	**NO** There are no native plant communities on site	NO IMPACT
Threat	Introduction of the Large Earth Bumblebee *Bombus terrestris*	KTP		**NO** Not present on site	NO IMPACT
Threat	Invasion and establishment of exotic vines and scramblers	KTP		**POTENTIAL** Machinery used on site can potentially act as a transport for biosecurity risks	POTENTIAL
Threat	Invasion and establishment of Scotch Broom (*Cytisus scoparius*)	KTP		**POTENTIAL** Machinery used on site can potentially act as a transport for biosecurity risks	POTENTIAL

Threat	Invasion and establishment of the Cane Toad (*Bufo marinus*)	KTP	KTP	**NO** No habitat for this species exists on site	NO IMPACT
Threat	Invasion of native plant communities by African Olive *Olea europaea* subsp. *cuspidata*	KTP		**NO** Native plant communities do not exist in the subject site	NO IMPACT
Threat	Invasion of native plant communities by *Chrysanthemoides monilifera*	KTP		**NO** Native plant communities do not exist in the subject site	NO IMPACT
Threat	Invasion of native plant communities by exotic perennial grasses	KTP		**NO** Exotic perennial grasses are already established at the site.	NO IMPACT
Threat	Invasion of the Yellow Crazy Ant, *Anoplolepis gracilipes* into NSW	KTP		**NO** The proposal does not include any activities that might import Red Fire Ants	NO IMPACT
Threat	Invasion, establishment and spread of Lantana	KTP		**NO** The subject site is not suitable habitat for Lantana	NO IMPACT
Threat	Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants	KTP	KTP	**NO** Native plant communities do not exist in the subject site	NO IMPACT
Threat	Loss of Hollow-bearing Trees	KTP		**YES** No hollow-bearing trees will be affected by the proposal	NO IMPACT
Threat	Loss or degradation (or both) of sites used for hill-topping by butterflies	KTP		**NO** No sites present	NO IMPACT
Threat	Predation and hybridisation by Feral Dogs, *Canis lupus familiaris*	KTP		**NO** No feral dogs present on site	NO IMPACT
Threat	Predation by *Gambusia holbrooki* (Plague Minnow or Mosquito Fish)	KTP		**NO** Not present on site	NO IMPACT
Threat	Predation by the European Red Fox (*Vulpes vulpes)*	KTP	KTP	**NO** Ease of access for foxes will not be increased by the proposal	NO IMPACT
Threat	Predation by the Feral Cat *Felis catus*	KTP	KTP	**NO** Ease of access for cats will not be increased by the proposal	NO IMPACT
Threat	Predation, habitat degradation, competition and disease transmission by Feral Pigs	KTP	KTP	**NO** Ease of access for pigs will not be increased by the proposal	NO IMPACT

Threat	Removal of dead wood and dead trees	KTP	**YES** Removal of dead wood currently present on the site as well as additional dead wood resulting from tree clearing will occur. However it is not likely to have a significant impact on any specific species or have a significant regional impact.	NO SIGNIFICANT IMPACT

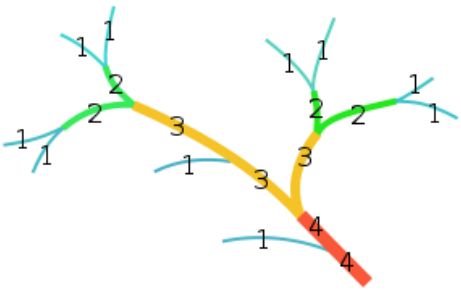
Appendix H: Terms and abbreviations

Terms and abbreviations used in this report

Abbreviation	Terminology	Description
BC Act	*Biodiversity Conservation Act 2016* (NSW)	The purpose of this Act is to 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. This Act contains schedules relating to the listing of threatened species, populations and communities in NSW. It also outlines the framework regulating development impact assessments in relation to biodiversity.
	Biosecurity Act 2015 (NSW)	The broad objectives for biosecurity in NSW are to manage biosecurity risks from animal and plant pests and diseases, weeds and contaminants by • Preventing their entry into NSW • Quickly finding, containing and eradicating any new entries • Effectively minimising the impacts of those pests, diseases, weeds and contaminants that cannot be eradicated through robust management arrangements. The *Biosecurity Act 2015* provides a statutory framework to help achieve these objectives.
CAMBA	China-Australia Migratory Bird Agreement	A bilateral migratory bird agreement with China entered into in 1986. It provides an important mechanism for pursuing conservation outcomes for migratory birds, including migratory waterbirds.
	Cumulative impacts	Impacts, when considered together, lead to a stronger impact than any impact in isolation.
	Direct impacts	Directly affect the habitat and individuals. They include, but are not limited to, death through predation, trampling, poisoning of the animal/plant itself and the removal of suitable habitat. When applying each factor, consideration must be given to all of the likely direct impacts of the proposed activity or development.
DoEE	Australian Government Department of Environment and Energy	The Department of the Environment designs and implements the Australian Government's policies and programmes to protect and conserve the environment, water and heritage and promote climate action.
DP	Deposited Plan	A plan of land deposited in Land and Property Information (part of the Land Management Authority) and used for legal identification purposes. They most commonly depict a subdivision of a parcel of land.
EEC	Endangered Ecological Community	An ecological community identified by relevant legislation likely to become extinct or is in immediate danger of extinction.
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW).	Provides the legislative framework for land use planning and development assessment in NSW.
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth).	Provides for the protection of the environment, especially matters of national environmental significance, and provides a national assessment and approvals process.
FM Act	*Fisheries Management Act 1994* (NSW)	The objects of this Act are to conserve, develop and share the fishery resources of the State for the benefit of present and future generations. This Act protects aquatic habitats and species which are not protected under the BC Act.
IBRA	Interim Biogeographic	The Interim Biogeographic Regionalisation for Australia (IBRA) is a biogeographic regionalisation of Australia developed by the Australian Government's Department of the Environment. Each region is a land area

Abbreviation	Terminology	Description
	Regionalisation of Australia	made up of a group of interacting ecosystems repeated in similar form across the landscape.
	Indirect impacts	Occur when project-related activities affect species, populations or ecological communities in a manner other than direct loss. Indirect impacts can include loss of individuals through starvation, exposure, predation by domestic and/or feral animals, loss of breeding opportunities, loss of shade/shelter, deleterious hydrological changes, increased soil salinity, erosion, inhibition of nitrogen fixation, weed invasion, fertiliser drift, or increased human activity within or directly adjacent to sensitive habitat areas. As with direct impacts, consideration must be given, when applying each factor, to all of the likely indirect impacts of the proposed activity or development.
JAMBA	Japan-Australia Migratory Bird Agreement	A bilateral migratory bird agreement with Japan entered into in 1974. It provides an important mechanism for pursuing conservation outcomes for migratory birds, including migratory waterbirds.
KTP	Key Threatening Process	A key threatening process is defined as a process that threatens, or may have the capability to threaten, the survival or evolutionary development of species, populations or ecological communities. A requirement of their listing on the TSC Act is that the process adversely affects two or more threatened species, populations or ecological communities, or may cause species, populations or ecological communities not threatened to become threatened.
	Local population (species)	A local population of a threatened plant species comprises those individuals occurring in a defined area or a cluster of individuals extend into habitat adjoining and contiguous with the study area where the individuals could reasonably be expected to cross-pollinate. A local population of fauna species comprises those individuals known or likely to occur in in a defined area, as well as any individuals occurring in adjoining areas (contiguous or otherwise) that are known or likely to utilise habitats in the study area. The local population of migratory or nomadic fauna species comprises those individuals likely to occur in the study area from time to time.
	Local occurrence (EEC)	The ecological community present within the study area. However, the local occurrence may include adjacent areas if the ecological community on the study area forms part of a larger contiguous area of the ecological community and the movement of individuals and exchange of genetic material across the boundary of the study area can be clearly demonstrated.
	Low condition (vegetation)	Vegetation in low condition means: a) woody native vegetation with native over-storey percent foliage cover less than 50% of the lower value of the over-storey percent foliage cover benchmark for that vegetation type, and where either: – less than 50% of ground cover vegetation is indigenous species, or – greater than 90% of ground cover vegetation is cleared OR b) native grassland, wetland or herbfield where either: – less than 50% of ground cover vegetation is indigenous species, or – more than 90% of ground cover vegetation is cleared If native vegetation is not in low condition, it is in moderate to good condition. The percentages for the ground cover calculations must be made in a season when the proportion of native ground cover vegetation compared to non-native ground cover vegetation in the area is likely to be at its maximum. NOTE: Clearing the habitat of threatened species, populations or communities for the purposes of reducing its condition prior to assessment under the methodology may be a breach of environmental legislation, including sections 118A and 118D of the *National Parks and Wildlife Act 1974* (NPW Act), the *Native Vegetation Act 2003* (NV Act) and/or the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Abbreviation	Terminology	Description
MNES	Matters of national environmental significance	Refers to the seven matters of national environmental significance outlined under the EPBC Act.
NPW Act	*National Parks and Wildlife Act 1974* (NSW)	The objects of this Act are as follows: • The conservation of nature, including, but not limited to, the conservation of: • habitat, ecosystems and ecosystem processes, and • biological diversity at the community, species and genetic levels, and • landforms of significance, including geological features and processes, and • landscapes and natural features of significance including wilderness and wild rivers, The conservation of objects, places or features (including biological diversity) of cultural value within the landscape, including, but not limited to: • places, objects and features of significance to Aboriginal people, and • places of social value to the people of New South Wales, and • places of historic, architectural or scientific significance, • Fostering public appreciation, understanding and enjoyment of nature and cultural heritage and their conservation, • Providing for the management of land reserved under this Act in accordance with the management principles applicable for each type of reservation. The objects of this Act are to be achieved by applying the principles of ecologically sustainable development.
OEH	Office of Environment and Heritage	The Office of Environment and Heritage (OEH) is a separate agency within the Planning and Environment cluster. OEH was formed on 4 April 2011 and works to protect and conserve the NSW environment, including the natural environment, Aboriginal country, culture and heritage and our built heritage, and manages NSW national parks and reserves.
PoEO Act	*Protection of the Environment Operations Act 1997*	The objects of this Act are as follows: • to protect, restore and enhance the quality of the environment in New South Wales, having regard to the need to maintain ecologically sustainable development, • to provide increased opportunities for public involvement and participation in environment protection, • to ensure the community has access to relevant and meaningful information about pollution, • to reduce risks to human health and prevent the degradation of the environment by the use of mechanisms promoting: • pollution prevention and cleaner production, • the reduction to harmless levels of the discharge of substances likely to cause harm to the environment, • the elimination of harmful wastes, • the reduction in the use of materials and the re-use, recovery or recycling of materials, • the making of progressive environmental improvements, including the reduction of pollution at source, • the monitoring and reporting of environmental quality on a regular basis, • to rationalise, simplify and strengthen the regulatory framework for environment protection, • to improve the efficiency of administration of the environment protection legislation, • to assist in the achievement of the objectives of the *Waste Avoidance and Resource Recovery Act 2001*.
RAMSAR	Convention on Wetlands of International Importance	The Ramsar Convention's broad aims are to halt the worldwide loss of wetlands and to conserve, through wise use and management, those remaining. This requires international cooperation, policy making, capacity building and technology transfer.

Abbreviation	Terminology	Description
	Risk of extinction	The likelihood that the local population will become extinct either in the short-term or in the long-term as a result of direct or indirect impacts on the viability of that population.
ROKAMBA	Republic of Korea-Australia Migratory Bird Agreement	A bilateral migratory bird agreement with the Republic of Korea entered into in 2007. It provides an important mechanism for pursuing conservation outcomes for migratory birds, including migratory waterbirds.
RF Act	*Rural Fires Act 1997*	The objects of this Act are to provide: • for the prevention, mitigation and suppression of bush and other fires in local government areas (or parts of areas) and other parts of the State constituted as rural fire districts, and • for the co-ordination of bush firefighting and bush fire prevention throughout the State, and • for the protection of persons from injury or death, and property from damage, arising from fires, and • for the protection of infrastructure and environmental, economic, cultural, agricultural and community assets from damage arising from fires, and • for the protection of the environment by requiring certain activities referred to in paragraphs (a)-(c1) to be carried out having regard to the principles of ecologically sustainable development described in section 6 (2) of the *Protection of the Environment Administration Act 1991*.
SEPP 44	State Environmental Planning Policy No.44 – Koala Habitat	This Policy aims to encourage the proper conservation and management of areas of natural vegetation with habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline: • by requiring the preparation of plans of management before development consent can be granted in relation to areas of core koala habitat, and • by encouraging the identification of areas of core koala habitat, and • by encouraging the inclusion of areas of core koala habitat in environment protection zones.
Significant impact		A 'significant impact' is an impact which is important, notable, or of consequence, having regard to its context or intensity.
SIS	Species Impact Statement	A document included with an Environmental Impact Statement which details a full description of the action proposed, including its nature, extent, location, timing and layout and, to the fullest extent reasonably practicable, the information referred to in this section. The requirements as to the contents of an SIS for different categories of protected species are given in section 110 of the TSC Act.
Strahler stream order		Strahler stream order and are used to define stream size based on a hierarchy of tributaries. 

Appendix I: Habitat Assessment for protected species and communities predicted to occur

Habitat assessment table for BC Act listed protected species and EPBC Act migratory species within the Bathurst IBRA sub-region, NSW Bionet records and incorporating sightings of species within 10 km and within the Bathurst IBRA sub-region. Unless otherwise indicated, habitat information has been taken from The Australian Museum, NSW Species Profiles and accredited text books. Likelihood of occurrence has been determined based on professional judgement, observations made during field surveys and information available in species profiles and other sources.

Record within 10km: P= At least one NSW Bionet record exists for the species within 10km of the site, C=Species was confirmed as present at the site during the field survey.

