Ecological Assessment

for a Proposed Upgrade to the Blayney Multi-Purpose Service at 3 Osman Street, Blayney 2799

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Executive Summary

Introduction

Firebird ecoSultants Pty Ltd has been engaged by The APP Group to provide an ecological assessment for a proposed upgrade of the Blayney Multi-Purpose Service (hospital) building ('the proposal') at No. 3 Osman St, Blayney NSW 2799 ("the site"). The areas proposed for development have been located in managed areas of the site containing scattered groups of native and exotic trees, gardens and mown exotic grasses.

This assessment aims to recognise the relevant requirements of the *Environmental Planning and Assessment Act 1979* (EP&A Act), *Biodiversity Conservation Act 2016* (BC Act) and the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act).

A literature review and desktop research was combined with flora and fauna surveys, and a habitat assessment. Commonwealth, state and local government policies and guidelines formed the basis of project surveying and assessment methodology.

Flora

The development area is not mapped as containing biodiversity values, containing vegetation which has been highly modified from its original form. The site is predominantly cleared, containing scattered native trees, mown Common Couch grass *(Elymus repens)* and small gardens containing a mix of native and exotic plants. Native canopy trees proposed for removal include one (1) *Eucalyptus melliodora* (Yellow Box) tree adjacent to the site's northern boundary and one (1) *Eucalyptus sp.* in the south-west of the site. Groups of exotic planted species will also require removal from the central and northern portions of the site which include (refer to Tree Removal Plan in Figure 1-3):

- *Betula pendula* (Silver Birch)
- *Camellia japonica* (Camellia)
- *Chamaecyparis obtuse 'Crippsii'* (Golden Hinoki Cypress)
- *Cordyline australis* (Cabbage Tree)
- *Cupressus sempervirens* (Mediterranean Cypress)
- *Cupressus sempervirens* (Swanes Golden Cypress)
- *Fraxinus excelsior* (European Ash)
- *Malus floribunda* (Crab Apple)
- *Malus floribunda* (Crab Apple)
- *Photinia serratifolia* (Chinese Photinia)
- *Prunus 'Royal Burgundy'* (Ornamental Cherry)
- *Robinia pseudoacacia 'Umbraculifera'* (Mop To Robinia)

A grasslands and ground cover assessment has been undertaken within the site, this assessment determined that, in accordance with the OEH (2017) *Interim Grasslands and other Groundcover Assessment Method,* the site's grassland is regarded as non-native, and is classified as low conservation value.

Fauna

The development area may provide marginal habitat for potentially occurring threatened species that are adapted to open areas, such as woodland birds and microbats.

Impact Assessment

The proposed upgrade requires 529m^2 of vegetation to be removed. This relatively small area contains one (1) *Eucalyptus melliodora* (Yellow Box) tree adjacent to the site's northern boundary and one (1) *Eucalyptus sp.* in the south-west of the site. Groups of exotic planted species will also require removal (refer to Tree Removal Plan in Figure 1-3).

Due to the historic clearing and current land use within the site and immediate area, the proposal would not impact vegetation connectivity. No hollow bearing trees or nests were found on the site.

Assessment under section 7.3 of the Biodiversity Conservation Act 2016 (NSW) (BC Act) determined that, with some mitigation efforts employed, no significant impacts are likely to occur to any threatened species or ecological communities as a result of the proposal. No relevant thresholds within the BC Act are triggered, hence the 5 Part Test supplied is considered sufficient for assessment purposes.

Consideration of the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) revealed that impacts on Matters of National Environmental Significance (MNES) are considered unlikely to occur.

Section 5.2 outlines proposed mitigation measures. If these are adhered to, it is considered unlikely that the proposal would significantly impact any threatened species, populations or EECs. Overall, considering the disturbed area of the development footprint., the proposal is not expected to have any significant impacts on native biodiversity.

Recommendations

The following recommendations should be conditioned as part of any development consent;

- No removal of any hollows or nests;
- Areas of vegetation to be retained should be fenced off during construction;
- Site hygiene practices should be implemented during the development phase to avoid the spread of pathogens, including chytrid, *Phytophthora* and myrtle rust, as well as spread of weeds; and
- Best practice erosion and sedimentation controls should be put in place to limit offsite movement of materials into the surrounding areas.

Terms & Abbreviations

Abbreviation	Meaning
API	Aerial Photograph Interpretation
BC Act	*Biodiversity Conservation Act 2016*
DCP	Development Control Plan
APZ	Asset Protection Zone
DEE	Department of Environment and Energy
DPE	Department of Planning and Environment
EEC	Endangered Ecological Community
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
Ha	Hectare
LMCC	Lake Macquarie City Council
LHCCREMS	Lower Hunter and Central Coast Regional Environment Management Strategy
LEP	Local Environmental Plan
NPWS	National Parks and Wildlife Service
OEH	Office of Environment and Heritage
ROTAP	Rare or threatened Australian Plants
TEC	Threatened Ecological Community

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1 INTRODUCTION

1.1 Background

Firebird ecoSultants Pty Ltd has been engaged by The APP Group to provide an ecological assessment for a proposed upgrade of the Blayney Multi-Purpose Service (hospital) building ('the proposal') at No. 3 Osman St, Blayney NSW 2799 ("the site"). The areas proposed for development have been located in previously disturbed areas containing scattered groups of native and exotic trees, small gardens and mown exotic grasses.

This assessment aims to recognise the relevant requirements of the *Environmental Planning and Assessment Act 1979* (EP&A Act), *Biodiversity Conservation Act 2016* (BC Act) and the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). The relevant thresholds under the BC Act have been undertaken and therefore the production of a five-part test addressing the proposal has been undertaken.

A literature review and desktop research was combined with flora and fauna surveys, and a habitat assessment.

1.2 Site Particulars

Locality:	3 Osman Street, Blayney NSW 2799
LGA:	Blayney Shire Council (BSC)
Lot / DP:	Lot 2 DP1097082
IBRA Region	South Eastern Highlands
IBRA Subregion	Orange
Mitchell Landscape	Bathurst Granites
Land size:	~1.38ha
Zoning:	R1 General Residential
Current Land Use:	Existing Blayney Multi-Purpose Service Facility, grassland and scattered planted trees.

1.3 Site Description

The subject site is located within the R1 General Residential zone under the Blayney Local Environment Plan (LEP) 2012 and is approximately 1.38ha in size. The site is predominately developed, containing one (1) *Eucalyptus melliodora* (Yellow Box), one (1) *Eucalyptus sp.* tree, small groups of exotic planted species and managed grassland. The site is not mapped as containing biodiversity values. The site is

bordered by residential development to the north and east, hospital and aged care development to the west and the Mid-Western Highway to the south.

See Figure 1-1 for the site locality and Figure 1-2 for site layout.

1.4 Description of the Proposal

The proposed upgrades to the Blayney Multi-Purpose Service includes a staff accommodation building, residential aged care building, inpatient unit, courtyard, new access road and a covered fleer shelter for staff cars. Most of these upgrades are to occur over existing developed land. However, portions of the development area are to be located over existing managed areas of vegetation within the hospital. Approximately 529m^2 of vegetation is to be removed to facilitate the proposed development.

Native canopy trees proposed for removal include one (1) *Eucalyptus melliodora* (Yellow Box) tree adjacent to the site's northern boundary and one (1) *Eucalyptus sp.* in the south-west of the site. Groups of exotic planted species will also require removal from the central and northern portions of the site which include (refer to Tree Removal Plan in Figure 1-3):

- *Betula pendula* (Silver Birch)
- *Camellia japonica* (Camellia)
- *Chamaecyparis obtuse 'Crippsii'* (Golden Hinoki Cypress)
- *Cordyline australis* (Cabbage Tree)
- *Cupressus sempervirens* (Mediterranean Cypress)
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- *Prunus 'Royal Burgundy'* (Ornamental Cherry)
- *Robinia pseudoacacia 'Umbraculifera'* (Mop to Robinia)

All other vegetation within the hospital will be retained. The proposed development is not expected to cause any significant damage to the highly disturbed site which contains no biodiversity values.

See Appendix A for the site plans.

1.5 Purpose and Scope of Study

The scope of this ecological assessment report is to:

- Identify vascular flora species on the site;
- Identify and map existing vegetation communities;
- Identify fauna species for the site through desk-top analysis, assuming presence for some marginal species. Any sightings observed at the site were also noted.
- Identify existing habitat types on the site and assess the habitat potential for threatened species / populations, or endangered ecological communities (EECs) known from the proximate area;
- Assess the status of identified or potentially occurring flora species, vegetation communities and fauna species under relevant legislation;
- Assess the potential impacts of the proposal on threatened species / populations or EECs, or their habitats;
- Identify the biodiversity values and constraints on the site; and
- Provide recommendations to ensure that the recorded biodiversity values on the site are adequately managed and/or protected.

Whilst survey work has been undertaken wholly within the bounds of the site, consideration has been afforded to areas off the site in order to appreciate the environmental context of the site.

The purpose of this report is to:

- Ensure planning, management and development decisions are based on sound scientific information and advice by documenting the presence of any biodiversity components or potential significant impacts that may exist on the site;
- Provide information to enable compliance with applicable assessment requirements contained within the EP&A Act, BC Act, EPBC Act and any other relevant state, regional and local environmental planning instruments; and
- Enable the provision and analysis of ecological data that is comparable with data for other sites within the region to ensure continuity and consistency for survey and results.

1.6 Qualifications and Licensing

Qualifications

Fieldwork for this project was undertaken by Oliver Broun and Kurtis Mumford. Report writing was undertaken by Oliver Broun and Sarah Jones. Qualifications are provided in Appendix B.

Licensing

Research was conducted under the following licences:

- NSW National Parks and Wildlife Service Scientific Investigation Licence SL100533;

- Animal Research Authority (Trim File No: TRIM 11/5655) issued by NSW Department of Primary Industries; and
- Animal Care and Ethics Committee Certificate of Approval (Trim File No: TRIM 11/5655) issued by Department of Primary Industries.

Certification

As the principal author, I, Sarah Jones make the following certification:

- The results presented in the report are, in the opinion of the principal author and certifier, a true and accurate account of the species recorded, or considered likely to occur within the site;
- Commonwealth, state and local government policies and guidelines formed the basis of project surveying methodology, or where the survey work has been undertaken with specified departures from industry standard guidelines, details of which are discussed and justified in Section 2;
- All research workers have complied with relevant laws and codes relating to the conduct of flora and fauna research, including the *Animal Research Act 1995, National Parks and Wildlife Act 1974* and the *Australian Code of Practice for the Care and Use of Animals for Scientific Purposes*.

