



Blackheath Station Upgrade

Biodiversity Assessment

Transport for NSW

March 2022

The Power of Commitment



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Executive summary

Transport for NSW is proposing to upgrade Blackheath Station to make it more accessible and improve interchanges around the station with other modes of transport such as buses, bicycles and cars (the Proposal). GHD was engaged by Transport for NSW to prepare a Review of Environmental Factors (REF) under Part 5 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) to assess the potential environmental impacts of the Proposal. This Biodiversity Assessment has been prepared to inform the REF for the Proposal.

Noting the highly modified and suburban context for the Proposal, this Biodiversity Assessment has included a desktop assessment and no field surveys have been undertaken. The desktop assessment was undertaken on 2 February 2022 to determine the likelihood of occurrence of, and any potential impact to, threatened species, populations and ecological communities listed under the NSW *Biodiversity Conservation Act 2016* (BC Act), NSW *Fisheries Management Act 1994* (FM Act) and biodiversity Matters of National Environmental Significance (MNES) listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The Biodiversity Assessment has also included the results from the arboricultural assessment of the Proposal site (Tree Survey, 2021).

The vegetation to be removed for the Proposal includes three introduced trees and 18 shrubs. In addition, exotic grassland would be temporarily disturbed for compound sites. The removal of vegetation would have a negligible impact on native flora and fauna within the locality. A number of more mobile threatened fauna species, including forest/woodland birds, forest owls, the Grey-headed Flying-fox (*Pteropus poliocephalus*) and microbat species may occur in the proposal site on occasion. The proposed removal and disturbance of trees and understorey vegetation are unlikely to constitute habitat of importance for the persistence of any local populations of these threatened fauna species. No habitat resources, including nests or hollow-bearing trees, would be removed as part of the Proposal.

No threatened flora would be impacted by the Proposal.

Based on the above considerations, the Proposal is unlikely to have a significant impact on any threatened biota (or associated habitat) listed under the BC Act and therefore would not trigger the requirement for a Species Impact Statement or a Biodiversity Development Assessment Report under the provisions of the Act. Similarly, the Proposal would not have a significant impact on any listed biota under the EPBC Act and consequently a referral to the Australian Government Minister for the Environment is not required.

A range of environmental safeguards and management measures would be implemented by the construction contractor as part of the Construction Environmental Management Plan for the Proposal. Implementation of safeguards and management measures would minimise the potential for any adverse impacts on retained trees and native fauna species that may be present in the Proposal site during construction.

Recommended non-statutory offset requirements, based on the *Transport for NSW Vegetation Offset Guide* (TfNSW, 2019) for the clearing of trees that have heritage, streetscape, community/public amenity or intrinsic value include the planting of up to 12 trees. Offset plantings should comprise indigenous native species of local provenance.

Abbreviations

Abbreviation	Terms
AHD	Australian Height Datum
AOBV	Areas of Outstanding Biodiversity Value
BC Act	NSW <i>Biodiversity Conservation Act 2016</i>
Biosecurity Act	NSW <i>Biosecurity Act 2015</i>
CEMP	Construction Environmental Management Plan
DAWE	Commonwealth Department of Agriculture, Water and the Environment
DECCW	NSW Department of Environment, Climate Change and Water (now DPE)
DoE	Commonwealth Department of the Environment (now DAWE)
DPE	NSW Department of Planning and Environment
DPI	NSW Department of Primary Industries
DPIE	The former NSW Department of Planning, Industry and Environment (now DPE)
EES	NSW Environment, Energy and Science (Division of DPE)
EP&A Act	NSW <i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	NSW <i>Environmental Planning and Assessment Regulation 2000</i>
EPBC Act	Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>
FM Act	NSW <i>Fisheries Management Act 1994</i>
Infrastructure SEPP	State Environmental Planning Policy (Infrastructure) 2007 (NSW)
LEP	Local environmental plan
LGA	Local government area
MNES	Matters of National Environmental Significance
NPW Act	NSW <i>National Parks and Wildlife Act 1974</i>
NSW	New South Wales
OEH	NSW Office of the Environment and Heritage (now EES)
PMST	Protected Matters Search Tool
REF	Review of Environmental Factors
TfNSW	Transport for NSW
TPZ	Tree protection zone

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1. Introduction

1.1 Overview

The NSW Government is committed to facilitating and encouraging use of public transport, such as trains, by upgrading stations to make them more accessible, and improving interchanges around stations with other modes of transport such as buses, bicycles and cars. The Transport Access Program is an initiative targeted at achieving compliance with the Commonwealth *Disability Standards for Accessible Public Transport 2022* (DSAPT) Regulations across the network.

Blackheath Station has been identified for an accessibility upgrade as it currently does not meet key requirements of the DSAPT or the *Commonwealth Disability Discrimination Act 1992* (DDA) (Figure 1.2 and Figure 1.3). It also does not allow for equitable access to the station platforms. Blackheath Station comprises currently no accessible path to the station platforms for people with reduced mobility or parents/carers with prams, no lift facilities, and some paths of travel from the surrounding footpath and roads are not compliant with requirements of the DDA. There are also issues with the connections between the station and other modes of transport, including a lack of kiss and ride and limited bicycle parking facilities.

The Proposal is required to provide safe and equitable access to the station and to improve customer facilities. The improvements would also assist in supporting growth in public transport use and would provide an improved customer experience for existing and future users of the station.

A Review of Environmental Factors (REF) is being prepared for the Proposal in accordance with the requirements of Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). GHD has been engaged by Transport for NSW to prepare a Biodiversity Assessment to support the REF. The Biodiversity Assessment has incorporated the results from the arboriculture assessment for the Proposal (Tree Survey, 2021).

This report assesses and documents the potential impacts on biodiversity values, with particular emphasis on threatened ecological communities, populations and species listed under the NSW *Biodiversity Conservation Act 2016* (BC Act) and biodiversity Matters of National Environmental Significance (MNES) listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Mitigation measures to ameliorate potential impacts of the Proposal are included in Section 6 of this report.

1.2 The Proposal

The Proposal forms part of the Transport Access Program. The key features of the Proposal are summarised as follows and shown in Figure 1.1:

- provision of three new lifts, associated landings and canopies providing access to the station platforms from Station Street and the Great Western Highway station entry area
- provision of an entry plaza from the Great Western Highway including a new ramp and new stairs from the footpath to the lift landing and existing stairs
- upgrade of the existing informal kiss and ride area on the eastern side of the station, including line marking, installation of bike hoops, sheltered seating and an upgrade of the accessible path to the station entry
- upgrade of the accessible path from lift 2 to the station platforms
- upgrade of the accessible path from the commuter car park to lift 3, on the Station Street side
- provision of two accessible parking spaces and extension of the Station Street commuter car park and localised regraded areas of the existing commuter car park
- widening of the waiting room doors and the family accessible toilet door
- upgrades to the station power supply, including provision of a new main switch board
- provision of a new accessible water bubbler on the island platform by the station building.

Subject to planning approval, construction is expected to commence in mid-2022 and take around 12 months to complete.

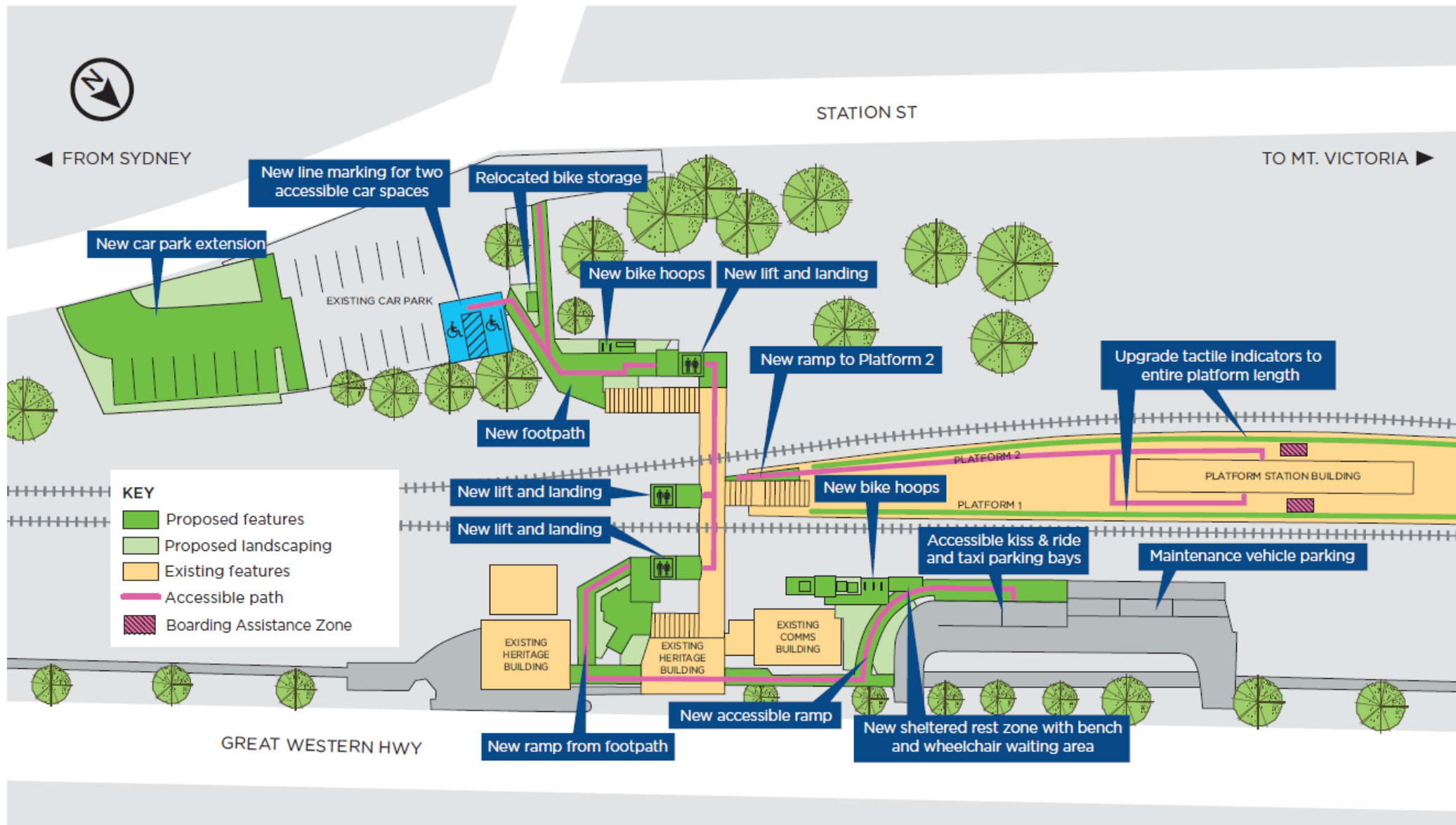


Figure 1.1 Key features of the Proposal

1.3 Purpose of this report

The aims and scope of this report are to:

- outline the methods used for the biodiversity
- summarise the findings of the arboricultural assessment
- describe the existing environment of the site, including the results of the desktop assessment and site surveys
- identify the presence or likely presence of threatened species, populations and ecological communities and their habitats listed under the BC Act and FM Act
- assess the potential for any MNES listed under the EPBC Act to occur within the site and/or to be affected by the Proposal
- identify the potential impacts of the Proposal on biodiversity values, including threatened biota and their habitats
- assess the likely significance of impacts on threatened biota listed under the BC Act and EPBC Act
- recommend mitigation measures to avoid or minimise impacts on threatened biota and biodiversity values
- identify and describe landscape trees, including trees to be removed and retained and provide recommendations for the protection of retained trees proximate to construction activities within the site
- outline the potential offset requirements, based on the *Transport for NSW Vegetation Offset Guide* (TfNSW, 2019) for the clearing of trees that have heritage, streetscape, community/public amenity or intrinsic value.

1.4 Location of the Proposal

Blackheath Station is located on the Blue Mountains Line, within the Blue Mountains Local Government Area (LGA), about 130 kilometres west of the Sydney central business district.

The proposal site is located in the village of Blackheath, within the upper Blue Mountains, surrounded by the Blue Mountains National Park. The location of the Proposal in a regional context is shown on Figure 1.2.

The proposal site is bounded by the rail corridor, commuter car park to the west and the Great Western Highway to the east. It has pedestrian connections to the Great Western Highway to the east and Station Street to the west (refer to Figure 1.3).

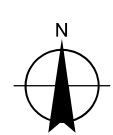
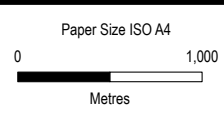
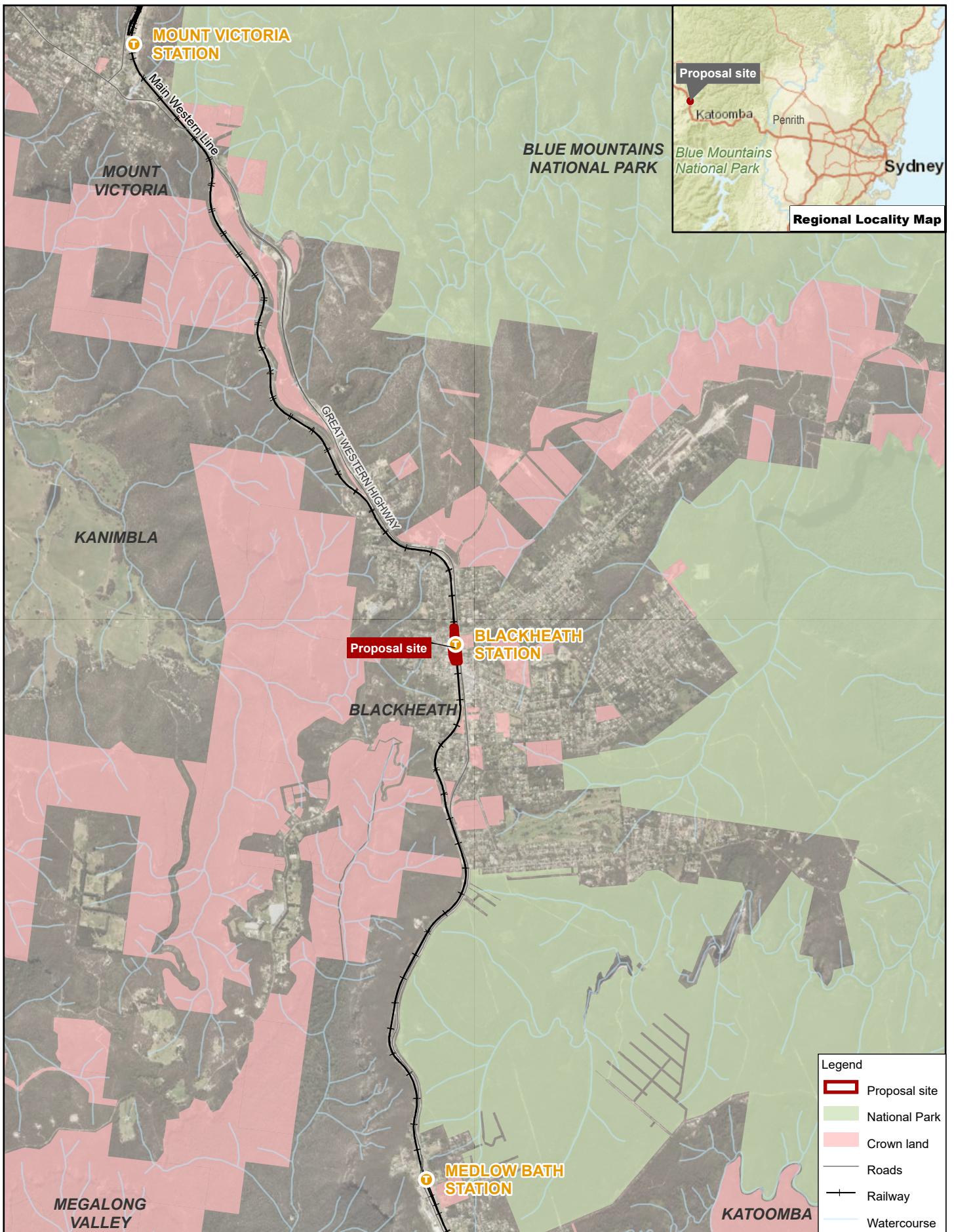
The proposal site is located on land owned by the Transport Asset Holding Entity (TAHE) and managed by NSW Trains.

1.5 Scope and limitations

This Biodiversity Assessment was undertaken at a desktop level and no formal flora and fauna surveys were conducted by GHD in the proposal site as the site was known to be highly disturbed/modified. For this reason, the impact assessment and conclusions of this report draw upon information obtained from a variety of sources such as NSW and Commonwealth Government natural resource datasets and an arboricultural assessment prepared for the site (Tree Survey, 2021). An assessment of the likelihood of occurrence of threatened species has been provided, on the basis of known distributional ranges and previous records in the locality and the habitats present in the proposal site.

1.6 Assumptions

This assessment has been completed based on information provided by the Transport for NSW design team, including a site plan and information gained from the desktop review.



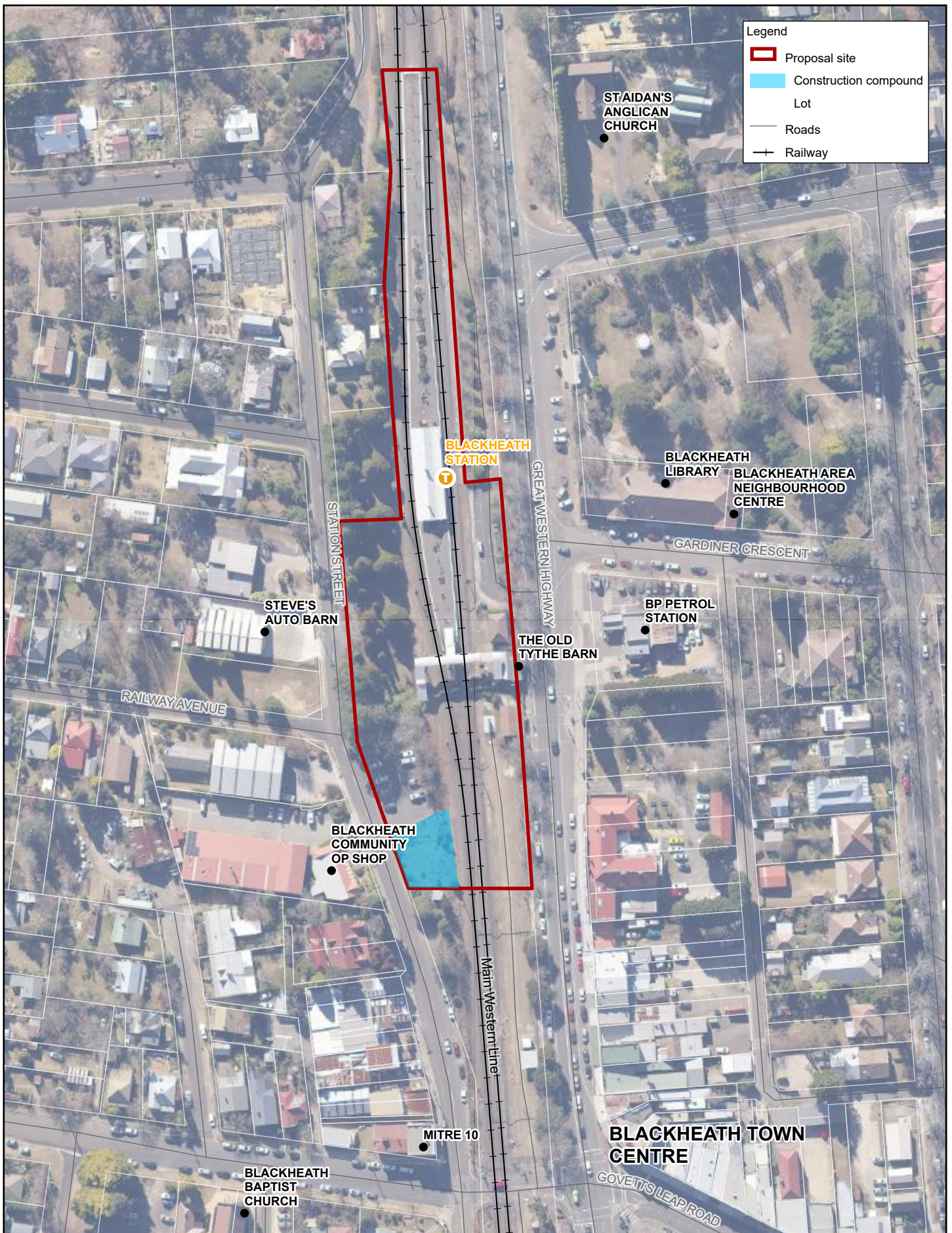
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Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

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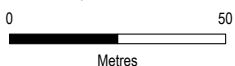
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Regional context

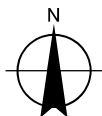
FIGURE 1.2



Paper Size ISO A4



Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56



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Proposal site

FIGURE 1.3

2. Legislative context

2.1 Commonwealth legislation

2.1.1 Environment Protection and Biodiversity Conservation Act 1999

The purpose of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is to ensure that actions likely to cause a significant impact on Matters of National environmental Significance (MNES) or the environment of Commonwealth land undergo an assessment and approval process. Under the EPBC Act, an action includes a proposal, a development, an undertaking, an activity or a series of activities, or an alteration of any of these things. An action that 'has, will have or is likely to have a significant impact on a matter of national environmental significance' or a significant impact to the environment of Commonwealth land is deemed to be a 'controlled action' and may not be conducted without prior approval from the Australian Minister for the Environment.

Potential MNES of relevance to this assessment include:

- threatened species and ecological communities
- migratory species.