Class	Species Name	Common Name	Record within 10km	Likelihood of Occurrence	Potential Impact
Aves	*Alisterus scapularis*	Australian King-Parrot	**P**	Australian King-Parrots are most commonly found in the rainforests and wet sclerophyll forests of Australia's East Coast and, however they are known to use dry sclerophyll forest as well as marginal and disturbed habitat further inland. Only limited records of Australian King-Parrots exist for the Bathurst sub-region. **No impact– occur mostly over wooded areas**	No Impact
Aves	*Eolophus roseicapillus*	Galah	**P**	The Galah is one of the most abundant and familiar of the Australian parrots, occurring over most of Australia. The Galah is found in large flocks in a variety of timbered habitats, usually near water. **Unlikely – Although not recorded at the site, they are common in the surrounding area. It is likely that Galahs visit the site to forage and to make use of the available water bodies. The site is however not suitable for breeding as no appropriate hollow bearing trees were recorded.**	Unlikely habitat, non-significant impact

Aves	*Platycercus eximius*	Eastern Rosella	**P,C**	The Eastern Rosella is found in open woodlands, grasslands, farmlands and remnant bushland. Often found in urban habitats such as parks, gardens and golf courses. They are common throughout the Bathurst sub-region. **Potential – Eastern Rosellas were recorded at the site during the field survey and are generally common in the area. It is likely that Eastern Rosellas visit the site to forage and to make use of the available water bodies. The site is however not suitable for breeding as no appropriate hollow bearing trees were recorded.**	Potential habitat, non-significant impact
Aves	*Platycercus elegans*	Crimson Rosella	**P**	Throughout its range, the Crimson Rosella is most commonly associated with tall eucalypt and wetter forests of the great dividing rang . Despite this they are known to use semi-arid, disturbed or marginal timbered areas as well as unwooded habitat although usually only when in close proximity to established primary habitat. **No Impact – habitat does not occur on the subject site**	No Impact
Aves	*Glossopsitta concinna*	Musk Lorikeet	**P**	Musk Lorikeets are found in tall, open, dry forest and woodlands, dominated by eucalypts and are usually found in the canopy. They are also seen in suburban areas, parks and street trees. They roost or loaf in tall trees away from their feeding sites. They are present throughout the Central West. **No Impact – no native, flowering trees exist on the subject site**	No Impact

Aves	*Calyptorhynchus funereus*	Yellow-tailed Black-Cockatoo	**P**	The Yellow-tailed Black-Cockatoo inhabits a variety of habitat types, but favours eucalypt woodland and pine plantations, including Monterey Pine (*Pinus radiata*) which is abundant at the site. They have large foraging ranges and are known to forage in pine stands of any size. **Potential – Yellow-tailed Black-Cockatoos have been infrequently recorded in the region and are known to forage in Monterey Pine. It is possible that Yellow-tailed Black-Cockatoos could visit the site to forage and to make use of the available water bodies. The site is however not suitable for breeding as no appropriate hollow bearing trees were recorded.**	Potential habitat, non-significant impact
Aves	*Cacatua sanguinea*	Little Corella	**P**	Little Corellas are widespread throughout Australia. The Little Corella is the most widely distributed of the three corella species found in Australia and is commonly associated with open grasslands found within urban matrices such as; parks, sports ovals and vacant blocks. **Unlikely – Although not recorded at the site, records suggest that they are present in the surrounding area. It is possible that Little Corellas visit the site to forage and to make use of the available water bodies. The site is however not suitable for breeding as no appropriate hollow bearing trees were recorded.**	Unlikely habitat, non-significant impact
Aves	*Manorina melanocephala*	Noisy Miner	**P,C**	Noisy Miners are found in woodlands and open forests. They have also become well adapted to suburban situations and are a common sight in parks and gardens. They are highly capable of adapting to disturbed	Likely habitat, non-significant impact

				habitats, often forcing other species out of these habitats. The species is known to be using the site and was present during the field survey. **Likely – it is likely that the species will respond to disturbances associate with development with increased dominance at the site and in surrounding areas. The species dominance at the site will likely increase following development negatively impacting the ability of other species to utilize the site.**	
Aves	*Caligavis chrysops*	Yellow-faced Honeyeater	**P**	The Yellow-faced Honeyeater is found in open forests and woodlands, often near water and wetlands. It uses ridges, sand dunes, valleys and rivers when migrating. It is often found in urban areas, including in remnant bushland, as well as parks and gardens. It will use areas infested with weeds such as Scotch Broom and Blackberry. **No Impact – Breeding or foraging habitat does not occur on the subject site**	No Impact
Aves	*Anthochaera chrysoptera*	Little Wattlebird	**P**	Little Wattlebirds prefer the drier and often scrubby, habitats, such as banksia heaths, forests, woodlands and urban parks and gardens. Little Wattlebirds have only been recorded once in the Bathurst sub-region. **No impact – Breeding or foraging habitat does not occur on the subject site**	No Impact
Aves	*Anthochaera carunculata*	Red Wattlebird	**P**	The Red Wattlebird occurs in open sclerophyll forest and woodland, generally dominated by eucalypts, particularly when an ample shrubby or grassy understory is present. The Red Wattlebird is aggressively	No Impact

				territorial and protects food-bearing plants from other honeyeater species. **No Impact – Breeding or foraging habitat does not occur on the subject site**	
Aves	*Tyto javanica*	Eastern Barn Owl	**P**	Preferring open habitats, Barn Owls often inhabit grasslands and farmland, especially in crops that might attract rodents, or pasture. They also occur in open woodlands where there is a grassy understorey. **Unlikely – Potential use of open grassy area for feeding but any notable impact is unlikely. No gleaning or nesting habitat is present at the site**	Unlikely habitat, non-significant impact
Aves	*Ninox novaeseelandiae*	Southern Boobook	**P**	Southern Boobooks are seen in a variety of habitats from dense forest to open desert and require open forest floors, open grassland or other suitable open area in which to hunt. They roost in dense foliage during the day and require hollow bearing trees to nest. **Unlikely – Potential use of open grassy area for feeding but any notable impact is unlikely. No gleaning or nesting habitat is present at the site**	Unlikely habitat, non-significant impact
Aves	*Scythrops novaehollandiae*	Channel-billed Cuckoo	**P**	The Channel-billed Cuckoo is found in tall open forests, feeding primarily on figs as well as other tree fruits when figs are unavailable. Channel-billed Cuckoos require a host bird nest (most commonly an Australian Magpie or Pied Currawong) which they parasitize, laying their own eggs to be raised by the parent bird. **Unlikely - Channel-billed Cuckoos are not common in this area and there is limited appropriate habitat, however the presence of an**	Unlikely habitat, non-significant impact

				Australian Magpie nest during the survey suggests that the site could represent a potential nest site.	
Aves	*Eudynamys orientalis*	Eastern Koel	**P**	In late September and early October each year, Eastern Koels arrive in Australia from their northern winter homes to breed. The Koels leave southern Australia in about March. Eastern Koels are found in tall forests and are common in suburban areas. Eastern Koels are nest parasites, laying their eggs in the nests Red Wattlebird, friarbirds, the Magpie-lark and figbirds **No Impact –foraging habitat does not occur on the subject site, no appropriate habitat for host species.**	No Impact
Aves	*Chalcites lucidus*	Shining Bronze-Cuckoo	**P**	Inhabiting a wide range of wooded habitats, Shining Bronze-Cuckoos can be seen in various forests and woodlands, paperbark thickets, shrubland, heath, parks and gardens, and occasionally even in pine plantations and rainforests. They usually occur in the canopy. Only three records exist of Shining Bronze-Cuckoos in the Bathurst sub-region. **Unlikely – Shining Bronze-Cuckoos have been recorded using exotic pines to forage however the scarcity of records for this species suggest that it is unlikely to be effected by this site.**	Unlikely habitat, non-significant impact
Aves	*Trichoglossus haematodus*	Rainbow Lorikeet	**P**	The Rainbow Lorikeet is a common, urban adapted species found in a wide range of timbered habitats including rainforest and woodlands, as well as in well-treed urban areas. They feed on flowering and fruiting trees, commonly eucalypts, callistamons and introduced fruit trees. They require hollow bearing trees to nest.	No Impact

				No Impact – Breeding or foraging habitat does not occur on the subject site	
Aves	*Psephotus haematonotus*	Red-rumped Parrot	**P**	The Red-rumped Parrot is found in open grasslands or lightly timbered plains, as well as along watercourses and in mallee farmlands with access to water. The Red-rumped Parrot feeds in pairs or small flocks on the ground, preferring seeds and leaves of grasses. It also will feed on seeds, fruits and flowers in trees. They are a hollow nesting speceis. **Potential – Although not recorded at the site, they are common in the surrounding area. It is likely that Red-rumped Parrots visit the site to forage and to make use of the available water bodies. The site is however not suitable for breeding as no appropriate hollow bearing trees were recorded.**	Potential habitat, non-significant impact
Aves	*Acanthiza chrysorrhoa*	Yellow-rumped Thornbill	**P,C**	The Yellow-rumped Thornbill is found on the ground in open habitats, such as woodlands, forests, shrublands and grasslands with some trees. It is also common in agricultural lands, along watercourses, beside roads and in parks and gardens. It is found in most climatic zones, but only sparse in tropics, arid zone and east of the Great Dividing Range. The nest is usually in the dense foliage of trees, near the end of branches or in vines or mistletoe. **Potential – Confirmed as present during the field survey, they are also common in the surrounding area. It is likely that Yellow-rumped Thornbill visit the site to forage and to make use of the available water bodies. There is limited nesting potential as limited appropriate foliage exists on the site.**	Potential habitat, non-significant impact

Aves	*Eurystomus orientalis*	Dollarbird	**P**	Dollarbird forage and nest in open wooded areas, normally with mature, hollow-bearing trees. They feed almost exclusively on flying insects and requires appropriate, exposed perches from which to glean. As a migratory species they are only present in Australia between September and April when they breed. **No Impact – Breeding or foraging habitat does not occur on the subject site**	No Impact
Aves	*Todiramphus sanctus*	Sacred Kingfisher	**P**	Sacred Kingfishers are most commonly associated with mature open eucalypt forests, often protecting territory along a perennial waterway. They are present throughout the Bathurst sub-region and are regularly recorded, despite this they are do not commonly occur in high densities. They require termite mounds to nest. **No Impact – Breeding or foraging habitat does not occur on the subject site**	No Impact
Aves	*Dacelo novaeguineae*	Laughing Kookaburra	**P**	Laughing Kookaburras are a common habitat generalist which will utilize a wide range of wooded and open habitat. They are abundant between the east coast and arid, central Australia. They are a hollow nesting species which may also nest in termite mounds. **Unlikely – It is likely that Laughing Kookaburras will use the site for foraging, however it does not represent primary foraging habitat and not nesting features exist suggesting that development will have a negligible impact on the species.**	Unlikely habitat, non-significant impact

Aves	*Ceyx azureus*	Azure Kingfisher	**P**	Azure Kingfishers require access to waterways preferring perennial freshwater rivers and creeks as well as billabongs, lakes, swamps and dams, usually in shady overhanging vegetation. They are capable urban adapters, frequenting water bodies surrounded by urban development. They are more commonly associated with large complex costal river systems and few records exist of them in the Bathurst sub-region. **No Impact – very few local records and limited appropriate nearby habitat suggest that it is unlikely that Azure Kingfisher are using the on-site water bodies.**	No Impact
Aves	*Falco longipennis*	Australian Hobby	**P**	The Australian Hobby mostly inhabits lightly timbered landscapes, especially open forests and woodlands or mosaics of trees and open areas, including wooded farmland, timbered wetlands and well-vegetated suburbs. Populations are likely to occur in most substantial reserve of flat, open habitats in the arid and semi-arid zones, particularly those with riparian habitats. Australian Hobby inhabits woodland, shrubland and grassland in the arid and semi-arid zones, especially wooded (eucalypt dominated) watercourses; it also uses agricultural land with scattered remnant trees. The Australian Hobby is often associated with streams or wetlands, visiting them in search of prey. It uses standing dead trees as lookout posts. **Potential – vagrant individuals might forage over the subject site due to their extensive foraging range.**	Potential habitat, non-significant impact

Aves	*Falco cenchroides*	Nankeen Kestrel	**P**	Preferred habitats are lightly wooded areas and open agricultural regions and tend to be absent from dense forests. The Nankeen Kestrel's success as a bird of prey can be largely contributed to its tolerance for a wide variety of habitats and its ability to feed on a variety of foods and nest in a range of sites. The Nankeen Kestrel is common and abundant in the open woodlands of semi-arid Australia and has been recorded repeatedly inside the 10km buffer of the site. Nankeen Kestrels primarily nest in tree hollows but have been known to nest on rock escarpments, building facades and on the ground. **Potential – The site represents appropriate foraging habitat and the presence of individuals in the surrounding area suggests that they likely use the site to feed. They may also ground nest at the site although it does not contain hollows, the specie's preferred nesting mode.**	Potential habitat, non-significant impact
Aves	*Elanus axillaris*	Black-shouldered Kite	**P**	The Black-shouldered Kite primerily inhabits grasslands, farms, open forests and woodlands or mosaics of trees and open areas, including wooded farmland, timbered wetlands and well-vegetated suburbs. Populations are likely to occur in most substantial reserve of flat, open habitats. Although their populations are most dense along the coast they inhabit arid and semi-arid zones across the continent, particularly those with riparian habitats. Black-shouldered Kites nest on high trees or on an artificial structure such as a bridge or power pole. **Potential – vagrant individuals might forage over the subject site due to their extensive foraging range. No appropriate nesting habitat is present.**	Potential habitat, non-significant impact

Aves	*Aquila audax*	Wedge-tailed Eagle	**P**	Wedge-tailed Eagles are common across Australia and inhabit virtually every available habitat; preferring lightly timbered and open grassland in southern and eastern Australia, utilizing waterways and dams id available. Depending on prey availability individuals can travel large distances to feed. Wedge-tailed Eagles nest on high trees or on an artificial structure such as a bridge or power pole. **Potential – vagrant individuals might forage over the subject site due to their extensive foraging range, especially given the population of rabbits, which comprise up to 70% of the Eagle's diet. No appropriate nesting habitat is present.**	Potential habitat, non-significant impact
Aves	*Accipiter fasciatus*	Brown Goshawk	**P**	Populations of Brown Goshawks are likely to occur in most substantial reserve of flat, open habitats in the arid and semi-arid zones, The Brown Goshawk inhabits all but the densest woodland as well as shrublands and grasslands in the arid and semi-arid zones. It requires concealed perches near open areas such as agricultural land with scattered remnant trees from which to locate and ambush prey. The Brown Goshawk builds its large stick nest on a horizontal limb of the tallest tree available. **Potential – The presence of a mature Monterey Pine stand within a grassland matrix represents a potential foraging site for Brown Goshawks. No suitable nesting habitat is present.**	Potential habitat, non-significant impact
Aves	*Accipiter cirrocephalus*	Collared Sparrowhawk	**P**	The Collared Sparrowhawk is a highly mobile, potentially migratory species. It is known to inhabit every Australian biome except the central	Unlikely habitat, non-significant impact

				deserts. Collared Sparrowhawks hunt other birds on the wing and requires mature forking trees (usually eucalypts) in which to nest. **Unlikely – No appropriate nesting habitat exists at the site however vagrant individuals might forage over the site**	
Aves	*Threskiornis molucca*	Australian White Ibis	**P**	The Australian White Ibis can be observed in all but the driest habitats. Preferred habitats include swamps, lagoons, floodplains and grasslands, but it has also become a successful inhabitant of urban parks and gardens. The species is known to form communal roosts in stands of invasive pine. Australian White Ibis most commonly feed on buried aquatic invertebrates such as fresh water muscles but will fossick terrestrially when preferred food is unavailable. The species is an adept urban adaptor and is often more commonly associated with human settlement than their natural habitat. Australian White Ibis nest communally in stands of tall trees usually but not necessarily associated with water bodies. **Potential – The existing stand of pine at the site represents a potential, if marginal, nesting and roosting feature for the species. The species may use the on-site water bodies to forage.**	Potential habitat, non-significant impact
Aves	*Pelecanus conspicillatus*	Australian Pelican	**P**	Pelicans are widespread on freshwater, estuarine and marine wetlands and waterways including lakes, swamps, rivers, coastal islands and shores. Australian Pelicans are highly mobile species commonly following waterways thousands of kilometres inland. In non-coastal regions Australian Pelicans will use any available water bodies but preference large bodies such as dam reservoirs, natural lakes and large rivers. The	Unlikely habitat, non-significant impact

				species is known to use agricultural dams when larger water bodies are scarce. Pelicans only breed on islands or coastal regions. **Unlikely – There is some potential for Australian Pelicans to use the water bodies that exist on the site, especially given the current drought. There are very few records of Australian Pelicans in the Bathurst region suggesting that the impact of this development will have a negligible impact on this highly mobile species.**	
Aves	*Phalacrocorax varius*	Pied Cormorant	**P**	The Pied Cormorant is found throughout mainland Australia. It is more common in the south and along the coast of south-western Australia and is not found in the driest parts of the interior. The Pied Cormorant is found in marine habitats, including estuaries, harbours and bays. It is also found in mangroves and on large inland wetlands in eastern Australia. **No Impact – Breeding or foraging habitat does not occur on the subject site**	No Impact
Aves	*Phalacrocorax carbo*	Great Cormorant	**P**	Great Cormorants are probably the most widespread member of the cormorant family, it occurs throughout most of Australia but is more numerous in the south-east and south-west. The species is most commonly associated with perennial freshwater bodies such as rivers and lakes but it is also known to use brackish and marine environments. Great Cormorants feed primarily on fish but supplement their diet with freshwater (or marine) crustaceans. The species is a communal breeder requiring large water bodies with ample adjacent vegetation. **Unlikely – There is a small chance that the species could forage in the on-site water bodies (similar cormorant species were recorded during**	Unlikely habitat, non-significant impact

				the field survey) however there are few records of Great Cormorants in the Bathurst region, which in general lacks appropriate primary habitat suggesting that the impact of development would be negligible. No breeding habitat exists at the site.	
Aves	*Podargus strigoides*	Tawny Frogmouth	**P**	The Tawny Frogmouth is commonly found throughout all Australian biomes except dense rainforest and desert and are generally considered to be very adaptable habitat users. The species is a gleaning feeder requiring spotting perches from which to identify its terrestrial prey. They produce a nest which is a loose platform of sticks, which is usually placed on a horizontal forked tree branch. There is a known ongoing population of Tawny Frogmouth both in the Bathurst region in general and around the site. **Potential – The species is likely foraging in the site as the existing stand of pine would provide appropriate spotting perches. The species is not known to nest in invasive pine but the possibility should not be ruled out.**	Potential habitat, non-significant impact
Aves	*Phaps chalcoptera*	Common Bronzewing	**P**	Common Bronzewings are one of the most plentiful and commonly seen pigeons in Australia. Common Bronzewings are found in almost every habitat type, with the exception of deserts and dense rainforests. Common Bronzewings are generally associated with water and are generally not found away from water bodies. The species feeds by flying between patches of vegetation, where it feeds on seeds and fruit, and water bodies as it drinks regularly. The species nest on low tree branches and in bushes where it builds an untidy nest of sticks and twigs.	Potential habitat, non-significant impact