Signature of Principal Author and Certifier:

Sarah Jones
B.Env.Sc., G.DIP.DBPA (Design for Bushfire Prone Areas)
BAAS18020 Accredited Assessor
Ecologist / Bushfire Planner

Figure 1-1: Site Location

Note:
Boundaries are not survey accurate.
Although all reasonable care has been taken to ensure the information shown on this map is up to date and accurate, no guarantee is given that the information portrayed is free from error or omission. Please verify the accuracy of all information prior to use.

F I G U R E 1 - 2 : SITE LAYOUT

CLIENT	Client
SITE DETAILS	No.1 Osman Street Blayney
DATE	9 November 2022

Legend
- Subject Site
- 140m Buffer
- Managed Land

NORTH

0 25 50 100

SCALE 2000 @ A3

Ref No 3180

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Tree ID	Species
8	***Malus floribunda*** Crab Apple
22	***Eucalyptus sp.*** Eucalyptus
23	***Cupressus sempervirens*** Swanes Golden Cypress
24	***Photinia serratifolia*** Chinese Photinia
25	***Camellia japonica*** Camellia
28	***Prunus 'Royal Burgundy'*** Ornamental Cherry
31	***Prunus 'Royal Burgundy'*** Ornamental Cherry
32	***Fraxinus excelsior*** European Ash
33	***Cupressus sempervirens*** Mediterranean Cypress
38	***Eucalyptus melliodora Yellow Box***
39	***Prunus 'Royal Burgundy'*** Ornamental Cherry
40	***Prunus 'Royal Burgundy'*** Ornamental Cherry
41	***Prunus 'Royal Burgundy'*** Ornamental Cherry
42	***Prunus 'Royal Burgundy'*** Ornamental Cherry
43	***Fraxinus excelsior*** European Ash
44	***Fraxinus excelsior*** European Ash
45	***Robinia pseudoacacia 'Umbraculifera'*** Mop To Robinia
54	***Betula pendula*** Silver Birch
55	***Chamaecyparis obtuse 'Crippsii'*** Golden Hinoki Cypress
56	***Chamaecyparis obtuse 'Crippsii'*** Golden Hinoki Cypress
59	(Relocated): ***Malus floribunda*** Crab Apple
60	***Cordyline australis*** Cabbage Tree

Note:
Boundaries are not survey accurate.
Although all reasonable care has been taken to ensure the information shown on this map is up to date and accurate, no guarantee is given that the information portrayed is free from error or omission. Please verify the accuracy of all information prior to use.

FIGURE 1-3:TREE REMOVAL MAP

CLIENT	Client
SITE DETAILS	No.1 Osman Street Blayney
DATE	9 February 2023

Legend
- Subject Site
- Tree to be Retained
- Tree to be Removed

NORTH

0 10 20 30 40 50

SCALE 1000 @ A3

PIXELDRAFTING

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Ref No 3180

2 METHODOLOGY

This assessment included a desktop-based analysis of previous records of threatened species in the area, a review of any relevant literature and field-based surveys of the site and surrounding area.

2.1.1 Database Searches

The following database searches were undertaken, in order to compile a list of threatened flora and fauna species and Matters of National Environmental Significance (MNES), predicted to occur in the area:

Review of threatened fauna and flora records within a 10 km radius of the site, contained in the OEH Atlas of NSW Wildlife (NSW BioNet).

Review of the Matters of National Environmental Significance (MNES) records within a 10 km radius of the site, using the Commonwealth Department of Environment and Energy (DEE), EPBC Act Protected Matters Search Tool.

2.1.2 Literature Review

Information sources reviewed included, but were not limited to:

- Aerial Photograph Interpretation (API);
- Relevant ecological survey guidelines, including:
  - *Native Vegetation Map Report Series No. 4.* (DIPNR 2004);
  - OEH Threatened Species, Populations and Ecological Communities website (http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/);
  - OEH *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities* (Department of Environment and Conservation (DEC) 2004) and *NSW Guide to Surveying Threatened Plants* (OEH 2016)
- Environmental / planning reports relevant to the site / area, including:
  - Blayney Local Environment Plan (LEP) 2012
- Any relevant recovery plans.

2.2 Flora Survey and Vegetation Mapping

A general flora survey was conducted on the 2nd and 3rd of November 2022. This included a survey using Cropper's (1993) random meander technique, to record flora species and to determine the boundaries of any vegetation communities as well as a grasslands and other groundcover assessment for the site.

Finally, opportunistic searches for threatened / significant flora species were undertaken on the site (however largely this search was undertaken via a desktop survey). A list of potentially occurring significant flora species from the locality (10 km radius) was compiled (see Section 2.1); these included threatened species listed under the BC Act, EPBC Act, Rare or Threatened Australian Plants (ROTAP) (Briggs and Leigh 1996), as well as any other species deemed to be of local importance. Targeted searches were then undertaken over the site, whereby the entire site was systematically traversed.

2.3 Habitat Assessment

An assessment of the relative habitat values of the site was undertaken on the site. No hollows or nests were recorded within the subject site.

The habitat assessment focused on the identification of habitat types and resources favoured by all major guilds of native flora and fauna, including threatened species known from the region. The assessment was based on specific habitat requirements in regards to home range, feeding, roosting, breeding, movement patterns and corridor requirements. Consideration was given to contributing factors including topography, soil, light and hydrology.

2.4 Fauna

Incidental records of fauna species, namely native birds, were surveyed and recorded. This included opportunistic sightings of secondary indications of any resident or migratory species. Searches were also conducted for whitewash, regurgitation pellets and prey remains from Owls, chewed (Allo)Casuarina cones from Black-Cockatoos, chewed fruit remains from frugivorous birds, etc.

Table 2-1 Field Survey Periods

Date	Time	Field Survey
2 November 2022	4pm – 6pm	Flora and fauna survey, habitat assessment, and setting up ANA-BAT Recorders.
3 November 2022	8am – 10am	Flora and fauna survey, habitat assessment, and secondary searches.

2.5 Survey Limitations

In order to address potential limitations which are inherent in ecological surveys due to seasonal and weather restrictions, the habitat assessment and the presence of local records for threatened species were used to assess whether threatened species were likely to be present. Furthermore, where necessary the precautionary principle of 'assumed presence' has been applied.

3 RESULTS

3.1 Desktop Research

3.1.1 Database Searches

A number of threatened species and EECs have been recorded on the BioNet Atlas of NSW Wildlife database and EPBC Act Protected Matters Search Tool, within a 10 km radius of the site. The results of the BioNet Atlas of NSW Wildlife database search are listed in Table 3-1. Note that marine species have been excluded, as they would not be relevant to the site. See Appendix C for the full EPBC Protected Matters report.

Table 3-1: Threatened Species and TECs Identified Within a 10 km Radius of the Site by a Search of the NSW Atlas of Wildlife and the EPBC Act Protected Matters Search Tool

Scientific Name	Common Name	BC Act	EPBC Act
Threatened Birds			
Daphoenositta chrysoptera	Varied Sittella	V,P	
Polytelis swainsonii	Superb Parrot	V,P	V
Stagonopleura guttata	Diamond Firetail	V,P	
Threatened Mammals			
Phascolarctos cinereus	Koala	E1,P	E
Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V

Status: V: Vulnerable, E: Endangered, CE: Critically Endangered, M: Migratory

Flora Survey and Vegetation Mapping

The proposed development areas are highly modified and contain only scattered groups of native and exotic trees, small gardens and mown exotic grasses. The only native tree species of note requiring removal are one (1) *Eucalyptus melliodora* (Yellow Box) tree adjacent to the site's northern boundary and one (1) *Eucalyptus sp.* in the south-west of the site. However, given these trees are isolated and surrounded by residential development. No significant ecological impacts are expected and no potential vegetation corridors will be severed.

The site is not mapped as containing biodiversity values.

Photographs of the vegetation and habitat values of the site are also shown in Photographs 1-3 below:

Photographs 1-4:

3.1.2 Endangered Ecological Communities and Threatened Flora

No threatened flora species were observed on the site. It is considered that the current use of the site would prevent the establishment and persistence of threatened flora species predicted to occur in the area. Thus, it is concluded that they are unlikely to be present.

3.2 Fauna

The site may provide marginal habitat for potentially occurring threatened species that are adapted to open areas, such as woodland birds and microbat.

3.2.1 Threatened Fauna

The site may provide some marginal habitat for some of the threatened fauna species predicted to occur in the area. The principle of assumed presence has been applied to all potentially occurring threatened fauna species that have potential habitat within the site. See Section 4 of this report for further assessment of these potentially occurring species.

3.3 Habitat Assessment

The following provides a summary of the site's habitat values:

- The majority of development area and APZ lacks an upper and middle stratum vegetation apart from one (1) *Eucalyptus melliodora* (Yellow Box) in the north of the site. This would limit habitat availability. The exotic grassland however, may provide potential foraging, nesting, resting and roosting habitat for fauna species adapted to open areas.
- No hollow-bearing trees or nests occur within the development area.
- The development area is grazed and managed in a 'tidy' condition, with no ground timber. This would limit habitat for birds, reptiles, frogs and invertebrates that rely on ground timber for foraging, nesting, resting, perching or basking. However, it is most likely that common snakes and other reptiles do frequent the site.
- The site lacks rocky surfaces, outcrops, caves or ledges.

4 THREATENED SPECIES / COMMUNITIES LIKELIHOOD OF OCCURRENCE ASSESSMENT

Several threatened species and EECs were identified in Section 3 of this report, as potentially occurring in the area. An assessment of the likelihood of occurrence for each of these threatened species and EECs was conducted; see Table 4-1. This assessment deals with the following heads of consideration in tabulated form:

'**Species / Community'** – Lists each threatened species / community known from the vicinity. The status' of each, under the BC Act and EPBC Act, are also provided.

'Habitat Description and Known Populations' – Provides a brief account of the preferred habitat attributes required for the existence / survival of each species / community and information on known populations in the area.

'Likelihood of Occurrence' – Assesses the likelihood of each species / community to occur in or within the immediate vicinity of the study area in terms of the aforementioned habitat description and taking into account local habitat preferences, results of current field investigations, data gained from various sources (such as OEH Atlas of NSW Wildlife, herbariums, etc.) and previously gained knowledge via fieldwork undertaken within other ecological assessments in the locality.

'Potential for Impact'– Assesses the likely level / significance of impacts to each species / community that would result from the proposed development, taking into account direct and indirect short and long-term impacts.