The EPBC Act has been addressed in this assessment through:

- desktop review to determine the listed biodiversity matters that are predicted to occur within the locality of the Proposal and hence could occur, subject to the habitats present
- assessment of potential impacts on threatened and migratory biota
- identification of suitable impact mitigation and environmental management measures.

2.2 New South Wales State legislation

2.2.1 Environmental Planning and Assessment Act 1979

The Proposal is a Part 5 activity under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The EP&A Act forms the legal and policy platform for proposal assessment and approval in New South Wales (NSW) and aims to, amongst other things, 'encourage the proper management, development and conservation of natural and artificial resources'. All development in NSW is assessed in accordance with the provisions of the EP&A Act and the NSW *Environmental Planning and Assessment Regulation 2000*. The determining authority for the Proposal is Transport for NSW.

Section 1.7 of the EP&A Act states that the Act is subject to provisions of Part 7 of the NSW *Biodiversity Conservation Act 2016* (BC Act) and Part 7A of the NSW *Fisheries Management Act 1994* (FM Act). Part 7.3 of the BC Act and Section 220ZZ of the FM Act list factors that must be taken into account when determining the significance of potential impacts of a proposed activity on threatened species, populations or ecological communities (or their habitats) listed under the BC Act and the FM Act. The 'assessment of significance' is used to assist in the determination of whether a proposal is 'likely' to impose 'a significant effect' on threatened biota and thus whether a species impact statement is required under the BC Act or FM Act. Under the BC Act, there is also the option to prepare a Biodiversity Development Assessment Report rather than a species impact statement if a significant impact is likely.

2.2.2 Biodiversity Conservation Act 2016

The BC Act provides legal status for biota of conservation significance in NSW. The BC Act aims to, amongst other things, 'maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development'. It provides for the listing of threatened species and communities, establishes a framework to avoid, minimise and offset the impacts of proposed development (the Biodiversity Offsets Scheme), and establishes a scientific method for assessing the likely impacts on biodiversity values and calculating measures to offset those impacts (the Biodiversity Assessment Method). As this Proposal is being assessed under Part 5 of the EP&A Act, assessment in accordance with the Biodiversity Assessment Method is not required unless there is likely to be a significant impact on threatened biota.

The BC Act has been addressed in this assessment through:

- desktop review to determine the threatened species, populations or ecological communities that have been previously recorded within the locality and hence could occur subject to the habitats present (Note that this review is also based on the ground-truthed aboricultural survey prepared by Tree Survey (2021))
- assessment of the potential for threatened species (or their habitat) to occur and be impacted
- assessment of potential impacts on listed threatened species, populations and ecological communities
- identification of suitable impact mitigation and environmental management measures.

Threatened biota recorded or likely to occur in the site are detailed further in Section 4.4.

There would be no significant impact to threatened species listed under the BC Act as determined by assessments of significance (Section 5).

2.2.3 Biosecurity Act 2015

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

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

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

Management measures to minimise the potential for the introduction and/or spread of weeds as a result of the Proposal are discussed in Section 6.2.

3. Methods

3.1 Desktop review

A desktop assessment, including database searches to identify threatened biota listed under the BC Act and MNES listed under the EPBC Act that may be affected by the Proposal, was completed on 2 February 2022. The results of the database searches are provided in Appendix A and Appendix B.

Biodiversity databases and literature pertaining to the proposal site and locality that were reviewed included:

- Arboricultural impact assessment & tree protection plan: Blackheath Station - Transport Access Program (Tree Survey, 2021)
- Commonwealth Department of Agriculture, Water and the Environment (DAWE) Protected Matters Search Tool (PMST) online database for all MNES, selected for a 10 kilometre radius surrounding the proposal site (DAWE, 2022a)
- DAWE online species profiles and threats database (DAWE, 2022b) and NSW Threatened species profiles (EES, 2022c)
- Native vegetation mapping in the Blue Mountains 1999-2002 (VIS_ID 2239) (DECCW, 2011)
- NSW Environment, Energy and Science (EES) BioNet database (licensed) for records of threatened species, populations and endangered ecological communities listed under the BC Act that have been recorded within a 10 kilometre radius of the locality of the Proposal (EES, 2022a)
- NSW vegetation types database (EES, 2022b) to identify vegetation communities present in the proposal site
- Review of Priority weeds listed under the Biosecurity Act within the Greater Sydney region (DPI, 2022) and Weeds of National Significance (WE, 2022).

Aerial photography of the proposal site was also reviewed.

The habitat resources present at the proposal site were compared with the known habitat associations/requirements of the threatened and migratory biota highlighted by the desktop review and the results of the field survey to assess the likelihood of occurrence of threatened species at the proposal site.

3.2 Field survey

Noting the highly modified, suburban context for the Proposal no targeted biodiversity survey was undertaken as part of this assessment. The absence of native vegetation and habitat resources for native biota was confirmed through review of photographs taken by GHD planners and environmental scientists during their inspection of the proposal site. The field inspection undertaken during the arboricultural assessment of the proposal site was in accordance with a visual tree assessment (VTA) as formulated by Mattheck & Breloer (1994), and practices consistent with modern arboriculture (Tree Survey, 2021). The following limitations apply to this methodology (Tree Survey, 2021):

- Trees were inspected from ground level, without the use of any invasive or diagnostic tools and testing. Trees within adjacent properties or restricted areas were not subject to a complete visual inspection (i.e. defects and abnormalities may be present but not recorded).
- Diameter at breast height (DBH) was accurately measured using a diameter tape where access to the tree was available. Tree height and canopy spread were estimated unless otherwise stated.
- Tree protection zones were calculated in accordance with Australian Standard, *AS 4970-2009, Protection of Trees on Development Sites* using the DBH measurements.

4. Existing environment

4.1 Overview

The proposal site is located within and around Blackheath Station in the Blue Mountains City Council LGA. Land uses adjoining the proposal site consist primarily of urban streetscapes and residential, commercial and industrial developments, interspersed with urban parklands.

Native vegetation within the proposal site and surrounding landscape was highly disturbed and modified (Photo 4.1). The canopy and other vegetation comprise exotic trees, shrubs and forbs located along the road, rail and residential boundaries (Tree Survey, 2021). The proposal site does not provide habitat connectivity to other areas of intact native vegetation in the locality (see Figure 1.1 for an overview of National Park and Crown land native vegetation reserves). No creeks or drainage lines occur within the Proposal site. The proposal site does not contain any key fish habitat.

The proposal site is located within Blackheath, about 130 kilometres west of the Sydney central business district along The Great Western Highway, NSW. Other specific site particulars are summarised in Table 4.1.

Table 4.1 Site particulars

Parameter	Occurrence within the proposal site
Proposal site	The proposal site encompasses approximately 1.20 ha.
LGA	Blue Mountains City Council
Current land use	Railway station and accompanying infrastructure (such as concourse, carpark etc)
Zoning	SP2, R2 and IN1
Elevation (Australian Height Datum)	1070 metres
DPI Waterways	None
IBRA 7 region / subregion (DoEE, 1995)	Sydney Basin / Wollemi
Mitchell Landscape (v3.1) (BAP, 2017)	Blue Mountains Plateau – Sydney Basin Wollemi
SEPP (Coastal Management) 2018 areas	Absent
Great Soil Group (DPI, 2021)	Yellow earth
NSW WeedWise local area	Greater Sydney Region
Biodiversity Values Map (DPIE, 2022)	No areas mapped as having high biodiversity value occurs within the proposal site.



Photo 4.1 Blackheath Station and railway line

4.2 Vegetation

4.2.1 Vegetation types

As shown in Figure 4.1, there is no native vegetation mapped within the proposal site (DECCW, 2011). The vegetation located within the proposal site includes 38 planted trees and shrubs, and exotic grasslands (refer to Photo 4.2; Appendix C and Tree Survey, 2021). This vegetation is not associated with a Plant Community Type (PCT) because of the low cover and species richness of indigenous native plants and/or because they occur on highly modified soils and landforms.



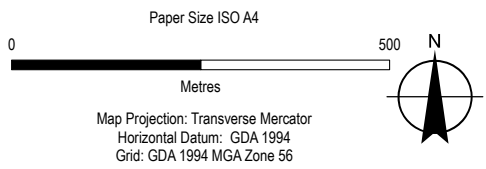
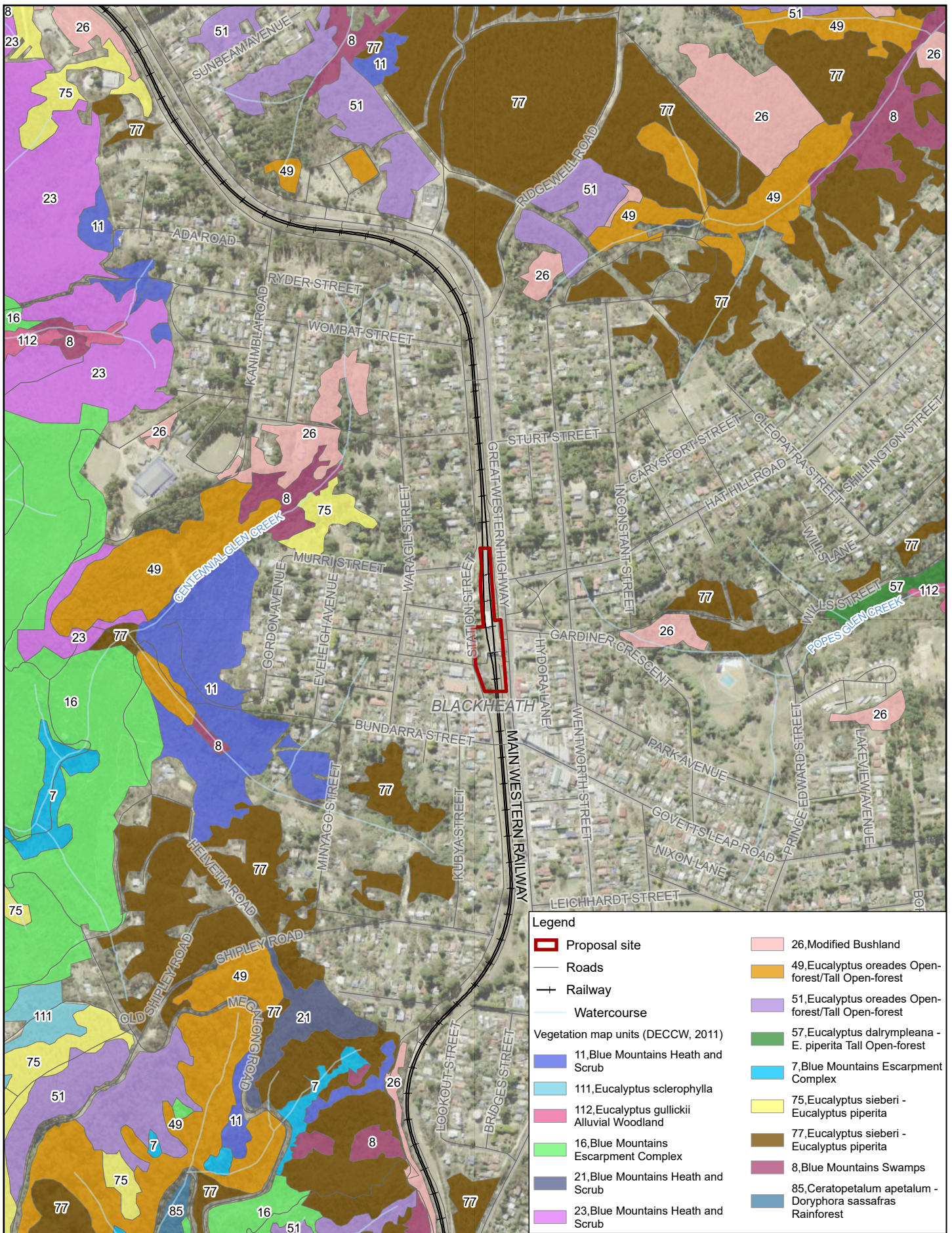
Photo 4.2 Introduced vegetation within the proposal site

4.2.2 Exotic species

The proposal site contains at least one species declared as priority weeds within the Greater Sydney region (which includes the local council area of the Blue Mountains). This species is also a listed Weed of National Significance.

Table 4.2 Priority weeds recorded within the proposal site

Scientific name	Common name
<i>Rubus fruticosus</i> species aggregate	Blackberry



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Vegetation

FIGURE 4.1

4.3 Fauna and fauna habitats

4.3.1 Fauna species

Whilst no formal fauna species survey was undertaken during this assessment, the area is frequented by many members of the public that have contributed observations to BioNet. The BioNet Atlas database has many records of species located within and in close proximity to the proposal site (EES, 2022). The BioNet Atlas indicated there have been no threatened fauna species recorded within the proposal site.

Fauna species that are expected to occur would be common and widespread species, capable of persisting in highly urbanised habitats such as those within the proposal site, in particular high mobile native bird species e.g. Red wattlebird (*Anthochaera carunculata*), Noisy Miner (*Manorina melanocephala*), Australian Magpie (*Gymnorhina tibicen*), Pied Currawong (*Strepera graculina*), Sulphur-crested Cockatoo (*Cacatua galerita*) and Crimson Rosella (*Platycercus elegans*).

Exotic fauna species with the potential to occur include the Common Myna (*Sturnus tristis*), Rock Dove (*Columba livia*) and Spotted Turtle-dove (*Streptopelia chinensis*). Other introduced fauna species that would likely occur within the proposal site, at least on an intermittent basis include the Black Rat (*Rattus rattus*), House Mouse (*Mus musculus*) and Red Fox (*Vulpes vulpes*). No threatened species listed under the BC Act and/or EPBC Act are expected to occur, however, if a threatened fauna species was detected within the proposal site, it would most likely be transiting through the proposal site as it moves between areas of higher quality habitat found in the locality e.g. micro-bats and woodland birds.

4.3.2 Terrestrial fauna habitats

4.3.2.1 Exotic grassland

The majority of the land within and surrounding the proposal site has been previously cleared of native vegetation for the railway, roads, industrial areas and residential developments. The rail corridor is cleared and vegetated with patchy regrowth of grasses and herbs interspersed with bare ground, ballast and other artificial substrates. Exotic and native grassland contains few habitat resources of relevance to most native species. Grasses and herbs would provide foraging resources for relatively mobile and opportunistic native fauna, including birds such as the Australian Magpie and Sulphur-crested Cockatoo. Microbats may forage over grassland areas on occasion. Small, common lizards such as the Garden Sunskink (*Lampropholis* sp.) would likely occur, particularly in areas where shelter such as ballast, rocks and shrubs were present. Common native frog species likely to occur include the Brown Striped Frog (*Limnodynastes peronii*) and Common Eastern Froglet (*Crinia signifera*) that would utilise habitats present in small drainage depressions in these areas.

4.3.2.2 Planted exotic species

In total, 38 planted species were recorded within the proposal site during the arboricultural assessment include the exotic *Quercus palustris* (Swamp Spanish Oak), *Ulmus procera* (Elm), *Sorbus aucuparia* (Roman), *Photinia* sp. and *Azealia* sp. (Tree Survey, 2021; Appendix C). Native planted species were limited to a *Hakea* sp. These species are unlikely to be hollow-bearing species. Whilst this habitat value is limited for native fauna species, they likely provide some foraging opportunities for common birds and arboreal mammal species e.g. Noisy Miner (*Manorina melanocephala*), Brushtail Possum (*Trichosurus vulpecula*) and Common Ringtail Possum (*Pseudocheirus peregrinus*). These arboreal mammal species, if present, may provide prey for the Powerful Owl (*Ninox strenua*), that has been previously recorded in the locality and may possibly forage within the proposal site on occasion. The Grey-headed Flying-fox (*Pteropus poliocephalus*) and microbats may forage in planted trees in the proposal site. Few other threatened fauna species are likely to occur in this vegetation type, except on a transient basis.

4.4 Threatened and migratory biota

4.4.1 Threatened ecological communities

A total of 24 threatened ecological communities (TECs) species listed under the BC Act and/or EPBC Act are known or predicted to occur in the locality (refer to Appendix B). These TECs are associated with Blue Mountains National Park and other vegetated reserves outside the developed portions of Blackheath. Based on the local vegetation mapping and known native flora species located within the proposal site (EES, 2022 and Tree Survey, 2021), no TECs occur within the proposal site.

4.4.2 Threatened flora

A total of 42 threatened flora species listed under the BC Act and/or EPBC Act have been previously recorded or are predicted to occur in the locality (refer to Appendix B). These threatened flora records are associated with Blue Mountains National Park and other vegetated reserves outside the developed portions of Blackheath. Based on the local vegetation mapping and known native flora species located within the proposal site (EES, 2022; Tree Survey, 2021), no threatened flora species likely occur within the proposal site. In addition, an assessment of the habitat preference of and recorded occurrence of threatened species indicated that none are considered likely to occur or have the potential to be impacted by the Proposal (Appendix D).

4.4.3 Threatened fauna

A total of 52 threatened fauna species listed under the BC Act and/or EPBC Act have been previously recorded or are predicted to occur in the locality (refer to Appendix B). However, no threatened fauna species have been recorded within the proposal site.

The proposal site contains mostly exotic grassland and planted exotic species (both managed and unmanaged) within the rail corridor, car parks and residential gardens. Most of the threatened fauna recorded in the locality are unlikely to occur given their specific habitat requirements, preference for larger tracts of native vegetation and a general absence of important habitat resources within the proposal site.

The Grey-headed Flying-fox, which is listed as a vulnerable species under the BC Act and EPBC Act, has a large number of records in the locality (Appendix A; EES, 2022a). The Grey-headed Flying-fox would forage in planted street trees and parklands within the proposal site and nearby eucalypts and myrtaceous shrubs when they are in flower. Eucalypt species are known to be significant food plants for Grey-headed Flying-fox (Eby and Law, 2008) and would occur in the vicinity of the proposal site.

No breeding camps of the Grey-headed Flying-fox occur in the proposal site. The closest camps are located at Emu Plains (237), approximately 36 kilometres west of the proposal site (DAWE, 2022c). The proposal site would not comprise roosting habitat for this species.

Threatened microbats previously recorded in the locality include the Large Bent-winged Bat (*Miniopterus orianae oceanensis*), Eastern Coastal Free-tailed Bat (*Micronomus norfolkensis*), Large-eared Pied Bat (*Chalinolobus dwyeri*), Eastern False Pipistrelle (*Falsistrellus tasmaniensis*), Southern Myotis (*Myotis macropus*) and Greater Broad-nosed Bat (*Scoteanax rueppellii*) (Appendix A). Whilst potential microbat foraging habitat occurs within the proposal site, it is considered to be marginal due to the absent of native vegetation and light/noise disturbance. In particular, the proposal site does not contain suitable habitat for the Southern Myotis which forages over waterbodies and roosts in close proximity to water. The Eastern Coastal Free-tailed Bat is not a common occurrence in highly urbanised areas and the planted trees within the proposal site are unlikely to provide habitat of importance for this species. The proposal site does not contain any suitable bridges or culverts that may provide roosting habitat for the Large Bent-winged Bat. There were no hollow-bearing trees in the proposal site that provide roost sites for tree-roosting microbats.

Threatened forest owls (e.g. Powerful Owl (*Ninox strenua*)) have been recorded in the locality and may forage for arboreal prey within planted vegetation, particularly within the nearby large areas of remnant forest/woodland vegetation where large mature trees are present. The Proposal site does not provide breeding habitat for these species and owls would be unlikely to roost in this highly modified location.

There were numerous threatened fauna species that had potential to occur in the proposal site based on previous records and/or the presence of broadly suitable habitat (Appendix D). However, the proposal site does not contain important habitat for threatened fauna species, including forest and woodland birds, that rely on more structurally and floristically complex stands of native vegetation for foraging, roosting and nesting. There is no suitable habitat in the proposal site for threatened reptiles and frogs (see Appendix D). Few other threatened fauna species are likely to occur in this vegetation type, except on a transient basis.

4.4.4 Migratory species

A total of 13 migratory species listed under EPBC Act have been previously recorded or are predicted to occur in the locality (refer to Appendix B). These species may pass over or through the proposal site on occasion, however, there are no suitable habitat resources for these migratory species that would support frequent or longer-term use of the proposal site. There is no habitat for migratory waders or wetland birds within the proposal site. There is very limited potential for migratory woodland species to occur given the nature of the modified habitats present.

Important habitat for these migratory birds is defined in the significance criteria for listed migratory species (DoE, 2013) as follows:

- habitat utilised by a migratory species occasionally or periodically within the region that supports an ecologically significant proportion of the population of the species
- habitat that is of critical importance to the species at particular life-cycle stages
- habitat utilised by a migratory species which is at the limit of the species range
- habitat within an area where the species is declining.

Habitat in the proposal site is unlikely to be important for these species as it is highly fragmented and subject to substantial disturbance. The habitats present would not support an ecologically significant proportion of any population, would not be critical to the lifecycle of any species and are not at the limit of these species' range. The likelihood of occurrence for migratory species has been assessed in Appendix B.

5. Potential impacts

5.1 Direct impacts

5.1.1 Vegetation removal

The proposal site is located within highly modified lands within and around the rail corridor at Blackheath Station and no intact stands of naturally occurring native vegetation or TECs would be disturbed for the proposed works.

The Proposal would result in the removal of 21 flora species (three trees and 18 shrubs) (Tree Survey, 2021). Other vegetation to be removed would include exotic grassland. Additional areas of exotic grassland vegetation would be temporarily disturbed during construction for the placement of site compounds and ancillary facilities. Canopy trees outside of the proposal site would be retained and protected during construction activities.