				Potential – The site contains several habitat features required by this species suggesting that they may use the site, however the species is not commonly reported in the area and no significant population is known. The species relative absence from the region suggests that development will have a negligible effect on the species however removal of several primary habitat features may prevent future use.	
Aves	*Ocyphaps lophotes*	Crested Pigeon	**P**	As with the Common Bronzewing, Crested Pigeons are one of the most plentiful and commonly seen pigeons in Australia. They are found in almost every habitat type, with the exception of deserts and dense rainforests. Common Bronzewings are generally associated with water and are generally not found away from water bodies as they need to drink regularly. The species feeds by flying between patches of vegetation, where it feeds on seeds and fruit, and water bodies. The species constructs a simple nest anywhere in a tree or shrub. Unlike the Common Bronzewing, a large continues population is know in both the Bathurst sub-region and area directly surrounding the site. **Potential – The species is likely using the site to both forage and breed given the presence of both foraging, drinking and breeding habitat.**	Potential habitat, non-significant impact
Aves	*Cacatua galerita*	Sulphur-crested Cockatoo	**P**	Sulphur-crested Cockatoos are found in a variety of timbered habitats and are common around human settlements. The birds stay in the same area all year round. The species is widely distributed and common along the eastern coast of Australia, its population decreases as the environment becomes more arid. There is a large continues population in both the Bathurst sub-region and area directly surrounding the site.	Unlikely habitat, non-significant impact

				Unlikely – The present of dense populations around the site suggest that they would likely use the site to perch and rest, however there is no appropriate feeding habitat or hollow bearing trees so any impact is likely to be negligible.	
Aves	*Vanellus miles*	Masked Lapwing	**P,C**	The Masked Lapwing is common throughout northern, central and eastern Australia. The Masked Lapwing primarily inhabits open areas such as; marshes, mudflats, beaches and grasslands where it forages and nests on the ground. It is often seen in urban or disturbed areas. There is a known and large population in both the Bathurst sub-region and area directly surrounding the site. It was also recorded during the field survey, confirming that they are currently using the site. **Likely – The site represents primary habitat for the species, which are currently using the site, likely for foraging and breeding. It is likely that disturbances associated with development and as well as the associated removal of open grassland will see the species excluded from the area without significant green spaces.**	Likely habitat, non-significant impact
Aves	*Porphyrio porphyrio*	Purple Swamphen	**P**	The Purple Swamphen is found throughout mainland Australia. It is more common in freshwater bodies and its population is denser in regions closer to the coast, it is not found in the driest parts of the interior. It is not commonly recorded in the Bathurst sub-region and all recorded sightings have occurred close to the Darling River. They require significant water adjacent vegetation to construct their raised nest platforms.	Unlikely habitat, non-significant impact

				Unlikely – Given the low local population and lack of breeding habitat it is unlikely that the development will have a significant impact on the species.	
Aves	*Chenonetta jubata*	Australian Wood Duck	**P,C**	The Australian Wood Duck is a common widely distributed species which occurs in any habitat with sufficient water. The Australian Wood Duck is found in grasslands, open woodlands, wetlands, flooded pastures and along the coast in inlets and bays. It is also common on farmland with dams, as well as around rice fields, sewage ponds and in urban parks. It will often be found around deeper lakes that may be unsuitable for other waterbirds' foraging, as it prefers to forage on land. The species forages on both exotic and native terrestrial grasses, sedges and forbs. The Australian Wood Duck is a hollow nesting species, requiring significant hollows close to water bodies. The species was confirmed as present at the site during the field survey, it was observed foraging. **Potential – The species is using the site currently to forage, removing the water bodies and grassland will reduce the species available foraging habitat. No nesting habitat was recorded at the site.**	Potential habitat, non-significant impact
Aves	*Anas superciliosa*	Pacific Black Duck	**P,C**	The Pacific Black Duck is very similar to the Australian Wood Duck although slightly more abundant and widespread, is a common widely distributed species which occurs in any habitat with sufficient water. The Pacific Black Duck is found in grasslands, open woodlands, wetlands, flooded pastures and along the coast in inlets and bays. It is also common on farmland with dams, as well as around rice fields, sewage ponds and in urban parks. It will often be found around deeper lakes that may be	Likely habitat, non-significant impact

				unsuitable for other waterbirds' foraging, as it prefers to forage on land. The species forages on both exotic and native terrestrial grasses, sedges and forbs. The Pacific Black Duck is a generalist nester, constructing nests on almost any available strata, preferable low to the ground. The species was confirmed as present at the site during the field survey, it was observed foraging. **Likely – The species is present at the site and is currently using it as a foraging area, there is potential for the species to breed at the site as they have less specific nesting requirements than the Australian Wood Duck.**	
Aves	*Poliocephalus poliocephalus*	Hoary-headed Grebe	**P**	The Hoary-headed Grebe is found in all states and territories of and is generally absent from the central arid regions of Australia. It is known to use inland waterways, however its population is much more dense in coastal or coastal-adjacent regions. It feeds primarily on marine or aquatic arthropods taken either from submerged vegetation or from the surface The species is not commonly recorded in the Bathurst sub region and all records are associated with the Darling river and its associated green areas. The species constructs its nest well offshore in the shallows amongst floating waterweeds or scattered, open lignum, sedges, reeds or other saltmarsh vegetation, from waterweeds which are loosely attached to submergents, sedges or fallen branches. **No Impact – habitat does not occur on the subject site**	No Impact
Aves	*Cygnus atratus*	Black Swan	**P**	Black Swans are a large, highly mobile species which is found in most regions of Australia. They require large water bodies with at least 40m of	No Impact

				clear water on which to land and take off. The Black Swan is a vegetarian. Food consists of algae and weeds, which the bird obtains by plunging its long neck into water up to 1 m deep. Occasionally birds will graze on land, but they are clumsy walkers. Nests is placed either on a small island or floated in deeper water. **No Impact – It is unlikely that the species would be able to access the site given the size of the existing water bodies.**	
Aves	*Cracticus tibicen*	Australian Magpie	**P,C**	Australian Magpies are common and conspicuous birds. Groups of up to 24 birds live year round in territories that are actively defended by all group members. The group depends on this territory for its feeding, roosting and nesting requirements. Australian Magpies require a combination of trees and adjacent open areas, including parks and playing fields. They are absent only from the densest forests and arid deserts. A large continuous population of magpies is known to exist both in the Bathurst sub-region as well as the site and its direct surrounding. The species was confirmed as present during the field survey with both adults and nests sighted, meaning that the site occurs within the territory of a family group. **Likely – the presence of both adults and nests at the site strongly suggest that the site is currently part of the territory of an established family group. Development of the site will likely have a significant impact on this group and the population in general as territory reestablishment impacts surrounding groups.**	Likely habitat, non-significant impact

Aves	*Coracina novaehollandiae*	Black-faced Cuckoo-shrike	**P**	The Black-faced Cuckoo-shrike is widespread and common, occurring across Australia and utilizing every biome except the central deserts. The Black-faced Cuckoo-shrike is found in almost any wooded habitat where it forages for invertebrates caught in the air, taken from foliage or caught on the ground. In addition to insects, some fruits and seeds are also eaten. The species is commonly recorded in the area surrounding. **Potential - although the species was not recorded at the site it is likely based on surrounding populations that it would forage and potentially nest there.**	Potential habitat, non-significant impact
Aves	*Philemon corniculatus*	Noisy Friarbird	**P**	The Noisy Friarbird is found in eastern and south-eastern Australia, from north-eastern Queensland to north-eastern Victoria. The Noisy Friarbird prefers dry forests and eucalypt woodlands, as well as coastal scrub, heathlands and around wetlands and wet forests, and is found in most climate zones, extending into arid areas along rivers. The Noisy Friarbird eats nectar, fruit, insects and other invertebrates and sometimes eggs or baby birds. They spend most of their time feeding on nectar high up in trees, only coming down to the ground occasionally to feed on insects. The female builds the large, deep cup-shaped nest from bark and grass. **No Impact – habitat does not occur on the subject site**	No impact
Aves	*Taeniopygia guttata*	Zebra Finch	**P**	The Zebra Finch is generally found in more arid areas, commonly close to water bodies and associated with grasslands with scattered trees and shrubs, and in open or grassy woodlands. There are few records of Zebra Finchs in the Bathurst sub-region and it generally does not contain habitat closely associated with the species. Zebra Finchs feed on the	No Impact

				seeds of native and invasive grasses and construct both roosting and breeding nests which they attach to hard surfaces such as rocks, trees or buildings. **No Impact – habitat does not occur on the subject site**	
Aves	*Neochmia temporalis*	Red-browed Finch	**P**	Red-browed Finchs are distributed along the east coast of Australia, populations are more dense east of the Great Dividing Range but the species is commonly seen west of the range, populations become less common approaching arid Australia. The species is well recorded in the Bathurst sub-region. The Red-browed Finch feeds on seeds and insects on the ground, but sometimes perches on seeding grass heads. Their nest is a rough construction of twigs and grass stems built in a dense shrub between 1 and 2 metres from the ground. **No Impact – habitat does not occur on the subject site**	No Impact
Aves	*Corvus coronoides*	Australian Raven	**P,C**	Australian Raven are common and conspicuous birds and require a combination of trees and adjacent open areas, including parks and playing fields. They are absent only from the densest forests and arid deserts. A large continuous population of ravens is known to exist both in the Bathurst sub-region as well as the site and its direct surrounding. The Family Corvidae has a wide-ranging diet that may consist of grains, fruits, insects, small animals, eggs, refuse and carrion; however, the Australian Raven is mainly carnivorous. Australian Ravens make messy nests in virtually any tree The species was confirmed as present during the field survey, suggesting that they are using the site.	Potential habitat, non-significant impact

				Potential – The species is currently using the site, likely to forage and potentially to breed as suitable habitat is present.	
Aves	*Rhipidura leucophrys*	Willie Wagtail	**P**	Willie Wagtails are one of Australia's most common, abundant and widespread birds. The species is common in every biome in Australia. They are most commonly associated with habitats that contain a combination of trees and adjacent open areas, including parks and playing fields as they use trees and shrubs for cover while feeding in the open. There is a large well documented and continuing population of the species, both in the Bathurst sub-region and the area directly around the site. Willie Wagtails are active feeders, birds can be seen darting around lawns as they hunt for insects both on the ground and in the air. They construct complex nests which they often re-use in subsequent years. **Likely – The site represents optimal habitat for Willie Wagtail with grass covered open areas for foraging and isolated islands of vegetation for nesting. Given their known population in the surrounding area it is very likely that the species is actively using the site.**	Likely habitat, non-significant impact
Aves	*Strepera graculina*	Pied Currawong	**P,C**	Pied Currawongs are common and conspicuous birds and require a combination of trees and adjacent open areas, including parks and playing fields. They are absent only from the densest forests and arid deserts. A large continuous population of ravens is known to exist both in the Bathurst sub-region as well as the site and its direct surrounding. The Family Corvidae has a wide-ranging diet that may consist of grains, fruits, insects, small animals, eggs, refuse and carrion; however, the Pied Currawong is mainly carnivorous. Pied Currawongs can occur solitarily or	Potential habitat, non-significant impact

				in small family groups and makes messy nests in virtually any tree The species was confirmed as present during the field survey, suggesting that they are using the site. **Potential – The species is currently using the site, likely to forage and potentially to breed as suitable habitat is present.**	
Aves	*Hirundo neoxena*	Welcome Swallow	**P,C**	Welcome Swallows are common and abundant in eastern Australia, particularly in the south. They are most commonly associated with habitats that contain a combination of trees and adjacent open areas, including parks and playing fields, although they are also commonly seen feeding over water. They use trees ,shrubs or structures for cover and feed in the open. The species was confirmed as present at the site during the field survey suggesting that they are foraging at the site. The species is well documented and a continuing population exists both in the Bathurst sub-region and the area directly around the site. Welcome Swallow are active feeders, birds can be seen darting around lawns as they hunt for insects which they catch on the wing. They construct complex nests on exposed escarpments or structures. **Potential – Based on the presence of individuals during the field survey, it is likely that species is foraging at the site. No appropriate breeding habitat exists at the site.**	Potential habitat, non-significant impact
Aves	*Zosterops lateralis*	Silvereye	**P**	Silvereyes are common and abundant, particularly in eastern Australia. They are most commonly associated with habitats that contain a combination of trees and adjacent open areas, including parks and playing fields as they use trees and shrubs for. There is a large well	Unlikely habitat, non-significant impact

				documented and continuing population of the species, both in the Bathurst sub-region and the area directly around the site. Silvereyes feed on a combination of insects, which they take from both the ground and the air, and the fruit and nectar of exotic flora (such as fruit trees) and native plants (such as flowering gums). Their nest is a small, neatly woven cup of grasses, hair, and other fine vegetation, bound with spider web. It is placed in a horizontal tree fork up to 5m above the ground. **Unlikely – The site offers only limited foraging habitat for the species but the lack of flowering to fruiting trees severely limits the utility of this site for the species. There is not appropriate nesting habitat on the site.**	
Aves	*Corcorax melanorhamphos*	White-winged Chough	**P**	White-winged Choughs are a highly conspicuous and social birds living in groups of up to 20. The group depends on large territories (up to 10km^2) for feeding, roosting and resource intensive mud nesting requirements. White-winged Choughs are found in open forests and woodlands. They tend to prefer the wetter areas, with lots of leaf-litter, for feeding, and available mud for nest building. They are consistently present throughout most of south and eastern Australia. A significant and continuous population of White-winged Choughs are known to exist both in the Bathurst sub-region as well as the site and its direct surrounding, although as their territories are so large this likely only represents a small number of family groups. White-winged Choughs construct a nest from mud taken from surrounding water bodies, this requirement drives much of their habitat selection.	Unlikely habitat, non-significant impact