Note: Species highlighted in grey will be assessed under section 7.3 of the BC Act (i.e., five-part test) in section 5 of this report.

Table 4-1: Threatened Species Chance of Occurrence & Potential for Impact

Species / Population	Habitat Description & Known Populations	Likelihood of Occurrence	Potential for Impact
Threatened Amphibia			
Litoria castanea Yellow-spotted Tree Frog, Yellow-spotted Bell Frog	Historically, this species occurred in two separate highland ranges: on the New England Tableland, and on the southern and central tablelands from Bathurst to Bombala. Following the chytrid virus pandemic in the 1970s, this species went unrecorded for 30 years and was believed to be extinct, until it was rediscovered in 2009 on the Southern Tablelands. This population - near Yass - remains the only known extant site of the species. The species requires large permanent ponds or slow flowing 'chain-of-ponds' streams with abundant emergent vegetation such as bulrushes and aquatic vegetation.	**Low** Was not recorded on site. The site lacks potential habitat of permanent streams or semi-permanent water in wet sclerophyll and rainforest habitat. Therefore, it is considered that this species would be unlikely to occur.	**Low** The proposal is unlikely to impact this species.
Litoria booroolongensis Booroolong Frog (E, E*)	The Booroolong Frog is restricted to NSW and north-eastern Victoria, predominantly along the western-flowing streams of the Great Dividing Range. It has disappeared from much of the Northern Tablelands; however, several populations have recently been recorded in the Namoi catchment. The species is rare throughout most of the remainder of its range. Live along permanent streams with some fringing vegetation cover such as ferns, sedges or grasses.	**Low** The site lacks potential habitat of permanent flowing streams. This species is predominantly found within western flowing streams of the Great Dividing Range.	**Low** The site lacks potential habitat.
Litoria raniformis Growling Grass Frog, Southern Bell Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog	In NSW the species was once distributed along the Murray and Murrumbidgee Rivers and their tributaries, the southern slopes of the Monaro district and the central southern tablelands as far north as Tarana, near Bathurst. Currently, the species is known to exist only in isolated populations in the Coleambally Irrigation Area, the Lowbidgee floodplain and around Lake Victoria. A few yet unconfirmed records have also been made in the Murray Irrigation Area in recent years. The species is also found in Victoria, Tasmania and South Australia, where it has also become endangered. Usually found in or around permanent or ephemeral Black Box/Lignum/Nitre Goosefoot swamps, Lignum/Typha swamps and River Red Gum swamps or billabongs along floodplains and river valleys. They are also found in irrigated rice crops, particularly where there is no available natural habitat.	**Low** The site lacks potential habitat of swamps or billabongs along floodplains and river valleys.	**Low** The site lacks potential habitat.
Threatened Aves			
Botaurus poiciloptilus Australasian Bittern (E, E*)	Favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (Typha spp.) and spikerushes (Eleocharis spp.). 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 (OEH, 2017a).	**Low** The site lacks large undisturbed wetland.	**Low** The site lacks potential habitat.

Species / Population	Habitat Description & Known Populations	Likelihood of Occurrence	Potential for Impact
Falco hypoleucos Grey Falcon (E)	The Grey Falcon is sparsely distributed in NSW, chiefly throughout the Murray-Darling Basin, with the occasional vagrant east of the Great Dividing Range. The breeding range has contracted since the 1950s with most breeding now confined to arid parts of the range. There are possibly less than 5000 individuals left. Population trends are unclear, though it is believed to be extinct in areas with more than 500mm rainfall in NSW. 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 (OEH, 2017a).	**Low** The site contains potential foraging habitat. Roosting habitat is however not present. This species is unlikely to be impacted by the proposed clearing.	**Low** The proposal would be unlikely to impact this species due to a lack of roosting habitat.
Grantiella picta Painted Honeyeater (V, V*)	Inhabits Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests. A specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Nomadic; the greatest concentrations of birds and almost all breeding occurs on the inland slopes of the Great Dividing Range in NSW, Victoria and southern Queensland. During the winter it is more likely to be found in the north of its distribution (OEH, 2017a).	**Low** The site lacks Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests.	**Low** The site lacks potential habitat.
Hirundapus caudacutus White-throated Needletail (V*)	The White-throated Needletail is widespread in eastern and south-eastern Australia (Barrett et al. 2003; Blakers et al. 1984; Higgins 1999). In eastern Australia, it is recorded in all coastal regions of Queensland and NSW, extending inland to the western slopes of the Great Divide and occasionally onto the adjacent inland plains. Further south on the mainland, it is widespread in Victoria, though more so on and south of the Great Divide, and there are few records in western Victoria outside the Grampians and the South West. The species occurs in adjacent areas of south-eastern South Australia, where it extends west to the Yorke Peninsula and the Mount Lofty Ranges. It is widespread in Tasmania (Barrett et al. 2003; Blakers et al. 1984; Higgins 1999). White-throated Needletails only occur as vagrants in the Northern Territory (recorded in the Top End, including around Darwin, Katherine and Mataranka and Tennant Creek; and further south around Alice Springs) and in Western Australia (at disparate sites from the Mitchell Plateau in the Kimberley, south to the Nullarbor Plain and Augusta in the South West, and west to Barrow Island, the Houman Abrolhos and the Swan River Plain) (Barrett et al. 2003; Blakers et al. 1984; Brooker et al. 1979; Sedgwick 1978; Slater 1964; Storr 1987; Storr et al. 1986; Wheeler 1959). The species is also a vagrant to various outlying islands, including Norfolk, Lord Howe, Macquarie, Christmas and Cocos-Keeling Islands (Barrand 2005; Green 1989; McAllan et al. 2004; Schodde et al. 1983; Stokes et al. 1984; Warham 1961a).	**Low** The site is predominately cleared of vegetation. This species is unlikely to occur.	**Low** Unlikely to occur within the site.

Species / Population	Habitat Description & Known Populations	Likelihood of Occurrence	Potential for Impact
Leipoa ocellate Malleefowl (E,V*)	The stronghold for this species in NSW is the mallee in the south west centred on Mallee Cliffs NP and extending east to near Balranald and scattered records as far north as Mungo NP. West of the Darling River a population also occurs in the Scotia mallee including Tarawi NR and Scotia Sanctuary, and is part of a larger population north of the Murray River in South Australia. The population in central NSW has been significantly reduced through land clearance and fox predation and now occurs chiefly in Yathong, Nombinnie and Round Hill NRs and surrounding areas, though birds continue to survive in Loughnan NR. To the south of this area the species is probably locally extinct in such reserves as Pulletop NR (last recorded 1989), Ingalba NR (1982) and Buddigower NR (1990) and the intensely studied population at Yalgogrin was still known to have at lest one active mound in 2017. Further east, a population continues to persist in the Goonoo forest near Dubbo, though the size of this population is unknown. Outside these areas, occasional records have been made in the Pilliga forests (most recently 1999), around Cobar (1991) and Goulburn River NP (1989) though the extent and status of populations in these areas are unknown. Predominantly inhabit mallee communities, preferring the tall, dense and floristically-rich mallee found in higher rainfall (300 - 450 mm mean annual rainfall) areas. Utilises mallee with a spinifex understorey, but usually at lower densities than in areas with a shrub understorey. Less frequently found in other eucalypt woodlands, such as Inland Grey Box, Ironbark or Bimble Box Woodlands with thick understorey, or in other woodlands such dominated by Mulga or native Cypress Pine species. Prefers areas of light sandy to sandy loam soils and habitats with a dense but discontinuous canopy and dense and diverse shrub and herb layers.	**Low** Was not recorded on site. The site is predominately cleared of vegetation and lacks appropriate woodland vegetation.	**Low** Unlikely to impact this species due to the highly disturbed nature of the site.
Polytelis swainsonii Superb Parrot (V,V*)	The Superb Parrot is found throughout eastern inland NSW. On the South-western Slopes their core breeding area is roughly bounded by Cowra and Yass in the east, and Grenfell, Cootamundra and Coolac in the west. Birds breeding in this region are mainly absent during winter, when they migrate north to the region of the upper Namoi and Gwydir Rivers. The other main breeding sites are in the Riverina along the corridors of the Murray, Edward and Murrumbidgee Rivers where birds are present all year round. It is estimated that there are less than 5000 breeding pairs left in the wild. Inhabit Box-Gum, Box-Cypress-pine and Boree Woodlands and River Red Gum Forest. In the Riverina the birds nest in the hollows of large trees (dead or alive) mainly in tall riparian River Red Gum Forest or Woodland. On the South West Slopes nest trees can be in open Box-Gum Woodland or isolated paddock trees. Species known to be used are Blakely's Red Gum, Yellow Box, Apple Box and Red Box.	**Low** Not observed during surveys. Preferred habitat absent from the site.	**Low** The small area of disturbed vegetation to be removed is unlikely to cause a significant impact on this species.
Calidris ferruginea Curlew Sandpiper (E,CE*)	Occurs along the entire coast of NSW, particularly in the Hunter Estuary, and sometimes in freshwater wetlands in the Murray-Darling Basin. Breeds in Siberia and migrates to Australia 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 (OEH, 2017a).	**Low** The site is not located near the NSW coast or wetlands.	**Low** The site lacks potential habitat.