The proposal site has limited habitat value for native plants. Any vegetation clearing required in these areas would principally remove exotic grasses, planted exotic and non-threatened native plants, and environmental weeds. Environmental safeguards to minimise the clearing of planted native vegetation and protect retained vegetation would be included in the REF and Construction Environment Management Plan (CEMP). Vegetation loss would be offset in accordance with the *Transport for NSW Vegetation Offset Guide* (TfNSW, 2019) (refer to Section 6.3).

5.1.2 Landscape tree removal

5.1.2.1 Trees to be removed and retained

The Proposal would result in the removal of the following:

- three planted trees - one Azalea (*Rhododendron sp.*), one Elm tree (*Ulmus procera*) and one Cherry Laurel (*Prunus laurocerasus*)
- 18 shrubs (17 exotic and one native species).

Twelve trees and five shrubs would be retained and adequately protected during construction. Tree protection measures would vary depending on disturbance levels and would be confirmed by a suitably qualified arborist prior to works commencing.

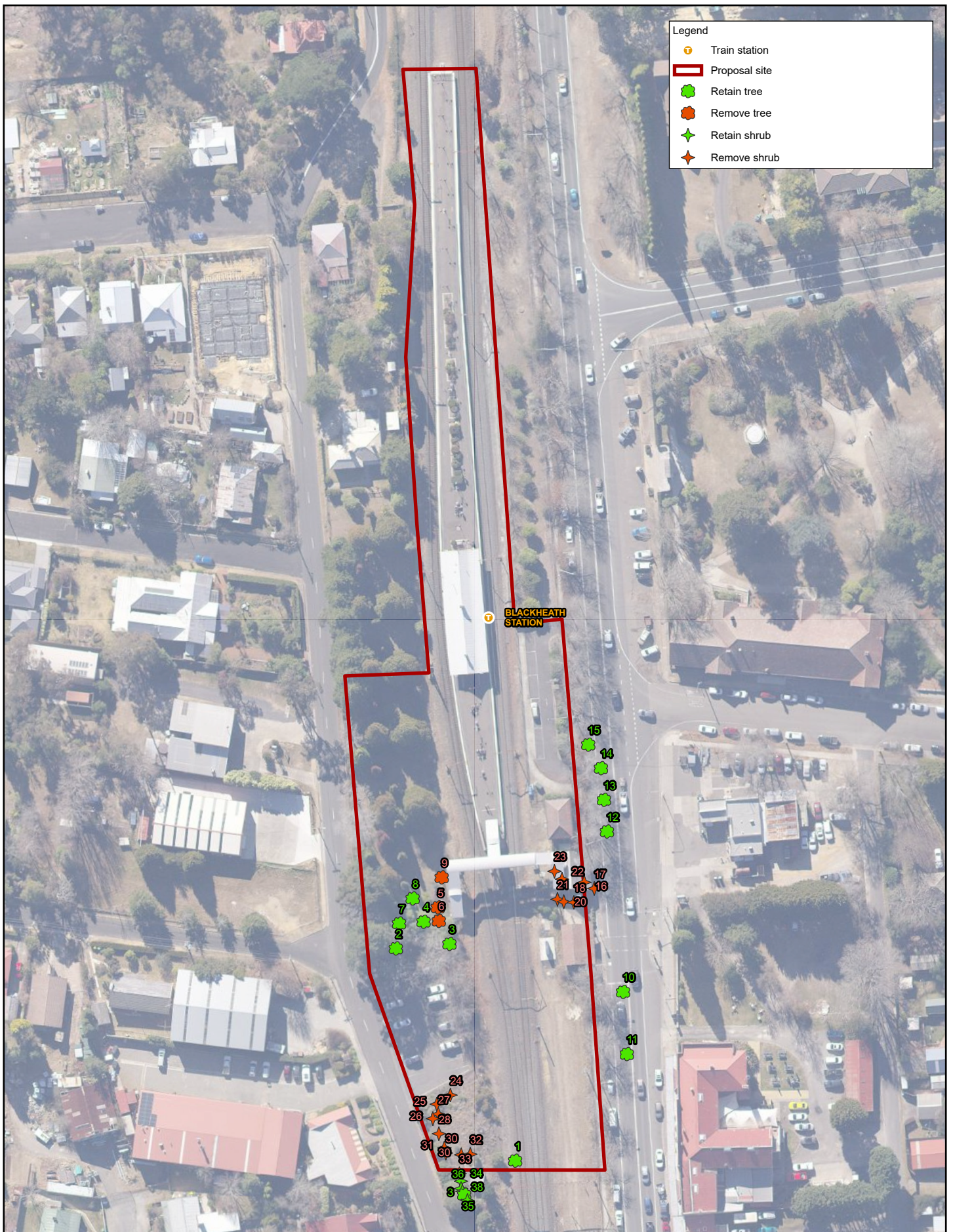
Vegetation proposed to be removed/retained within the proposal site is listed in Table 5.1 and shown in Figure 5.1.

Table 5.1 Trees and shrubs to be removed/retained

Reference no.	Scientific name	Common name	Tree/shrub	To be removed/retained
1	<i>Pinus radiata</i> *	Radiata Pine	Tree	Retain
2	<i>Quercus robur</i> *	English Oak	Tree	Retain
3	<i>Platanus x acerifolia</i> *	London Plane	Tree	Retain
4	<i>Ulmus procera</i> *	Elm	Tree	Retain
5	<i>Ulmus procera</i> *	Elm	Tree	Remove
6	<i>Prunus laurocerasus</i> *	Cherry Laurel	Tree	Remove
7	<i>Ulmus procera</i> *	Elm	Tree	Retain
8	<i>Rhododendron sp.</i> *	Azalea	Tree	Retain
9	<i>Rhododendron sp.</i> *	Azalea	Tree	Remove
10	<i>Platanus x acerifolia</i> *	London Plane	Tree	Retain
11	<i>Platanus x acerifolia</i> *	London Plane	Tree	Retain
12	<i>Quercus palustris</i> *	Swamp Spanish Oak	Tree	Retain

Reference no.	Scientific name	Common name	Tree/shrub	To be removed/retained
13	<i>Quercus palustris</i> *	Swamp Spanish Oak	Tree	Retain
14	<i>Quercus palustris</i> *	Swamp Spanish Oak	Tree	Retain
15	<i>Quercus palustris</i> *	Swamp Spanish Oak	Tree	Retain
16	<i>Ilex aquifolium</i> *	English Holly	Shrub	Remove
17	<i>Azealia</i> sp. *	Azalea	Shrub	Remove
18	<i>Azealia</i> sp. *	Azalea	Shrub	Remove
19	<i>Azealia</i> sp. *	Azalea	Shrub	Remove
20	<i>Azealia</i> sp. *	Azalea	Shrub	Remove
21	<i>Azealia</i> sp. *	Azalea	Shrub	Remove
22	<i>Azealia</i> sp. *	Azalea	Shrub	Remove
23	<i>Azealia</i> sp. *	Azalea	Shrub	Remove
24	<i>Quercus robur</i> *	English Oak	Shrub	Remove
25	<i>Hakea</i> sp.	-	Shrub	Remove
26	<i>Photinia</i> sp.*	-	Shrub	Remove
27	<i>Sorbus aucuparia</i> *	Roman	Shrub	Remove
28	<i>Photinia</i> sp.*	-	Shrub	Remove
29	<i>Photinia</i> sp.*	-	Shrub	Remove
30	<i>Photinia</i> sp.*	-	Shrub	Remove
31	<i>Sorbus aucuparia</i> *	Roman	Shrub	Remove
32	<i>Photinia</i> sp.*	-	Shrub	Remove
33	<i>Photinia</i> sp.*	-	Shrub	Remove
34	<i>Photinia</i> sp.*	-	Shrub	Retain
35	<i>Photinia</i> sp.*	-	Shrub	Retain
36	<i>Photinia</i> sp.*	-	Shrub	Retain
37	<i>Photinia</i> sp.*	-	Shrub	Retain
38	<i>Photinia</i> sp.*	-	Shrub	Retain

Note: * = Introduced species



Legend

- Train station
- Proposal site
- Retain tree
- Remove tree
- Retain shrub
- Remove shrub

Paper Size ISO A4

0 30
Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56



Transport for NSW
Blackheath Station Upgrade
Biodiversity Assessment

Project No. 12562533
Revision No. 0
Date 22/02/2022

Impacts on vegetation

FIGURE 5.1

5.1.3 Impacts on fauna and habitats

The proposal site comprises a highly modified urban environment. The existing rail corridor contains primarily cleared land and planted exotic vegetation which generally have low biodiversity value. Given the absence of intact stands of native vegetation or waterbodies, there is a low risk of any impacts on local populations of native fauna species.

The trees and shrubs within the proposal site provide a limited habitat for common, mobile native fauna capable of persisting in urban environments. The vegetation to be removed includes potentially small midstory plantings and canopy trees mostly comprising exotic species. These species in general are not a productive food source of pollen or nectar, and is likely to provide low habitat value for fauna species. As such, the vegetation to be removed would not provide critical or important habitat for any local populations of native fauna.

Potential fauna habitat in the proposal site is located adjacent to active major roads and train line that are already subjected to high levels of noise and vibration. The use of machinery and general disturbance associated with work activities may deter some common fauna species from utilising potential habitat in the proposal site. However, this would only be temporary for the duration of the works and is unlikely to cause significant impacts to fauna in the proposal site that would already be habituated to noise and vibration given the proximity of major roads and the train line.

The Proposal would not remove any hollow-bearing trees.

Environmental safeguards are proposed in Section 6.2 to minimise the impacts on fauna as a result of the Proposal.

5.1.4 Key threatening processes

A key threatening process (KTP) is defined in the BC Act as an action, activity or proposal that:

- adversely affects two or more threatened species, populations or ecological communities
- could cause species, populations or ecological communities that are not currently threatened, to become threatened.

KTPs are listed under the BC Act, the FM Act and also under the EPBC Act. A number of KTPs are listed under more than one Act.

The Proposal involves the clearing of planted exotic/native vegetation and self-recruiting exotic grassland and would not increase the operations of any KTP's.

5.1.5 Area of Outstanding Biodiversity Value

At present, Areas of Outstanding Biodiversity Value (AOBV) under the BC Act include:

- Gould's Petrel - critical habitat declaration
- Little penguin population in Sydney's North Harbour - critical habitat declaration
- Mitchell's Rainforest Snail in Stotts Island Nature Reserve - critical habitat declaration
- Wollemi Pine - critical habitat declaration.

None of the above listed AOBV occurs within or in close proximity to the proposal site. Therefore, the Proposal would not have any direct or indirect impact on any declared AOBV.

5.1.6 Impacts on threatened biota

5.1.6.1 Threatened ecological communities

The proposed station upgrade would not have an adverse impact on any TECs listed under the BC or EPBC Acts.

5.1.6.2 Threatened species

The proposal site has limited biodiversity values due to its highly modified nature, absence of intact native vegetation and very limited habitat complexity. The vegetation in the proposal site does not constitute habitat of importance for the persistence of any threatened fauna species listed under the BC and/or EPBC Acts known to occur in the wider locality.

No threatened flora would be impacted by the Proposal.

Small areas of exotic grassland within proposed compound site areas may provide potential foraging habitat for threatened microbat spp. These areas would be temporarily disturbed and reinstated following construction. A small amount of potential foraging habitat for threatened microbats and the forest owl above planted vegetation would also be removed.

Where trees can be retained, protection measures would be implemented to reduce the potential for impacts during and post construction (see Section 6.2).

5.1.6.3 Migratory species

The proposal site is not considered important habitat for migratory species predicted to occur in the locality as defined in the migratory species significant impact criteria (DoE, 2013) (see Section 4.4.4). Based on the above considerations the Proposal is unlikely to impose a significant effect on any of the listed migratory fauna species predicted to occur within the locality.

5.2 Indirect impacts

The impact mitigation and environmental management measures specified in Section 6.2 are likely to ensure that construction impacts are restricted to the proposal site. There are unlikely to be any substantial indirect impacts associated with construction activities. Given the proposed mitigation measures, adjoining land uses, existing activities in the proposal site and the extent of existing development, weed infestation and disturbance in the broader locality, the Proposal would not result in any tangible indirect impacts on biodiversity values.

5.3 Operational impacts

Impacts on biodiversity values would be largely restricted to the construction phase of the Proposal.

The proposal site is located within or immediately adjoining the existing rail corridor which is dominated by infrastructure and highly modified environments. The Proposal would support the continuation of current activities rather than expanding or intensifying any activities. There are unlikely to be any additional operational impacts beyond those that already occur. Vegetation adjoining the proposal site is already subject to weed infestation and other edge effects. Fauna that occupy habitats within the proposal site and adjacent areas are likely to be accustomed to existing noise, light and vibration originating from passenger and freight trains, road traffic and the urban environment. The Proposal is unlikely to increase the extent, duration or magnitude of any of these impacts to the extent that would result in a significant negative effect on biodiversity values.

The potential for these operational impacts can be further minimised through the implementation of appropriate mitigation measures as outlined in Section 6.2.

5.4 Significance of impacts

5.4.1 Threatened flora

No threatened flora species specimens or their habitats would be removed as part of the Proposal. As such, the Proposal would not result in a significant impact on any threatened species and formal assessments of significance are not warranted.

5.4.2 Threatened fauna

The proposal site provides some limited potential foraging habitat for the woodland/forest species, including birds, forest owls, Grey-headed Flying-fox and several threatened microbats. The small number of planted, predominantly exotic trees to be removed would not provide important foraging habitat for these species. There is no roosting or breeding habitat for these species in the proposal site or other habitat important for the lifecycle or persistence of any local population.

Given the above considerations, it is highly unlikely that any threatened species would be adversely affected by the proposed works and there would not be a significant impact on any local population of threatened fauna.

5.4.3 Migratory fauna

Based on a consideration of the criteria contained in the EPBC Act MNES significance guidelines (DoE, 2013), the Proposal would not be likely to have a significant impact on any migratory species, given that it would not:

- substantially modify, destroy or isolate an area of important habitat for a migratory species
- result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species
- seriously disrupt the lifecycle of an ecologically significant proportion of the population of a migratory species.

6. Impact mitigation

6.1 Avoidance of impacts

A significant portion of the proposal site is located within the existing rail corridor, which has been cleared and substantially modified through earthworks and construction. The Proposal's impacts are substantially less than would be associated with an undisturbed 'green field' site. The Proposal has been purposefully designed to avoid or further reduce impacts on biodiversity values as far as is practicable, but due to spatial constraints some impacts on planted trees would be unavoidable.

6.2 Mitigation measures

The Proposal would require the removal of 21 planted flora species (three trees and 18 shrubs). Environmental management measures are proposed to minimise impacts associated with the removal of those plantings and to mitigate against any potential indirect impacts of the Proposal.

6.2.1 Construction Environmental Management Plan

A Construction Environmental Management Plan (CEMP) would be required for the construction phase of the Proposal. The CEMP would include, as a minimum, industry-standard measures for the management of soil, surface water, weeds and pollutants, as well as site-specific measures, including the procedures and measures outlined below. The CEMP should be prepared and implemented by the contractor.

6.2.2 Vegetation and fauna

The CEMP would be required to address the following as a minimum to minimise impacts on native flora and fauna:

- establishing exclusion zones by fencing or demarcating areas (with construction barrier fencing or similar) that are outside the disturbance footprint and are not to be disturbed
- measures to minimise potential indirect impacts on patches of retained vegetation by installing sediment fencing to minimise uncontrolled runoff of moisture, sediments or pollutants
- hygiene procedures to prevent the introduction and spread of pathogens such as *Phytophthora* sp. and Myrtle Rust through the use of exclusion zone fencing and sediment fencing
- management of priority weeds as per statutory requirements.
- fauna management measures, including (but not limited to) the following:
 - an ecologist to undertake pre-clearing surveys of trees prior to them being removed
 - a suitably qualified wildlife handler to manage and undertake any fauna handling or relocation in case of any unexpected fauna finds (eg nestlings)
 - any relocation of fauna should be released into nearby areas of suitable habitat or handed to WIRES or Sydney Wildlife as necessary.

6.2.3 Tree protection measures

6.2.3.1 Tree protection fencing

Tree protection fencing would be established at the locations shown in the tree protection plan (see Plans on Pages 1 to 6 within Tree Survey (2021)). Existing fencing, site hoarding, or structures (such as a wall or building) may be used as tree protection fencing, providing the TPZ remains isolated from the construction footprint. Tree protection fencing must be installed prior to site establishment and remain intact until the completion of works. Once erected, protective fencing must not be removed or altered without the approval of the project arborist. Specifications for the tree protection fencing are as follows:

- temporary mesh panel fencing (minimum height of 1.8 metres)
- installed prior to site establishment and remain intact until the completion of works

- protective fencing must not be removed or altered without the approval of the project arborist
- prominently signposted with 300 mm x 450 mm boards stating, NO ACCESS - TREE PROTECTION ZONE.
- certified and inspected by the project arborist.

Where approved works are required within the TPZ, fencing may be setback to provide construction access. Trunk, branch, and ground protection shall be installed and must comply with AS 4970-2009, Protection of Trees on Development Sites. Any additional construction activities within the TPZ of the subject trees must be assessed and approved by the project arborist.

6.2.3.2 Restricted activities within the TPZ

The TPZ is an area that is isolated from the work zone to ensure no disturbance or encroachment occurs in this zone. Activities generally excluded from the TPZ (unless otherwise approved under the planning approval) include, but are not limited to:

- machine excavation and trenching
- ripping or cultivation of the soil
- storage of building materials, waste, and waste receptacles
- disposal of waste materials and chemicals including paint, solvents, cement slurry, fuel, oil, and other toxic liquids
- movement and storage of plant, equipment, and vehicles
- soil level changes, including the placement of fill material
- mechanical removal of vegetation
- affixing of signage or hoardings to trees
- other physical damage to the trunk or root system
- any other activity that is likely to cause damage to the tree.

6.2.3.3 Trunk protection

Trunk protection fencing must be established at the locations shown in the tree protection plan. Where the provision of tree protection fencing is impractical or must be temporarily removed, trunk protection shall be installed to avoid accidental mechanical damage.

Specifications for trunk protection are as follows:

- a thick layer of carpet underfelt, geotextile fabric, or similar wrapped around the trunk to a minimum height of two metres
- 1.8 metres lengths of softwood timbers aligned vertically and spaced evenly around the trunk (with a small gap of approximately 50 millimetres between the timbers)
- the timbers must be secured using galvanised hoop strap (aluminium strapping)
- the timbers shall be wrapped around the trunk but not fixed to the tree, as this would cause injury/damage to the tree.

6.2.3.4 Ground protection

Trunk protection fencing must be established at the locations shown in the tree protection plan. If temporary access for vehicle, plant, or machinery is required within the TPZ ground protection shall be installed. The purpose of ground protection is to prevent root damage and soil compaction within the TPZ. Where possible, areas of the existing pavement shall be used as ground protection.

Specifications for light traffic access (less than 3.5 tonne) are as follows:

- permeable membrane such as geotextile fabric
- a layer of mulch or crushed rock (at a minimum depth of 100 millimetres).

Specifications for heavy traffic access (more than 3.5 tonne) are as follows:

- permeable membrane such as geotextile fabric
- a layer of lightly compacted road base (at a minimum depth of 200 millimetres)

- geotextile fabric shall extend a minimum of 300 millimetres beyond the edge of the road base
- pedestrian, vehicular, and machinery access within the TPZ shall be restricted solely to areas where ground protection has been installed.

6.2.3.5 Mulch

The area within the TPZ should be mulched with good quality composted wood chip/leaf mulch that complies with AS 4454-2012, Composts, soil conditioners, and mulches, and should be maintained at a depth of 150 to 200 millimetres. Mulching around the base of the tree would provide nutrients and organic matter to the soil as it breaks down, improving and maintaining the overall health of the trees.

6.2.3.6 Demolition

The demolition of all existing structures inside or directly adjacent to the TPZ of trees to be retained must be undertaken in consultation with the project arborist. Any machinery is to work from inside the footprint of the existing structures or outside the TPZ, to minimise soil disturbance and compaction. If it is not feasible to locate demolition machinery outside the TPZ of trees to be retained, ground protection would be required. The demolition should be undertaken inwards into the footprint of the existing structures, sometimes referred to as the ‘top-down, pull back’ method.

6.2.3.7 Excavations

The project arborist must supervise and certify that all excavations and root pruning are in accordance with AS4373-2007 and AS4970-2009. All excavations (including root investigations) within the TPZ must be carried out using tree-sensitive methods under the supervision of the project arborist (see **Tree Protection Plan**). These methods may include:

- **manual excavation:** use of hand tools such as spades, trowels, brushes
- **air spade:** use of a pressurised air device that blows the soil away and leaves roots intact
- **hydro-vacuum excavation:** use of pressurised water to remove soil from around roots.

The recommended techniques for common types of excavations have been outlined below:

- **Continuous strip footings:** Manual excavation, air spade, or hydro-vacuum is utilized excavation lines within the TPZ prior to the commencement of mechanical excavation. Excavation should be a depth of 1 metre (or to unfavourable root growth conditions such as bedrock or heavy clay, if agreed by the project arborist). Any conflicting roots shall be pruned using clean, sharp secateurs or a pruning saw to ensure a clean cut, free from tears. All root pruning must be documented and carried out by the project arborist. After all root pruning is completed, machine excavation is permitted within the footprint of the structure.
- **Post or pier footings:** Manual excavation, air spade, or hydro-vacuum is utilised at the location of pier footings within the TPZ. Any conflicting roots shall be pruned using clean, sharp secateurs or a pruning saw to ensure a clean cut, free from tears. All root pruning must be documented and carried out by the project arborist. After all root pruning is completed, machine excavation is permitted within the footprint of the structure.

No over-excavation, battering, or benching shall be undertaken beyond the footprint of any structure unless approved by the project arborist.