				Unlikely – It is likely that the site falls within the territory of an established group of White-winged Chough and the site would represent marginal foraging habitat. The size of the species territories suggests that the development would have a negligible impact on the species' population in the area. There is no appropriate breeding habitat at the site.	
Aves	*Grallina cyanoleuca*	Magpie-lark	**P,C**	Magpie-larks are one of Australia's most common, abundant and widespread birds. The species is common in every biome in Australia except the central deserts. They are most commonly associated with habitats that contain a combination of trees and adjacent open areas, including parks and playing fields as they use trees and shrubs for cover while feeding in the open. The Magpie-lark is mostly ground-dwelling, and is usually seen slowly searching on the ground for a variety of insects. There is a large well documented and continuing population of the species, both in the Bathurst sub-region and the area directly around the site and the species was confirmed as present during the field survey. **Potential – The species is currently using the site to forage, however it is unlikely to nest at the site as there are no appropriate nesting trees.**	Potential habitat, non-significant impact
Aves	*Melopsittacus undulatus*	Budgerigar	**P**	Budgerigars are most commonly associated with arid Australia and do not occur in coastal regions. The regions directly to the west of the Great Dividing Range (such as Bathurst) do fall within the range of the species but do not support permeant populations. Only a single record exists from the Bathurst sub-region suggesting that they are nor regularly present in this area. Budgerigars feed almost exclusively on the seeds of	No Impact

				native herbs and grasses, such as porcupine grass and saltbush. Budgerigars are hollow nesting species. **No Impact – It is very unlikely that Budgerigars would visit this site given both the marginal nature of the habitat for foraging by the species and that the site occurs at the very extent of the species known non-permeant range.**	
Aves	*Cacatua tenuirostris*	Long-billed Corella	**P**	The range of this species is largely restricted to Victoria and urban/suburban Sydney, there are however scattered populations across the east coast and the regions immediately west of the Great Dividing Range. The Long-billed Corella prefers grassy woodlands and grasslands, including pasture and crops, as well as parks in urban areas. Grass seeds are the preferred diet of Long-billed Corellas, particularly those from grain crops. They also eat corms, bulbs and roots, especially from the weed onion grass, *Romulea*. Insects are also eaten. Native food plants include Murnong, *Microseris lanceolata*, but about 90 % of the diet now includes introduced food plants. They are primarily a hollow nesting species but will nest in rocky escarpments when hollows are not available. **No Impact – There is a small chance that the site could be used for foraging but as the Bathurst sub-region falls outside of the species core range and very few records exist for the species in the region it is likely that any impact of the development will be negligible. No nesting habitat exists at the site.**	No Impact

Aves	*Pardalotus striatus*	Striated Pardalote	**P**	The Striated Pardalote is found throughout most of Australia, being absent only from the most arid areas. The species is known to be migratory although little is known about the nature of their migration and migration seems only to effect certain populations while others remain in at a location year round. Striated Pardalotes feed in the foliage in the tops of trees, although occasionally coming close to the ground in low shrubs. They eat a wide variety of insects and their larvae, which are usually captured by picking them from the surfaces of leaves. The species constructed its nest close to the ground, usually in a tree hollow or tunnel, excavated in an earthen bank; small openings in human-made objects are frequently used. There is a known population of Striated Pardalotes in the surrounding area. **No Impact – No foraging or nesting habitat present at the site.**	No Impact
Aves	*Pardalotus punctatus*	Spotted Pardalote	**P**	The Spotted Pardalote is found throughout most of Australia, being absent only from the most arid areas. Spotted Pardalotes feed in the canopy of established eucalypts, although occasionally coming close to the ground in low shrubs. They eat a wide variety of insects and their larvae, which are usually captured by picking them from the surfaces of leaves. The species constructed its nest close to the ground, usually in a tree hollow or tunnel, excavated in an earthen bank; small openings in human-made objects are frequently used. There is a known population of Spotted Pardalotes in the surrounding area. **No Impact – No foraging or nesting habitat present at the site.**	No Impact

Aves	*Chalcites basalis*	Horsfield's Bronze-Cuckoo	**P**	In Australia, Horsfield's Bronze-Cuckoo is found in all regions. It is widespread and relatively common on the eastern side of the Great Dividing Range with populations becoming less dense as habitats become more arid to the west. Few records of the species exist from the Bathurst sub-region suggesting that their population is fairly sparse. The species utilizes many wooded habitats (such as open and dry woodland and forest) with a range of understoreys from grasses to shrubs or heath. Sometimes found near clearings and in recently logged or burnt forests. Found in farmland with some trees, orchards, vineyards and urban parks and gardens. It feeds primarily on insects taken from the ground or the from plants and may supplement its diet with plant material. Horsfield's Bronze-Cuckoo is a nest parasite, like many other cuckoos. It usually parasitises bird species that build dome nests such as fairy-wrens and thornbills, both of which are likely present or confirmed at the site. **Unlikely – Potential host species such as the Superb Fairy-wren are present at the site suggesting that it may represent suitable breeding habitat, however the available foraging habitat is marginal at best. Significant impacts of development on this species are unlikely.**	Unlikely habitat, non-significant impact
Aves	*Malurus cyaneus*	Superb Fairy-wren	**P,C**	Seen in most habitat types where suitable dense cover and low shrubs occur. They are common in urban parks and gardens, and can be seen in small social groups. The site is close to the edge of the birds range, however there is a known and abundant population of Superb Fairy-wrens in the region. They are insectivorous and feed primarily by gleaning insects from the ground. They require substantial cover in the form of dense vegetation to protect them from predation.	Potential habitat, non-significant impact

				Potential - Superb Fairy-wrens were confirmed as present during the survey and a large known population exists in the area. It is likely that the species is using the site to forage and potentially nesting although there is limited dense vegetation.	
Aves	*Coturnix ypsilophora*	Brown Quail	**P**	Brown quails are largely restricted to coastal regions where their populations are much more dense, however significant but sparse population exist throughout inland NSW and Victoria. There are limited records of the species in the Bathurst sub-region suggesting a small population. The Brown Quail prefers dense grasslands, often on the edges of open forests, and bracken and may sometimes be seen alongside roads. The Brown Quail's well-hidden nest is a scrape in the ground, lined with grass, hidden in thick grasses under overhanging vegetation not far from water. **No Impact – No appropriate habitat present at the site.**	No Impact
Aves	*Falco peregrinus*	Peregrine Falcon	**P**	Peregrine Falcon are a common, widespread raptor that occurs and is found in most habitats, from rainforests to the arid zone, and at most altitudes, from the coast to alpine areas. It requires abundant prey and secure nest sites and prefers coastal and inland cliffs or open woodlands near water. The Peregrine Falcon feeds on small and medium-sized birds, as well as rabbits and other day-active mammals. As a soaring hunter it does not require lookout perches. They require substantial exposed rocky escarpments or highrise buildings to nest. The species is not commonly recorded in the Bathurst sub-region however due to the species range and mobility it likely opportunistically uses the region.	Potential habitat, non-significant impact

				Potential – vagrant individuals might forage over the subject site	
Aves	*Aviceda subcristata*	Pacific Baza	**P**	The Pacific Baza is found in tropical and subtropical forest and woodland in northern and eastern Australia, but rarely south of Sydney. The Blue Mountains are generally considered to be the extent of this species range, although as with many raptors they are highly mobile and capable of soaring long distances in search of food. Only a single record of a Pacific Baza exists from the Bathurst sub-region. **Potential – vagrant individuals might forage over the subject site**	Potential habitat, non-significant impact
Aves	*Threskiornis spinicollis*	Straw-necked Ibis	**P**	The Straw-necked Ibis is broadly distribute across Australia and is found occupying virtually every available habitat. The species highly mobile, groups of soaring birds are capable of covering large distance in search of foraging habitat. The Straw-necked Ibis prefers wet and dry grasslands, pastures, croplands and swamp or lagoon margins and is generally less adaptable than the Australian White Ibis. The Straw-necked Ibis feeds mainly on terrestrial invertebrates, especially grasshoppers and locusts. It will also take frogs, small reptiles and mammals. It forages by probing or takes prey from the surface of water bodies. It is rarely an opportunistic scavenger, unlike the Australian White Ibis. The species nests in large colonies, often returning to the same breeding grounds year after year. Although not as common as the Australian White Ibis the species is regularly recorded in the area. **Potential – The site represents good foraging habitat for the species with water adjacent grassy areas suggesting that the species would**	Potential habitat, non-significant impact

				likely forage in the area opportunistically. No appropriate breeding habitat exists at the site.	
Aves	*Platalea flavipes*	Yellow-billed Spoonbill	**P**	The Yellow-billed Spoonbill is found across Australia in suitable habitat, particularly in the north and well-watered inland areas, but is less common in coastal regions. The Yellow-billed Spoonbill is found in the shallows of freshwater wetlands, dams, lagoons and swamps, and sometimes in dry pastures, but rarely uses saltwater wetlands. It can use much smaller areas of water than the Royal Spoonbill. The Yellow-billed Spoonbill feeds on aquatic insects and their larvae, using its bill to sweep shallow waters for prey. It places its nest in high forks of trees over water, or in among reed beds, building a shallow, unlined platform of sticks, rushes and reeds. **Unlikely – The dams on the site may represent marginal foraging habitat for the species however the steep bank generally associated with agricultural dams mean they are likely unsuitable for the species. No appropriate breeding habitat exists at the site.**	Unlikely habitat, non-significant impact
Aves	*Nycticorax caledonicus*	Nankeen Night Heron	**P**	The Nankeen Night Heron is most commonly associated with perennial, heavily vegetated wetlands such as mangroves and floodplains. They occur throughout almost all of NSW, QLD and Victoria but are much more common along the coast and are largely restricted to larger river systems throughout their inland range. They are wading crepuscular feeders that mainly predate invertebrates. Nankeen Night Herons require dense vegetation that is adjacent to water in which to make their raised nest platforms.	No Impact

				No Impact – habitat does not occur on the subject site	
Aves	*Egretta novaehollandiae*	White-faced Heron	**P**	White-faced Herons are the most commonly seen herons in Australia. They are found throughout the mainland and on most coastal islands. The species is associated with a wide range of water adjacent habitat, inland populations tend to be associated with grasslands surrounding reservoirs and dams. White-faced Herons feed both terrestrially, taking any small prey from the ground and aquatically, by wading and striking as prey below the surface. The nest is an untidy structure of sticks, placed in virtually any tree. The species is regularly recorded in the area, with sightings occurring throughout the sub-region. **Potential – The site represents good foraging habitat for the species with water adjacent grassy areas suggesting that the species would likely forage in the area opportunistically. No records exist of the species nesting in exotic pine, however they do not express strong species selection when choosing nesting trees.**	Potential habitat, non-significant impact
Aves	*Ardea intermedia*	Intermediate Egret	**P**	Within Australia, the Intermediate Egret can be found at wetlands throughout the northern third of the continent as well as the eastern third. The species is most commonly associated with terrestrial wetland shallows but is also known to use freshwater swamps, billabongs, floodplains and wet grasslands with dense aquatic vegetation, and is only occasionally seen in estuarine or intertidal habitats. The species is exclusively an aquatic feeder. Intermediate Egrets build a shallow platform of interwoven sticks, placed on a horizontal branch in a tree that is usually standing in water.	No Impact

				No Impact – habitat does not occur on the subject site	
Aves	*Phalacrocorax sulcirostris*	Little Black Cormorant	**P,C**	One of Australia's most common cormorants, the Little Black Cormorant is widely distributed throughout the continent. The species is most commonly associated with freshwater wetlands, but will sometimes be found on sheltered coastal waters, and can use relatively small, deep water bodies. It is strongly aquatic, seldom being seen on dry land, but is often seen resting on rocks, jetties and other perches in water. The Little Black Cormorant feeds on fish, crustaceans and aquatic insects which it catches while diving, hence the species generally avoids very shallow water bodies. The Little Black Cormorant nests colonially, often on the fringes of heron or ibis colonies, building large stick nests in the fork of a tree or on the ground. The species was confirmed as present during the field study, likely foraging in the dams. **Potential – The site represents only marginal foraging habitat for the species, the individuals sighted during the field survey were likely utilizing the habitat in response to drought rather than habitat preference. No appropriate breeding habitat exists at the site.**	Potential habitat, non-significant impact
Aves	*Microcarbo melanoleucos*	Little Pied Cormorant	**P,C**	One of Australia's most common cormorants, the Little Black Cormorant is widely distributed throughout the continent. The species is most commonly associated with open waterways (fresh and saline) and coastal areas. Their population is denser in coastal and costal-adjacent regions and become sparser at inland water features. Little Pied Cormorants feed on a wide variety of aquatic animals, from insects to fish. On inland streams and dams the express a strong preference for	Potential habitat, non-significant impact

				freshwater crayfish, which were found in abundance at the site during the field survey. The Little Black Cormorant nests colonially, often on the fringes of heron or ibis colonies, building large stick nests in the fork of a tree or on the ground. **Potential – The site represents only marginal foraging habitat for the species, however the presence of their preferred prey (freshwater crayfish) at the site may have driven them to forage at the site. No appropriate breeding habitat exists at the site.**	
Aves	*Erythrogonys cinctus*	Red-kneed Dotterel	**P**	The Red-kneed Dotterel is widely distributed throughout the continent. The species Red-kneed Dotterels are found in wetlands, lagoons and swamplands, preferring fresh water and areas prone to flooding, they are rarely seen in dams or deep water bodies. The species feeds while wading in mud flats. The Red-kneed Dotterel scrapes a small hollow in wet ground close to water and often sheltered by a bush and sometimes lined with grasses. **No Impact – habitat does not occur on the subject site**	No Impact
Aves	*Elseyornis melanops*	Black-fronted Dotterel	**P,C**	The Black-fronted Dotterel is widespread throughout Australasia. The species is highly adaptable and will use shallow margins of wetlands, lakes, rivers, sewage farms, storm drains and marshes. It is normally found near freshwater and is not often seen on the coast. The species was confirmed as present at the site during the field survey where is was seen foraging around the on-site dams. The species eats small molluscs as well as aquatic and terrestrial insects, it lays its eggs in a shallow scrape, often on pebbly ground and quite close to water.	Potential habitat, non-significant impact