Species / Population	Habitat Description & Known Populations	Likelihood of Occurrence	Potential for Impact
^^*Callocephalon fimbriatum* Gang-gang Cockatoo	The Gang-gang Cockatoo is distributed from southern Victoria through south- and central-eastern New South Wales. In New South Wales, the Gang-gang Cockatoo is distributed from the south-east coast to the Hunter region, and inland to the Central Tablelands and south-west slopes. It occurs regularly in the Australian Capital Territory. It is rare at the extremities of its range, with isolated records known from as far north as Coffs Harbour and as far west as Mudgee. In spring and summer, generally found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. In autumn and winter, the species often moves to lower altitudes in drier more open eucalypt forests and woodlands, particularly box-gum and box-ironbark assemblages, or in dry forest in coastal areas and often found in urban areas. May also occur in sub-alpine Snow Gum (*Eucalyptus pauciflora*) woodland and occasionally in temperate rainforests. Favours old growth forest and woodland attributes for nesting and roosting (OEH, 2022). 6 records found on the Atlas of NSW Wildlife (OEH, 2022).	**Low** Not observed during surveys. Potential habitat present.	**Low** One (1) *Eucalyptus melliodora* (Yellow Box) and one (1) *Eucalyptus sp.* tree are to be removed as part of the proposal. The relatively small area of disturbed vegetation to be removed is unlikely to cause a significant impact on this species.
^^*Lathamus discolor* Swift Parrot	Occurs 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 *E. robusta* (Swamp Mahogany), *C. maculata* (Spotted Gum), *E. gummifera* (Red Bloodwood), *E. sideroxylon* (Mugga Ironbark) and *E. albens* (White Box). Commonly used lerp infested trees include Grey Box *E. macrocarpa* (Grey Box), *E. moluccana* (Grey Box) and *E. pilularis* (Blackbutt). Breeds in Tasmania during spring and summer and migrates to south-eastern Australia during autumn and winter. In NSW, it mostly occurs on the coast and south west slopes (OEH, 2022). Not found within 10km radius according to the Atlas of NSW wildlife (OEH, 2022).	**Low** Potential foraging habitat present. However, the site is not mapped as habitat for the species. This species is unlikely to occur within the site.	**Low** The small area of disturbed vegetation to be removed is unlikely to cause a significant impact on this species.
Numenius madagascariensis Eastern Curlew (CE*)	In NSW the species 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. It generally occupies coastal lakes, inlets, bays and estuarine habitats, and in New South Wales is mainly found in intertidal mudflats and sometimes saltmarsh of sheltered coasts (OEH, 2017a).	**Low** Not observed during surveys. Preferred habitat absent from the site.	**Low** The small area of disturbed vegetation to be removed is unlikely to cause a significant impact on this species.
Rostratula australis Australian Painted Snipe (E,E*)	Most records are from the south east, particularly the Murray Darling Basin, with scattered records across northern Australia and historical records from around the Perth region in Western Australia. In NSW many records are from the Murray-Darling Basin including the Paroo wetlands, Lake Cowal, Macquarie Marshes, Fivebough Swamp and more recently, swamps near Balldale and Wanganella. Prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber. Nests on the ground amongst tall vegetation, such as grasses, tussocks or reeds (OEH, 2017a).	**Low** Was not recorded on site. The site lacks potential wetland habitat with dense cover.	**Low** Would not be impacted as the site lacks potential habitat.

Species / Population	Habitat Description & Known Populations	Likelihood of Occurrence	Potential for Impact
Anthochaera Phrygia Regent Honeyeater (CE, CE*)	Inhabits dry open forest and woodlands that support a high abundance and species richness of birds; these areas have large numbers of mature trees, high canopy cover and abundance of mistletoes. A shrubby understorey is an important source of insects and nesting material. Distributed in NSW is very patchy but mainly confined to breeding areas in the Capertee Valley and the Bundarra-Barraba regions (OEH, 2017a).	**Low** Not observed during surveys. Potential foraging habitat present. This species is unlikely to occur within the site.	**Low** One (1) *Eucalyptus melliodora* (Yellow Box) and one (1) *Eucalyptus sp.* tree are to be removed as part of the proposal. The relatively small area of disturbed vegetation to be removed is unlikely to cause a significant impact on this species.
Threatened Flora			
Ammobium craspedioides Yass Daisey	Found from near Crookwell on the Southern Tablelands to near Wagga Wagga on the South Western Slopes. Most populations are in the Yass region. Found in moist or dry forest communities, Box-Gum Woodland and secondary grassland derived from clearing of these communities. Grows in association with a large range of eucalypts (*Eucalyptus blakelyi*, *E. bridgesiana*, *E. dives*, *E. goniocalyx*, *E. macrorhyncha*, *E. mannifera*, *E. melliodora*, *E. polyanthemos*, *E. rubida*).	**Low** Was not recorded on site. Unlikely to occur due to the highly disturbed nature of the site.	**Low** Unlikely to occur on the site.
Euphrasia arguta (CE,CE*)	Euphrasia arguta has only been recorded from relatively few places within an area extending from Sydney to Bathurst and north to Walcha. The Royal Botanic Gardens Specimen Register records an additional location reported and vouchered in 2002 from near the Hastings River; and Euphrasia arguta was also recorded from the Barrington Tops in 2012. Known to occur in the open forest country around Bathurst in sub humid places, on the grassy country near Bathurst, and in meadows near rivers (OEH, 2017a).	**Low** Was not recorded on site. Unlikely to occur due to the highly disturbed nature of the site.	**Low** Unlikely to occur on the site.
Swainsona recta Small Purple-pea	Small Purple-pea was recorded historically from places such as Carcoar, Culcairn and Wagga Wagga where it is probably now extinct. Populations still exist in the Queanbeyan and Wellington-Mudgee areas. Over 80% of the southern population grows on a railway easement. It is also known from the ACT and a single population of four plants near Chiltern in Victoria. It grows in association with understorey dominants that include Kangaroo Grass *Themeda australis*, poa tussocks *Poa* spp. and spear-grasses *Austrostipa* spp.	**Low** Was not recorded on site. Unlikely to occur due to the highly disturbed nature of the site.	**Low** Unlikely to occur on the site.
Leucochrysum albicans subsp. tricolor Hoary Sunray (E*)	Endemic to south-eastern Australia, where it is currently known from three geographically separate areas in Tasmania, Victoria and south-eastern NSW and ACT. In NSW it currently occurs on the Southern Tablelands adjacent areas in an area roughly bounded by Albury, Bega and Goulburn, with a few scattered locatlities know from beyond this region. Occurs in a wide variety of grassland, woodland and forest habitats, generally on relatively heavy soils. Can occur in modified habitats such as semi-urban areas and roadsides. Highly dependent on the presence of bare ground for germination. In some areas, disturbance is required for successful establishment.	**Low-Moderate** Was not recorded on site. However, the site contains disturbed areas where the species could possibility occur.	**Low** Unlikely to impact this species due to the highly disturbed nature of the site.

Species / Population	Habitat Description & Known Populations	Likelihood of Occurrence	Potential for Impact
Lepidium hyssopifolium Aromatic Peppercress (E,E*)	In NSW, there is a small population near Bathurst, one populations at Bungendore, and one near Crookwell. The species was also recorded near Armidale in 1945 and 1958; however it is not known whether it remains in this area. A specimen collected in the Cooma area about 100 years ago may also be Aromatic Peppercress. In NSW the species was known to have occurred in both woodland with a grassy understorey and in grassland.	**Low** Was not recorded on site. The site is predominately cleared of vegetation and lacks appropriate woodland or grassy vegetation.	**Low** Unlikely to impact this species due to the highly disturbed nature of the site.
Eucalyptus aggregate Black Gum (V, V*)	Black Gum is found in the NSW Central and Southern Tablelands, with small isolated populations in Victoria and the ACT. In NSW it occurs in the South Eastern Highlands Bioregion and on the western fringe of the Sydney Basin Bioregion. Black Gum has a moderately narrow distribution, occurring mainly in the wetter, cooler and higher parts of the tablelands, for example in the Blayney, Crookwell, Goulburn, Braidwood and Bungendore districts.	**High** One (1) *Eucalyptus melliodora* (Yellow Box) and one (1) *Eucalyptus sp.* tree have been identified within the site and will require removal.	**Low-Moderate** The removal of one (1) *Eucalyptus melliodora* (Yellow Box) and one (1) *Eucalyptus sp.* tree within a highly disturbed site is unlikely to cause a significant impact on vegetation connectivity.
Eucalyptus pulverulenta Silver-leafed Gum	The Silver-leafed Gum is found in two quite separate areas, the Lithgow to Bathurst area and the Monaro (Bredbo to Bombala). It grows in shallow soils as an understorey plant in open forest, typically dominated by Brittle Gum (*Eucalyptus mannifera*), Red Stringybark (*E. macrorhynca*), Broad-leafed Peppermint (*E. dives*), Silvertop Ash (*E. sieberi*) and Apple Box (*E. bridgesiana*).	**Low** Was not recorded on site. The site is predominately cleared of vegetation and lacks appropriate forest vegetation.	**Low** Unlikely to impact this species due to the highly disturbed nature of the site.
Lepidium aschersonii Spiny Peppercress (V,V*)	Not widespread, occurring in the marginal central-western slopes and north-western plains regions of NSW (and potentially the south western plains). In the north of the State recent surveys have recorded a number of new sites including Brigalow Nature Reserve, Brigalow State Conservation Area, Leard State Conservation Area and Bobbiwaa State Conservation Area. Also known from the West Wyalong in the south of the State. Records from Barmedman and Temora areas are likely to be no longer present. Approximately 50% of the total Lepidium aschersonii recorded for Australia occurs in NSW. Found on ridges of gilgai clays dominated by Brigalow (Acacia harpophylla), Belah (Casuarina cristata), Buloke (Allocasuarina luehmanii) and Grey Box (Eucalyptus microcarpa). In the south has been recorded growing in Bull Mallee (Eucalyptus behriana). Often the understorey is dominated by introduced plants. The species grows as a a component of the ground flora, in grey loamy clays. Vegetation structure varies from open to dense, with sparse grassy understorey and occasional heavy litter. Flowers from spring to autumn.	**Low-Moderate** Was not recorded on site. However, the site contains areas of introduced species where the species could possibility occur.	**Low** Unlikely to impact this species due to the highly disturbed nature of the site.
Thesium austral Austral Toadflax (V, V*)	Austral Toad-flax is found in very small populations scattered across eastern NSW, along the coast, and from the Northern to Southern Tablelands. It is also found in Tasmania and Queensland and in eastern Asia. Although originally described from material collected in the SW Sydney area, populations have not been seen in a long time. It may persist in some areas in the broader region.	**Low** Unlikely to be present on site due to grazing impacts	**Low** Not observed during surveys.
Threatened Mammals			