6.2.3.8 Underground services

Where possible, underground services should be routed outside of the TPZ. If underground services need to be installed within the TPZ, they must be installed using tree-sensitive excavation methods under the supervision of the project arborist. Alternatively, boring methods such as horizontal directional drilling (HDD) may be used for underground service installation, providing the installation is at a minimum depth of 800 millimeters below grade. Excavations for entry/exit pits must be located outside the TPZ.

6.2.3.9 Root pruning

Any conflicting roots (less than 50 millimetres in diameter) identified during the supervised excavations shall be pruned using clean, sharp secateurs or a pruning saw to ensure a clean cut, free from tears. All root pruning must be documented and carried out by the project arborist.

6.2.3.10 Site Inspections

In accordance with AS 4970-2009, *Protection of Trees on Development Sites*, inspections must be conducted by the project arborist at the following key project stages:

- prior to any work commencing on-site (including demolition, earthworks, or site clearing) and following the installation of tree protection
- during any excavations, building works, and any other activities carried out within the TPZ of any tree to be retained & protected
- a minimum of once per eight weeks (every two months) during the construction phase for trees with a major encroachment within the TPZ
- after all major construction has ceased, following the removal of tree protection.

The project manager would be responsible to notify the arborist prior to any works within the TPZ of any protected tree at a minimum of 48 hours' notice. Hold points have been specified in the schedule of work provided in Table 6.1 to ensure the tree protection plan is implemented,

Table 6.1 Schedule of work

Construction stage	Hold point	Description
Pre-construction	1	Prior to demolition and/or site establishment, indicate clearly (with spray paint on trunks) trees marked for removal only.
	2	Tree protection (for trees identified in the tree protection plan) shall be installed prior to demolition and site establishment. This may include the mulching of areas within the TPZ. The project arborist shall inspect and certify tree protection.
During Construction	3	Scheduled inspection of trees by the project arborist should be undertaken every 8 weeks (2 months) during the construction period.
	4	Project arborist to supervise and document all works carried out within the TPZ of trees to be retained.
	5	Inspection of trees by project arborist after all major construction has ceased, following the removal of tree protection measures.
Post Construction	6	Final inspection of trees by project arborist.

6.3 Biodiversity offset

Transport for NSW's *Vegetation Offset Guide* (TfNSW, 2019) (the offset guide) has been used to assist Transport for NSW to consider the provision of non-statutory offsets for tree removal that fall outside statutory requirements. The offset guide identifies impact categories and associated offset requirements.

The principles of offsetting relevant to the guide are:

- offset 100 per cent of any native vegetation cleared
- offsets are to achieve a 'maintained or enhanced' ecological outcome
- offset heritage, public amenity, and/or visual landscape value of any trees removed where they may not have ecological value.

Table 6.2 summarises the potential offset requirements, based on the offset guide 'Secondary offsets' for the clearing of trees that have heritage, streetscape, community/public amenity or intrinsic value. Potential offset requirement do not include those trees that are proposed for trimming. Primary offsets are not required as no native vegetation types occur in the site or would be cleared by the Proposal.

Locally indigenous species of an appropriate size for where they would be planted should be used for the delivery of offsets. Delivery of offsets would be determined by Transport for NSW, based on the recommendations provided in the offset guide (TfNSW, 2019).

Table 6.2 Non-statutory biodiversity offset recommendations (TfNSW, 2019)

Offset trigger	Impact category	Impact	Offset multiplier	Offset provision
Secondary offset- Clearing of trees that have heritage, streetscape, community/public amenity or intrinsic value	Large trees (DBH ¹ greater than 60 cm)	Removal of up to 0 trees	Plant minimum 8 trees for each tree cleared	Plant 0 trees
Secondary offset- Clearing of trees that have heritage, streetscape, community/public amenity or intrinsic value	Medium trees (DBH greater than 15 cm, but less than 60 cm)	Removal of up to 3 trees	Plant minimum 4 trees for each tree cleared	Plant 12 trees
Secondary offset- Clearing of trees that have heritage, streetscape, community/public amenity or intrinsic value	Young trees (DBH less than 15 cm)	Removal of up to 0 trees	Plant minimum 2 trees for each tree cleared	Plant 0 trees
Total				12 trees

Note. DBH = Diameter at Breast Height

7. Conclusion

The vegetation to be removed for the Proposal includes three planted exotic trees and 18 shrubs. In addition, exotic grassland would be temporarily disturbed for compound sites. The removal of planted vegetation and disturbed exotic grassland is likely to have a negligible impact on native flora and fauna within the locality. A number of more mobile threatened fauna species, including forest/woodland birds, forest owls, the Grey-headed Flying-fox (*Pteropus poliocephalus*) and microbat species may occur in the proposal site on occasion. The proposed removal and disturbance of trees and understorey vegetation are unlikely to constitute habitat of importance for the persistence of any local populations of these threatened fauna species. No habitat resources including nests or hollow-bearing trees would be removed as part of the Proposal.

No threatened flora would be impacted by the Proposal.

Based on the above considerations, the Proposal is unlikely to have a significant impact on any threatened biota (or associated habitat) listed under the BC Act and therefore would not trigger the requirement for a species impact statement or a Biodiversity Development Assessment Report under the provisions of the Act. Similarly, the Proposal would not have a significant impact on any listed biota under the EPBC Act and consequently a referral to the Australian Government Minister for the Environment is not required.

A range of environmental safeguards and management measures would be implemented by the construction contractor as part of the Construction Environmental Management Plan for the Proposal. Implementation of safeguards and management measures would minimise the potential for any adverse impacts on retained trees and native fauna species that may be present in the proposal site during construction.

Recommended non-statutory offset requirements, based on the offset guide (TfNSW, 2019) for the clearing of trees that have heritage, streetscape, community/public amenity or intrinsic value include the planting of up to 12 trees. Offset plantings should comprise indigenous native species of local provenance.

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Appendix A

BioNet search results

Table A.1 Threatened and migratory species recorded to occur within 10 kilometres of the proposal site

Family name	Scientific name	Common name	BC Act	EPBC Act	Records
Insects					
Petaluridae	<i>Petalura gigantea</i>	Giant Dragonfly	E	-	78
Frogs					
Myobatrachidae	<i>Mixophyes balbus</i>	Stuttering Frog	E	V	1
	<i>Pseudophryne australis</i>	Red-crowned Toadlet	V	-	11
Limnodynastidae	<i>Heleioporus australiacus</i>	Giant Burrowing Frog	V	V	2
Reptiles					
Scincidae	<i>Eulamprus leuraensis</i>	Blue Mountains Water Skink	E	E	44
Elapidae	<i>Hoplocephalus bungaroides</i>	Broad-headed Snake	E	V	11
Birds					
Apodidae	<i>Apus pacificus</i>	Fork-tailed Swift	-	C,J,K	1
Apodidae	<i>Hirundapus caudacutus</i>	White-throated Needletail	-	V, C,J,K	3
Scolopacidae	<i>Gallinago hardwickii</i>	Latham's Snipe	-	J,K	10
Cacatuidae	<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	V	-	48
	<i>Calyptorhynchus lathamii</i>	Glossy Black-Cockatoo	V	-	9
Psittacidae	<i>Glossopsitta pusilla</i>	Little Lorikeet	V	-	5
	<i>Lathamus discolor</i>	Swift Parrot	E	CE	1
Strigidae	<i>Ninox connivens</i>	Barking Owl	V	-	1
	<i>Ninox strenua</i>	Powerful Owl	V	-	11
Tytonidae	<i>Tyto tenebricosa</i>	Sooty Owl	V	-	11
Climacteridae	<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (eastern subspecies)	V	-	3
Meliphagidae	<i>Anthochaera phrygia</i>	Regent Honeyeater	CE	CE	1
	<i>Melithreptus gularis gularis</i>	Black-chinned Honeyeater (eastern subspecies)	V	-	1
Neosittidae	<i>Daphoenositta chrysoptera</i>	Varied Sittella	V	-	8
Petroicidae	<i>Petroica boodang</i>	Scarlet Robin	V	-	14
	<i>Petroica phoenicea</i>	Flame Robin	V	-	14
Estrildidae	<i>Stagonopleura guttata</i>	Diamond Firetail	V	-	1
Mammals					
Dasyuridae	<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V	E	136
Peramelidae	<i>Isodon obesulus obesulus</i>	Southern Brown Bandicoot (eastern)	E	E	2
Phascolarctidae	<i>Phascolarctos cinereus</i>	Koala	V	V	8
Burramyidae	<i>Cercartetus nanus</i>	Eastern Pygmy-possum	V	-	13
Petauridae	<i>Petaurus australis</i>	Yellow-bellied Glider	V	-	3
	<i>Petaurus norfolcensis</i>	Squirrel Glider	V	-	1
Pseudocheiridae	<i>Petauroides volans</i>	Greater Glider	P	V	55
Potoroidae	<i>Bettongia gaimardi</i>	Tasmanian Bettong	CE	X	1

Family name	Scientific name	Common name	BC Act	EPBC Act	Records
Macropodidae	<i>Petrogale penicillata</i>	Brush-tailed Rock-wallaby	E	V	2
Pteropodidae	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	V	53
Miniopteridae	<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	V	-	27
Molossidae	<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat	V	-	2
Vespertilionidae	<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V	V	10
	<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	V	-	8
	<i>Myotis macropus</i>	Southern Myotis	V	-	2
	<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V	-	6
Flora					
Apiaceae	<i>Xanthosia scopulicola</i>	-	V	-	4
Cunoniaceae	<i>Acrophyllum australe</i>	-	V	V	1
Cyperaceae	<i>Carex klaphakei</i>	Klaphake's Sedge	E	-	5
	<i>Lepidosperma evansianum</i>	Evans Sedge	V	-	16
Ericaceae	<i>Epacris hamiltonii</i>	-	E	E	153
	<i>Leucopogon exolasius</i>	Woronora Beard-heath	V	V	1
Fabaceae (Faboideae)	<i>Pultenaea glabra</i>	Smooth Bush-Pea	V	V	22
Fabaceae (Mimosoideae)	<i>Acacia bynoeana</i>	Bynoe's Wattle	E	V	2
	<i>Acacia flocktoniae</i>	Flockton Wattle	V	V	308
Goodeniaceae	<i>Velleia perfoliata</i>	-	V	V	1
Grammitidaceae	<i>Grammitis stenophylla</i>	Narrow-leaf Finger Fern	E	-	2
Myrtaceae	<i>Callistemon megalongensis</i>	Megalong Valley Bottlebrush	CE	CE	5
	<i>Callistemon purpurascens</i>	-	CE	CE	27
	<i>Eucalyptus aggregata</i>	Black Gum	V	V	1
	<i>Eucalyptus copulans</i>	-	E	E	2
	<i>Kunzea cabbagei</i>	Cabbage Kunzea	V	V	2
Orchidaceae	<i>Diuris aequalis</i>	Buttercup Doubletail	E	V	1
	<i>Prasophyllum fuscum</i>	Slaty Leek Orchid	CE	V	4
Orobanchaceae	<i>Euphrasia bowdeniae</i>	Blue Mountains Cliff Eyebright	V	V	2
Plantaginaceae	<i>Veronica blakelyi</i>	-	V	-	1
Podocarpaceae	<i>Ptherosphaera fitzgeraldii</i>	Dwarf Mountain Pine	E	E	33
Proteaceae	<i>Isopogon fletcheri</i>	Fletcher's Drumsticks	V	V	98
	<i>Persoonia acerosa</i>	Needle Geebung	V	V	83
Rutaceae	<i>Leionema lachnaeoides</i>	-	E	E	61
	<i>Zieria involucrata</i>	-	E	V	17

Table A.2 Threatened ecological communities known or predicted to occur within 10 kilometres of the proposal site.

Ecological community name	BC Act	EPBC Act	Status
Blue Mountains Basalt Forest in the Sydney Basin Bioregion	E	E	Known
Blue Mountains Shale Cap Forest in the Sydney Basin Bioregion	E	CE	Known
Blue Mountains Swamps in the Sydney Basin Bioregion	V	E	Known
Castlereagh Scribbly Gum Woodland in the Sydney Basin Bioregion	V	E	Known
Cooks River/Castlereagh Ironbark Forest in the Sydney Basin Bioregion	E	CE	Known
Cumberland Plain Woodland in the Sydney Basin Bioregion	CE	CE	Known
Hunter Valley Footslopes Slaty Gum Woodland in the Sydney Basin Bioregion	V	CE	Predicted
Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions	E	CE	Known
Moist Shale Woodland in the Sydney Basin Bioregion	E	CE	Predicted
Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions	E	E	Known
Mount Gibraltar Forest in the Sydney Basin Bioregion	E	E	Known
Newnes Plateau Shrub Swamp in the Sydney Basin Bioregion	E	E	Known
River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E	CE	Known
Robertson Basalt Tall Open-forest in the Sydney Basin and South Eastern Highlands Bioregions	CE	E	Predicted
Shale Gravel Transition Forest in the Sydney Basin Bioregion	E	CE	Known
Shale Sandstone Transition Forest in the Sydney Basin Bioregion	CE	CE	Known
Southern Highlands Shale Woodlands in the Sydney Basin Bioregion	E	CE	Known
Southern Sydney sheltered forest on transitional sandstone soils in the Sydney Basin Bioregion	E	-	Predicted
Sun Valley Cabbage Gum Forest in the Sydney Basin Bioregion	CE	-	Known
Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E	E	Predicted
Sydney Turpentine-Ironbark Forest in the Sydney Basin Bioregion	CE	CE	Known
Tableland Basalt Forest in the Sydney Basin and South Eastern Highlands Bioregions	E		Known
Western Sydney Dry Rainforest in the Sydney Basin Bioregion	E	CE	Known
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions	CE	CE	Known

Appendix B

**EPBC Act: Protected matters search tool
results**



EPBC Act Protected Matters Report

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

Report created: 02-Feb-2022

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

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

World Heritage Properties:	1
National Heritage Places:	1
Wetlands of International Importance (Ramsar)	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	4
Listed Threatened Species:	61
Listed Migratory Species:	13

Other Matters Protected by the EPBC Act

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

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 Lands:	7
Commonwealth Heritage Places:	None
Listed Marine Species:	20
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	2
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	10
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	1
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

World Heritage Properties [\[Resource Information \]](#)

Name	State	Legal Status	Buffer Status
Greater Blue Mountains Area	NSW	Declared property	In buffer area only

National Heritage Places [\[Resource Information \]](#)

Name	State	Legal Status	Buffer Status
Natural			
The Greater Blue Mountains Area	NSW	Listed place	In buffer area only

Listed Threatened Ecological Communities [\[Resource Information \]](#)

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

Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Natural Temperate Grassland of the South Eastern Highlands	Critically Endangered	Community may occur within area	In feature area
Temperate Highland Peat Swamps on Sandstone	Endangered	Community known to occur within area	In feature area
Upland Basalt Eucalypt Forests of the Sydney Basin Bioregion	Endangered	Community likely to occur within area	In feature area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species [\[Resource Information \]](#)

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.

Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
FISH			
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat known to occur within area	In feature area
Prototroctes maraena Australian Grayling [26179]	Vulnerable	Species or species habitat likely to occur within area	In feature area
FROG			
Heleioporus australiacus Giant Burrowing Frog [1973]	Vulnerable	Species or species habitat known to occur within area	In feature area
Litoria booroolongensis Booroolong Frog [1844]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Litoria littlejohni Littlejohn's Tree Frog, Heath Frog [64733]	Vulnerable	Species or species habitat may occur within area	In feature area
Mixophyes balbus Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat known to occur within area	In feature area
INSECT			
Paralucia spinifera Bathurst Copper Butterfly, Purple Copper Butterfly, Bathurst Copper, Bathurst Copper Wing, Bathurst-Lithgow Copper, Purple Copper [26335]	Vulnerable	Species or species habitat may occur within area	In buffer area only
MAMMAL			
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat known to occur within area	In feature 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	In feature area
Isoodon obesulus obesulus Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (southeastern) [68050]	Endangered	Species or species habitat known to occur within area	In feature area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat known to occur within area	In feature area
Petrogale penicillata Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat likely to occur within area	In feature 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	In feature area
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
PLANT			
Acacia bynoeana Bynoe's Wattle, Tiny Wattle [8575]	Vulnerable	Species or species habitat may occur within area	In feature area
Acacia flocktoniae Flockton Wattle [3134]	Vulnerable	Species or species habitat known to occur within area	In feature area
Acrophyllum australe [3983]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Astrotricha crassifolia Thick-leaf Star-hair [10352]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Boronia deanei Deane's Boronia [8397]	Vulnerable	Species or species habitat may occur within area	In feature area
Callistemon megalongensis Megalong Valley Bottlebrush [85098]	Critically Endangered	Species or species habitat known to occur within area	In buffer area only
Callistemon purpurascens a bottlebrush [88226]	Critically Endangered	Species or species habitat known to occur within area	In buffer area only
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Cynanchum elegans White-flowered Wax Plant [12533]	Endangered	Species or species habitat likely to occur within area	In feature area
Epacris hamiltonii [8700]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Eucalyptus aggregata Black Gum [20890]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Eucalyptus copulans [56225]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Eucalyptus macarthurii Camden Woollybutt, Paddys River Box [7827]	Endangered	Species or species habitat may occur within area	In feature area
Eucalyptus pulverulenta Silver-leaved Mountain Gum, Silver-leaved Gum [21537]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Euphrasia arguta [4325]	Critically Endangered	Species or species habitat may occur within area	In feature area
Euphrasia bowdeniae [21521]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Haloragis exalata subsp. exalata Wingless Raspwort, Square Raspwort [24636]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Haloragodendron lucasii Hal [6480]	Endangered	Species or species habitat known to occur within area	In feature area
Isopogon fletcheri Fletcher's Drumsticks [19980]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Kunzea cabbagei [11420]	Vulnerable	Species or species habitat known to occur within area	In feature area
Leionema lachnaeoides [64924]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Persoonia acerosa Needle Geebung [7232]	Vulnerable	Species or species habitat known to occur within area	In feature area
Persoonia hirsuta Hairy Geebung, Hairy Persoonia [19006]	Endangered	Species or species habitat may occur within area	In buffer area only
Pherosphaera fitzgeraldii Dwarf Mountain Pine [40324]	Endangered	Species or species habitat known to occur within area	In buffer area only
Pomaderris cotoneaster Cotoneaster Pomaderris [2043]	Endangered	Species or species habitat likely to occur within area	In feature area
Prasophyllum fuscum Tawny Leek-orchid, Slaty Leek-orchid [19455]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pultenaea glabra Smooth Bush-pea, Swamp Bush-pea [11887]	Vulnerable	Species or species habitat known to occur within area	In feature area
Rhizanthella slateri Eastern Underground Orchid [11768]	Endangered	Species or species habitat may occur within area	In feature area
Rhodamnia rubescens Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat likely to occur within area	In buffer area only
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Xerochrysum palustre Swamp Everlasting, Swamp Paper Daisy [76215]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Zieria covenyi Coveny's Zieria [56732]	Endangered	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Zieria involucrata [3087]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Zieria murphyi Velvet Zieria [4634]	Vulnerable	Species or species habitat may occur within area	In buffer area only

REPTILE

Aprasia parapulchella Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Eulamprus leuraensis Blue Mountains Water Skink [59199]	Endangered	Species or species habitat known to occur within area	In feature area
Hoplocephalus bungaroides Broad-headed Snake [1182]	Vulnerable	Species or species habitat known to occur within area	In feature area

Listed Migratory Species [[Resource Information](#)]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area

Migratory Terrestrial Species

Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area	In buffer area only

Other Matters Protected by the EPBC Act

Commonwealth Lands [\[Resource Information \]](#)

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

Commonwealth Land Name	State	Buffer Status
Commonwealth Bank of Australia		
Commonwealth Land - Commonwealth Bank of Australia [16064]	NSW	In buffer area only
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Australian Telecommunications Commission [12421]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian Telecommunications Commission [12417]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12423]	NSW	In feature area
Commonwealth Land - Australian Telecommunications Commission [12422]	NSW	In buffer area only

Transport and Regional Services - Airservices Australia		
Commonwealth Land - Airservices Australia [12420]	NSW	In buffer area only

Unknown		
Commonwealth Land - [12418]	NSW	In buffer area only

Listed Marine Species [[Resource Information](#)]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Neophema chrysostoma Blue-winged Parrot [726]		Species or species habitat may occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area	In buffer area only
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

State and Territory Reserves [\[Resource Information \]](#)

Protected Area Name	Reserve Type	State	Buffer Status
Blue Mountains	National Park	NSW	In buffer area only
Ngula Bulgarabang	Regional Park	NSW	In buffer area only

EPBC Act Referrals [\[Resource Information \]](#)

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Sewage Transfer Scheme	2001/508	Controlled Action	Completed	In feature area

Not controlled action

Feature Film Production currently titles "Stealth" at Mt Hay Blue Mountain Natio	2004/1414	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Residential Subdivision of 1 Lot in to 7 at 85-99 Burrawang Street	2009/5234	Not Controlled Action	Completed	In buffer area only
Subdivision at Stuarts Rd Katoomba, NSW	2021/8912	Not Controlled Action	Completed	In buffer area only
Upgrade of Tourist Facilities	2001/347	Not Controlled Action	Completed	In buffer area only
Upper Blue Mountains Sewage Transfer Scheme	2004/1915	Not Controlled Action	Completed	In feature area
Not controlled action (particular manner)				
Aerial baiting for wild dog control	2006/2713	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Govetts Leap Walking Track upgrade	2001/136	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Walking track upgrade	2001/130	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only

Bioregional Assessments

SubRegion	BioRegion	Website	Buffer Status
Sydney	Sydney Basin	BA website	In feature area

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

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

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

Please feel free to provide feedback via the [Contact Us](#) page.