				Potential – Despite the marginal nature of the site in general as foraging habitat for wading species, the adaptability of Black-fronted Dotterels is facilitating its current use of the site. No appropriate breeding habitat exists at the site. The opportunistic and generalized nature of this species nesting behaviour mean that the species may nest at the site.	
Aves	*Himantopus himantopus*	Black-winged Stilt	**P,C**	The Black-winged Stilt is widespread throughout Australasia. The species is highly adaptable and will use shallow margins of wetlands, lakes, rivers, sewage farms, storm drains and marshes. It is normally found near freshwater and is not often seen on the coast. The species was confirmed as present at the site during the field survey where is was seen foraging around the on-site dams. The species eats small molluscs as well as aquatic and terrestrial insects, nests may be anything from a simple shallow scrape on the ground to a mound of vegetation placed in or near the water. **Potential – Despite the marginal nature of the site in general as foraging habitat for wading species, the adaptability of Black-winged Stilt is facilitating its current use of the site. The opportunistic and generalized nature of this species nesting behaviour mean that the species may nest at the site.**	Potential habitat, non-significant impact
Aves	*Tribonyx ventralis*	Black-tailed Native-hen	**P**	Lives around permanent or temporary wetlands, both fresh and saline of semi-arid regions. Usually seen in loose flocks of five to fifty birds among lignum on inland swamps grazing on flat mud-pans along the edges of surface water keeping more to dry ground than similar species. They will occasionally forage around agricultural dams. Will nest in any water-	Unlikely habitat, non-significant impact

				adjacent vegetation when rainfall conditions are right. Their distribution covers most of inland Australia. **Unlikely – The site does fall within their range and primary requirement for water bodies, however their limited record in the area and the marginal condition of the water bodies suggests that the impact of this development on this species would be negligible.**	
Aves	*Gallinula tenebrosa*	Dusky Moorhen	**P,C**	The Dusky Moorhen is one of Australia's most common and abundant wading birds, it is a highly adaptable species and will utilize almost any terrestrial water body. The species is most commonly associated with wetlands, including swamps, rivers, and artificial waterways. It generally prefers open water and water margins with reeds, rushes and waterlilies, but may be found on grasses close to water such as parks, pastures and lawns. Dusky Moorhens have a highly diverse diet primarily comprising; algae, water plants and grasses, as well as seeds, fruits, molluscs and other invertebrates, carrion and the droppings of other birds. The shallow platform nests are made of reeds and other water plants over water, among reeds or on floating platforms in open water. The species was confirmed as present at the site during the field survey where is was seen foraging around the on-site dams. **Potential – Despite the marginal nature of the site in general as foraging habitat for wading species, the adaptability of the Dusky Moorhen is facilitating its current use of the site. The species may breed at the site but the lack of significant aquatic vegetation may prevent the construction of their floating nests.**	Potential habitat, non-significant impact

Aves	*Fulica atra*	Eurasian Coot	**P,C**	As with The Dusky Moorhen, The Eurasian Coot is a common and adaptable wading bird with a fairly wide distribution, the species is found in most of Australia's waterways and nearby water bodies. Eurasian Coots are primarily herbivorous, feeding almost exclusively on aquatic vegetation. Coots will construct their own raft nests but more commonly will seize the rafts of similar species such as The Dusky Moorhen. The species was confirmed as present at the site during the field survey where is was seen foraging around the on-site dams. **Potential – Despite the marginal nature of the site in general as foraging habitat for wading species the species is currently foraging and potential breeding habitat exists in the form of other raft nesting species.**	Potential habitat, non-significant impact
Aves	*Aythya australis*	Hardhead	**P,C**	The Hardhead is a common and widely distributed Australian duck. It is found in most Australian water bodies. Hardheads are particularly associated with freshwater swamps and wetlands and occasionally in sheltered estuaries. They are rarely seen on land and tend to roost on low branches and stumps near the water. They prefer deep, fresh open water and densely vegetated wetlands for breeding. Hardheads feed almost exclusively on submerged crustaceans and mollusks. The species was confirmed as present at the site during the field survey where is was seen foraging around the on-site dams. **Potential – The species was recorded foraging at the site and are likely using it regularly as a foraging resource. The species may breed at the**	Potential habitat, non-significant impact

				site although it does not represent exceptional breeding habitat as there is a lack of dense vegetation around the dams.	
Aves	*Anas gracilis*	Grey Teal	**P,C**	Grey Teals are a common and widely distributed Australian duck, the are common in all sheltered watered areas. These include fresh, brackish and salt water, and the birds can be found on the smallest area of water in the driest of areas. Their preferred habitat type is timbered pools and river systems of the inland areas, where these birds can be found in quite large numbers. The species has a relatively diverse diet, comprising aquatic vegetation, submerged crustaceans and mollusks. The species was confirmed as present at the site during the field survey where is was seen foraging around the on-site dams. **Potential – The species was recorded foraging at the site and are likely using it regularly as a foraging resource. The species may breed at the site although it does not represent exceptional breeding habitat as there is a lack of dense vegetation around the dams.**	Potential habitat, non-significant impact
Aves	*Tachybaptus novaehollandiae*	Australasian Grebe	**P,C**	The Hoary-headed Grebe is found in all states and territories of and is generally absent from the central arid regions of Australia. It is known to use inland waterways, however its population is much denser in coastal or coastal-adjacent regions. It feeds primarily on marine or aquatic arthropods taken either from submerged vegetation or from the surface The species was confirmed as present at the site during the field survey where is was seen foraging around the on-site dams. The species constructs its nest well offshore in the shallows amongst floating waterweeds or scattered, open lignum, sedges, reeds or other saltmarsh	Potential habitat, non-significant impact

				vegetation, from waterweeds which are loosely attached to submergents, sedges or fallen branches. **Potential – The species was recorded foraging at the site and are likely using it regularly as a foraging resource. The species may breed at the site although it does not represent exceptional breeding habitat as there is a lack of aquatic vegetation which may prevent the construction of vegetation rafts.**	
Aves	*Malacorhynchus membranaceus*	Pink-eared Duck	**P**	The Bathurst sub-region falls outside of the Pink-eared Duck primary range, with only migratory populations and vagrant individuals foraging opportunistically. The Pink-eared Duck is found in timbered areas near water. It prefers shallow, temporary waters, however open wetlands support large flocks. It is a highly dispersive and nomadic species. Pink-eared Ducks feed exclusively on microscopic plants and animals which they filter with their specialized bills. The nest is a rounded mass of down placed in a hollow or on a stump above the water. **No Impact – habitat does not occur on the subject site**	No Impact
Aves	*Cracticus nigrogularis*	Pied Butcherbird	**P**	The Pied Butcherbird is found throughout the Australian mainland where it inhabits drier forests and woodlands and often approaches parks and houses. It is more often heard than seen, as it sings from a prominent perch. Pied Butcherbirds prey on small reptiles, mammals, frogs and birds, as well as large insects which they glean from a perch. The nest is a bowl of sticks and twigs, lined with grasses and other finer material. It is usually built in an upright tree fork up to 5 m above the ground.	Potential habitat, non-significant impact

				Potential – The species likely utilizes the site as a foraging resource and may nest, however the site is marginal breeding habitat for the species.	
Aves	*Lalage sueurii*	White-winged Triller	**P**	The White-winged Triller is a common, widely distributed bird generally associated open woodlands and forest, tree-lined waterways in semi-arid regions and the nearby scrub. This is mainly lightly timbered country with an open shrub layer and grassy ground-cover. The White-winged Triller forages busily for insects on the foliage of high trees and also 'hawks' insects in the air. It hunts from a high perch, chasing flying insects. It also feeds on the ground, eating mainly insects, and fruit, seeds and occasionally nectar. White-winged Trillers build small nests on horizontal branches or forks. **Unlikely – Its unlikely that the species would use the site owing to a lack of tree cover, it is however possible that individuals could opportunistically use the existing stand of exotic pine as a foraging habitat.**	Unlikely habitat, non-significant impact
Aves	*Cincloramphus mathewsi*	Rufous Songlark	**P**	The Rufous Songlark is a common and widely distributed bird that is typically associated with open grassland, grassy open woodland, farmed land and mulga. The Rufous Songlark feeds mainly on the ground, on insects and other small arthropods and constructs a deep cup of grass on the ground in thick grass in which to nest. **Potential – It is possible that individuals could opportunistically use the existing stand of exotic pine and open grassy areas as a foraging habitat. The species may breed in the site's tall grass.**	Potential habitat, non-significant impact

Aves	*Cincloramphus cruralis*	Brown Songlark	**P**	The Brown Songlark is a common and widely distributed bird that is typically associated with open grassland, grassy open woodland, farmed land and mulga. The Brown Songlark feeds mainly on the ground, on insects and other small arthropods. The nest of the Brown Songlark is placed in a small depression in the ground, often in a clump of grass or other cover. **Potential – It is possible that individuals could opportunistically use the existing stand of exotic pine and open grassy areas as a foraging habitat. The species may breed in the site's tall grass.**	Potential habitat, non-significant impact
Aves	*Cisticola exilis*	Golden-headed Cisticola	**P**	The Golden-headed Cisticola is distributed predominantly in coastal and coastal-adjacent regions with occurrences decreasing in inland regions. The Golden-headed Cisticola lives in sub-coastal areas, wetlands, swamp margins, wet grasslands, rivers, and irrigated farmland. It prefers tangled vegetation close to the ground, but breeding males may be seen singing from tall weeds or other shrubs. Golden-headed Cisticolas feed quietly and inconspicuously on insects taken from the ground amongst tall grasses. They also feed on the seeds from the grasses among which they live. The Golden-headed Cisticola builds a rounded nest with a side entrance near the top, from fine grasses, plant down and spiders' web. **No Impact – habitat does not occur on the subject site**	No Impact
Aves	*Platycercus elegans elegans*	Crimson rosella	**P**	Crimson rosella are fairly well distributed in South Eastern Australia, they are generally associated with mature eucalypt forest and wetter coastal woodland. The species is fairly adaptable and commonly utilize urban and human adapted landscapes. Natural foods include seeds of	No Impact

				eucalypts, grasses and shrubs, as well as insects and some tree blossoms. They are a hollow nesting species. **No Impact – habitat does not occur on the subject site**	
Aves	*Acanthorhynchus tenuirostris*	Eastern Spinebill	**P**	The Eastern Spinebill's range is generally east of the Great Dividing Range from Cooktown in Queensland to the Flinders Ranges in South Australia. The Eastern Spinebill prefers heath, forest and woodland of the east coast. The species generally does not occur in regions west of the Great Dividing Range, however individuals are recorded in these regions including the Bathurst sub-region. The Eastern Spinebill feeds on insects and nectar while perched or while hovering. Nectar is obtained from a wide array of flowers, including grevilleas. The Eastern Spinebill's nest is a small cup of twigs, grass and bark, combined with hair and spider's web, built in a tree fork, generally between 1 and 5 metres from the ground. **No Impact – habitat does not occur on the subject site**	No Impact
Aves	*Cacomantis pallidus*	Pallid Cuckoo	**P**	The Pallid Cuckoo is the most widely distributed of the cuckoos and is found throughout Australia. The Pallid Cuckoo inhabits most open forests and woodlands, as well as cleared and cultivated open country. The species gleans insects from a low lookout perch. The Pallid Cuckoo lays its eggs in the nests of honeyeaters, woodswallows, whistlers and flycatchers. Common host species include the Willie Wagtail, *Rhipidura leucophrys* and the Hooded Robin, *Melanodryas cuculatta*. **Unlikely - Potential host species such as the honeyeater species and Willie Wagtails are present at the site suggesting that it may represent suitable breeding habitat, however the available foraging habitat is**	Unlikely habitat, non-significant impact

				marginal at best. Significant impacts of development on this species are unlikely.	
Aves	*Smicrornis brevirostris*	Weebill	**P**	The Weebill is found throughout mainland Australia. The Weebill inhabits almost any wooded area, with the exception of the wettest forests, but favours open eucalypt forests. It spends most of its time in the canopy, in pairs or small groups. The birds stay in the same area throughout the year. Weebills move in active flocks, feeding mainly in the outer edges of the tops of trees where they catch insects on the wing. The Weebill's nest is a neatly woven dome, made from grasses and other fine vegetation. **No Impact – habitat does not occur on the subject site**	No Impact
Aves	*Sericornis frontalis*	White-browed Scrubwren	**P**	The White-browed Scrubwren is the most common and widespread of Australia's five species of scrubwren. The White-browed Scrubwren lives in rainforest, open forest, woodland and heaths. It is usually seen in pairs, low down in the thick vegetation. White-browed Scrubwrens feed mostly on insects and other small arthropods. Occasionally, they eat some seeds. Nests consists of a large ball of grasses and other plant material, normally located on or near to the ground, in thick vegetation, but may be in a tree fork a few metres high. **No Impact – habitat does not occur on the subject site**	No Impact
Aves	*Gerygone olivacea*	White-throated Gerygone	**P**	The White-throated Gerygone is distributed predominantly in coastal and coastal-adjacent regions with occurrences decreasing in inland regions. The White-throated Gerygone is found in open eucalypt	No Impact

				woodlands and forests and in vegetation along watercourses. The species feeds in eucalypt canopies on insects and other arthropods which it catches on the wing. It builds an oval or pear-shaped nest of bark bound with spiders' silk, which is hung in the outer foliage of trees. **No Impact – habitat does not occur on the subject site**	
Aves	*Acanthiza reguloides*	Buff-rumped Thornbill	**P**	Buff-rumped Thornbills are distributed throughout South Eastern Australia in relatively high abundance. Buff-rumped Thornbills usually inhabit forests and woodlands dominated by eucalypts (and occasionally by native pines or wattles) with an open understorey, often with grass or heathy plants in the undergrowth, and a layer of leaf litter. Feeding mainly on insects and other small invertebrates, Buff-rumped Thornbills forage in a variety of sites, including among leaf litter on the ground, in the foliage of shrubs and in trees, including the bark of tree trunks. They glean the insects from the surface of leaves, bark of litter. **No Impact – habitat does not occur on the subject site**	No Impact
Aves	*Acanthiza pusilla*	Brown Thornbill	**P**	The Brown Thornbill is distributed throughout South Eastern Australia in relatively high abundance, the species is regularly recorded in the Bathurst sub-region. The Brown Thornbill is found in dense shrubby habitats including wet and dry forests, woodlands, shrublands, heathlands and rainforests, as well as along watercourses, mainly in the temperate and sub-tropical zones. They are found from the coast up to 1200 m. They are found regularly in parks and gardens, especially close to large patches of remnant vegetation and along nature strips in towns and suburbs. The Brown Thornbill feeds mainly on insects, but may	No Impact

				sometimes eat seeds, nectar or fruit. They feed at all levels from the ground up, but mostly in understorey shrubs and low trees. The nest is usually low down, in low, prickly bushes, grass clumps, or ferns. **No Impact – habitat does not occur on the subject site**	
Aves	*Ptilonorhynchus violaceus*	Satin Bowerbird	**P**	Satin Bowerbirds are found along most of the eastern and south-eastern coast of Australia, they are generally restricted to coastal regions and The Great Dividing Range. There is a significant, known population on the western boarders of the Bathurst sub-region. The species feeds predominantly on fruits but will supplement its diet with insects and vegetation. **No Impact – habitat does not occur on the subject site**	No Impact
Aves	*Falco berigora*	Brown Falcon	**P**	Populations of Brown Falcon are likely to occur in most substantial reserve of flat, open habitats in the arid and semi-arid zones, The Brown Falcon inhabits all but the densest woodland as well as shrublands and grasslands in the arid and semi-arid zones. It requires concealed perches near open areas such as agricultural land with scattered remnant trees from which to locate and ambush prey. The Brown Goshawk builds its large stick nest on a horizontal limb of the tallest tree available. **Potential – The presence of a mature Monterey Pine stand within a grassland matrix represents a potential foraging site for Brown Falcon. No suitable nesting habitat is present.**	Potential habitat, non-significant impact
Aves	*Ardea pacifica*	White-necked Heron	**P**	The White-necked Heron is distributed throughout mainland Australia, inhabiting mainly freshwater wetlands. They are sometimes seen in tidal	Potential habitat, non-

				areas, most are found in shallow fresh waters, including farm dams, flooded pastures, claypans, and even roadside ditches. They are a highly adaptable species, capable of exploiting disturbed or modified landscapes. White-faced Herons feed both terrestrially, taking any small prey from the ground and aquatically, by wading and striking as prey below the surface. The nest is a loose platform in a living tree such as a river red gum near or over water. **Potential – The site represents only marginal foraging habitat for wading species, The adaptable nature of this species means that they may utilize the habitat as a foraging resource. No appropriate breeding habitat exists at the site.**	significant impact
Aves	*Chroicocephalus novaehollandiae*	Silver Gull	P	Despite their association with coastal habitat, Silver Gulls are widely distributed throughout inland Australia. The species will utilize and watered habitat including; rivers, lakes, reservoirs and agricultural dams. the Silver Gull has become a successful scavenger, readily pestering humans for handouts of scraps, pilfering from unattended food containers or searching for human refuse at tips. Other food includes worms, fish, insects and crustaceans. Silver Gulls nest on off-shore islands. **Unlikely – The species could use the site as a foraging resource, however the species is not regularly recorded in the region and the site does not represent primary habitat for the species so and development is unlikely to have a significant impact on the species.**	Unlikely habitat, non-significant impact