Species / Population	Habitat Description & Known Populations	Likelihood of Occurrence	Potential for Impact
Chalinolobus dwyeri Large-eared Pied Bat (V, V*)	Roosts in caves, crevices in cliffs, old mine workings. Frequents low to mid-elevation dry open forest and woodland close to these features. Requires a canopied habitat (OEH, 2017a).	**Low** The site contains potential foraging habitat. Roosting habitat is however not present. This species is unlikely to be impacted by the proposed clearing.	**Low** The proposal would be unlikely to impact this species due to a lack of roosting habitat.
Dasyurus maculatus subsp. *maculatus* Spotted-tailed Quoll (V, E*)	Found in a variety of forested habitats from sclerophyll forests, rainforests and coastal woodlands. Creates a den in fallen hollow logs or among rocky outcrops and is an opportunistic hunter of a variety of prey. Generally does not occur in otherwise suitable habitats that are in close proximity to urban development. Hunter Region records are largely confined to the surrounding ranges and larger vegetation remnants (OEH, 2017a). Three records occur in the surrounding area of the site; however, none are relatively recent (OEH 2017b).	**Low** Was not recorded on site. The site is predominately cleared of vegetation and contains no potential roosting areas	**Low** The site lacks potential habitat.
Petaurus australis Yellow-bellied Glider (V)	The Yellow-bellied Glider is found along the eastern coast to the western slopes of the Great Dividing Range, from southern Queensland to Victoria. Occur in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. Forest type 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.	**Low** The site is lacking in potential habitat for the species i.e., lack of large hollows.	**Low** The site lacks preferred habitat.
Petauroides volans Greater Glider (V*)	Inhabits eucalypt forests and woodlands. Favours forests with a diversity of eucalypt species, due to seasonal variation in preferred feed trees. Shelters and nests in large tree hollows. Prefers large, undisturbed habitat patches (>160 km²). Restricted to eastern Australia, occurring from Windsor Tableland in North Qld through to central Victoria (OEH, 2017a).	**Low** Was not recorded on site. The site is predominately cleared of vegetation and lacks appropriate forest vegetation.	**Low** The site lacks potential habitat.
Pteropus poliocephalus Grey-headed Flying-Fox (V, V*)	Occurs along the east coast from Bundaberg, Queensland to Melbourne, Victoria. Utilises a range of habitats including rainforests, sclerophyll forests and woodlands, heaths, swamps and mangroves. Considered an important pollinator and seed disperser of native trees. Colonies usually formed in gullies with a dense vegetation canopy and a water source nearby (OEH, 2017a).	**Low - Moderate** The site contains potential foraging habitat. Roosting habitat is however not present. This species is unlikely to be impacted by the proposed clearing.	**Low – Moderate** Species may use site for foraging. However, no roosting habitat occurs within the site.
Phascolarctos cinereus Koala (V, V*)	Occurs in forests and woodlands where it requires suitable feed trees (particularly *Eucalyptus sp.*) and habitat linkages. Will occasionally cross open areas, although it becomes more vulnerable to predator attack and road mortality during these excursions. Within the Greater Hunter Region it is largely confined to the Port Stephens area, the Lake Macquarie hinterland and the Watagan Mountains (OEH, 2017a). One record from 2004 occurs approximately 3km to the north of the site (OEH 2017b).	**Low** This species was not observed on site. Scats or evidence of the species were not recorded.	**Low** The site lacks potential habitat.

Species / Population	Habitat Description & Known Populations	Likelihood of Occurrence	Potential for Impact
Threatened Reptilia			
Aprasia parapulchella Pink-tailed Legless Lizard (V,V*)	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. Inhabits sloping, open woodland areas with predominantly native grassy ground layers, particularly those dominated by Kangaroo Grass (Themeda australis). Sites are typically well-drained, with rocky outcrops or scattered, partially-buried rocks.	**Low** Preferred habitat is absent from the site.	**Low** The small area of disturbed vegetation to be removed is unlikely to cause a significant impact on this species.
Delma impar Striped Legless Lizard (V,V*)	The Striped Legless Lizard occurs in the Southern Tablelands, the South West Slopes, the Upper Hunter and possibly on the Riverina. Populations are known in the Goulburn, Yass, Queanbeyan, Cooma, Muswellbrook and Tumut areas. Also occurs in the ACT, Victoria and south-eastern South Australia. Found mainly in Natural Temperate Grassland but has also been captured in grasslands that have a high exotic component.	**Low** Preferred habitat is absent from the site.	**Low** The small area of disturbed vegetation to be removed is unlikely to cause a significant impact on this species.
Ecological Communities			
Natural Temperate Grassland of the South Eastern Highlands	Natural Temperate Grassland is a natural grassland community dominated by a 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. 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.	Not recorded within the site	Not recorded within the site
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	The community 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 *Eucalyptus albens*, Yellow Box *E. melliodora* and Blakely's Red Gum *E. blakelyi*. The community 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.	Not recorded within the site	Not recorded within the site

Notes: V = Vulnerable (BC Act), **V* =** Vulnerable (EPBC Act), **E** = Endangered (BC Act), **E*** = Endangered (EPBC Act), **CE** = Critically Endangered (BC Act), **CE*** = Critically, **M** = Migratory (EPBC Act)

5 IMPACT ASSESSMENTS

5.1 Description of Potential Impacts

The proposed upgrades will require the removal of approximately 529m^2 of vegetation. This will include one (1) *Eucalyptus melliodora* (Yellow Box) tree adjacent to the site's northern boundary and one (1) *Eucalyptus sp.* in the south-west of the site. Groups of exotic planted species will also require removal from the central and northern portions of the site which include (refer to Tree Removal Plan in Figure 1-3):

- *Betula pendula* (Silver Birch)
- *Camellia japonica* (Camellia)
- *Chamaecyparis obtuse 'Crippsii'* (Golden Hinoki Cypress)
- *Cordyline australis* (Cabbage Tree)
- *Cupressus sempervirens* (Mediterranean Cypress)
- *Cupressus sempervirens* (Swanes Golden Cypress)
- *Fraxinus excelsior* (European Ash)
- *Malus floribunda* (Crab Apple)
- *Malus floribunda* (Crab Apple)
- *Photinia serratifolia* (Chinese Photinia)
- *Prunus 'Royal Burgundy'* (Ornamental Cherry)
- *Robinia pseudoacacia 'Umbraculifera'* (Mop To Robinia)

All other vegetation within the hospital will be retained. The proposed development is not expected to cause any significant damage to the already disturbed areas of grassland.

A grasslands and ground cover assessment has been undertaken within the site. This assessment determined that, in accordance with the OEH (2017) *Interim Grasslands and other Groundcover Assessment Method,* the site's grassland is regarded as non-native, and is classified as low conservation value.

No hollows or nests were recorded on the site.

Due to the historic clearing and current land use within the site and immediate area, the proposal would not impact vegetation connectivity.

Section 5.2 outlines proposed mitigation measures. If these are adhered to, it is considered unlikely that the proposal would significantly impact any threatened species, populations or TECs. Overall, considering the highly modified state of the development area, the proposal is not expected to have any significant impacts on native biodiversity.

5.2 Avoidance and Minimisation

The following measures of avoidance have been or are required to be undertaken:

- No removal of any hollows or nests;
- Areas of vegetation to be retained should be fenced off during construction;
- Site hygiene practices should be implemented during the development phase to avoid the spread of pathogens, including chytrid, *Phytophthora* and myrtle rust, as well as spread of weeds; and
- Best practice erosion and sedimentation controls should be put in place to limit offsite movement of materials into the surrounding areas.

5.3 Biodiversity Conservation Act 2016

An assessment under section 7.3 of the BC Act (i.e. five-part test) has been undertaken to identify whether the proposal will significantly impact on the following threatened species and EECs. The threatened species test of significance is used to determine if a development or activity is likely to significantly affect threatened species or ecological communities, or their habitats. It is applied as part of the Biodiversity Offsets Scheme entry requirements and for Part 5 activities under the Environmental Planning and Assessment Act 1979.

An assessment under section 7.3 of the BC Act (i.e. five-part test) has been undertaken to identify whether the proposal will significantly impact threatened species and TECs.

5.3.1 Biodiversity Offset Scheme

The BC Act sets out the Biodiversity Offsets Scheme (BOS) framework, which aims to avoid, minimise and offset impacts on biodiversity from development and clearing, and to ensure land that is used to offset impacts is secured in-perpetuity. The types of developments that the BOS applies to, include local development (under Part 4 of the EP&A Act) that is likely to significant affect threatened species / EECs, as determined by:

- BOS development threshold; or
- Assessment of Significance; or
- Development on Areas of Outstanding Biodiversity Value (AOBV) (note, at this stage AOBVs include areas of declared critical habitat under the *Threatened Species Conservation Act 1995.* This site does not contain any such areas).

The BOS development threshold has two elements:

- Area Criteria – whether the amount of native vegetation being cleared exceeds a threshold area set out below; and

- Biodiversity Values Map (BVM) – whether the impacts occur on an area mapped on the BVM.

Consideration of the site, under the BOS development threshold is discussed below.

5.3.2 Area Criteria

The threshold criteria for vegetation clearing is 1ha. The proposal would require the removal of <1ha of native vegetation, therefore the proposal would not trigger the area threshold.

5.3.3 Biodiversity Values Map

The site is not mapped as containing a high biodiversity value in the BVM. Therefore, an Ecological Assessment, rather than a Biodiversity Development Assessment Report has been undertaken. Refer to Figure 5-1 below.

Figure 5-1: Extract of Biodiversity Values Map

5.3.4 Test of Significance

In accordance with Section 7.3 of the BC Act, the following is to be taken into account for the purposes of determining whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats:

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

The proposed development will be situated on highly disturbed land. Direct impacts on a species are generally unlikely to occur.

Orchid

Not orchids were recorded in surveys (conducted outside recommended survey times). No orchids were identified within a 10km BioNet search. Orchids are unlikely to be present on site due to the disturbance cause by its current land use.

Threatened microbats

For cave-dwelling species, the subject site is foraging habitat only. The removal of approximately 529m^2 of managed vegetation is considered to be an insignificant area of low value foraging habitat, particularly considering that similar foraging habitat is widespread in the proximity of the Blayney area.

Provided that the mitigation measures listed in Section 5.2 are employed, the action proposed is not likely to have an adverse effect on the life cycle of these species such that a viable local population of these species is likely to be placed at risk of extinction.

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

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

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

The proposed development areas are not located in a close proximity to an EEC. As the proposed development is located within a predominantly disturbed areas of the site, it is not expected to cause any significant damage to the site's vegetation.

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

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

Most of the proposed upgrades are to occur over existing developed land. However, portions of the development area are to be located over existing managed areas of vegetation within the hospital. In addition to areas of managed exotic grassland, the removal of one (1) *Eucalyptus melliodora* (Yellow Box) is to be removed from the northern extent of the site and one (1) *Eucalyptus sp.* in the south-west of the site. These are isolated trees, surrounded by residential development. Their removal will therefore not sever any potential vegetation corridors within the area. No hollows or nests are to be removed.

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

The proposed upgrades are to occur over predominantly existing developed land or managed exotic grassland. However, the removal of an isolated group of one (1) *Eucalyptus melliodora* (Yellow Box) and one (1) *Eucalyptus sp.* native canopy trees are to be removed. Their removal will therefore not sever any potential vegetation corridors within the area. No areas of habitat would become fragmented or isolated by the proposal.

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

As outlined above, the habitat present is not considered of significance for the long term survival of any threatened species or EEC in this locality.