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Appendix C

Species recorded within the proposal site

Table C.1 Results of the arboricultural assessment (Tree Survey, 2021)

Family name	Scientific name	Common name	No.	BC Act	EPBC Act	Biosecurity Act / Weed of National Significance
Trees						
Fagaceae	<i>Quercus palustris</i> *	Swamp Spanish Oak	4	-	-	-
	<i>Quercus robur</i> *	English Oak	2	-	-	-
Pinaceae	<i>Pinus radiata</i> *	Radiata Pine	1	-	-	-
Platanaceae	<i>Platanus x acerifolia</i> *	London Plane	3	-	-	-
Ulmaceae	<i>Ulmus procera</i> *	Elm	3	-	-	-
Shrubs						
Amygdalaceae	<i>Prunus laurocerasus</i> *	Cherry Laurel	1	-	-	-
Aquifoliaceae	<i>Ilex aquifolium</i> *	English Holly	1	-	-	-
Ericaceae	<i>Azealia</i> sp.*	Azalea	8	-	-	-
	<i>Rhododendron</i> sp. (cultivar)*	Azalea	2	-	-	-
Malaceae	<i>Sorbus aucuparia</i> *	Roman	1	-	-	-
Proteaceae	<i>Hakea</i> sp.	-	1	-	-	-
Rosaceae	<i>Photinia</i> sp.*	-	11	-	-	-

Note: * = Introduced species

Appendix D

Likelihood of occurrence assessment

Table D.1 Likelihood of occurrence assessment and potential level for impact assessment

Species name	BC Act / FM Act	EPBC Act	Source	Habitat/community description	Likelihood of occurrence	Level of impact
Insect						
Bathurst Copper Butterfly (<i>Paralucia spinifera</i>)	E	V	PMST-M	Occurs on the Central Tablelands of NSW in an area approximately bounded by Oberon, Hartley and Bathurst. Occurs above 850 m elevation, commonly found in open woodland or open forest with a sparse understorey dominated Native Blackthorn <i>Bursaria spinosa</i> subsp. <i>lasiophylla</i> , which the larvae of the species feed exclusively on.	Nil. No suitable habitat present or records within the locality.	Nil.
Giant Dragonfly (<i>Petalura gigantea</i>)	E	-	BioNet-78	Found along the east coast of NSW from the Victorian border to northern NSW, not found west of the Great Dividing Range. Known occurrences in the Blue Mountains and Southern Highlands, in the Clarence River catchment, and on a few coastal swamps from north of Coffs Harbour to Nadgee in the south. Lives in permanent swamps and bogs with some free water and open vegetation. Adults emerge from late October and are short-lived, surviving for one summer after emergence. Adults spend most of their time settled on low vegetation on or adjacent to swamps.	Low. No suitable habitat present.	Nil. No impact to suitable habitat.
Fish						
Macquarie Perch (<i>Macquaria australasica</i>)	E	E	PMST-K	Known only from scattered localities in the cool upper reaches of the Murray-Darling system of NSW, including the Hawkesbury-Nepean and Shoalhaven catchments, Victoria and the Australian Capital Territory. Also found in man-made lakes on the NSW coast and in lakes and reservoirs, where adults aggregate in small shoals during the spawning season. Inhabits cool, clear freshwaters of rivers with deep holes and shallow riffles. They are also found.	Nil. No suitable habitat present.	Nil.
Australian Grayling (<i>Prototroctes maraena</i>)	E	V	PMST-L	Occurs in streams and rivers on the eastern and southern flanks of the Great Dividing Range, from Sydney, southwards to the Otway Ranges of Victoria and in Tasmania. Found in fresh and brackish waters of coastal lagoons, from Shoalhaven River in NSW to Ewan Ponds in South Australia. Adults inhabit cool, clear, freshwater streams with gravel substrate and areas alternating between pools and riffle zones.	Nil. No suitable habitat present.	Nil.
Frogs						
Giant Burrowing Frog (<i>Heleioporus australiacus</i>)	V	V	BioNet-2 PMST-K	Distributed in south-eastern NSW as two distinct populations: a northern population largely confined to the sandstone geology of the Sydney Basin and extending as far south as Ulladulla, and a southern population occurring from north of Narooma through to Walhalla, Victoria. Found in heath, woodland and open dry sclerophyll forest on a variety of soil types except those that are clay based.	Low. No suitable habitat present.	Nil. No impact to suitable habitat.
Booroolong Frog (<i>Litoria booroolongensis</i>)	E	E	PMST-M	Restricted to NSW and north-eastern Victoria, predominantly along the western-flowing streams of the Great Dividing Range. It has disappeared from much of the Northern Tablelands, however several populations have recently been recorded in the Namoi catchment. The species is rare throughout most of the remainder of its range. Lives along permanent streams with some fringing vegetation cover such as ferns, sedges or grasses, and shelter under rocks or amongst vegetation near the ground on the stream edge. Recorded on or near cobble banks and other rock structures within stream margins.	Nil. No suitable habitat present or records within the locality.	Nil.

Species name	BC Act / FM Act	EPBC Act	Source	Habitat/community description	Likelihood of occurrence	Level of impact
Littlejohn's Tree Frog (<i>Litoria littlejohni</i>)	V	V	PMST-M	Distribution includes the plateaus and eastern slopes of the Great Dividing Range from Watagan State Forest (90 km north of Sydney) and south to Buchan in Victoria. Most records are within the Sydney Basin Bioregion with only scattered records south to the Victorian border. Records are isolated and tend to be at high altitude. 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.	Nil. No suitable habitat present or records within the locality.	Nil.
Stuttering Frog (<i>Mixophyes balbus</i>)	E	V	BioNet-1 PMST-K	Occurs along the east coast of Australia from southern Queensland to north-eastern Victoria. Stronghold in the Dorrigo region, in north-east NSW. 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. Breeds in streams during summer after heavy rain.	Low. No suitable habitat present.	Nil. No impact to suitable habitat.
Red-crowned Toadlet (<i>Pseudophryne australis</i>)	V	-	BioNet-11	Restricted distribution, 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.	Low. No suitable habitat present.	Nil. No impact to suitable habitat.
Reptiles						
Pink-tailed Worm-lizard (<i>Aprasia parapulchella</i>)	V	V	PMST-M	The Pink-tailed Legless Lizard is only known from the Central and Southern Tablelands, and the South Western Slopes. There is a concentration of populations in the Canberra/Queanbeyan Region. Other populations have been recorded near Cooma, Yass, Bathurst, Albury and West Wyalong. This species is also found in the Australian Capital Territory. It's found to inhabit sloping, open woodland areas with predominantly native grassy groundlayers, particularly those dominated by Kangaroo Grass (<i>Themeda australis</i>). The sites are typically well-drained, with rocky outcrops or scattered, partially-buried rocks. They are commonly found beneath small, partially-embedded rocks and appear to spend considerable time in burrows below these rocks; the burrows have been constructed by and are often still inhabited by small black ants and termites.	Nil. No suitable habitat present or records within the locality.	Nil.
Blue Mountains Water Skink (<i>Eulamprus leuraensis</i>)	E	E	BioNet-44 PMST-K	Restricted to high elevation between 560m and 1140m of the middle and upper Blue Mountains. Known from approximately 70 threatened highland peat swamps extending from the Newnes Plateau in the north-west to just south of Hazelbrook in the south-east. Restricted to an isolated and naturally fragmented habitat of sedge and shrub swamps that have boggy soils and appear to be permanently wet.	Low. Known from the locality, however, no suitable habitat present.	Nil. No impact to suitable habitat.
Broad-headed Snake (<i>Hoplocephalus bungaroides</i>)	E	V	BioNet-11 PMST-K	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.	Low. Known from the locality, however, no suitable habitat present.	Nil. No impact to suitable habitat.

Species name	BC Act / FM Act	EPBC Act	Source	Habitat/community description	Likelihood of occurrence	Level of impact
Birds						
Australasian Bittern (<i>Botaurus poiciloptilus</i>)	E	E	PMST-M	Australasian Bitterns are widespread but uncommon over south-eastern Australia. In NSW they may be found over most of the state except for the far north-west. The Species favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (<i>Typha</i> spp.) and spikerushes (<i>Eleocharis</i> spp.), it hides during the day amongst dense reeds or rushes and feed mainly at night on frogs, fish, yabbies, spiders, insects and snails. The species may construct feeding platforms over deeper water from reeds trampled by the bird; platforms are often littered with prey remains.	Nil. No suitable habitat present or records within the locality.	Nil.
Curlew Sandpiper (<i>Calidris ferruginea</i>)	E	CE	PMST-M	The Curlew Sandpiper is distributed around most of the Australian coastline (including Tasmania). It occurs along the entire coast of NSW, particularly in the Hunter Estuary, and sometimes in freshwater wetlands in the Murray-Darling Basin. Inland records are probably mainly of birds pausing for a few days during migration. The Curlew Sandpiper breeds in Siberia and migrates to Australia (as well as Africa and Asia) for the non-breeding period, arriving in Australia between August and November, and departing between March and mid-April. It generally occupies littoral and estuarine habitats, and in New South Wales is mainly found in intertidal mudflats of sheltered coasts. It also occurs in non-tidal swamps, lakes and lagoons on the coast and sometimes inland. It forages in or at the edge of shallow water, occasionally on exposed algal mats or waterweed, or on banks of beach-cast seagrass or seaweed.	Nil. No suitable habitat present or records within the locality.	Nil.
Eastern Curlew (<i>Numenius madagascariensis</i>)	-	CE	PMST-M	Occurs across the entire coast but is mainly found in estuaries such as the Hunter River, Port Stephens, Clarence River, Richmond River and ICOLLs of the south coast. Generally, occupies coastal lakes, inlets, bays and estuarine habitats, and is mainly found in intertidal mudflats and sometimes saltmarsh of sheltered coasts in NSW. Rarely seen inland.	Nil. No suitable habitat present or records within the locality.	Nil.
Australian Painted Snipe (<i>Rostratula australis</i>)	E	E	PMST-L	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, the Clarence and lower Hunter Valleys. Prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber. Forages nocturnally on mudflats and in shallow water.	Low. No suitable habitat present.	Nil.
Grey Falcon (<i>Falco hypoleucos</i>)	E	V	PMST-L	Sparsely distributed in NSW, chiefly throughout the Murray-Darling Basin, with the occasional vagrant east of the Great Dividing Range. Usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast. Also occurs near wetlands where surface water attracts prey.	Nil. Outside known distribution.	Nil.
White-throated Needletail (<i>Hirundapus caudacutus</i>)	-	V, C,J,K	BioNet-3 PMST-K	Migrates to eastern Australia from October to April. Almost exclusively aerial and most often seen before storms, low pressure troughs and approaching cold fronts and occasionally bushfire. Occurs over most types of habitat, but mostly recorded above wooded areas, including open forest and rainforest. May also fly between trees or in clearings, below the canopy. Recorded roosting in trees in forests and woodlands, both among dense foliage in the canopy or in hollows.	Moderate. Known from locality and species is highly mobile.	Very low. No impact to suitable habitat.

Species name	BC Act / FM Act	EPBC Act	Source	Habitat/community description	Likelihood of occurrence	Level of impact
Gang-gang Cockatoo (<i>Callocephalon fimbriatum</i>)	V	-	BioNet-48	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 the species is generally found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. In autumn and winter, the species often moves to lower altitudes in drier more open eucalypt forests and woodlands, particularly box-gum and box-ironbark assemblages, or in dry forest in coastal areas and often found in urban areas.	Low. Known from the locality, however, no suitable habitat present.	Very low. No impact to suitable habitat.
Glossy Black-Cockatoo (<i>Calyptorhynchus lathamii</i>)	V	-	BioNet-9	The species is uncommon although widespread throughout suitable forest and woodland habitats, from the central Queensland coast to East Gippsland in Victoria, and inland to the southern tablelands and central western plains of NSW, with a small population in the Riverina. It inhabits open forest and woodlands of the coast and the Great Dividing Range where stands of sheoak occur. Black Sheoak (<i>Allocasuarina littoralis</i>) and Forest Sheoak (<i>A. torulosa</i>) are important foods. Inland populations feed on a wide range of sheoaks, including Drooping Sheoak, <i>Allocasuarina diminuta</i> , and <i>A. gymnathera</i> . Belah is also utilised and may be a critical food source for some populations. The species is dependent on large hollow-bearing eucalypts for nest sites.	Low. Known from the locality, however, no suitable habitat present.	Very low. No impact to suitable habitat.
Little Lorikeet (<i>Glossopsitta pusilla</i>)	V	-	BioNet-5	Distributed widely across the coastal and Great Divide regions of eastern Australia from Cape York to South Australia. NSW provides a large portion of the species' core habitat, with lorikeets found westward as far as Dubbo and Albury. Nomadic movements are common, influenced by season and food availability, although some areas retain residents for much of the year. Forages primarily in the canopy of open <i>Eucalyptus</i> forest and woodland, yet also finds food in <i>Angophora</i> , <i>Melaleuca</i> and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity.	Low. Known from the locality, however, no suitable habitat present.	Very low. No impact to suitable habitat.
Swift Parrot (<i>Lathamus discolor</i>)	E	CE	BioNet-1 PMST-L	Migrates from Tasmania to south-eastern Australia in the autumn and winter months. Mostly occurs on the coast and south west slopes in NSW. Occurs on the mainland in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. Favoured feed trees include winter flowering species such as Swamp Mahogany <i>Eucalyptus robusta</i> , Spotted Gum <i>Corymbia maculata</i> , Red Bloodwood <i>C. gummifera</i> , Forest Red Gum <i>E. tereticornis</i> , Mugga Ironbark <i>E. sideroxydon</i> , and White Box <i>E. albens</i> .	Low. Known from the locality, however, no suitable habitat present.	Very low. No impact to suitable habitat.
Barking Owl (<i>Ninox connivens</i>)	V	-	BioNet-1	Found throughout continental Australia except for the central arid regions. Occurs in a wide but sparse distribution in NSW. Core populations exist on the western slopes and plains and in some northeast coastal and escarpment forests. Sometimes extends home range into urban areas. Inhabit woodland and open forest, including fragmented remnants and partly cleared farmland. Flexible in its habitat use, hunting can extend in to closed forest and more open areas. Typically roosts in shaded portions of tree canopies, including tall midstorey trees with dense foliage such as <i>Acacia</i> and <i>Casuarina</i> species.	Moderate. Known from the locality and species is high mobile.	Low. Removal of low quality foraging habitat. No impact to suitable breeding habitat.

Species name	BC Act / FM Act	EPBC Act	Source	Habitat/community description	Likelihood of occurrence	Level of impact
Powerful Owl (<i>Ninox strenua</i>)	V	-	BioNet-11	Widely distributed throughout the eastern forests from the coast inland to tablelands, with scattered records on the western slopes and plains. Inhabits a range of vegetation types, from woodland and open sclerophyll forest to tall open wet forest and rainforest. Requires large tracts of forest or woodland habitat but can also occur in fragmented landscapes. Breeds and hunts in open or closed sclerophyll forest or woodlands and occasionally hunts in open habitats. Roosts by day in dense vegetation comprising species such as Turpentine, Black She-oak, Blackwood, Rough-barked Apple, Cherry Ballart and a number of eucalypt species.	Moderate. Known from the locality and species is high mobile.	Low. Removal of low quality foraging habitat. No impact to suitable breeding habitat.
Sooty Owl (<i>Tyto tenebricosa</i>)	V	-	BioNet-11	Occupies the easternmost one-eighth of NSW, occurring on the coast, coastal escarpment and eastern tablelands. Found in rainforest, including dry rainforest, subtropical and warm temperate rainforest, as well as moist eucalypt forests. Roost by day in the hollow of a tall forest tree or in heavy vegetation and nest in very large tree hollows.	Moderate. Known from the locality and species is high mobile.	Low. Removal of low quality foraging habitat. No impact to suitable breeding habitat.
Brown Treecreeper (eastern subspecies) (<i>Climacteris picumnus victoriae</i>)	V	-	BioNet-3	The western boundary of the range of the Brown Treecreeper runs approximately through Corowa, Wagga Wagga, Temora, Forbes, Dubbo and Inverell and along this line the subspecies intergrades with the arid zone subspecies of Brown Treecreeper which then occupies the remaining parts of the state. The species is often found in eucalypt woodlands (including Box-Gum Woodland) and dry open forest of the inland slopes and plains inland of the Great Dividing Range; mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey, sometimes with one or more shrub species; also found in mallee and River Red Gum (<i>Eucalyptus camaldulensis</i>) Forest bordering wetlands with an open understorey of acacias, saltbush, lignum, cumbungi and grasses; usually not found in woodlands with a dense shrub layer; fallen timber is an important habitat component for foraging; also recorded, though less commonly, in similar woodland habitats on the coastal ranges and plains.	Low. Known from the locality, however, no suitable habitat present.	Very low. No impact to suitable habitat.
Regent Honeyeater (<i>Anthochaera phrygia</i>)	CE	CE	BioNet-1 PMST-L	The Regent Honeyeater mainly inhabits temperate woodlands and open forests of the inland slopes of south-east Australia. Birds are also found in drier coastal woodlands and forests in some years. Once recorded between Adelaide and the central coast of Queensland, its range has contracted dramatically in the last 30 years to between north-eastern Victoria and south-eastern Queensland. There are only three known key breeding regions remaining: north-east Victoria (Chiltern-Albury), and in NSW at Capertee Valley and the Bundarra-Barraba region. In NSW the distribution is very patchy and mainly confined to the two main breeding areas and surrounding fragmented woodlands. In some years flocks converge on flowering coastal woodlands and forests. The species inhabits dry open forest and woodland, particularly Box-Ironbark woodland, and riparian forests of River Sheoak. Regent Honeyeaters inhabit woodlands that support a significantly high abundance and species richness of bird species. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes.	Low. Known from the locality, however, no suitable habitat present.	Very low. No impact to suitable habitat.

Species name	BC Act / FM Act	EPBC Act	Source	Habitat/community description	Likelihood of occurrence	Level of impact
Painted Honeyeater (<i>Grantiella picta</i>)	V	V	PMST-L	Nomadic species occurring at low densities throughout its range. Most commonly found on the inland slopes of the Great Dividing Range in NSW, where almost all breeding occurs. More likely to be found in the north of its distribution in winter. Inhabits Boree/ Weeping Myall (<i>Acacia pendula</i>), Brigalow (<i>A. harpophylla</i>) and Box-Gum Woodlands and Box-Ironbark Forests. Specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Prefers mistletoes of the genus <i>Amyema</i> .	Nil. No suitable habitat present or records within the locality.	Nil.
Black-chinned Honeyeater (eastern subspecies) (<i>Melithreptus gularis gularis</i>)	V	-	BioNet-1	Widespread in NSW, with records from the tablelands and western slopes of the Great Dividing Range to the north-west and central-west plains and the Riverina. Rarely recorded east of the Great Dividing Range, although regularly observed from the Richmond and Clarence River areas. Recorded at a few scattered sites in the Hunter, Central Coast and Illawarra regions, but very rare in the latter. Occupies mostly upper levels of drier open forests or woodlands dominated by box and ironbark eucalypts, especially Mugga Ironbark (<i>Eucalyptus sideroxylon</i>), White Box (<i>E. albens</i>), Inland Grey Box (<i>E. microcarpa</i>), Yellow Box (<i>E. melliodora</i>), Blakely's Red Gum (<i>E. blakelyi</i>) and Forest Red Gum (<i>E. tereticornis</i>). Also inhabits open forests of smooth-barked gums, stringybarks, ironbarks, river sheoaks (nesting habitat) and tea-trees.	Nil. Outside known distribution.	Nil.
Varied Sittella (<i>Daphoenositta chrysoptera</i>)	V	-	BioNet-8	The Varied Sittella is sedentary and inhabits most of mainland Australia except the treeless deserts and open grasslands. Distribution in NSW is nearly continuous from the coast to the far west. The species inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and Acacia woodland.	Moderate. Known from locality and highly mobile.	Very low. No impact to suitable habitat.
Scarlet Robin (<i>Petroica boodang</i>)	V	-	BioNet-14	Occurs from the coast to the inland slopes in NSW. Disperses to the lower valleys and plains of the tablelands and slopes after breeding. Some birds may appear as far west as the eastern edges of the inland plains in autumn and winter. Found in dry eucalypt forests and woodlands with usually open and grassy understorey with few scattered shrubs. Lives in both mature and regrowth vegetation and occasionally occurs in mallee or wet forest communities, or in wetlands and tea-tree swamps. Abundant logs and fallen timber are important components of its habitat.	Moderate. Known from locality and highly mobile.	Very low. No impact to suitable habitat.
Flame Robin (<i>Petroica phoenicea</i>)	V	-	BioNet-14	Breeds in upland areas in NSW and moves to the inland slopes and plains in winter. Likely two separate populations in NSW, one in the Northern Tablelands, and another ranging from the Central to Southern Tablelands. Breeds in upland tall moist eucalypt forests and woodlands, often on ridges and slopes. Prefers clearings or areas with open understoreys.	Moderate. Known from locality and highly mobile.	Very low. No impact to suitable habitat.
Diamond Firetail (<i>Stagonopleura guttata</i>)	V	-	BioNet-1	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. 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 <i>Eucalyptus pauciflora</i> Woodlands. Also occurs in open forest, mallee, Natural Temperate Grassland, and in secondary grassland derived from other communities, and often found in riparian areas (rivers and creeks), and sometimes in lightly wooded farmland.	Moderate. Known from locality and highly mobile.	Very low. No impact to suitable habitat.