Aves	*Cracticus torquatus*	Grey Butcherbird	**P,C**	The Grey Butcherbird is a common and widely distributed species, capable of utilizing a diverse range of habitats. The species is most commonly associated with wooded habitats, including suburban areas. In inland areas, the birds tend to favour the denser forests. Despite the site not exhibiting the primary habitat associated with this species it was confirmed as present at the site during the field survey likely opportunistically foraging. Grey Butcherbirds are aggressive predators. They prey on small animals, including birds, lizards and insects, as well as some fruits and seeds. The Grey Butcherbird's nest is bowl-shaped, and is made of sticks and twigs, located within 10 m of the ground. **Potential – The species likely utilizes the site as a foraging resource and may nest, however the site is marginal breeding habitat for the species.**	Potential habitat, non-significant impact
Aves	*Pachycephala rufiventris*	Rufous Whistler	**P**	The Rufous Whistler is a common and widely distributed species, capable of utilizing a diverse range of habitats. The Rufous Whistler is found in forests, woodlands and shrublands, with a shrubby understorey. Is also found in gardens and farmland with some trees, and in remnant bushland patches. The Rufous Whistler mainly eats insects, and sometimes seeds, fruit or leaves. It usually forages at higher levels than other whistlers, and rarely is seen on the ground. The female builds a fragile, cup-shaped nest from twigs, grass, vines and other materials, bound and attached to a tree fork with spider web. **Unlikely – Its unlikely that the species would use the site owing to a lack of tree cover, it is however possible that individuals could**	Unlikely habitat, non-significant impact

				opportunistically use the existing stand of exotic pine as a foraging habitat.	
Aves	*Colluricincla harmonica*	Grey Shrike-thrush	**P**	The Grey Shrike-thrush is a common and widely distributed species, capable of utilizing a diverse range of habitats. It is common in all Australian biomes except the desert. The species is generally associated with timbered areas but is also known to use open areas. The Grey Shrike-thrush searches for food on the ground, generally around fallen logs, and on the limbs and trunks of trees. It has a varied diet consisting of insects, spiders, small mammals, frogs and lizards, and birds' eggs and young. The nest is a cup-shaped structure of dried vegetation, and may be constructed in the same site year after year. **Unlikely – There is potential for this species to utilize the site as a foraging resource although the general lack of mature trees makes the site marginal habitat for this species.**	Unlikely habitat, non-significant impact
Aves	*Ptilotula penicillatus*	White-plumed Honeyeater	**P**	The White-plumed Honeyeater is a common and widely distributed species with well established and abundant populations across the continent. The species is generally associated with open forests and woodlands, often near water and wetlands. Populations are less abundant or absent in arid regions outside of anthropogenic water sources. Its overall distribution is linked to River Red Gums. It is also found in remnant bushland in urban areas, as well as parks and gardens. The White-plumed Honeyeater feeds very actively from leaves and flowers in the crowns of trees and in shrubs between 5 m and 13 m from the ground. Its main foods are nectar, insects manna and fruit, with some	No Impact

				seeds. The species builds a small cup-shaped nest in the crown of a tree from 1 m to 20 m off the ground. It is woven from grass and spider web and lined with wool, hair or feathers. **No Impact – habitat does not occur on the subject site**	
Aves	*Anthus novaeseelandiae*	Australian Pipit	**P**	The Australian Pipit is a common and widely distributed species with well-established and abundant populations across the continent. The species is associated with open country, in a range of habitat types from wet heaths to dry shrublands and open woodland clearings. Australasian Pipits feed on the ground on insects and their larvae, as well as seeds. The nest is a depression in the ground, sometimes sheltered by a grass tussock, stone or piece of wood, and lined with grasses and hairs. **Unlikely – Its unlikely that the species would use the site owing to a lack of tree cover, it is however possible that individuals could opportunistically use the existing stand of exotic pine as a foraging habitat. The species may use the site to breed although the site does not represent primary habitat.**	Unlikely habitat, non-significant impact
Aves	*Dicaeum hirundinaceum*	Mistletoebird	**P**	The Mistletoebird is a common and widely distributed species with well-established and abundant populations across the continent. The Mistletoebird is found wherever mistletoe grows and is important in the dispersal of this plant species. The Mistletoebird is highly adapted to its diet of mistletoe berries. **No Impact – habitat does not occur on the subject site**	No Impact

Aves	*Petrochelidon ariel*	Fairy Martin	**P**	The Mistletoebird is a common and widely distributed species with well-established and abundant populations across the continent. The Fairy Martin prefers open country near water, and is usually seen near its nest sites, in cliffs, culverts or bridges. The Fairy Martin feeds high in the air on flying insects and nests in the ceilings of caves, and under bridges. **Unlikely – Individuals or groups of individuals may forage over the site. No nesting habitat exists at the site.**	Unlikely habitat, non-significant impact
Aves	*Rhipidura albiscapa*	Grey Fantail	**P**	The Grey Fantail is found throughout Australia and is found in most timbered habitats. The Grey Fantail feeds on flying insects, which it catches by chasing them from the edge of foliage at all levels in the canopy. The species builds its nest in a thin tree-fork, unusually between 2 and 5 metres from the ground. It is made of fine grass bound together with large amounts of spider web. **No Impact – habitat does not occur on the subject site**	No Impact
Aves	*Acrocephalus australis*	Australian Reed-Warbler	**P**	The Australian Reed-Warbler is found throughout Australia where there is suitable dense vegetation occurring alongside water, particularly thick reed beds, as well as tall crops, bamboo thickets and lantana. **No Impact – habitat does not occur on the subject site**	No Impact
Aves	*Petroica phoenicea*	Flame Robin	**P**	Flame Robins are found in a broad coastal band around the south-east corner of the Australian mainland, from southern Queensland to just west of the South Australian border. The species is generally associated with areas with more clearings and less understory. In particular it prefers tall forests dominated by such trees as snow gum (*Eucalyptus*	No Impact

				pauciflora), mountain ash (*E. regnans*), alpine ash (*E. delegatensis*), manna gum (*E. viminalis*), messmate stringybark (*E. obliqua*), black gum (*E. aggregata*), white mountain gum (*E. dalrympleana*), brown barrel (*E. fastigata*), narrow-leaved peppermint (*E. radiata*), and black peppermint (*E. amygdalina*). It is occasionally encountered in temperate rainforest. Flame Robins feed on insects, spiders and other small arthropods. Birds take prey from the ground, gleaning from exposed lookouts. **No Impact – habitat does not occur on the subject site**	
Aves	*Eopsaltria australis*	Eastern Yellow Robin	**P**	The Eastern Yellow Robin is distributed and abundant along Australia's east coast, its populations become less dense further inland. There is a significant known population of Eastern Yellow Robins recorded in the Bathurst sub-region. Eastern Yellow Robins are found in a wide range of habitats, from dry woodlands to rainforests. They are also common in parks and gardens. Eastern Yellow Robins feed on insects, spiders and other arthropods. These are caught mostly on the ground, and are pounced on from a low perch. **No Impact – habitat does not occur on the subject site**	No Impact
Aves	*Melithreptus lunatus*	White-naped Honeyeater	**P**	The White-naped Honeyeater is endemic to eastern and south-eastern mainland Australia, from northern Queensland to eastern South Australia. The White-naped Honeyeater is found in open forests and woodlands, mainly in the temperate zone, and rarely in drier areas. Found in urban gardens, commonly visiting nectar feeders in areas near forests. The White-naped Honeyeater feeds on nectar and insects and their products (e.g. honeydew and lerp), and manna. They tend to forage	No Impact

				in the tallest trees, and occasionally under bark, and are rarely seen on ground. The species builds a small open cup nest out of grass, bark and spider web, high up in a tree or sapling. **No Impact – no native, flowering trees or nesting habitat exist on the subject site**	
Mammalia	*Trichosurus vulpecula*	Common Brushtail Possum	**P**	The Common Brushtail Possum is a highly adaptable species of arboreal marsupial, widely distributed throughout eastern Australia. In their natural condition Brushtail Possums are associated with open forested landscapes with ample refuge features such as hollows, fallen logs and tree stumps. Urban adapted possums will preferentially nest in the roofs and walls of human dwellings. In the wild, the Common Brushtail Possum's diet consists of leaves, blossoms and fruits, urban populations will eat almost anything. **No Impact – The lack of hollow bearing, flowering or fruiting trees or human dwellings make this unsuitable habitat for the species although vagrant or displaces individuals may move through the site. It is likely that the species will utilize the site more after development than in its current state.**	No Impact
Mammalia	*Macropus giganteus*	Eastern Grey Kangaroo	**P,C**	Grey Kangaroos have wide and almost continuous distribution between the inland plains and the coast where the annual rainfall is more than 250mm. They are found in habitats ranging from semi-arid mallee scrub through to woodlands, some farmland areas with remnant vegetation and forest. They tend to favour denser scrubs and forests. The Eastern Grey Kangaroo is predominantly a grazing animal with specific food	Potential habitat, non-significant impact

				preferences. They are herbivorous, favouring grasses but will eat a range of plants, including in some cases, fungi. The species is often associated with water features such as agricultural dams where they are attracted by both drinking water and the greener grass it facilitates. The species was confirmed at the site during the field survey, using the site as a foraging resource. **Potential – As the species is currently utilizing the site as a foraging resource its removal will impact the species, however given the scale of surrounding grassland it is unlikely to have a significant impact on the species in the area.**	
Mammalia	*Pseudocheirus peregrinus*	Common Ringtail Possum	**P**	The Common Ringtail Possum is a common species of arboreal marsupial, widely distributed throughout eastern Australia. The species is exclusively arboreal and is associated with forests, woodlands, rainforests, dense scrub, as with the Common Brushtail Possum it is an adept urban adaptor. During the day, the Common Ringtail Possum sleeps in its spherical nest or 'drey' made from grass and shredded bark. It builds the drey in a tree hole, tree fork or dense vegetation, access to this resource restricts this species more than the Common Brushtail Possum. **No Impact – habitat does not occur on the subject site**	No Impact
Mammalia	*Petaurus breviceps*	Sugar Glider	**P**	The Sugar Glider is a common species of arboreal marsupial, widely distributed throughout eastern and northern Australia. Their populations are much denser in coastal regions and rapidly drop off west of the Great Dividing Range. Sugar Gliders are extremely mobile arboreal omnivores	No Impact

				and require dense mature forest to facilitate gliding between trees, they also require high hollow density as family groups can claim large numbers of hollows which they will move between regularly. **No Impact – habitat does not occur on the subject site**	
Mammalia	*Vombatus ursinus*	Common Wombat	**P**	The Common Wombats current distribution is a discontinuous and fragmented matrix of populations of varying size. There is a large well recorded population of Common Wombats in the Bathurst sub-region, including records in the area directly surrounding the site. Wombats prefer to dig their main shelters on slopes above creeks and gullies, and feed in grassy clearings. The main food for wombats is fibrous native grasses, sedges and rushes, and the choice of food depends on what is available at the time. Wombats seem to prefer Tussock Grass in the forest areas, and Kangaroo Grass and Wallaby Grass are favoured in open, more pastoral areas. **Potential – it is likely that individuals are grazing on the site and there is potential for burrowing around the site's ephemeral stream. Given the scale of surrounding grassland it is unlikely to have a significant impact on the species in the area.**	Potential habitat, non-significant impact
Mammalia	*Macropus rufogriseus*	Red-necked Wallaby	**P**	The Red-necked Wallaby is a common species of terrestrial marsupial, widely distributed throughout eastern Australia. The species is very adaptable and is commonly associates with open sclerophyll woodland and cleared pastural areas. The species is often associated with water features such as agricultural dams where they are attracted by both drinking water and the greener grass it facilitates.	Potential habitat, non-significant impact

				Potential – As the species is likely utilizing the site as a foraging resource and its removal will impact the species, however given the scale of surrounding grassland it is unlikely to have a significant impact on the species in the area.	
Mammalia	*Macropus robustus*	Common Wallaroo	**P**	The Common Wallaroo is a common species of terrestrial marsupial, widely distributed mainland Australia. The species is very adaptable and is commonly associates with open sclerophyll woodland, cleared pastural areas as well as mountainous and arid zones. The species is often associated with water features such as agricultural dams where they are attracted by both drinking water and the greener grass it facilitates. **Potential – As the species is likely utilizing the site as a foraging resource and its removal will impact the species, however given the scale of surrounding grassland it is unlikely to have a significant impact on the species in the area.**	Potential habitat, non-significant impact
Mammalia	*Tachyglossus aculeatus*	Short-beaked Echidna	**P**	Short-beaked Echidnas are a common and adaptable species found in almost all habitats found in continental Australia. They are habitat generalists that show no particular preference for particular habitats they are however generally associated with open sclerophyll woodland. The species feeds exclusively on termites. There is a significant known population of Short-beaked Echidnas in the Bathurst sub-region. **Potential – Although significant terrestrial termite mound presence was not recorded at the site it is likely that the species utilize the site as a foraging resource as they can cover large distances in search of termites.**	Potential habitat, non-significant impact