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

No declared AOBV occur in or near the site. The proposal is unlikely to affect any such areas, either directly or indirectly.

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

The following Key Threatening Processes (KTP's) are considered to be potentially associated with the assessed threatened species / EEC:

'Clearing of Native Vegetation'

The proposal is unlikely to increase the impact of this KTP.

'Invasion of Native Plant Communities by Exotic Perennial Grasses'; 'Invasion, Establishment and Spread of Lantana'; 'Invasion and Establishment of Exotic Vines and Scramblers'

The site is already exposed to edge effects and contains several weedy species. It is unlikely that the proposal would increase the impact of this KTP, provided that appropriate protocols and procedures to prevent spread of weeds are followed during construction works.

'Human Caused Climate Change'

It is considered that the modification of the site would constitute a minor incremental change. It is unlikely that the proposal would significantly increase the impact of this KTP.

5.3.5 BC Act Conclusion

Assessments of significance under Section 7.3 of the BC Act has assessed that the proposal will not have asignificant and is unlikely to place any viable local populations at risk of extinction. Therefore, the application of the Biodiversity Offsets Scheme is not required.

5.4 EPBC Act Assessment

The EPBC Act focuses Commonwealth interests on MNES. The MNES identified in the EPBC Act, which require assessment and approval by the Commonwealth, include:

- World Heritage Properties;
- National Heritage Places;
- Wetlands of International Importance (declared Ramsar wetlands);
- Listed threatened species and ecological communities;
- Listed migratory species;
- Commonwealth marine areas;
- Commonwealth land; and
- The Great Barrier Reef Marine Park.

The assessment and approval process applies to any action that has, will have, or is likely to have, a significant impact on MNES. The MNES and study area-specific responses are as follows.

World Heritage Areas

The study area is not a World Heritage area, and is not in close proximity to any such area.

National Heritage Places

The study area is not part of a National Heritage Place, and is not in close proximity to any such area.

Wetlands of International Importance (declared Ramsar wetlands)

The study area is not part of RAMSAR Wetland area, and is not in close proximity to any such area.

Listed Threatened Species and Ecological Communities

As detailed in previous Table 4.1, the following threatened species, listed under the EPBC Act, may potentially occur on the site:

Threatened Species

The proposed development will only directly impact managed exotic grassland, scattered planted exotic species, one (1) *Eucalyptus melliodora* (Yellow Box) and one (1) *Eucalyptus sp.* tree. These are an isolated group of trees, surrounded by residential development. Their removal will therefore not sever any potential vegetation corridors within the area. No hollows or nests are to be removed. There is limited suitable habitat for threatened species within the study area. It is unlikely that any threatened species will be impacted by the development.

Listed Migratory Species

A number of EPBC listed migratory species have some potential to visit the site on an irregular basis. However, it is not considered that the development of this land as proposed is likely to significantly affect the availability of potential habitat for such mobile species, or disrupt migratory patterns.

Commonwealth Marine Area

The proposal will not have a significantly adverse effect on any Commonwealth marine area, as there are no such marine areas which occur within the region.

Commonwealth Land

The proposal will not have a significantly adverse effect on any Commonwealth lands, as there are no such lands occur within the region.

The Great Barrier Reef Marine Park

The proposal will not have a significantly adverse effect on any Great Barrier Reef Marine Park, as there are no such parks occur within the region.

EPBC Act Assessment Conclusion

Based on the above, it is considered the current proposal would be unlikely to impact on any MNES under the EPBC Act. Refer to Thus referral to the Commonwealth DoE is not considered necessary.

6 CONCLUSION/RECOMMENDATIONS

This assessment aims to recognise the relevant requirements of the *Environmental Planning and Assessment Act 1979* (EP&A Act), *Biodiversity Conservation Act 2016* (BC Act) and the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act).

A literature review and desktop research was combined with flora and fauna surveys, and a habitat assessment. Commonwealth, state and local government policies and guidelines formed the basis of project surveying and assessment methodology.

Assessments of Significance under the BC Act (five-part tests) and Significant Impact Assessments under the EPBC Act have acknowledged that no threatened species or EECs are likely to be impacted due to the minor nature of the proposal. Any potential impacts will be minor. Provided that the recommendations below are adhered to, it is unlikely that any viable local populations / communities are placed at risk.

The removal of one (1) *Eucalyptus melliodora* (Yellow Box) and one (1) *Eucalyptus sp.* tree are not considered to have a significant ecological impact given these trees are isolated and surrounded by residential development. The removal of these trees will not sever any potential vegetation corridors within the area. No areas of habitat would become fragmented or isolated by the proposal.

It is concluded that the BOS and concurrence of OEH is not required. It is also concluded that an EPBC Act Referral and approval of DEE is not required.

Recommendations:

The following recommendations should be conditioned as part of any development consent;

- No removal of any hollows or nests;
- Areas of vegetation to be retained should be fenced off during construction;
- Site hygiene practices should be implemented during the development phase to avoid the spread of pathogens, including chytrid, *Phytophthora* and myrtle rust, as well as spread of weeds; and
- Best practice erosion and sedimentation controls should be put in place to limit offsite movement of materials into the surrounding areas.

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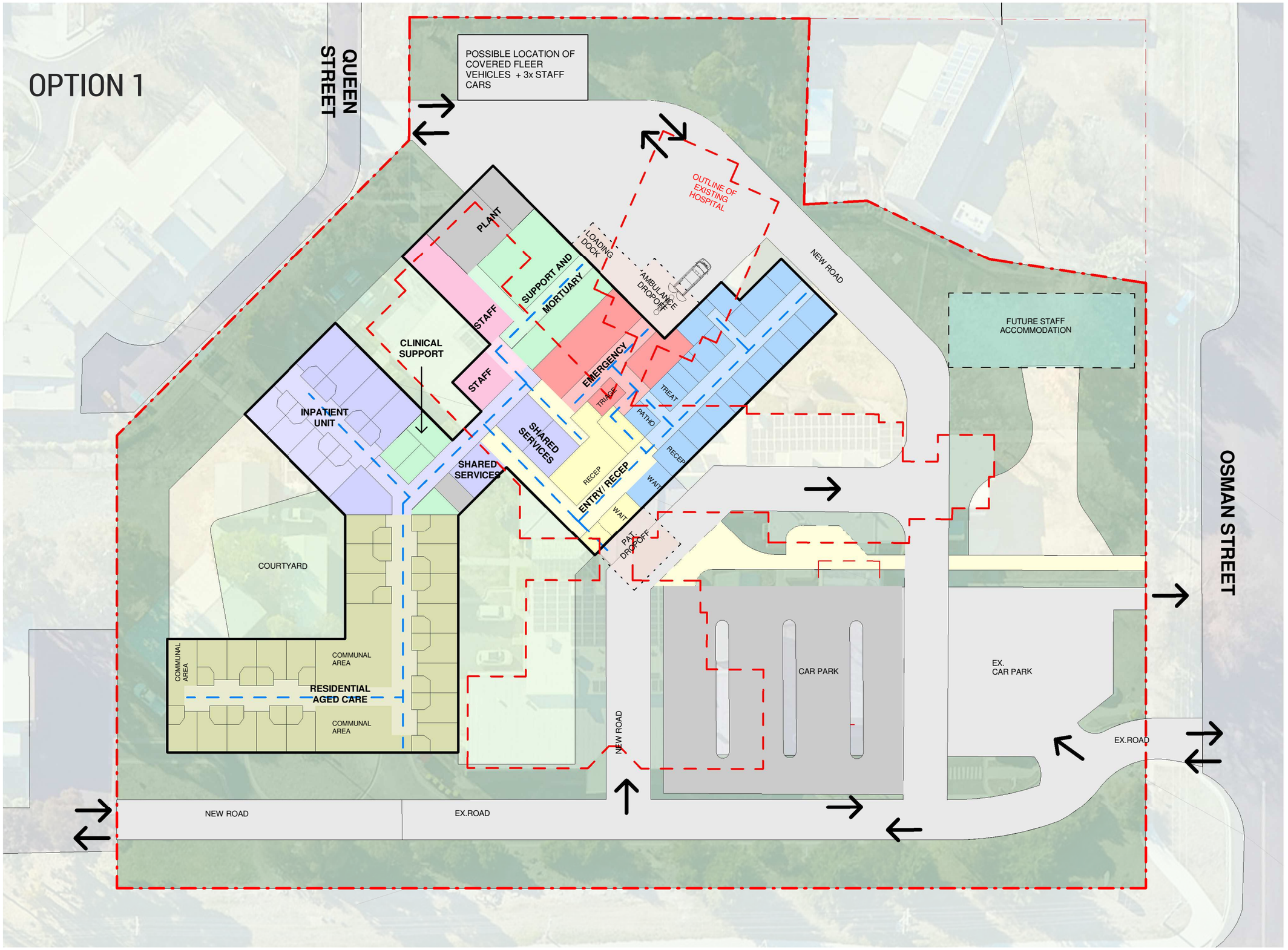
APPENDIX A SITE PLANS

OPTION 1



NBRS

- ENTRY/ WAIT/ RECEPTION /ADMIN
- STAFF AMENITIES
- EMERGENCY SERVICES
- INPATIENT SERVICES
- SHARED SERVICES
- RESIDENTIAL AGED CARE
- HEALTHONE
- CLINICAL SUPPORT
- NON CLINICAL SUPPORT AND MORTUAR
- PLANT & ENGINEERING
- STAFF ACCOMMODATION
- CORRIDOR
- BUILDING LINKS
- REFURBISHMENT
- RETAIN
- POTENTIAL FUTURE EXPANSION

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APPENDIX B QUALIFICATIONS

Qualifications

Fieldwork for this project was undertaken by Kurtis Mumford and Ollie Broun. Report writing for this project was undertaken by Ollie Broun with editing and review by Sarah Jones. Qualifications are provided in the table below.

Sarah Jones	***Ecologist / Bushfire Planning Consultant*** B.Env.Sc., G.DIP.DBPA (Design for Bushfire Prone Areas) *BAAS 18020 Accredited Assessor, as required by the Biodiversity Conservation Regulation 2017 and accredited to apply the BAM* Member of the Ecological Consultants Association of NSW

Licensing

Research was conducted under the following licences:

- NSW National Parks and Wildlife Service Scientific Investigation Licence SL100533;
- Animal Research Authority (Trim File No: TRIM 11/5655) issued by NSW Department of Primary Industries; and
- Animal Care and Ethics Committee Certificate of Approval (Trim File No: TRIM 11/5655) issued by Department of Primary Industries.