Species name	BC Act / FM Act	EPBC Act	Source	Habitat/community description	Likelihood of occurrence	Level of impact
Mammals						
Spotted-tailed Quoll (SE mainland population) (<i>Dasyurus maculatus maculatus</i>)	V	E	BioNet-136 PMST-K	Found in eastern NSW, the species has been 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. Uses hollow-bearing trees, fallen logs, small caves, rock outcrops and rocky-cliff faces as den sites. Females occupy home ranges of 200-500 hectares, while males occupy very large home ranges from 500 to over 4000 hectares. Known to traverse their home ranges along densely vegetated creek lines.	Moderate. Known from locality.	Very low. No impact to suitable habitat.
Southern Brown Bandicoot (eastern) (<i>Isodon obesulus obesulus</i>)	E	E	BioNet-2 PMST-K	Patchy distribution, found in south-eastern NSW, east of the Great Dividing Range south from the Hawkesbury River. Generally, only found in heath or open forest with a heathy understorey on sandy or friable soils. Nest during the day in a shallow depression in the ground covered by leaf litter, grass or other plant material.	Low. Known from the locality, however, no suitable habitat present.	Very low. No impact to suitable habitat.
Brush-tailed Rock-wallaby (<i>Petrogale penicillata</i>)	E	V	BioNet-2 PMST-L	Occurs from the Queensland border in the north to the Shoalhaven in the south, with the population in the Warrumbungle Ranges being the western limit. Occupies rocky escarpments, outcrops and cliffs with a preference for complex structures with fissures, caves and ledges, often facing north. It typically shelters or basks during the day in rock crevices, caves and overhangs and are most active at night when foraging. Browse on vegetation in and adjacent to rocky areas.	Nil. Known from the locality, however, no suitable habitat present.	Nil. No impact to suitable habitat.
Koala (combined populations of Qld, NSW and the ACT) (<i>Phascolarctos cinereus</i>)	V	V	BioNet-8 PMST-K	Found on the central and north coasts, southern highlands, southern and northern tablelands, Blue Mountains, southern coastal forests of NSW, with some smaller populations on the plains west of the Great Dividing Range. Inhabits eucalypt woodlands and forests, and feeds on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but will select preferred browse species in any one area.	Low. Known from the locality, however, no suitable habitat present.	Very low. No impact to suitable habitat.
Eastern Pygmy-possum (<i>Cercartetus nanus</i>)	V	-	BioNet-13	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. The species is 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. It feeds largely on nectar and pollen collected from banksias, eucalypts and bottlebrushes and is an important pollinator of heathland plants such as banksias; soft fruits are eaten when flowers are unavailable.	Low. Known from the locality, however, no suitable habitat present.	Very low. No impact to suitable habitat.
Yellow-bellied Glider (<i>Petaurus australis</i>)	V	-	BioNet-3	Found along the eastern coast to the western slopes of the Great Dividing Range, from southern Queensland to Victoria. Occurs in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. Vegetation preferences vary with latitude and elevation; mixed coastal forests to dry escarpment forests in the north; moist coastal gullies and creek flats to tall montane forests in the south. Den, often in family groups, in hollows of large trees.	Low. Known from the locality, however, no suitable habitat present.	Very low. No impact to suitable habitat.

Species name	BC Act / FM Act	EPBC Act	Source	Habitat/community description	Likelihood of occurrence	Level of impact
Squirrel Glider (<i>Petaurus norfolcensis</i>)	V	-	BioNet-1	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. Require abundant tree hollows for refuge and nest sites.	Low. Known from the locality, however, no suitable habitat present.	Very low. No impact to suitable habitat.
Greater Glider (<i>Petauroides volans</i>)	P	V	BioNet-55 PMST-K	Restricted to eastern Australia, occurring from the Windsor Tableland in north Queensland through to central Victoria (Wombat State Forest), with an elevational range from sea level to 1200 m above sea level. Prefers taller montane, moist eucalypt forest with relatively old trees and abundant hollows.	Low. Known from the locality, however, no suitable habitat present.	Very low. No impact to suitable habitat.
Tasmanian Bettong (<i>Bettongia gaimardi</i>)	CE/ X	X	BioNet-1	The Tasmanian Bettong is a nocturnal animal. During the day it sleeps in a nest it constructs out of grasses and leaves. Based on the diet and habits of the Tasmanian populations, it is assumed that the mainland populations of Tasmanian Bettongs were mycophagous (fungi eating). Fungi may have comprised as much as 80% of their diet, with seeds, roots and bulbs making up the remainder. They may have foraged by hopping slowly and using their forelimbs to dig for food. Their home ranges were likely between 65–135 ha. It is likely that Tasmanian Bettongs were associated on the mainland with grassland areas, heathlands and sclerophyll woodland. Their nests are densely woven from dry grass and bark.	Nil. Not known from the mainland since the 1920's. Presumed extinct.	Nil.
New Holland Mouse (<i>Pseudomys novaehollandiae</i>)	-	V	PMST-L	Largely restricted to the coast of central and northern NSW, with one inland occurrence near Parkes. Known from Royal National Park (NP), the Kangaroo Valley, Kuringai Chase NP, and Port Stephens to Evans Head near the Queensland border. Known to inhabit open heathlands, woodlands and forests with a heathland understorey and vegetated sand dunes. Soil type may be an important indicator of suitability of habitat, with deeper top-soils and softer substrates being preferred for digging burrows.	Nil. Outside known distribution.	Nil.
Grey-headed Flying-fox (<i>Pteropus poliocephalus</i>)	V	E	BioNet-136 PMST-K	Generally found within 200 km of the eastern coast of Australia, from Rockhampton in Queensland to Adelaide in South Australia. May be found in unusual locations in times of natural resource shortage. Occurs in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy.	Likely. Many records of this highly mobile species in the locality and potential foraging resources.	Very low. No impact to suitable breeding habitat.
Large Bent-winged Bat (<i>Miniopterus orianae oceanensis</i>)	V	-	BioNet-27	Occurs along the east and north-west coasts of Australia. Uses caves as the primary roosting habitat, but also uses derelict mines, storm-water tunnels, buildings and other man-made structures. Hunts in forested areas, catching moths and other flying insects above the tree tops.	Moderate. This species is known from the locality and, is highly mobile, and potential foraging habitat occurs.	Very low. No impact to suitable breeding habitat.

Species name	BC Act / FM Act	EPBC Act	Source	Habitat/community description	Likelihood of occurrence	Level of impact
Eastern Coastal Free-tailed Bat (<i>Micronomus norfolkensis</i>)	V	-	BioNet-2	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. Roosts mainly in tree hollows but will also roost under bark or in man-made structures.	Moderate. This species is known from the locality and, is highly mobile, and potential foraging habitat occurs.	Very low. No impact to suitable breeding habitat.
Large-eared Pied Bat (<i>Chalinolobus dwyeri</i>)	V	V	10 PMST-K	The Large-eared Pied Bat is 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. The species roosts in caves (near their entrances), crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the Fairy Martin (<i>Petrochelidon ariel</i>), frequenting low to mid-elevation dry open forest and woodland close to these features. Females have been recorded raising young in maternity roosts (c. 20-40 females) from November through to January in roof domes in sandstone caves and overhangs. It is found in well-timbered areas containing gullies.	Moderate. This species is known from the locality and, is highly mobile, and potential foraging habitat occurs.	Very low. No impact to suitable breeding habitat.
Eastern False Pipistrelle (<i>Falsistrellus tasmaniensis</i>)	V	-	8	Found on the south-east coast and ranges of Australia, from southern Queensland to Victoria. 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.	Moderate. This species is known from the locality and, is highly mobile, and potential foraging habitat occurs.	Low. Removal of low quality foraging habitat. No impact to suitable breeding habitat.
Southern Myotis (<i>Myotis macropus</i>)	V	-	2	Mainly coastal but may occur inland along large river systems. Usually associated with permanent waterways at low elevations in flat/undulating country, usually in vegetated areas. Forages over streams and watercourses feeding on fish and insects from the water surface. Roosts in a variety of habitats including caves, mine shafts, hollow-bearing trees, stormwater channels, buildings, under bridges and in dense foliage, typically in close proximity to water.	Low. Known from the locality, however, no suitable habitat present.	Very low. No impact to suitable habitat.
Greater Broad-nosed Bat (<i>Scoteanax rueppellii</i>)	V	-	6	Found mainly in the gullies and river systems that drain the Great Dividing Range, from north-eastern Victoria to the Atherton Tableland. It extends to the coast over much of its range. Widespread on the New England Tablelands in NSW, however does not occur at altitudes above 500 m. Found in a variety of habitats from woodland through to moist and dry eucalypt forest and rainforest, most commonly found in tall wet forest. Usually roosts in tree hollows but also found in buildings.	Moderate. This species is known from the locality and, is highly mobile, and potential foraging habitat occurs.	Low. Removal of low quality foraging habitat. No impact to suitable breeding habitat.
Plants						
<i>Acacia bynoeana</i> (Bynoe's Wattle)	E	V	BioNet-2 PMST-M	Endemic to central eastern NSW, known a limited number of locations, often comprising populations of few plants. Grows mainly in heath/ dry sclerophyll forest on sandy soils, prefers open, sometimes slightly disturbed sites such as trail margins, road edges, and in recently burnt open patches. Flowers September to March, and fruit matures in November.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.

Species name	BC Act / FM Act	EPBC Act	Source	Habitat/community description	Likelihood of occurrence	Level of impact
<i>Acacia flocktoniae</i> (Flockton Wattle)	V	V	BioNet-308 PMST-K	Only occurs in the southern Blue Mountains (Mt Victoria, Megalong Valley and Yerranderrie), between 500- 1000m asl in areas with average annual rainfall of 800-1200 mm. Grows in dry sclerophyll forest on low nutrient soils derived from sandstone. Associated species include Straight Wattle and Prickly Shaggy Pea. Flowering is sporadic throughout late winter and early spring.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Acrophyllum australe</i>	V	V	BioNet-1 PMST-L	Restricted, from Faulconbridge to Lawson, South of Bilpin and near Kings Tableland, in the Blue Mountains area, all within the Central Coast Botanical Subdivision, currently known from 27 sites. Grows in sheltered gullies beneath waterfalls and drip zones of rock overhangs and cliff faces, usually with a south-east to south-west aspect. Typically found in areas where there is a more or less constant supply of water.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Astrotricha crassifolia</i> (Thick-leaf Star-hair)	V	V	PMST-K	Occurs near Patonga (Gosford LGA), and in Royal NP and on the Woronora Plateau (Sutherland and Campbelltown LGAs). There is also a record from near Glen Davis (Lithgow LGA). Grows on dry ridgetops to 300 m altitude, associated with very rich heath, or dry sclerophyll woodland on sandstone. Flowers in spring.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Boronia deanei</i> (Deane's Boronia)	V	V	PMST-M	This small erect shrub is found in scattered populations between the far south-east of NSW and the Blue Mountains (including the upper Kangaroo River near Carrington Falls, the Endrick River near Nerriga and Nalbaugh Plateau), mainly in conservation reserves. The species grows on the margins of high-altitude swamps, in wet heath on sandstone, and in drier open forest.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Carex klaphakei</i> (Klaphake's Sedge)	E	-	BioNet-5	<i>Carex klaphakei</i> is found in only three locations, from the Blue Mountains (at Blackheath and Mt Werong) to the Southern Highlands (at Penrose). Grows with other native sedges and rushes in swamps on sandstone at altitudes of greater than 600 m.	Low. Species is known to occur close to the proposal site, however, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Callistemon megalongensis</i> (Megalong Valley Bottlebrush)	CE	CE	BioNet-5 PMST-K	Known only from 8 sites within a small section of the eastern Megalong Valley in the western Blue Mountains. Occurs in shrubby swamp habitat and swampy woodland.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Callistemon purpurascens</i> (a bottlebrush)	CE	CE	BioNet-27 PMST-K	Only known from the swampy riparian zone of two unnamed tributaries of Megalong Creek below the Blue Mountains Plateau. This species occurs in swampy, mostly riparian shrubland, swamp woodland and swamp forest with emergent <i>Melaleuca linariifolia</i> , <i>M. styphelioides</i> and <i>Eucalyptus camphora</i> .	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.

Species name	BC Act / FM Act	EPBC Act	Source	Habitat/community description	Likelihood of occurrence	Level of impact
<i>Cryptostylis hunteriana</i> (Leafless Tongue-orchid)	V	V	PMST-L	Occurs in coastal areas from East Gippsland to southern Queensland. Habitat preferences not well defined. Grows mostly in coastal heathlands, margins of coastal swamps and sedgelands, coastal forest, dry woodland, and lowland forest. Prefers open areas in the understorey and is often found in association with Large Tongue Orchid and the Bonnet Orchid. Soils include moist sands, moist to dry clay loam and occasionally in accumulated eucalypt leaves. Flowers November-February.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Cynanchum elegans</i> (White-flowered Wax Plant)	E	E	PMST-L	Occurs from Gerroa (Illawarra) to Brunswick Heads and west to Merriwa in the upper Hunter. Most common near Kempsey. Usually occurs on the edge of dry rainforest or littoral rainforest, but also occurs in Coastal Banksia Scrub, open forest and woodland, and Melaleuca scrub. Soil and geology types are not limiting. Flowering occurs between August and May, with the peak in November.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Diuris aequalis</i> (Buttercup Doubletail)	E	V	BioNet-1	Occurs in higher areas of the tablelands between Braidwood and Kanangra-Boyd NP. Grows in forest, low open woodland with grassy understorey and secondary grassland on the higher parts of the Southern and Central Tablelands. Recorded from gravelly clay-loam soils, often on gentle slopes.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Epacris hamiltonii</i>	E	E	BioNet-153 PMST-K	Occurs in the Blue Mountains. Found at 72 sites within three creek catchments. Creeks occur in an altitude range of 810-940 m a.s.l. and are all located on the northern side of the escarpment and flow into the Grose Valley. All known sites occur within a radius of approximately 5 km. Has a very specific habitat, being found on or adjacent to Narrabeen sandstone cliffs alongside perennial creeks, often below plateau hanging swamps. The soil generally has a spongy/peat-like consistency, with a very high moisture content.	Low. Species is known to occur close to the proposal site, however, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Eucalyptus aggregata</i> (Black Gum)	V	V	BioNet-1 PMST-L	Occurs in the South Eastern Highlands Bioregion and on the western fringe of the Sydney Basin Bioregion. Grows in the lowest parts of the landscape, on grassy woodlands on alluvial soils in moist sites along creeks on broad, cold and poorly-drained flats and hollows. Commonly occurs with Candlebark, Ribbon Gum, and White Sally with a grassy understorey of Tussock. Also occurs as isolated paddock trees in modified native, exotic pastures or travelling stock reserves.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Eucalyptus copulans</i>	E	E	BioNet-2 PMST-L	Due to the low number of records, the habitat requirements of this species are poorly known, but it is assumed that it occurred in the swampy areas adjacent to Jamison Creek around Wentworth Falls. Much of this habitat has been cleared for development, however some habitat south of the Great Western Highway has been retained as recreation reserve. Associated species at the sites where this species is found include <i>Eucalyptus radiata</i> , <i>E. parramattensis</i> , <i>E. stricta</i> , <i>Grevillea acanthifolia</i> , <i>Hakea dactyloides</i> , <i>Gleichenia dicarpa</i> , <i>Leptospermum juniperinum</i> , <i>L. flavescens</i> , <i>Todea barbara</i> and <i>Petrophile pulchella</i> . The white flowers occur in summer/autumn and mature fruit have been collected in May.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.

Species name	BC Act / FM Act	EPBC Act	Source	Habitat/community description	Likelihood of occurrence	Level of impact
<i>Eucalyptus macarthurii</i> (Camden Woollybutt)	E	E	PMST-M	Occurs from Moss Vale to Kanangra Boyd National Park. In the Southern Highlands occurs mainly on private land, often as isolated paddock trees. Grows in grassy woodlands on relatively fertile soils on broad cold flats.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Eucalyptus pulverulenta</i> (Silver-leaved Mountain Gum)	V	V	PMST-L	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 (<i>Eucalyptus mannifera</i>), Red Stringybark (<i>E. macrorhynca</i>), Broad-leaved Peppermint (<i>E. dives</i>), Silvertop Ash (<i>E. sieberi</i>) and Apple Box (<i>E. bridgesiana</i>).	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Euphrasia arguta</i>	CE	CE	PMST-M	Recently rediscovered near Nundle on the north-western slopes and tablelands, once known from scattered locations between Sydney, Bathurst and Walcha. Known populations occur in eucalypt forest with a mixed grass/shrub understorey, while previous records are described as occurring in open forest, grassy country and river meadows. Dense stands observed in cleared firebreak areas, suggesting it may respond well to disturbance.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Euphrasia bowdeniae</i> (Blue Mountains Cliff Eyebright)	V	V	BioNet-2 PMST-K	Endemic to the upper Blue Mountains. Confined to wet or damp vertical sandstone rock faces on major cliff-lines facing south or east, growing in small pockets of damp, sandy soil on ledges or at the cliff base.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Grammitis stenophylla</i> (Narrow-leaf Finger Fern)	E	-	BioNet-2	Known from 30 locations across NSW and common in several areas including Mount Warning Shield, the sandstone reserves of the lower Clarence, creeks in southern Wollemi, the granites of Washpool, Gibraltar and Nymbioda National Parks, and Mt Jerusalem and Nightcap National Parks. Recently recorded from New England National Park. Grows in small colonies in moist places, usually near streams, on rocks and in trees in rainforest and moist eucalypt forest.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Haloragis exalata</i> subsp. <i>exalata</i> (Wingless Raspwort)	V	V	PMST-M	Occurs in 4 widely scattered localities in eastern NSW, disjunctly distributed in the Central Coast, South Coast and North Western Slopes botanical subdivisions of NSW. Requires protected and shaded damp situations in riparian habitats.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Haloragodendron lucasii</i> (Hal)	E	E	PMST-K	Known locations are confined to a very narrow distribution on the north shore of Sydney. Associated with dry sclerophyll forest and grows in moist sandy loam soils in sheltered aspects, and on gentle slopes below cliff-lines near creeks in low open woodland. Associated with high soil moisture and relatively high soil-phosphorus levels.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.

Species name	BC Act / FM Act	EPBC Act	Source	Habitat/community description	Likelihood of occurrence	Level of impact
<i>Iso Pogon fletcheri</i> (Fletcher's Drumsticks)	V	V	BioNet-98 PMST-K	Restricted to a very small area in the Blackheath district of the Blue Mountains on the Central Tablelands. Entire known population occurs within Blue Mountains National Park. Restricted to moist sheltered cliffs within the spray zone of a waterfall. Grows in dry sclerophyll forest and heath on sandstone and is confined to sheltered moist positions.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Kunzea cambagei</i> (Cambage Kunzea)	V	V	BioNet-2 PMST-K	Mainly occurs in the Yerranderie/Mt Werong area with other populations also along the Wingecarribee River, Loombah Plateau east of Mount Werong, Kanangra-Boyd NP and the Nattai NP. Restricted to damp, sandy soils in wet heath or mallee open scrub at higher altitudes on sandstone outcrops or Silurian group sediments.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Lepidosperma evansianum</i> (Evans Sedge)	V	-	BioNet-16	Restricted to seepage areas on steep sandstone rock faces and cliffs in the upper Blue Mountains in New South Wales.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Leionema lachnaeoides</i>	E	E	BioNet-61 PMST-K	Occurs at 10 sites in the upper Blue Mountains, within a 12 km range between Katoomba and Blackheath. Potential habitat occurs in the Megalong and Jamison Valleys. Found on south-east to south-west facing, exposed sandstone cliff tops and terraces, at 960 - 1000 m AHD. Habitat vegetation is montane heath and commonly includes <i>Eucalyptus stricta</i> , <i>Allocasuarina nana</i> , <i>Dillwynia retorta</i> , <i>Epacris microphylla</i> and <i>Caustis flexuosa</i> .	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Leucopogon exolasius</i> (Woronora Beard-heath)	V	V	BioNet-1	Occurs along the upper Georges River and in Heathcote NP, Royal NP and is also known from the Blue Mountains along the Grose River. Grows in woodland on sandstone and prefers rocky hillsides along creek banks up to 100 m altitude. Associated species include Sydney Peppermint and Silvertop Ash and Graceful Bush-pea, Flaky-barked Tea-tree and <i>Dillwynia retorta</i> .	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Persoonia acerosa</i> (Needle Geebung)	V	V	BioNet-83 PMST-K	Recorded on central coast and in Blue Mountains, from Mt Tomah to Hill Top. Mainly in Katoomba, Wentworth Falls and Springwood areas. Inhabits dry sclerophyll forest, scrubby low woodland and heath on sandstone. Occurs in well-drained soils including sands, laterite and gravels between 550-1000 m asl. May occur in disturbed areas such as roadsides.	Low. Species is known to occur close to the proposal site, however, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Persoonia hirsute</i> (Hairy Geebung)	E	E	PMST-M	The Hairy Geebung is found in clayey and sandy soils in dry sclerophyll open forest, woodland and heath, primarily on the Mittagong Formation and on the upper Hawkesbury Sandstone. It is usually present as isolated individuals or very small populations. Plants are generally killed by all but the lowest intensity fire or partial burning. Fire may promote germination of soil-stored seed, although it may also kill some of the seedbank if it is of high severity.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.