Mammalia	*Antechinus stuartii*	Brown Antechinus	**P**	The Brown Antechinus is fairly common species of carnivorous marsupial with a distribution extending from southern Queensland to northern Victoria. Its populations are more dense in coastal regions and regions associated with the Great Dividing Range as it requires dense forested areas and regular rainfall. The species is semelparous (only breeds once), this means they require resource regularity and have a strong preference for dense, mature forested areas. Even short periods of local drought that limit insect populations can cause local extinctions. The species is not commonly recorded in the area. **No Impact – habitat does not occur on the subject site**	No Impact
Mammalia	*Wallabia bicolor*	Swamp Wallaby	**P**	Despite its name Swamp Wallabies are generally associated with forests that have thick undergrowth layer or sandstone heath. The species is a generalist herbivore and feeds on a variety of plants including introduced and native shrubs, grasses and ferns. There is a large, well established population of the species in both the Bathurst sub-region and the area directly surrounding the site. **Potential – As the species is likely utilizing the site as a foraging resource and its removal will impact the species, however given the scale of surrounding grassland it is unlikely to have a significant impact on the species in the area.**	Potential habitat, non-significant impact
Mammalia	*Pteropus scapulatus*	Little Red Flying-fox	**P**	Little Red Flying-foxs are found throughout NSW in permanent populations in coastal regions and migratory camps in inland regions. Populations in the Bathurst region are migratory and the species is not commonly recorded. Little Red Flying-foxes favour the nectar and pollen	No Impact

				of eucalypt blossom over other foods that make up their diet, such as other flowers and fruit. Orchards are raided sometimes when other food is limited. The species requires dense canopied wooded areas, these do not need to be part of a continuous forest matrix. **No Impact – habitat does not occur on the subject site**	
Mammalia	*Miniopterus orianae oceanensis*	Large Bent-winged Bat	**P**	Large Bent-wing Bats are distributed throughout most of coastal and coastal adjacent NSW, they do not inhabit arid and are rarely found in semi-arid areas. The species roosts in caves, old mines, stormwater tunnels and occasionally in buildings. They can roost together in large numbers. The species is an insectivorous aerial hawker capable of traveling large distances (>20km) from their roost to feed every night. **Potential – vagrant individuals might forage over the subject site due to their extensive foraging range**	Potential habitat, non-significant impact
Mammalia	*Rattus fuscipes*	Bush Rat	**P**	Australia's most common native rodent, the bush rat is found in large populations throughout most of coastal Australia, its population and distribution has decreased since the introduction of invasive European rat species. The Bush Rat lives in forests, woodlands and heath. Bush Rats prefer to live in the dense forest understorey, sheltering in short burrows under logs or rocks and lining their nests with grass. They are not found often in urban areas. The Bush Rat is an omnivore and eats fungi, grasses, fruits, seeds and insects. **No Impact – habitat does not occur on the subject site. Displaced individuals may periodically occupy the site.**	No Impact

Mammalia	*Nyctophilus geoffroyi*	Lesser Long-eared Bat	**P**	The Lesser Long-eared Bat is a common and adaptable microbat capable of utilizing desert, tropical to alpine woodland, mangrove, agricultural, urban, wet and dry sclerophyll and rain forest habitat. This adaptability has led the species to have a broad, virtually Australia wide distribution. Lesser Long-eared Bats hunt near the ground. They hawk insects in flight and can glean insects off the ground or leaves. Lesser Long-eared Bats roost in hollows and fissures in old trees, under bark, in old fairy marten nests, and in occasionally in caves. They often roost in ceilings, hollow walls, unused roller doors and canvas awnings in suburban and inner-city areas. They prefer hollows of mature eucalypts for nursery colonies. **Unlikely – The species likely uses the site as a foraging resource although no suitable roosting habitats exist at the site.**	Unlikely habitat, non-significant impact
Mammalia	*Chalinolobus morio*	Chocolate Wattled Bat	**P**	The Chocolate Wattled Bat is a common and adaptable microbat capable of utilizing desert, tropical to alpine woodland, mangrove, agricultural, urban, wet and dry sclerophyll and rain forest habitat. This adaptability has led the species to have a broad, virtually Australia wide distribution. Chocolate Wattled Bats hunt near the ground. They hawk insects in flight and can glean insects off the ground or leaves. Chocolate Wattled Bats roost in hollows and fissures in old trees, under bark, and in occasionally in caves. They often roost in ceilings, hollow walls, unused roller doors and canvas awnings in suburban and inner-city areas. **Unlikely – The species likely uses the site as a foraging resource although no suitable roosting habitats exist at the site.**	Unlikely habitat, non-significant impact

Mammalia	*Chalinolobus gouldii*	Gould's Wattled Bat	**P**	Gould's Wattled Bat is a common and adaptable microbat capable of utilizing desert, tropical to alpine woodland, mangrove, agricultural, urban, wet and dry sclerophyll and rain forest habitat. This adaptability has led the species to have a broad, virtually Australia wide distribution. They hawk insects in flight and can glean insects off the ground or leaves. The species roosts in hollows and fissures in old trees, under bark, and in occasionally in caves. They often roost in ceilings, hollow walls, unused roller doors and canvas awnings in suburban and inner-city areas. **Unlikely – The species likely uses the site as a foraging resource although no suitable roosting habitats exist at the site.**	Unlikely habitat, non-significant impact
Mammalia	*Ornithorhynchus anatinus*	Platypus	**P**	Platypus are widely distributed along most of coastal and coastal adjacent eastern Australia, although restricted to perennial waterways. The species. The species preferences coarser bottom substrates, particularly cobbles and gravel. Platypus construct burrow in steep, firm river, creek or a pond banks. At times, the individuals use rocky crevices and stream debris as shelters, or they burrow under the roots of vegetation near the stream. Hence, the ideal habitat for the species includes a river or a stream with earth banks and native vegetation that provides shading of the stream and cover near the bank. The presence of logs, twigs, and roots, as well as cobbled or gravel water substrate result in increased microinvertebrate fauna (a main food source), and the Platypus also tends to be more abundant in areas with pool-riffle sequences. The species is known to occur in the Darling river and when young Platypus disperse they can travel up to 15km over land.	Unlikely habitat, non-significant impact

				Unlikely – The habitat at the site is unsuitable for use as an established territory, however dispersing young may utilize the dams as a foraging resource, especially given the recorded populations of freshwater crustaceans at the site.	
Mammalia	*Sminthopsis murina*	Common Dunnart	**P**	The Common Dunnart is fairly common species of carnivorous marsupial with a distribution extending from southern Queensland to northern Victoria. Its populations are more dense in coastal regions and regions associated with the Great Dividing Range, it is more drought tolerant than the similar Brown Antechinus. The species is associated with Dry sclerophyll forests and mallee heath land. The species is semelparous (only breeds once), this means they require resource regularity and have a strong preference for dense, mature forested areas. **No Impact – habitat does not occur on the subject site**	No Impact
Mammalia	*Austronomus australis*	White-striped Freetail-bat	**P**	The White-striped Freetail-bat is distributed throughout most of coastal and coastal adjacent NSW, they do not inhabit arid and are rarely found in semi-arid areas. The species roosts in caves, old mines, stormwater tunnels and occasionally in buildings. They can roost together in large numbers. The species is an insectivorous aerial hawker capable of traveling large distances (>20km) from their roost to feed every night. **Potential – vagrant individuals might forage over the subject site due to their extensive foraging range**	Potential habitat, non-significant impact
Mammalia	*Hydromys chrysogaster*	Water-rat	**P**	Water-rats are widely distributed along most of coastal and coastal adjacent eastern Australia, although restricted to perennial waterways	No Impact

					although more terrestrially capable than Platypus. At times, the individuals use rocky crevices and stream debris as shelters, or they burrow under the roots of vegetation near the stream. Hence, the ideal habitat for the species includes a river or a stream with earth banks and native vegetation that provides shading of the stream and cover near the bank. The Water-rat feeds on a wide range of prey including large insects, crustaceans, mussels and fishes, and even frogs, lizards, small mammals and water birds. It forages by swimming underwater. **No Impact – habitat does not occur on the subject site**	
Mammalia	*Vespadelus vulturnus*	Little Forest Bat	**P**		The Little Forest Bat is one of Australia's most common microbats and is distributed throughout most adjacent NSW, Victoria and southern QLD. The species roosts in caves, old mines, stormwater tunnels and occasionally in buildings. They can roost together in large numbers. The species is an insectivorous aerial hawker capable of traveling large distances (>20km) from their roost to feed every night. They will generally only feed within or at the edges of a forest matrix. **No Impact – Given the sites lack of proximal timbered areas it is unlikely that the species will utilize the site to forage and no roosting habitat exists.**	No Impact
Mammalia	*Vespadelus regulus*	Southern Forest Bat	**P**		The distribution of the Southern Forest Bat is largely unknown although they are known to be common throughout coastal NSW. The species roosts in tree hollows and can form colonies up to 100 individuals. They will roost in human dwellings where there are insufficient available tree hollows. They can be found in vegetation communities from rainforests	No Impact

				to mallee and open woodland. Sensitive to extreme forest fragmentation, they will not be found in small stands of remnant vegetation or along vegetation corridors. **No Impact – Given the sites lack of proximal timbered areas it is unlikely that the species will utilize the site to forage and no roosting habitat exists.**	
Mammalia	*Vespadelus darlingtoni*	Large Forest Bat	**P**	The Large Forest Bat is common and widely distributed throughout most of eastern Australia. dry and wet eucalypt forest, rainforest, and at sub-alpine to alpine habitats. The species is observed in small reserves of woodland of rural areas and unlike many other forest bats present at the urbanised and cleared landscapes. They roost in the hollows of trees with up to sixty others of the species. The species is an insectivorous aerial hawker capable of traveling large distances (>20km) from their roost to feed every night. **Potential – vagrant individuals might forage over the subject site due to their extensive foraging range**	Potential habitat, non-significant impact
Mammalia	*Scotorepens balstoni*	Inland Broad-nosed Bat	**P**	Inland broad-nosed bats are distributed widely throughout inland Australia, including arid and semi-arid regions. Their populations are particularly dense in arid NSW. They are generally not distributed east of the Great Dividing Range. They are adept aerial hawkers but will also glean insects off the ground or leaves. Inland broad-nosed bats prefer to roost in tree hollows, in groups of up to 45 individuals Roosting also occurs in the roofs of buildings, under metal caps of power poles and in	Unlikely habitat, non-significant impact

				water pipes. The species had only been recorded once in the Bathurst sub-region. **Unlikely – The site occurs at the extreme edge of the species range and although the species would likely forage at the site they are likely not present in the area.**	
Reptilia	*Tiliqua scincoides*	Eastern Blue-tongue	**P**	Blue-tongues prefer open country with lots of ground cover such as tussocky grasses or leaf litter, making them common species in disturbed and cleared areas. They shelter at night among leaf litter or under large objects on the ground such as rocks and logs. Blue-tongues maintain a body temperature of about 30°C - 35°C when active. During cold weather they remain inactive, buried deep in their shelter sites (commonly fallen timber) but on sunny days they may emerge to bask. Blue-tongues eat a wide variety of both plants and animals, particularly snails, beetles and fallen fruit. **Likely – Despite not being recorded in the field survey it is virtually guaranteed that a population of the species exists at the site. Development of the site will impact this population as they have limited ability to disperse. Once development is complete the population will likely be re-established by migrants from surrounding areas.**	Likely habitat, non-significant impact
Reptilia	*Pseudonaja textilis*	Eastern Brown Snake	**P**	The species is widespread throughout eastern Australia, from northern Queensland to South Australia, with isolated population occurring in central and western Northern Territory. Eastern Brown Snakes can be found across a wide range of habitats (excluding rainforest and alpine	Potential habitat, non-significant impact

				regions), however they seem to prefer open landscapes such as woodlands, scrublands, and savannah grasslands. In arid inland areas they inhabit watercourses and swampy areas that receive at least some seasonal flooding. The species can be particularly abundant in rural areas that have been heavily modified for agricultural purposes, and is also frequently encountered on the suburban periphery of many large towns and cities. When inactive they shelter beneath fallen logs and large rocks, within deep soil cracks, and in animal burrows, and will readily utilize man-made cover. Brown Snakes are often associated with features that attract their prey such as isolated water features such as dams or isolated stands of trees. **Potential – The species likely forages at the site, the resource requirements of this species combined with marginal nature of the site, mean that they likely don't occur there in abundance. Their mobility will likely limit how impacted they are by development.**	
Reptilia	*Notechis scutatus*	Tiger Snake	**P**	Tiger snakes have a non-continuous distribution within two broad areas; southeastern Australia, and southwestern Australia. The species is often associated with watery environments such as creeks, dams, drains, lagoons, wetlands and swamps. They can also occur in highly degraded areas e.g. grazing lands, especially where there is water and local cover. Tiger snakes will shelter in or under fallen timber, in deep matted vegetation and in disused animal burrows. **Potential – The species likely forages at the site, the resource requirements of this species combined with marginal nature of the site,**	Potential habitat, non-significant impact

				mean that they likely don't occur there in significant abundance. Their mobility will likely limit how impacted they are by development.	
Reptilia	*Pogona barbata*	Bearded Dragon	**P**	Bearded Dragons are a common and widely distributed throughout Australia. They commonly inhabit arid to subtropical woodlands, scrublands, savannas, coastal environments, and central desert habitats. Their range extends throughout the interior of the eastern states to the eastern half of South Australia and southeastern Northern Territory. The species is an active omnivorous feeder, primarily eating; vegetation including fruit and leaves in the wild, invertebrates and small vertebrates. **Potential - Despite not being recorded in the field survey it is very likely that population of the species exists at the site. The mobile nature of this species will likely limit the impacts of development on it.**	Potential habitat, non-significant impact
Reptilia	*Intellagama lesueurii*	Eastern Water Dragon	**P**	Eastern Water Dragons are common widely distributed species throughout the Australis's east coast. The habitats available to this species differ greatly over its distribution, from tropical rainforest in the north to alpine streams in the south. Flowing water with ample tree cover and basking sites appear to be the key to habitat preference for this species. Water dragons will be found in built-up urban areas provided that the above conditions can be found and water quality is fair. **No Impact – habitat does not occur on the subject site**	No Impact

Reptilia	*Chelodina longicollis*	Eastern Snake-necked Turtle	**P**	The Eastern Snake-necked Turtle is found throughout costal and inland waterways from south eastern Australia to eastern Queensland. The species is commonly associated with slow-moving water bodies such as swamps, dams and lakes and show a preference for sandy banks with nearby logs or rocks to facilitate basking. The species is common in agricultural dams and feeds primarily on aquatic vegetation. The species is recorded regularly in the Bathurst sub-region and surrounding area. **Potential – Although not confirmed at the site it is likely that individuals are foraging either intermittently of permanently in the on-site dams. Removal of these features will likely impact the species although not significantly.**	Potential habitat, non-significant impact
Reptilia	*Tiliqua rugosa*	Shingle-back	**P**	Shinglebacks are common and widespread in New South Wales from the western slopes of the Great Dividing Range, their populations become more abundant in more arid western regions. Shinglebacks usually live in open country with lots of ground cover such as tussocky grasses or leaf litter. They shelter at night among leaf litter or under large objects on the ground such as rocks and logs. Shingleback Lizards maintain a body temperature of about 30°C - 35°C when active. **Potential – The species may be present at the site and using it as a foraging resource if the population of Eastern Blue-tongue is not successfully excluding them.**	Potential habitat, non-significant impact
Reptilia	*Tiliqua nigrolutea*	Blotched Blue-tongue	**P**	As Eastern Blue-tongue with Blotched Blue-tongues prefer open country with lots of ground cover such as tussocky grasses or leaf litter, making them common species in disturbed and cleared areas. They shelter at	Potential habitat, non-

				night among leaf litter or under large objects on the ground such as rocks and logs. Blue-tongues maintain a body temperature of about 30°C - 35°C when active. During cold weather they remain inactive, buried deep in their shelter sites (commonly fallen timber) but on sunny days they may emerge to bask. Blue-tongues eat a wide variety of both plants and animals, particularly snails, beetles and fallen fruit. Blotched Blue-tongues are less common at lower altitudes and generally less abundant than Eastern Blue-tongues. **Potential – The species may be present at the site and using it as a foraging resource if the population of Eastern Blue-tongue is not successfully excluding them.**	significant impact
Reptilia	*Egernia cunninghami*	Cunningham's Skink	**P**	The species occurs within temperate climatic zone along both western and eastern sides of the Great Dividing Range from south-east Queensland down through New South Wales the Australian and into central Victoria. Forests and woodlands with rock outcrops. The species occurs within forests and open woodland which feature rock outcrops. The species is omnivorous lizards and feeds on a variety of invertebrates such as insects, snails and slugs as well as vegetation such as fruit and leaves. It is a common species in the Bathurst sub-region and is recorded regularly. **Potential – The species is likely, due to its local abundance, using the site as a foraging resource despite it representing only marginal habitat for the species.**	Potential habitat, non-significant impact