Certification

As the project certifier, I, Sarah Jones make the following certification:

- This Biodiversity Development Assessment Report has been prepared in accordance with the Biodiversity Assessment Method established under the NSW Biodiversity Conservation Act 2016.
- The results presented in the report are, in the opinion of the principal author and certifier, a true and accurate account of the species recorded, or considered likely to occur within the site;
- Commonwealth, state and local government policies and guidelines formed the basis of project surveying methodology, or where the survey work has been undertaken with specified departures from industry standard guidelines, details of which are discussed and justified in Section 2;
- All research workers have complied with relevant laws and codes relating to the conduct of flora and fauna research, including the *Animal Research Act 1995,*

National Parks and Wildlife Act 1974 and the *Australian Code of Practice for the Care and Use of Animals for Scientific Purposes*.

Signature of Certifier:

Sarah Jones
B.Env.Sc., G.DIP.DBPA (Design for Bushfire Prone Areas)
Ecologist / Bushfire Planner

BAAS 18020 Accredited Assessor

APPENDIX C EPBC PROTECTED MATTERS SEARCH

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: 04-Nov-2022

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	5
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	37
Listed Migratory Species:	12

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	4
Commonwealth Heritage Places:	None
Listed Marine Species:	19
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

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

Details

Matters of National Environmental Significance

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

Ramsar Site Name	Proximity	Buffer Status
Banrock station wetland complex	800 - 900km upstream from Ramsar site	In feature area
Hattah-kulkyne lakes	600 - 700km upstream from Ramsar site	In feature area
Riverland	700 - 800km upstream from Ramsar site	In feature area
The coorong, and lakes alexandrina and albert wetland	900 - 1000km upstream from Ramsar site	In feature area
The macquarie marshes	300 - 400km upstream from Ramsar site	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 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			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour may occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area	In buffer area only
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Callocephalon fimbriatum Gang-gang Cockatoo [768]	Endangered	Species or species habitat likely to occur within area	In feature area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat likely to occur within area	In feature area
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 known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area	In buffer area only
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat may 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

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Polytelis swainsonii](#) Superb Parrot [738]	Vulnerable	Species or species habitat known to 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			
[Maccullochella macquariensis](#) Trout Cod [26171]	Endangered	Species or species habitat may occur within area	In feature area
[Maccullochella peelii](#) Murray Cod [66633]	Vulnerable	Species or species habitat may occur within area	In feature area
[Macquaria australasica](#) Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area	In feature area
FROG			
[Litoria booroolongensis](#) Booroolong Frog [1844]	Endangered	Species or species habitat likely to occur within area	In feature area
[Litoria castanea](#) Yellow-spotted Tree Frog, Yellow-spotted Bell Frog [1848]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
[Litoria raniformis](#) Growling Grass Frog, Southern Bell Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog [1828]	Vulnerable	Species or species habitat may occur within area	In feature area
INSECT			
[Synemon plana](#) Golden Sun Moth [25234]	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

Scientific Name	Threatened Category	Presence Text	Buffer Status
Dasyurus maculatus maculatus (SE mainland population)			
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area	In feature area
Petauroides volans			
Greater Glider (southern and central) [254]	Endangered	Species or species habitat may occur within area	In feature area
Petaurus australis australis			
Yellow-bellied Glider (south-eastern) [87600]	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]	Endangered	Species or species habitat known to occur within area	In feature area
Pteropus poliocephalus			
Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In feature area
PLANT			
Ammobium craspedioides			
Yass Daisy [20758]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Eucalyptus aggregata			
Black Gum [20890]	Vulnerable	Species or species habitat likely to 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 feature area
Euphrasia arguta			
[4325]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Lepidium aschersonii			
Spiny Pepper-cress [10976]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Lepidium hyssopifolium			
Basalt Pepper-cress, Peppercress, Rubble Pepper-cress, Pepperweed [16542]	Endangered	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Leucochrysum albicans subsp. tricolor Hoary Sunray, Grassland Paper-daisy [89104]	Endangered	Species or species habitat may occur within area	In feature area
Swainsona recta Small Purple-pea, Mountain Swainson-pea, Small Purple Pea [7580]	Endangered	Species or species habitat may 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
REPTILE			
Aprasia parapulchella Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Delma impar Striped Legless Lizard, Striped Snake-lizard [1649]	Vulnerable	Species or species habitat likely 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 likely to occur within area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat may 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 likely 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 known 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

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

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

Commonwealth Land Name	State	Buffer Status
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Australian Telecommunications Commission [12431]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12430]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Corporation [12426]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Telstra Corporation Limited [12432]	NSW	In feature area

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
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area

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

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

Extra Information

EPBC Act Referrals			[Resource Information]	
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
McPhillamys Gold Project, near Blayney, NSW	2019/8421	Controlled Action	Assessment Approach	In buffer area only
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	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 D RECORDED SPECIES LIST

Scientific Name	Common Name
Flora	
Weeds/Grasses	
Anagallis arvensis	Scarlet Pimpernel
Bidens Pilosa	Cobbler Peg
Cenchrus clandestinus	Kikuyu grass
Juncus effusus	Common Rush
Ligustrum quihoui	Waxyleaf privet
Medicago polymorpha	Burr Medic
Pinus Pinaster	Mediterranean pine
Plantago lanceolata	Ribwort Plantain
Quaking-grass	Briza Media
Romulea rosea	Onion Grass
Schoenus apogon	Common Bog-rush
Senecio madagasscariensis	Fireweed
Silybum marianum	Milk Thistle
Trifolium repens	White Clover
Watsonia meriana	Bulbil bugle-lily
Canopy Trees	
Eucalyptus blakelyi	Blakely's Red Gum
Eucalyptus melliodora	Yellow Box
Eucalyptus nicholii	Narrow-leaved Black Peppermint
Eucalyptus sp.	

Liquidambar styraciflua	Sweetgum
Quercus palustris	Swamp Spanish oak
Note: Refer to Preliminary Tree Assessment in Appendix E for full list of sites planted native and exotic flora species	
Fauna	
Aves	
Acridotheres tristis	Indian myna
Dacelo	Kookaburra
Psophodes olivaceus	Eastern whipbird
Rhipidura leucophrys	Willie wagtail

APPENDIX E PRELIMINARY TREE ASSESSMENT

CPS
CREATIVEPLANNINGSOLUTIONS

PRELIMINARY TREE ASSESSMENT REPORT

3 Osman Street, Blayney NSW 2799
Blayney Multi Purpose Service

Prepared for: Health Infrastructure NSW
1 Reserve Road
St Leonards, NSW 2065

Prepared by: Greg Tesoriero
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Registered Consulting Arborist No. 3008
QTRA No. 6291
B.LArch (Hons)

LGA: Blayney Shire Council
Date: 28th October 2022
Revision: A
CPS Ref: F320

QTRA Registered User

Arboriculture Australia 2022 Registered Consulting Arborist

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APPENDICES

DISCLAIMER

The Client acknowledges this Report, and any opinions, advice or recommendations expressed or given in it, are based on the information supplied by the Client and on the data, inspections, measurements and analysis carried out or obtained by CPS and referred to in the Report. No guarantee is implied with respect to future tree safety. The Client should rely on the Report and its contents, only to that extent.

1 EXECUTIVE SUMMARY

This Preliminary Tree Assessment Report was commissioned by The APP Group on behalf of Health Infrastructure NSW on the 4th of September 2022. The report relates to sixty (60) trees located on and adjacent to the subject site at 3 Osman Street, Blayney (Blayney District Hospital / Multi Purpose Service) within the Blayney Shire Council Local Government Area (LGA).

The report provides an evaluation of the existing trees located within the subject site, adjoining the site within 5m of the boundaries and within the Council verge area. The purpose of this report is to identify the existing trees and provide an assessment of the current health, condition, significance and retention values to assist guidance of design development as part of future re-development works.

A summary of those trees identified has been provided in ***Table 1*** below along with a description of their location, protection status and associated retention values.

Further detailed technical tree assessment data is held at ***Section 4.1*** with Tree Location Plans held at ***Section 4.2*** & ***Section 4.3***.

Table 1 *- Trees identified as part of the Preliminary Tree Assessment*

Tree No.	*Species* (Common Name)	Height (m)	Spread (m)	TPZ (m) radius	SRZ (m) radius	Location	Retention Value
1	***Unknown species*** -	5	5	3.0	2.0	Osman St Verge	Medium
2	***Prunus sp.*** Prunus	5	5	3.5	1.85	Subject Site	Low
3	***Cupressus sp.*** Cypress	14	9	7.8	3.01	Subject Site	High
4	***Prunus 'Royal Burgundy'*** Ornamental Cherry	7	5	2.68	1.85	Subject Site	Low
5	***Liquidambar styraciflua*** Sweetgum	15	6	4.2	2.47	No. 5 Osman St	High
6	***Liquidambar styraciflua*** Sweetgum	15	10	7.2	2.85	Subject Site	High
7	***Prunus serrulata*** Japanese Cherry	5	5	3.6	2.13	Subject Site	Medium
8	***Malus floribunda*** Crab Apple	5	8	4.8	2.25	Subject Site	High
9	***Quercus palustris*** Pin Oak	15	16	13.2	3.57	Osman St Verge	High
10	***Unknown species*** -	4	4	2.0	2.0	Subject Site	Low
11	***Zelvoka serrata*** Japanese Zelkova	6	3	3.0	2.0	Subject Site	Medium
12	***Cedrus deodara*** Himalayan Cedar	10	7	5.4	2.67	Subject Site	High