Species name	BC Act / FM Act	EPBC Act	Source	Habitat/community description	Likelihood of occurrence	Level of impact
<i>Pherosphaera fitzgeraldii</i> (Dwarf Mountain Pine)	E	E	BioNet-33 PMST-K	All currently-known populations occur in the upper Blue Mountains between Wentworth Falls and Katoomba, a range of nine kilometres. Found within the spray zone or associated drip lines and seepage areas of waterfalls on steep, sandstone cliffs and ledges, at altitudes between 680 and 1000 metres above sea level. Sites face south-east to south-west on near-vertical to vertical slopes or under overhangs and heavily shaded.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Pomaderris cotoneaster</i> (Cotoneaster Pomaderris)	E	E	PMST-L	Disjunct distribution including the Nungatta area, Tumut, the Tantawangalo area, near Tallong, the Yerranderie area, the Canyonleigh area and Ettrema Gorge. Found in wide range of habitats, including forest with deep, friable soil, amongst rock beside a creek, on rocky forested slopes and in steep gullies between sandstone cliffs.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Prasophyllum fuscum</i> (Slaty Leek Orchid / Tawny Leek-orchid)	CE	V	BioNet-4 PMST-K	Restricted to an area of less than 4 km ² in the upper catchment of the Georges River, southwest of Sydney in the Wilton district. Grows in moist heath, often along seepage lines. The known population grows in moist sandy soil over sandstone amongst sedges and grasses in an area that appears to be regularly slashed by the local council.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Pultenaea glabra</i> (Smooth Bush-pea)	V	V	BioNet-22 PMST-K	Restricted to the higher Blue Mountains and recorded from the Katoomba-Hazelbrook and Mount Victoria areas, with unconfirmed sightings in the Mount Wilson and Mount Irvine areas. All known populations occur within the Blue Mountains Local Government Area. Primarily associated with riparian or swamp habitat areas in the mid to upper altitudes of the central Blue Mountains on sandstone derived soils. Grows in swamp margins, hillslopes, gullies and creekbanks and occurs within dry sclerophyll forest and tall damp heath on sandstone.	Low. Species is known to occur close to the proposal site, however, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Rhizanthella slateri</i> (Eastern Underground Orchid)	V	E	PMST-M	Currently known only from 10 locations, including near Bulahdelah, the Watagan Mountains, the Blue Mountains, Wiseman's Ferry area, Agnes Banks and near Nowra. Habitat requirements are poorly understood and no particular vegetation type has been associated with the species, although it is known to occur in sclerophyll forest. Highly cryptic given that it grows almost completely below the soil surface, with flowers being the only part of the plant that can occur above ground. Therefore, usually located only when the soil is disturbed. Flowers September to November.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Rhodamnia rubescens</i> (Scrub Turpentine)	CE	CE	PMST-L	Occurs in coastal districts north from Batemans Bay in New South Wales, to areas inland of Bundaberg in Queensland. Populations typically occur in coastal regions and occasionally extend inland onto escarpments up to 600 m a.s.l. in areas with rainfall of 1,000-1,600 mm. Found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest usually on volcanic and sedimentary soils. Highly to extremely susceptible to infection by Myrtle Rust.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Thesium australe</i> (Austral Toadflax)	V	V	PMST-L	Found in very small populations scattered across eastern NSW, along the coast, and from the Northern to Southern Tablelands. Occurs in grassland or grassy woodland, and is often found in association with Kangaroo Grass.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.

Species name	BC Act / FM Act	EPBC Act	Source	Habitat/community description	Likelihood of occurrence	Level of impact
<i>Velleia perfoliata</i>	V	V	BioNet-1	Found in shallow depressions on Hawkesbury sandstone shelves, on rocky hill sides, under cliffs or on rocky/sandy soils along tracks and trails. Occurs on fairly shallow soils of sandy loam texture. Often found growing on moss and lichen mats formed on rock. Flowering variable and can occur in any season, though peaking generally in spring to early summer. Grows in heath and open forest over sandstone. Associated species include <i>Angophora bakeri</i> , <i>Corymbia eximia</i> , <i>Backhousia myrtifolia</i> , <i>Eucalyptus sparsifolia</i> , <i>E. crebra</i> , <i>E. notabilis</i> , <i>Allocasuarina torulosa</i> and <i>Leptospermum attenuatum</i> .	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Veronica blakelyi</i>	V	-	BioNet-1	Restricted to the western Blue Mountains, near Clarence, Mt Horrible, on Nullo Mountain and in the Coricudgy Range. Occurs in eucalypt forest, often in moist and sheltered areas. Associated canopy species include <i>Eucalyptus dives</i> , <i>E. dalrympleana</i> , <i>E. rossii</i> and <i>E. pauciflora</i> . Flowering occurs in late spring to early summer.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Xanthosia scopulicola</i>	V	-	BioNet-4	Known only from scattered locations between Kings Tableland (Wentworth Falls) and Boars Head rock (west of Katoomba) in the Blue Mountains. Most populations are within Blue Mountains National Park, though only near the boundary of the reserve. Grows in cracks and crevices of sandstone cliff faces or on rocky outcrops above the cliffs. Flowers November to January. Has a woody taproot and may therefore be able to resprout following fire. The closely related <i>Xanthosia pilosa</i> has been found to have a variable response to fire with some plants resprouting and others being killed by fire.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Xerochrysum palustre</i> (Swamp Everlasting)	-	V	PMST-L	Found in Kosciuszko National Park and the eastern escarpment south of Badja. Grows in wetlands including sedge-swamps and shallow freshwater marshes, often on heavy black clay soils.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Zieria covenyi</i> (Coveny's Zieria)	E	E	PMST-L	Recorded from only one location, Narrow Neck Peninsula within Blue Mountains National Park, south-west of Katoomba in the Central Blue Mountains. Occurs in open sclerophyll forest dominated by <i>Eucalyptus sieberi</i> , on gentle east and south-facing slopes and on ridges in shallow sandy soil. Reproduces vegetatively by root suckering.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Zieria involuocrata</i>	E	V	BioNet-17 PMST-K	Found within The Hills, Hawkesbury, Hornsby and Blue Mountains local government areas. It occurs primarily on Hawkesbury sandstone but has also been found on Narrabeen Group sandstone and Quaternary alluvium. It has been recorded in sheltered forests on mid-lower slopes and valleys.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.
<i>Zieria murphyi</i> (Velvet Zieria)	V	V	PMST-M	Found in the Blue Mountains at Mt Tomah and on the southern tablelands where it has been recorded in Morton National Park in the Bundanoon area. Found in sheltered positions in moist gullies in moist eucalypt forest with sandy soil.	Nil. Not known to occur within or near the proposal site. Also, no suitable habitat is present.	Nil. No impact to known occurrence or potential habitat.

Species name	BC Act / FM Act	EPBC Act	Source	Habitat/community description	Likelihood of occurrence	Level of impact
Ecological communities						
Blue Mountains Basalt Forest in the Sydney Basin Bioregion – BC Act Upland Basalt Eucalypt Forests of the Sydney Basin Bioregion – EPBC Act	E	E	BioNet-K PMST-L	Blue Mountains Basalt Forest is usually a tall eucalypt forest (over 30 m in mature stands) with a dense shrub or small tree layer, often including tree ferns (<i>Cyathea</i> spp.) and moist herbaceous ground cover. The canopy composition is variable but usually dominated by one or more of the species <i>Eucalyptus fastigata</i> , <i>E. blaxlandii</i> , <i>E. cypellocarpa</i> or <i>E. radiata</i> subsp. <i>radiata</i> . Other canopy species which may be locally common or dominant include <i>E. oreades</i> (which is often dominant on south-facing slopes at the transition to a sandstone substrate) and <i>E. viminalis</i> . A eucalypt canopy may be absent from previously cleared or otherwise highly disturbed stands.	Nil. The vegetation within the proposal site is not commensurate with this TEC.	Nil.
Blue Mountains Shale Cap Forest in the Sydney Basin Bioregion – BC Act Southern Highlands Shale Forest and Woodland in the Sydney Basin Bioregion – EPBC Act	E	CE	BioNet-K	Characteristic tree species of this ecological community are Mountain Blue Gum (<i>Eucalyptus deanei</i>), Monkey Gum (<i>E. cypellocarpa</i>) and Turpentine (<i>Syncarpia glomulifera</i>). Other tree species include Sydney Red Gum (<i>Angophora costata</i>), Rough-barked Apple (<i>A. floribunda</i>), Mountain Mahogany (<i>E. notabilis</i>), Sydney Peppermint (<i>E. piperita</i>) and Grey Gum (<i>E. punctata</i>). Tree species composition varies between sites depending on geographical location and local conditions (e.g. topography, rainfall exposure).	Nil. The vegetation within the proposal site is not commensurate with this TEC.	Nil.
Blue Mountains Swamps in the Sydney Basin Bioregion – BC Act Temperate Highland Peat Swamps on Sandstone – EPBC Act	V	E	BioNet-K	The Blue Mountains Swamps community is characterised by a dense mixture of shrubs and sedges, most of which have sclerophyllous foliage. The shrub stratum typically varies from 0.5 m to over 2.0 m tall and is highly variable in cover. The ground stratum may be up to about 1 m tall and is dominated by a dense sward of sclerophyllous sedges and grasses except in patches where these are displaced by a dense cover of taller shrubs. Ferns, forbs and small shrubs are scattered amongst the sedges and grasses. There is considerable local variation within the swamps in species composition and vegetation structure, which is apparently related to local soil properties and fire history. Structure of the vegetation varies from closed heath or scrub to open heath to closed sedgeland or fernland. Among the frequently occurring large shrub species Weeping Baeckea (<i>Baeckea linifolia</i>), Prickly Tea-tree (<i>Leptospermum juniperinum</i>) and Needlebush (<i>Hakea teretifolia</i>) are relatively common, while Woolly Tea-tree (<i>L. grandifolium</i>) and <i>Grevillea acanthifolia</i> subsp. <i>acanthifolia</i> occur primarily on deeper, highly organic, frequently waterlogged soils, and <i>L. polygalifolium</i> and Hairpin Banksia (<i>Banksia spinulosa</i>) are typically found on intermittently waterlogged, shallower sandy soils with a moderate organic content. Small shrubs, including <i>Almaleea incurvata</i> , Blunt-leaf Heath (<i>Epacris obtusifolia</i>) and Pink Swamp Heath (<i>Sprengelia incarnata</i>), are typically more abundant on the less waterlogged soils. The large tussock sedge Button Grass (<i>Gymnoschoenus sphaerocephalus</i>), and rhizomatous sedges and cord rushes, including <i>Lepidosperma limicola</i> , <i>Ptilothrix deusta</i> , <i>Lepyrodia scariosa</i> and <i>Leptocarpus tenax</i> are generally common throughout the swamps, as are the grasses Wiry Panic (<i>Entolasia stricta</i>) and <i>Tetrarrhena turfosa</i> . Coral ferns (<i>Gleichenia</i> spp.), and Forked Sundew (<i>Drosera binata</i>) are typical of frequently waterlogged soils, while other herbs, including <i>Dampiera stricta</i> , Heathy Mirbelia (<i>Mirbelia rubiifolia</i>) and Raspwort (<i>Gonocarpus teucrioides</i>) occur in more open vegetation on intermittently waterlogged soils. This community forms a component of the community Temperate Highland Peat Swamps on Sandstone which is listed as Endangered under the EPBC Act.	Nil. The vegetation within the proposal site is not commensurate with this TEC.	Nil.

Species name	BC Act / FM Act	EPBC Act	Source	Habitat/community description	Likelihood of occurrence	Level of impact
Castlereagh Scribbly Gum Woodland in the Sydney Basin Bioregion – BC Act Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion – EPBC Act	V	E	BioNet-K	Castlereagh Scribbly Gum Woodland in the Sydney Basin Bioregion is dominated by <i>Eucalyptus parramattensis</i> subsp. <i>parramattensis</i> , <i>Angophora bakeri</i> and <i>E. sclerophylla</i> . A small tree stratum of <i>Melaleuca decora</i> is sometimes present, generally in areas with poorer drainage. It has a well-developed shrub stratum consisting of sclerophyllous species such as <i>Banksia spinulosa</i> var. <i>spinulosa</i> , <i>Melaleuca nodosa</i> , <i>Hakea sericea</i> and <i>H. dactyloides</i> (multi-stemmed form). The ground stratum consists of a diverse range of forbs including <i>Themeda australis</i> , <i>Entolasia stricta</i> , <i>Cyathochaeta diandra</i> , <i>Dianella revoluta</i> subsp. <i>revoluta</i> , <i>Styidium graminifolium</i> , <i>Platysace ericoides</i> , <i>Laxmannia gracilis</i> and <i>Aristida warburgii</i> .	Nil. The vegetation within the proposal site is not commensurate with this TEC.	Nil.
Cooks River/Castlereagh Ironbark Forest in the Sydney Basin Bioregion – BC Act Cooks River/Castlereagh Ironbark Forest of the Sydney Basin Bioregion – EPBC Act	E	CE	BioNet-K	Ranges from open forest to low woodland, with a canopy dominated by Broad-leaved Ironbark (<i>Eucalyptus fibrosa</i>) and Paperbark (<i>Melaleuca decora</i>). The canopy may also include other eucalypts such as Woollybutt (<i>E. longifolia</i>). The dense shrubby understorey consists of Prickly-leaved Paperbark (<i>Melaleuca nodosa</i>) and Peach Heath (<i>Lissanthe strigosa</i>), with a range of 'pea' flower shrubs, such as <i>Dillwynia tenuifolia</i> , Hairy Bush-pea (<i>Pultenaea villosa</i>) and Gorse Bitter Pea (<i>Daviesia ulicifolia</i>) (can be locally abundant). The sparse ground layer contains a range of grasses and herbs. Contains many more species and other references should be consulted to identify these.	Nil. The vegetation within the proposal site is not commensurate with this TEC.	Nil.
Cumberland Plain Woodland in the Sydney Basin Bioregion – BC Act Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest – EPBC Act	CE	CE	BioNet-K	The dominant canopy trees of Cumberland Plain Woodland are Grey Box (<i>Eucalyptus moluccana</i>) and Forest Red Gum (<i>E. tereticornis</i>), with Narrow-leaved Ironbark (<i>E. crebra</i>), Spotted Gum (<i>Corymbia maculata</i>) and Thin-leaved Stringybark (<i>E. eugenioides</i>) occurring less frequently. The shrub layer is dominated by Blackthorn (<i>Bursaria spinosa</i>), and it is common to find abundant grasses such as Kangaroo Grass (<i>Themeda australis</i>) and Weeping Meadow Grass (<i>Microlaena stipoides</i> var. <i>stipoides</i>). Contains many more species and other references should be consulted to identify these.	Nil. The vegetation within the proposal site is not commensurate with this TEC.	Nil.
Hunter Valley Foothills Slaty Gum Woodland in the Sydney Basin Bioregion – BC Act Central Hunter Valley eucalypt forest and woodland – EPBC Act	V	CE	BioNet-P	Hunter Valley Foothills Slaty Gum Woodland is a woodland, or occasionally an open forest, with a sparse to moderately dense tree layer with occasional small trees and a moderately dense to dense shrub layer. The tree canopy is typically dominated by <i>Eucalyptus dawsonii</i> (Slaty Gum) and/or <i>Eucalyptus moluccana</i> (Grey Box). <i>Acacia salicina</i> (Cooba) and <i>Allocasuarina luehmannii</i> (Bulloak) may form a small tree layer or be part of the upper-most canopy. Other trees which may be present include <i>Brachychiton populneus</i> subsp. <i>populneus</i> (Kurrajong), <i>Callitris endlicheri</i> (Black Cypress Pine), <i>Eucalyptus crebra</i> (Narrow-leaved Ironbark) and <i>Eucalyptus punctata</i> (Grey Gum).	Nil. The vegetation within the proposal site is not commensurate with this TEC.	Nil.
Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions – BC Act Lowland Rainforest of Subtropical Australia – EPBC Act	E	CE	BioNet-K	Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions is an ecological community of subtropical rainforest and some related, structurally complex forms of dry rainforest. Lowland Rainforest, in a relatively undisturbed state, has a closed canopy, characterised by a high diversity of trees whose leaves may be mesophyllous and encompass a wide variety of shapes and sizes. Typically, the trees form three major strata: emergents, canopy and sub-canopy which, combined with variations in crown shapes and sizes results in an irregular canopy appearance. The trees are taxonomically diverse at the genus and family levels, and some may have buttressed roots. A range of plant growth forms are present in Lowland Rainforest, including palms, vines and vascular epiphytes. In disturbed stands of this community the canopy cover may be broken, or the canopy may be smothered by exotic vines.	Nil. The vegetation within the proposal site is not commensurate with this TEC.	Nil.

Species name	BC Act / FM Act	EPBC Act	Source	Habitat/community description	Likelihood of occurrence	Level of impact
Moist Shale Woodland in the Sydney Basin Bioregion – BC Act Western Sydney Dry Rainforest and Moist Woodland on Shale – EPBC Act	E	CE	BioNet-P	Similar to Cumberland Plain Woodland. It differs in having a shrub understorey that contains plants from moist habitats. Dominant canopy trees include Forest Red Gum <i>Eucalyptus tereticornis</i> , Grey Box <i>E. moluccana</i> , Narrow-leaved Ironbark <i>E. crebra</i> and Spotted Gum <i>Corymbia maculata</i> . Small trees, such as Hickory Wattle <i>Acacia implexa</i> and Sydney Green Wattle <i>A. parramattensis</i> subsp. <i>parramattensis</i> are also common. The shrub layer includes <i>Breynia oblongifolia</i> , Hairy Clerodendrum <i>Clerodendrum tomentosum</i> and Indian Weed <i>Siegesbeckia orientalis</i> subsp. <i>orientalis</i> . Contains many more species and other references should be consulted to identify these. This community is listed as Critically Endangered under the "Western Sydney Dry Rainforest and Moist Woodland on Shale" in the EPBC Act.	Nil. The vegetation within the proposal site is not commensurate with this TEC.	Nil.
Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions – BC Act Temperate Highland Peat Swamps on Sandstone – EPBC Act	E	E	BioNet-K PMST-K	Montane Peatlands and Swamps comprises a dense, open or sparse layer of shrubs with soft-leaved sedges, grasses and forbs. It is the only type of wetland that may contain more than trace amounts of <i>Sphagnum</i> spp., the hummock peat-forming mosses. Small trees may be present as scattered emergents or absent. The community typically has an open to very sparse layer of shrubs, 1-5 m tall, (eg. <i>Baeckea gunniana</i> , <i>B. utilis</i> , <i>Callistemon ptyoides</i> , <i>Leptospermum juniperinum</i> , <i>L. lanigerum</i> , <i>L. myrtifolium</i> , <i>L. obovatum</i> , <i>L. polygalifolium</i>). Species of <i>Epacris</i> (eg. <i>E. breviflora</i> , <i>E. microphylla</i> , <i>E. paludosa</i>) and <i>Hakea microcarpa</i> are also common shrubs. In some peatlands and swamps, particularly those with a history of disturbance to vegetation, soils or hydrology, the shrub layer comprises dense thickets of <i>Leptospermum</i> species. In other peatlands and swamps with a history of grazing by domestic livestock, the shrub layer may be very sparse or absent.	Nil. The vegetation within the proposal site is not commensurate with this TEC.	Nil.
Mount Gibraltar Forest in the Sydney Basin Bioregion – BC Act Upland Basalt Eucalypt Forests of the Sydney Basin Bioregion – EPBC Act	E	E	BioNet-K	Mount Gibraltar Forest is a variable community, existing as either open forest, woodland or scrub. The floristic composition largely reflects topographic position and aspect. The dominant tree species are Narrow-leaved Peppermint <i>Eucalyptus radiata</i> , Sydney Peppermint <i>E. piperita</i> and Gully Gum <i>E. smithii</i> on the upper slopes, and <i>E. radiata</i> , <i>E. piperita</i> , Brown Barrel <i>E. fastigata</i> and Manna Gum <i>E. viminalis</i> on deeper soils on southern aspects. A shrub or small tree layer dominated by species such as <i>Acacia melanoxyton</i> , <i>Hedycara angustifolia</i> , <i>Notelea venosa</i> and <i>Pittosporum undulatum</i> occurs in the more sheltered areas. Dominant groundlayer species include <i>Stypandra glauca</i> , <i>Dianella caerulea</i> , <i>Dichondra repens</i> and <i>Themeda australis</i> in drier, more exposed sites. In more sheltered sites, fern species such as <i>Blechnum cartilagineum</i> , <i>Doodoa aspera</i> and <i>Pteridium esculentum</i> , and vines such as <i>Eustrephus latifolius</i> and <i>Tylophora barbata</i> are dominant.	Nil. The vegetation within the proposal site is not commensurate with this TEC.	Nil.
Natural Temperate Grassland of the South Eastern Highlands	-	CE	PMST-M	Natural Temperate Grassland is a natural grassland community dominated by a range of perennial grass species and, in highly intact sites, containing a large range of herbaceous species in many plant families, including daisies, peas, lilies, orchids and plants in many other families, all collectively known as forbs, or "wildflowers" in the case of the more showy species. A number of distinct associations have been described in Armstrong <i>et al.</i> (2013), identified by combinations of the co-occurring grasses and forbs, and each found in particular regions and/or landscape positions. The community is often treeless, though trees of a range of species may occur in low densities, either as isolated individuals or in clumps. Seasonally wet areas within a site may also contain a range of wetland flora species, including rushes, sedges and a variety of wetland specialist forbs. A limited range of shrub species may occur at some sites, but these too occur in low densities.	Nil. The vegetation within the proposal site is not commensurate with this TEC.	Nil.