Reptilia	*Parasuta dwyeri*	Dwyer's Snake	**P**	Dwyer's Snake s are widespread in New South Wales from the western slopes of the Great Dividing Range, their populations become more abundant in more arid western regions. Little is known about the habitat preferences go this species, they are thought to inhabit dryer open areas such as open landscapes such as woodlands, scrublands, and savannah grasslands. Only a single record of this species exists for the Bathurst sub-region. **Unlikely – As so little is known about this species it is impossible to confidently state what impact may result from development however the lack of records suggest that the species presence is unlikely.**	Unlikely habitat, non-significant impact
Reptilia	*Varanus varius*	Lace Monitor	**P**	These common terrestrial and often arboreal monitors are found in eastern Australia and range from Cape Bedford on Cape York Peninsula to south-eastern South Australia. They frequent both open and closed forests and forage over long distances (up to 3km per day). They generally are not found far from significant wooded areas. **No Impact – habitat does not occur on or close to the subject site**	No Impact
Reptilia	*Tympanocryptis lineata*	Lined Earless Dragon	**P**	Distributed in Australia from eastern WA through the interior of all mainland states to the western slopes of NSW and southern VIC. The subspecies lineata occurs in the south-eastern part of the range. Nationally, it is found in a variety of terrestrial habitats from desert sandhills and spinifex through gibber and black-soil plains to open woodland and grasslands. Frequently found living in earth cracks, grasses	Unlikely habitat, non-significant impact

				and ground litter. The species intermittently recorded in the area. Very little is known about this species, its behaviour or its distribution. **Unlikely – As so little is known about this species it is impossible to confidently state what impact may result from development however the lack of records suggest that the species presence is unlikely.**	
Reptilia	*Underwoodisaurus milii*	Thick-tailed Gecko	**P**	Thick-tailed Geckos are distributed across the southern half of Australia, including in the southern extent of the central deserts. The species is highly cryptic and difficult to detect, it is however know to occur in the region. The species occupies a range of habitats ranging from coastal heathland to wet sclerophyll and arid scrublands. **No Impact – habitat does not occur on or close to the subject site**	No Impact
Reptilia	*Lampropholis guichenoti*	Pale-flecked Garden Sunskink	**P**	The Pale-flecked Garden Sunskink is a common skink distributed across most of south-eastern Australia. The species is highly cryptic and difficult to detect, it is however know to occur in the region. The species' size and diet, which consists primarily of ants, mean that they occur in fairly uniform abundances across most vegetated landscapes. **Potential – It is likely that this species occurs at the site and is utilizing it as a foraging resource. The impact that development will have on this species' local population will likely be insignificant.**	Potential habitat, non-significant impact
Reptilia	*Lampropholis delicata*	Dark-flecked Garden Sunskink	**P**	Dark-flecked Garden Sunskink is distributed along the east coast of Australia, the population of this species decreases rapidly from the western slopes of the Great Dividing Range. The species is found in a wide	Potential habitat, non-significant impact

				variety of habitats, ranging from rainforest margins to dry open sclerophyll woodland. **Potential – It is likely that this species occurs at the site and is utilizing it as a foraging resource. The impact that development will have on this species' local population will likely be insignificant.**	
Reptilia	*Hemiergis decresiensis*	Three-toed Earless Skink	**P**	The Three-toed Earless Skink is only known to occur in South Australia however the species is irregularly recorded in the area suggesting an issue with the species identification. It is not possible to assess this species without further field work. **Unknown – incongruencies between database entries and reference material make assessment of the impact of development on this species impossible.**	Unknown
Reptilia	*Ctenotus robustus*	Robust Ctenotus	**P**	The Robust Ctenotus is common and widely distributed across eastern and northern Australia, its distribution covers almost all of NSW. The species is known to use a range of habitats including coastal habitats, sclerophyll woodland, rocky outcrops, savannah and mallee woodland. **Potential – It is likely that this species occurs at the site and is utilizing it as a foraging resource. The impact that development will have on this species' local population will likely be insignificant.**	Potential habitat, non-significant impact
Amphibia	*Litoria caerulea*	Green Tree Frog	**P**	Green Tree Frogs are one of the most widespread of Australia's amphibians, found in all states except Victoria and Tasmania. Green Tree Frogs live in urban areas, forests and woodlands, wetlands and heath.	Unlikely habitat, non-significant impact

				They have a habit of taking up residence in and around suburban houses, around shower blocks and water tanks. Eggs must be laid in water. **Unlikely – although correct habitat does not occur on the subject site, there are known records within 10 km of the subject site.**	
Amphibia	*Litoria peronii*	Peron's Tree Frog	**P**	The Peron's Tree Frog lives in most forest habitats but will also forage for food in open grassland and other open areas. The species is capable utilizing drier habitats than many tree frogs. **Unlikely – although correct habitat does not occur on the subject site, there are known records within 10 km of the subject site.**	Unlikely habitat, non-significant impact
Amphibia	*Limnodynastes tasmaniensis*	Spotted Grass Frog	**P**	This frog is common throughout Australia and is one of the first species to inhabit new dams and ditches. This species is associated with most habitats, including permanent or temporary dams, roadside ditches, ponds, flooded grassland and slow moving creeks, in urban areas, farmland, woodland, coastal areas and arid areas. The frog is usually found in grass or under other cover, near a still water source. **Potential – The dam perforated, grassland matrix of the site represents relatively good habitat for this adaptive early colonizer. They likely occur there permanently or at least intermittently.**	Potential habitat, non-significant impact
Amphibia	*Limnodynastes peronii*	Brown-striped Frog	**P**	The Brown-striped Frog is one of the most common frogs found on Australia's east coast. Like the Spotted Grass Frog it is a highly adaptable mobile species commonly colonizing newly available water before most other species and commonly occupy agricultural dams and disturbed waterways. Eggs are attached to vegetation at the edge of waterways.	Potential habitat, non-significant impact

				Potential – The dam perforated, grassland matrix of the site represents relatively good habitat for this adaptive early colonizer They likely occur there permanently or at least intermittently.	
Amphibia	*Crinia signifera*	Common Eastern Froglet	**P**	The Common Eastern Froglet is (as the name suggests) one of the most common frogs of south-eastern Australia. The species is a habitat generalist commonly associated with woodlands, scrublands, and savannah grasslands. In arid inland areas they inhabit watercourses and swampy areas that receive at least some seasonal flooding. Eggs are attached to vegetation at the edge of waterways. **Potential – The dam perforated, grassland matrix of the site represents relatively good habitat for this generalist species which likely occurs there permanently or at least intermittently.**	Potential habitat, non-significant impact
Amphibia	*Uperoleia laevigata*	Smooth Toadlet	**P**	The Smooth Toadlet is found in northern Victoria, eastern New South Wales and south-eastern Queensland. This frog is associated with dry forest, sclerophyll forest and cleared grassland/farmland along the coast, slopes and ranges. Female Smooth Toadlets lay their eggs in shallow water following heavy rain. **Potential – Known records occur within the 10 km search area. Some elements of habitat might be present**	Potential habitat, non-significant impact
Amphibia	*Pseudophryne bibronii*	Bibron's Toadlet	**P**	The Bibron's Toadlet is distributed throughout south-eastern Australia. They are generally found singularly or in low numbers under rocks and logs and breed in grassy areas beside creeks. Eggs are laid under bark, leaves or in shallow burrows near waterways.	Unlikely habitat, non-significant impact

				Unlikely – although correct habitat does not occur on the subject site, there are known records within 10 km of the subject site.	
Amphibia	*Limnodynastes dumerilii*	Eastern Banjo Frog	**P**	The Eastern Banjo Frog is a relatively common species that is widespread throughout south-eastern Australia. It is commonly recorded in both the Bathurst sub-region and the area directly surrounding the site. The species is a habitat generalist associated with a habitats ranging from woodland and rainforests to farmland and grassy areas. Eggs are laid underground. **Potential – Known records occur within the 10 km search area. Some elements of habitat might be present**	Potential habitat, non-significant impact
Amphibia	*Crinia parinsignifera*	Eastern Sign-bearing Froglet	**P,C**	The Eastern Sign-bearing Froglet is distributed in regions on the western slopes of the Great Dividing Range in NSW. Adults are most common in woodlands, floodplains, and open and disturbed areas. Within these habitats they shelter under logs and other debris, usually in moist depressions or near water. Eggs and tadpoles are aquatic and can be found in ponds, dams, swamps, flooded grassland, ditches and hollows. The species was confirmed as present at the site during the field survey. **Likely – The species is currently using the site and given the low potential mobility of the species they are likely foraging and breeding there. Impact will not be significant, as the species is not threatened and a local population of the species is not likely to go extinct as a result of the development.**	Likely habitat, non-significant impact

Flora	*Boronia algida*	**P**	Boronia algida is a common alpine species, distributed throughout higher altitude regions often associated with the Great Dividing Range. There is only a single record of the species in the Bathurst sub-region, likely due to its dispersal from surrounding alpine regions. **No Impact – habitat does not occur on or close to the subject site**	No Impact
Flora	*Persoonia rigida*	**P**	Persoonia rigida is distributed throughout much of NSW, particularly on the western slopes of The Great Dividing Range. The species is associated with woodland and forest on sandy soils derived from sandstone, often at higher altitudes. The species is not commonly known in the area. **Unlikely – although correct habitat does not occur on the subject site, there are known records within 10 km of the subject site.**	Unlikely habitat, non-significant impact
Flora	*Persoonia mollis subsp. mollis*	**E**	Highly restricted, known from the Hornsby Heights-Mt Colah area north of Sydney in the Sydney Basin Bioregion. Occurs in three populations (described on a catchment basis) located over an approximate north-south range of 5.75 km and east-west distance of 7.5 km. Additional locations may exist outside the current distribution. Occurs in sheltered aspects of deep gullies or on the steep upper hillsides of narrow gullies on Hawkesbury Sandstone. These habitats support relatively moist, tall forest vegetation communities, often with warm temperate rainforest influences. The species is commonly associated with; Smooth Barked Apple *Angophora costata*, Sydney Peppermint *Eucalyptus piperita*, Red Bloodwood *Corymbia gummifera*, Turpentine *Syncarpia glomulifera*,	No Impact

				Coachwood *Ceratopetalum apetalum* and Black Wattle *Callicoma serratifolia*. **No Impact – habitat does not occur on or close to the subject site**	
Flora	*Thelymitra peniculata*		**P**	A relatively common species of terrestrial orchid, distributed through most of NSW. Is more commonly associated with open forest, heathland and open grasslands however it is considered a generalist and is highly habitat adaptable. **Potential – Known records occur within the 10 km search area. Some elements of habitat might be present.**	Potential habitat, non-significant impact
Flora	*Thelymitra nuda*	Plain Sun Orchid	**P**	A relatively common species of terrestrial orchid, distributed through most of NSW. Is more commonly associated with coastal regions, particularly wet sclerophyll forest and coastal heathland. In open country the species is often associated with tussock grasses and low shrub cover. **Unlikely – although correct habitat does not occur on the subject site, there are known records within 10 km of the subject site.**	Unlikely habitat, non-significant impact
Flora	*Pterostylis rufa*	Red Rustyhood	**P**	The Red Rustyhood is a common terrestrial orchid distributed from coastal NSW to the western slopes of the Great Dividing Range. The species is not strongly associated with any habitat type however it commonly occurs around rocky outcrops. The species is widespread and often locally abundant, it is not commonly recorded in the Bathurst sub-region. It is more abundant in coastal regions but is common in any open forest or heathland.	Unlikely habitat, non-significant impact

				Unlikely – Known records occur within the 10 km search area. Some elements of habitat might be present.	
Flora	*Pterostylis mutica*	Midget Greenhood	**P**	A common terrestrial orchid widely distributed throughout NSW and Victoria, highly drought tolerant and distributed through arid regions. The species is associated with grasslands with sparse tree (generally eucalypt) cover. The species is widespread and often locally abundant, it is regularly recorded in both the Bathurst sub-region and the area directly surround the site. It is more abundant in coastal regions but is common in any open forest or heathland. **Potential – Known records occur within the 10 km search area. Some elements of habitat might be present.**	Potential habitat, non-significant impact
Flora	*Pterostylis aciculiformis*	Slender Ruddyhood	**P**	The Slender Ruddyhood is a common terrestrial orchid distributed from coastal NSW to the western slopes of the Great Dividing Range. The species is not strongly associated with any habitat type however it commonly occurs around higher attitudes (up to 1200m). The species is widespread and often locally abundant, it is not commonly recorded in the Bathurst sub-region. It is more abundant in coastal regions but is common in any open forest or heathland. **Unlikely – Known records occur within the 10 km search area. Some elements of habitat might be present.**	Unlikely habitat, non-significant impact
Flora	*Diuris sulphurea*	Tiger Orchid	**P**	A common terrestrial orchid distributed from coastal NSW to the western slopes of the Great Dividing Range. The species is widespread and often locally abundant, it is regularly recorded in both the Bathurst	Potential habitat, non-

				sub-region and the area directly surround the site. It is more abundant in coastal regions but is common in any open forest or heathland. **Potential – Known records occur within the 10 km search area. Some elements of habitat might be present.**	significant impact
Flora	*Diuris aurea*		**P**	A common terrestrial orchid distributed from coastal NSW to the western slopes of the Great Dividing Range. The species is widespread and often locally abundant. Specifically requires heathland vegetation. **No Impact – habitat does not occur on or close to the subject site**	No Impact
Flora	*Calochilus paludosus*	Red Beard Orchid	**P**	Red Beard Orchids are a widely distributed throughout lowland NSW, QLD and Victoria. The species is widespread and often locally abundant, it is regularly recorded in both the Bathurst sub-region and the area directly surround the site. It is more abundant in coastal regions but is common in any open forest or heathland. **Potential – Known records occur within the 10 km search area. Some elements of habitat might be present.**	Potential habitat, non-significant impact
Flora	*Caladenia phaeoclavia*	Brown-clubbed Spider Orchid	**P**	The Brown-clubbed Spider Orchid is common and often abundant in its primary range, between Bathurst and Orange. The species is associated with grasslands and open forest, commonly flowering in association with summer fires. **Potential – Known records occur within the 10 km search area. Some elements of habitat might be present.**	Potential habitat, non-significant impact

Flora	*Caladenia dimorpha*		**P**	Caladenia dimorpha is considered fairly rare however the Bathurst sub-region is located in the centre of its range (between Lithgow and Orange) and where it is considered most abundant. It is however more commonly associated with regions to the east of The Great Dividing Range. It is generally associated with open sclerophyll forest with sandy soils. **Unlikely – The site does not contain the habitat features associated with this species, however records of the species within 10km combined with the adaptability of this genus mean that there is a possibility of presence.**	Unlikely habitat, non-significant impact
Flora	*Caladenia congesta*	Black Tongue Caladenia	**P**	The Black Tongue Caladenia is a relatively widespread species in south-eastern Australia, it is not particularly common but often locally abundant throughout the regions along the western slopes of The Great Dividing Range. It is not strongly associated with particular habitats but is not found outside of temperate climate areas. **Potential – Known records occur within the 10 km search area. Some elements of habitat might be present.**	Potential habitat, non-significant impact