Species name	BC Act / FM Act	EPBC Act	Source	Habitat/community description	Likelihood of occurrence	Level of impact
Newnes Plateau Shrub Swamp in the Sydney Basin Bioregion – BC Act Coastal Upland Swamps in the Sydney Basin Bioregion – EPBC Act	E	E	BioNet-K	An ecological community dominated by shrubs and sedges that occurs on sites with impeded drainage in low slope headwater valleys on the Newnes Plateau in the upper Blue Mountains. The community is characteristically dominated by shrubs, with a variable cover of sedges. Shrubs have a dense to open cover, and include <i>Baeckea linifolia</i> , <i>Grevillea acanthifolia</i> subsp. <i>acanthifolia</i> , <i>Epacris paludosa</i> and <i>Leptospermum</i> species. The cover of sedges varies inversely with shrub cover. Common sedges include <i>Baloskion australe</i> , <i>Empodisma minus</i> , <i>Lepyrodia scariosa</i> and <i>Lepidosperma limicola</i> , while herbs include <i>Patersonia fragilis</i> and <i>Xanthosia dissecta</i> . <i>Gleichenia dicarpa</i> and <i>Gymnoschoenus sphaerocephalus</i> may occur around drainage lines, while <i>Lomandra longifolia</i> may be prominent around the swamp margins. Floristic composition varies locally in relation to soil moisture gradients within the swamps.	Nil. The vegetation within the proposal site is not commensurate with this TEC.	Nil.
River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions – BC Act River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria – EPBC Act	E	CE	BioNet-K	As the name suggests, this EEC is found on the river flats of the coastal floodplains. It has a tall open tree layer of eucalypts, which may exceed 40 m in height, but can be considerably shorter in regrowth stands or under conditions of lower site quality. While the composition of the tree stratum varies considerably, the most widespread and abundant dominant trees include <i>Eucalyptus tereticornis</i> (forest red gum), <i>E. amplifolia</i> (cabbage gum), <i>Angophora floribunda</i> (rough-barked apple) and <i>A. subvelutina</i> (broad-leaved apple). <i>Eucalyptus baueriana</i> (blue box), <i>E. botryoides</i> (bangalay) and <i>E. elata</i> (river peppermint) may be common south from Sydney, <i>E. ovata</i> (swamp gum) occurs on the far south coast, <i>E. saligna</i> (Sydney blue gum) and <i>E. grandis</i> (flooded gum) may occur north of Sydney, while <i>E. benthamii</i> is restricted to the Hawkesbury floodplain. A layer of small trees may be present, including <i>Melaleuca decora</i> , <i>M. styphelioides</i> (prickly-leaved teatree), <i>Backhousia myrtifolia</i> (grey myrtle), <i>Melia azaderach</i> (white cedar), <i>Casuarina cunninghamiana</i> (river oak) and <i>C. glauca</i> (swamp oak).	Nil. The vegetation within the proposal site is not commensurate with this TEC.	Nil.
Robertson Basalt Tall Open-forest in the Sydney Basin and South Eastern Highlands Bioregions – BC Act Upland Basalt Eucalypt Forests of the Sydney Basin Bioregion – EPBC Act	E	E	BioNet-P PMST-L	Robertson Basalt Tall Open Forest is an open forest or woodland reaching to 30 m tall with a sparse to moderately dense shrub layer and a dense herbaceous ground layer. Dominant tree species include Brown Barrel <i>Eucalyptus fastigata</i> , Manna Gum <i>E. viminalis</i> , Narrow-leaved Peppermint <i>E. radiata</i> and Mountain Grey Gum <i>E. cypellocarpa</i> . Blackwood <i>Acacia melanoxylon</i> is a common small tree species in this community. Common shrubs include <i>Coprosma quadrifida</i> and <i>Senecio linearifolius</i> . The composition of the community varies across its distribution, largely reflecting a rainfall gradient from east (near the Illawarra Escarpment) to west (near Bundanoon).	Nil. The vegetation within the proposal site is not commensurate with this TEC.	Nil.
Shale Gravel Transition Forest in the Sydney Basin Bioregion – BC Act Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest – EPBC Act	CE	CE	BioNet-K	Has an open forest structure with a canopy dominated by Broad-leaved Ironbark <i>Eucalyptus fibrosa</i> , with Grey Box <i>E. moluccana</i> and Forest Red Gum <i>E. tereticornis</i> occurring less frequently. Paperbark <i>Melaleuca decora</i> is common in the small tree layer. A sparse shrub layer is usually present which includes Blackthorn <i>Bursaria spinosa</i> , <i>Daviesia ulicifolia</i> and Peach Heath <i>Lissanthe strigosa</i> . Contains many more species and other references should be consulted to identify these.	Nil. The vegetation within the proposal site is not commensurate with this TEC.	Nil.

Species name	BC Act / FM Act	EPBC Act	Source	Habitat/community description	Likelihood of occurrence	Level of impact
Shale Sandstone Transition Forest in the Sydney Basin Bioregion – BC Act Shale Sandstone Transition Forest of the Sydney Basin Bioregion – EPBC Act	CE	CE	BioNet-K	Occurs at the edges of the Cumberland Plain, where clay soils from the shale rock intergrade with earthy and sandy soils from sandstone, or where shale caps overlay sandstone. The boundaries are indistinct, and the species composition varies depending on the soil influences. The main tree species include Forest Red Gum (<i>Eucalyptus tereticornis</i>), Grey Gum (<i>E. punctata</i>), stringybarks (<i>E. globoidea</i> , <i>E. eugenioides</i>) and ironbarks (<i>E. fibrosa</i> and <i>E. crebra</i>). Areas of low sandstone influence (more clay-loam soil texture) have an understorey that is closer to Cumberland Plain Woodland. Shale Sandstone Transition Forest in the Sydney Basin Bioregion contains many more species than described for the canopy (above) and other references should be consulted to identify these.	Nil. The vegetation within the proposal site is not commensurate with this TEC.	Nil.
Southern Highlands Shale Woodlands in the Sydney Basin Bioregion – BC Act Southern Highlands Shale Forest and Woodland in the Sydney Basin Bioregion – EPBC Act	E	CE	BioNet-K	Southern Highlands Shale Woodland is a variable community in terms of both structure and composition. The community may exist as tall open forest, grassy woodland or scrub; though it originally existed as woodland. The dominant canopy species vary across the distribution of the community. Common species throughout much of the community's range are Mountain Grey Gum <i>Eucalyptus cypellocarpa</i> , Sydney Peppermint <i>E. piperita</i> , Swamp Gum <i>E. ovata</i> , Narrow-leaved Peppermint <i>E. radiata</i> and White Stringybark <i>E. globoidea</i> . Brittle Gum <i>E. mannifera</i> , Snow Gum <i>E. pauciflora</i> , Cabbage Gum <i>E. amplifolia</i> and Rough-barked Apple <i>Angophora floribunda</i> are less common.	Nil. The vegetation within the proposal site is not commensurate with this TEC.	Nil.
Southern Sydney sheltered forest on transitional sandstone soils in the Sydney Basin Bioregion	E	-	BioNet-P	Southern Sydney sheltered forest on transitional sandstone soils is an open forest dominated by eucalypts with scattered subcanopy trees, a diverse shrub layer and a well-developed groundcover of ferns, forbs, grasses and graminoids. The dominant trees include <i>Angophora costata</i> , <i>Eucalyptus piperita</i> and occasionally <i>Eucalyptus pilularis</i> , particularly around Helensburgh. <i>Corymbia gummifera</i> occurs frequently within the community, although generally at lower abundance than the other eucalypts. Features that distinguish Southern Sydney sheltered forest on transitional sandstone soils from vegetation more typical of sandstone gullies in the eastern Sydney basin include the occurrences of <i>Eucalyptus pilularis</i> , <i>Acacia binervata</i> , <i>Elaeocarpus reticulatus</i> , <i>Pittosporum undulatum</i> and its relatively dense groundcover of ferns, grasses, rushes, lilies and forbs. There is considerable variation in species composition, richness and structure within the community in response to local soil variation and geographic gradients across the range. The community typically has an open forest structure, although disturbance may result in local manifestations as woodland or scrub.	Nil. The vegetation within the proposal site is not commensurate with this TEC.	Nil.
Sun Valley Cabbage Gum Forest in the Sydney Basin Bioregion	CE	-	BioNet-K	Sun Valley Cabbage Gum Forest is dominated by <i>Eucalyptus amplifolia</i> (Cabbage Gum) with <i>E. eugenioides</i> (Thin-leaved Stringybark) as an associated tree. Native understorey species include <i>Acacia parramattensis</i> , <i>Imperata cylindrica</i> , <i>Lomandra longifolia</i> and <i>Pteridium esculentum</i> .	Nil. The vegetation within the proposal site is not commensurate with this TEC.	Nil.

Species name	BC Act / FM Act	EPBC Act	Source	Habitat/community description	Likelihood of occurrence	Level of impact
Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions – BC Act Coastal Swamp Oak (<i>Casuarina glauca</i>) Forest of New South Wales and South East Queensland ecological community – EPBC Act	E	E	BioNet-P	This community is found on the coastal floodplains of NSW. It has a dense to sparse tree layer in which <i>Casuarina glauca</i> (swamp oak) is the dominant species northwards from Bermagui. Other trees including <i>Acmena smithii</i> (lilly pilly), <i>Glochidion</i> spp. (cheese trees) and <i>Melaleuca</i> spp. (paperbarks) may be present as subordinate species, and are found most frequently in stands of the community northwards from Gosford. Tree diversity decreases with latitude, and <i>Melaleuca ericifolia</i> is the only abundant tree in this community south of Bermagui.	Nil. The vegetation within the proposal site is not commensurate with this TEC.	Nil.
Sydney Turpentine-Ironbark Forest in the Sydney Basin Bioregion – BC Act Turpentine-Ironbark Forest of the Sydney Basin Bioregion – EPBC Act	CE	CE	BioNet-K	Open forest, with dominant canopy trees including Turpentine <i>Syncarpia glomulifera</i> , Grey Gum <i>Eucalyptus punctata</i> , Grey Ironbark <i>E. paniculata</i> and Thin-leaved Stringybark <i>E. eugenoides</i> . In areas of high rainfall (over 1050 mm per annum) Sydney Blue Gum <i>E. saligna</i> is more dominant. The shrub stratum is usually sparse and may contain mesic species such as Sweet Pittosporum <i>Pittosporum undulatum</i> and Elderberry <i>Panax Polyscias sambucifolia</i> . Contains many more species and other references should be consulted to identify these.	Nil. The vegetation within the proposal site is not commensurate with this TEC.	Nil.
Tableland Basalt Forest in the Sydney Basin and South Eastern Highlands Bioregions	E	-	BioNet-K	Tableland Basalt Forest is dominated by an open eucalypt canopy of variable composition. <i>Eucalyptus viminalis</i> , <i>E. radiata</i> , <i>E. dalrympleana</i> subsp. <i>dalrympleana</i> and <i>E. pauciflora</i> may occur in the community in pure stands or in varying combinations. The community typically has an open canopy of eucalypts with sparse mid-story shrubs (e.g. <i>Acacia melanoxylon</i> and <i>A. dealbata</i>) and understory shrubs (e.g. <i>Rubus parvifolius</i>) and a dense groundcover of herbs and grasses, although disturbed stands may lack either or both of the woody strata. The structure of the community varies depending on past and current disturbances, particularly fire history, clearing and grazing. Contemporary tree-dominated stands of the community are largely relics or regrowth of originally taller forests and woodlands, which are likely to have had scattered shrubs and a largely continuous grassy groundcover. At some sites, mature trees may exceed 30 m tall, although regrowth stands may be shorter than 10 m tall.	Nil. The vegetation within the proposal site is not commensurate with this TEC.	Nil.
Western Sydney Dry Rainforest in the Sydney Basin Bioregion – BC Act Western Sydney Dry Rainforest and Moist Woodland on Shale – EPBC Act	E	CE	BioNet-K	A dry vine scrub community of the Cumberland Plain, western Sydney. Canopy trees include Prickly Paperbark (<i>Melaleuca styphelioides</i>), Hickory Wattle (<i>Acacia implexa</i>) and Native Quince (<i>Alectryon subcinerus</i>). There are many rainforest species in the shrub layer, such as Mock Olive (<i>Notolaea longifolia</i>), Hairy Clerodendrum (<i>Clerodendrum tomentosum</i>) and Yellow Pittosporum (<i>Pittosporum revolutum</i>). The shrub layer combines with vines, such as Gum Vine (<i>Aphanopetalum resinosum</i>), Wonga Vine (<i>Pandorea pandorana</i>) and Slender Grape (<i>Cayratia clematidea</i>) to form dense thickets in sheltered locations. Contains many more species and other references should be consulted to identify these. This community is listed as Critically Endangered under the "Western Sydney Dry Rainforest and Moist Woodland on Shale" in the EPBC Act.	Nil. The vegetation within the proposal site is not commensurate with this TEC.	Nil.

Species name	BC Act / FM Act	EPBC Act	Source	Habitat/community description	Likelihood of occurrence	Level of impact
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions – BC Act White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland – EPBC Act	CE	CE	BioNet-K PMST-L	<p>White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions (commonly referred to as Box-Gum Woodland) was listed as a Critically Endangered Ecological Community (CEEC) on July 17, 2020. It is an open woodland community (sometimes occurring as a forest formation), in which the most obvious species are one or more of the following: White Box <i>Eucalyptus albens</i>, Yellow Box <i>E. melliodora</i> and Blakely's Red Gum <i>E. blakelyi</i>. Intact sites contain a high diversity of plant species, including the main tree species, additional tree species, some shrub species, several climbing plant species, many grasses and a very high diversity of herbs. The community also includes a range of mammal, bird, reptile, frog and invertebrate fauna species. Intact stands that contain diverse upper and mid-storeys and groundlayers are rare. Modified sites include the following:</p> <ul style="list-style-type: none"> – Areas where the main tree species are present ranging from an open woodland formation to a forest structure, and the groundlayer is predominantly composed of exotic species; and – Sites where the trees have been removed and only the grassy groundlayer and some herbs remain. <p>The Australian Government listing of White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland is slightly different to the NSW listing. Areas that are part of the Australian Government listed ecological community must have either:</p> <ul style="list-style-type: none"> – An intact tree layer and predominately native ground layer; or – An intact native ground layer with a high diversity of native plant species but no remaining tree layer. 	<p>Nil.</p> <p>The vegetation within the proposal site is not commensurate with this TEC.</p>	<p>Nil.</p>
Migratory species						
Fork-tailed Swift (<i>Apus pacificus</i>)	-	C,J,K	BioNet-1 PMST-L	<p>The Fork-tailed Swift is almost exclusively aerial, flying from less than 1 m to at least 300 m above ground and probably much higher. In Australia, they mostly occur over inland plains but sometimes above foothills or in coastal areas. They often occur over cliffs and beaches and also over islands and sometimes well out to sea. They also occur over settled areas, including towns, urban areas and cities. They mostly occur over dry or open habitats, including riparian woodland and tea-tree swamps, low scrub, heathland or saltmarsh. They are also found at treeless grassland and sandplains covered with spinifex, open farmland and inland and coastal sand-dunes. They sometimes occur above rainforests, wet sclerophyll forest or open forest or plantations of pines.</p>	<p>Moderate.</p> <p>Known from locality and species is highly mobile.</p>	<p>Very low.</p> <p>May occur over the site on occasion, but no impact to suitable habitat.</p>
White-throated Needletail (<i>Hirundapus caudacutus</i>)	-	V, C,J,K	BioNet-10 PMST-K	<p>Migrates to eastern Australia from October to April. Almost exclusively aerial and most often seen before storms, low pressure troughs and approaching cold fronts and occasionally bushfire. Occurs over most types of habitat, but mostly recorded above wooded areas, including open forest and rainforest. May also fly between trees or in clearings, below the canopy. Recorded roosting in trees in forests and woodlands, both among dense foliage in the canopy or in hollows.</p>	<p>Moderate.</p> <p>Known from locality and species is highly mobile.</p>	<p>Very low.</p> <p>May occur over the site on occasion, but no impact to suitable habitat.</p>

Species name	BC Act / FM Act	EPBC Act	Source	Habitat/community description	Likelihood of occurrence	Level of impact
Black-faced Monarch (<i>Monarcha melanopsis</i>)	-	Bonn	PMST-K	Found along the coast of eastern Australia, becoming less common further south. Occurs around the eastern slopes and tablelands of the Great Divide, inland to Coutts Crossing, Armidale, Widden Valley, Wollemi National Park, Wombeyan Caves and Canberralt. Found in rainforests, eucalypt woodlands, coastal scrub and damp gullies. It may be found in more open woodland when migrating.	Low. Known from the locality, however, no suitable habitat present.	Very low. No impact to suitable habitat.
Satin Flycatcher (<i>Myiagra cyanoleuca</i>)	-	Bonn	PMST-K	Found along the east coast of Australia from far northern Queensland to Tasmania. Uncommonly seen species, especially in the far south of its range, where it is a summer breeding migrant. Inhabits heavily vegetated gullies in eucalypt-dominated forests and taller woodlands, and on migration, occur in coastal forests, woodlands, mangroves and drier woodlands and open forests.	Low. Known from the locality, however, no suitable habitat present.	Very low. No impact to suitable habitat.
Rufous Fantail (<i>Rhipidura rufifrons</i>)	-	Bonn	PMST-K	Found along NSW coast and ranges. Inhabits rainforest, dense wet forests, swamp woodlands and mangroves. During migration, it may be found in more open habitats or urban areas.	Low. Known from the locality, however, no suitable habitat present.	Very low. No impact to suitable habitat.
Yellow Wagtail (<i>Motacilla flava</i>)	-	C,J,K	PMST-M	Occurs within Australia in open country habitat with disturbed ground and some water. Recorded in short grass and bare ground, swamp margins, sewage ponds, saltmarshes, playing fields, airfields, ploughed land and town lawns. Breeds in temperate Europe and Asia.	Nil. No suitable habitat present or records within the locality.	Nil.
Common Sandpiper (<i>Actitis hypoleucos</i>)	-	Bonn, C,J,K	PMST-M	Does not breed in Australia. When in Australia it is found on all coastlines and in inland areas, but is concentrated in the north and west with important areas in WA, the NT and Qld. Utilises a wide range of coastal and inland wetlands with varying salinity levels.	Nil. No suitable habitat present or records within the locality.	Nil.
Sharp-tailed Sandpiper (<i>Calidris acuminata</i>)	-	Bonn, C,J,K	PMST-M	Spends the non-breeding season in Australia with small numbers occurring regularly in New Zealand. Most of the population migrates to Australia, mostly to the south-east and are widespread in both inland and coastal locations and in both freshwater and saline habitats. Many inland records are of birds on passage. In Australasia, prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation. Breeds in northern Siberia.	Nil. No suitable habitat present or records within the locality.	Nil.
Curlew Sandpiper (<i>Calidris ferruginea</i>)	E	CE, Bonn, C,J,K	PMST-M	The Curlew Sandpiper is distributed around most of the Australian coastline (including Tasmania). It occurs along the entire coast of NSW, particularly in the Hunter Estuary, and sometimes in freshwater wetlands in the Murray-Darling Basin. Inland records are probably mainly of birds pausing for a few days during migration. The Curlew Sandpiper breeds in Siberia and migrates to Australia (as well as Africa and Asia) for the non-breeding period, arriving in Australia between August and November, and departing between March and mid-April. It generally occupies littoral and estuarine habitats, and in New South Wales is mainly found in intertidal mudflats of sheltered coasts. It also occurs in non-tidal swamps, lakes and lagoons on the coast and sometimes inland. It forages in or at the edge of shallow water, occasionally on exposed algal mats or waterweed, or on banks of beach-cast seagrass or seaweed.	Nil. No suitable habitat present or records within the locality.	Nil.

Species name	BC Act / FM Act	EPBC Act	Source	Habitat/community description	Likelihood of occurrence	Level of impact
Pectoral Sandpiper (<i>Calidris melanotos</i>)	-	Bonn, J,K	PMST-M	Widespread but scattered records across NSW, east of the divide and in the Riverina and Lower Western regions. Breeds in the northern hemisphere. In Australasia, prefers shallow fresh to saline wetlands and is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands. Usually in coastal or near-coastal habitats, and prefers wetlands with open mudflats and low emergent or fringing vegetation such as grass or samphire.	Nil. No suitable habitat present or records within the locality.	Nil.
Eastern Curlew (<i>Numenius madagascariensis</i>)	-	CE, Bonn, C,J,K	PMST-M	Occurs across the entire coast but is mainly found in estuaries such as the Hunter River, Port Stephens, Clarence River, Richmond River and ICOLLs of the south coast. Generally, occupies coastal lakes, inlets, bays and estuarine habitats, and is mainly found in intertidal mudflats and sometimes saltmarsh of sheltered coasts in NSW. Rarely seen inland.	Nil. No suitable habitat present or records within the locality.	Nil.
Latham's Snipe (<i>Gallinago hardwickii</i>)	-	Bonn, J,K	PMST-L	Non-breeding migrant to the south-east of Australia. Breeds in Japan and on the east Asian mainland. Seen in small groups or singly in freshwater wetlands on or near the coast, generally among dense cover. Found in any vegetation around wetlands, in sedges, grasses, lignum, reeds and rushes and also in saltmarsh and creek edges on migration. Also uses crops and pasture.	Nil. No suitable habitat present or records within the locality.	Nil.
Eastern Osprey (<i>Pandion haliaetus</i>)	V	Bonn	PMST-L	Found right around the Australian coastline, except for Victoria and Tasmania. Common around the northern coast, especially on rocky shorelines, islands and reefs. Uncommon to rare or absent from closely settled parts of south-eastern Australia. Rare records from inland areas. Favours coastal areas, especially the mouths of large rivers, lagoons and lakes. Breeds in NSW from July to September. Nests are made high up in dead trees or in dead crowns of live trees, usually within one kilometre of the sea.	Nil. No suitable habitat present or records within the locality.	Nil.

Key: CE = Critically Endangered, E = Endangered, V = Vulnerable, X = Presumed Extinct, Bonn = Convention on the Conservation of Migratory Species of Wild Animals, C = China-Australia Migratory Bird Agreement, J = Japan-Australia Migratory Bird Agreement, K = Republic of Korea-Australia Migratory Bird Agreement, PMST-K = Known, PMST-L = Likely, PMST-M = May.



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