Tree No.	*Species* (Common Name)	Height (m)	Spread (m)	TPZ (m) radius	SRZ (m) radius	Location	Retention Value
13	***Fraxinus sp.*** Flowering Ash	8	6	4.24	2.67	Subject Site	Medium
14	***Cedrus deodara*** Himalayan Cedar	10	6	4.69	2.85	Subject Site	High
15	***Acacia rubida*** Red Stem Wattle	5	5	2.75	2.0	Subject Site	Low
16	***Cedrus deodara*** Himalayan Cedar	10	7	4.8	2.57	Subject Site	High
17	***Cedrus deodara*** Himalayan Cedar	11	7	7.32	2.85	Subject Site	High
18	***Acacia rubida*** Red Stem Wattle	5	6	3.84	2.13	Subject Site	Low
19	***Cupressus sp.*** Cypress	8	5	3.6	2.13	Subject Site	High
20	***Eucalyptus nicholii*** Narrow-leaved Peppermint	13	7	4.8	2.47	Subject Site	High
21	***Eucalyptus nicholii*** Narrow-leaved Peppermint	13	8	6.6	2.76	Subject Site	High
22	***Eucalyptus sp.*** Eucalyptus	16	10	10.2	3.24	No. 2-4 Oldham Place	High
23	***Cupressus sempervirens 'Swanes Gold'*** Swanes Golden Cypress	5	2	2.0	1.68	Subject Site	Medium
24	***Photinia serratifolia*** Chinese Photinia	5	5	3.6	2.25	Subject Site	Medium
25	***Camellia japonica*** Camellia	4	3	2.4	1.85	Subject Site	Low
26	***Eucalyptus blakelyi*** Blakely's Red Gum	14	10	6.6	2.76	No. 2-4 Oldham Place	High
27	***Malus floribunda*** Crab Apple	6	8	5.13	2.47	Subject Site	High
28	***Prunus 'Royal Burgundy'*** Ornamental Cherry	5	5	2.4	1.85	Subject Site	Low
29	***Cupressus sp.*** Cypress	5	2	2.0	1.68	Subject Site	Low
30	***Prunus 'Royal Burgundy'*** Ornamental Cherry	5	3	2.4	1.85	Subject Site	Low
31	***Prunus 'Royal Burgundy'*** Ornamental Cherry	5	3	2.4	1.85	Subject Site	Low
32	***Fraxinus excelsior*** European Ash	9	7	6.0	2.57	Subject Site	Low
33	***Cupressus sempervirens*** Mediterranean Cypress	5	2	2.55	1.68	Subject Site	Medium

Tree No.	*Species* (Common Name)	Height (m)	Spread (m)	TPZ (m) radius	SRZ (m) radius	Location	Retention Value
34	***Eucalyptus melliodora*** Yellow Box	16	8	6.79	3.01	Subject Site	High
35	***Eucalyptus melliodora*** Yellow Box	14	3	3.6	2.13	Subject Site	High
36	***Eucalyptus melliodora*** Yellow Box	16	7	6.71	2.67	Subject Site	High
37	***Eucalyptus melliodora*** Yellow Box	16	5	4.2	2.25	Subject Site	High
38	***Eucalyptus melliodora*** Yellow Box	16	9	4.8	2.37	Subject Site	High
39	***Prunus 'Royal Burgundy'*** Ornamental Cherry	5	3	2.08	1.68	Subject Site	Low
40	***Prunus 'Royal Burgundy'*** Ornamental Cherry	5	3	2.08	1.68	Subject Site	Low
41	***Prunus 'Royal Burgundy'*** Ornamental Cherry	5	3	2.08	1.68	Subject Site	Low
42	***Prunus 'Royal Burgundy'*** Ornamental Cherry	5	3	2.08	1.68	Subject Site	Low
43	***Fraxinus excelsior*** European Ash	7	4	4.2	2.25	Subject Site	Medium
44	***Fraxinus excelsior*** European Ash	12	12	8.65	3.01	Subject Site	High
45	***Robinia pseudoacacia 'Umbraculifera'*** Mop To Robinia	4	4	2.4	1.85	Subject Site	Medium
46	***Malus floribunda*** Crab Apple	4	4	2.0	1.5	Subject Site	Medium
47	***Robinia pseudoacacia 'Umbraculifera'*** Mop To Robinia	4	5	2.4	1.85	Subject Site	Medium
48	***Pyrus calleryana*** Callery Pear	8	5	2.4	1.85	Subject Site	High
49	***Betula pendula*** Silver Birch	5	2	2.0	1.5	Subject Site	Low
50	***Betula pendula*** Silver Birch	5	2	2.0	1.5	Subject Site	Low
51	***Betula pendula*** Silver Birch	6	3	2.0	1.5	Subject Site	Low
52	***Betula pendula*** Silver Birch	5	2	2.0	1.5	Subject Site	Low
53	***Betula pendula*** Silver Birch	5	2	2.0	1.5	Subject Site	Low
54	***Betula pendula*** Silver Birch	5	2	2.0	1.5	Subject Site	Low
55	***Chamaecyparis obtusa 'Crippsii'*** Golden Hinoki Cypress	7	5	3.6	2.13	Subject Site	Low

Tree No.	*Species* (Common Name)	Height (m)	Spread (m)	TPZ (m) radius	SRZ (m) radius	Location	Retention Value
56	***Chamaecyparis obtusa 'Crippsii'*** Golden Hinoki Cypress	7	5	2.4	2.0	Subject Site	Low
57	***Thuja plicata*** Western Red Cedar	10	7	5.4	2.57	No. 7 Queen St	Low
58	***Fraxinus excelsior*** European Ash	6	3	2.4	1.68	Subject Site	Low
59	***Malus floribunda*** Crab Apple	4	4	3.6	2.13	Subject Site	Medium
60	***Cordyline australis*** Cabbage Tree	4	4	3.6	3.31	Subject Site	Medium

2 INTRODUCTION

2.1 Background

This Preliminary Tree Assessment provides an evaluation of the existing trees located on and adjoining the subject site at 3 Osman Street, Blayney (Blayney District Hospital / Multi Purpose Service) - refer to ***Figure 1***.

The assessment has been commissioned by The APP Group on behalf of Health Infrastructure NSW given their intention to redevelop the site in the near future. Accordingly, the purpose of this report is to assess the health and condition of existing trees, their associated significance and retention values to provide guidance for upcoming design development work.

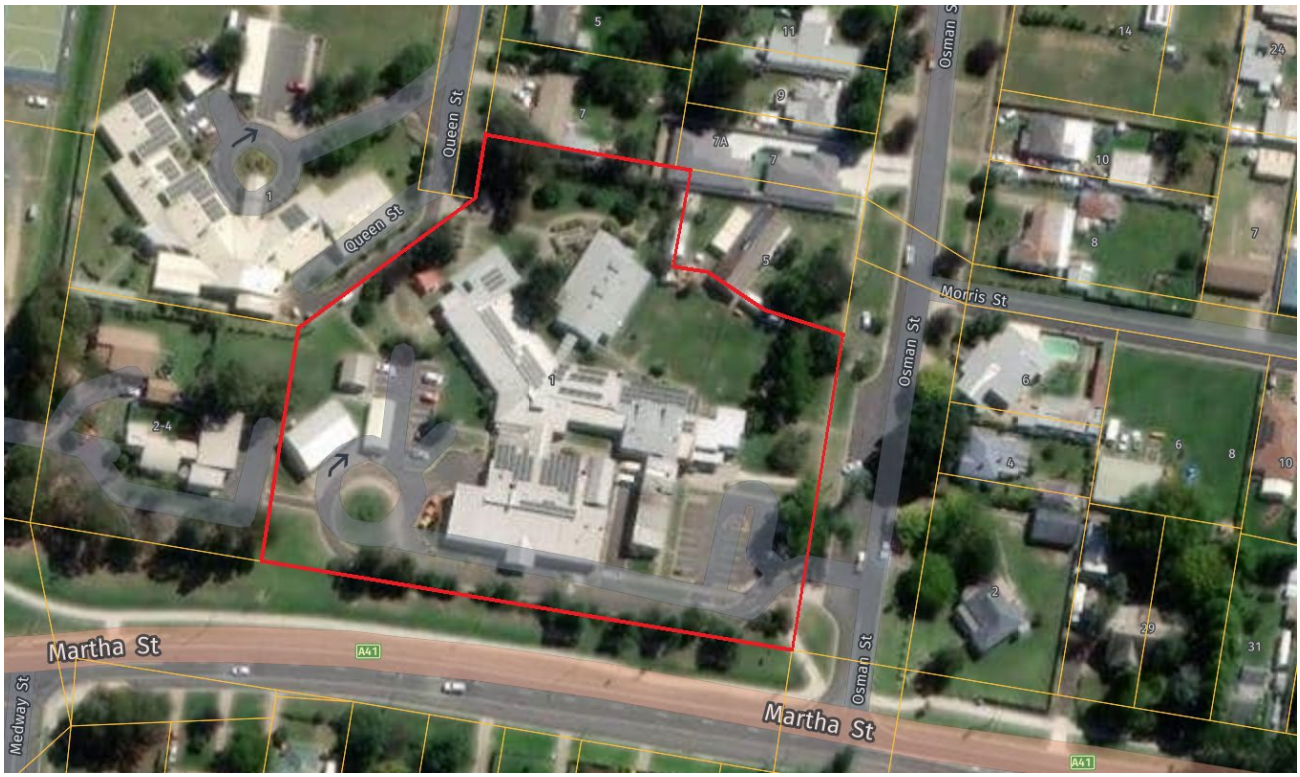


Figure 1 *- Aerial image indicating the subject site (outlined red).* *Source: Nearmap 2022*

2.2 Objectives

This report has been prepared to identify the existing trees located on site, assess the current growing conditions, health, condition, structure, relevant landscape significance and overall retention values of each tree. As such, the objectives of this report are as follows:

- Identify all trees on and adjoining the subject site;
- Assess the current site and growing conditions of trees;
- Assess the current health, vitality, structure & condition of the trees within the site;
- Assess the Safe Useful Life Expectancy (SULE) of each tree;
- Identify relative landscape significance and retention values of trees;
- Inform of any tree removal necessary due to hazardous defects or unsafe trees;
- Advise of trees forming a material constraint to site redevelopment.

No aerial inspection, root mapping or internal diagnostic testing has been carried out as part of this report. Additionally, no cation exchange capacity testing or plant tissue analysis has been undertaken.

2.3 Legislation & Regulating Documents

This Arboricultural Impact Assessment has considered the following regulatory documents:

- *State Environmental Planning Policy (Biodiversity & Conservation) 2021;*
- *Blayney Development Control Plan 2018 (Blayney DCP 2018);*
- *Blayney Local Environment Plan 2012 (Blayney LEP 2012);*

2.4 Tree Preservation Order

Discussions were held with the planning team and general manager at Blayney Shire Council in relation to any relevant Tree Preservation Orders or Policies in place for the subject site. Council have indicated that there are no current policies in force which would protect the existing trees/vegetation and therefore no approval is required from Council to remove any existing tree on site.

Despite the above, CPS considers the existing tree population located on site to be contributing to the immediate and local landscape character and amenity. Accordingly, trees of medium/high landscape significance or retention value should be considered a material constraint on redevelopment and retained where possible.

2.5 Documentation Received

The following documents were received and have been relied upon for this Assessment:

Table 2 *– Documentation received and reviewed as part of the Preliminary Tree Assessment*

Document Description	Author	Date
Preliminary Site Assessment	NBRS Architecture	28/06/2018
Preliminary Site Assessment	NBRS Architecture	23/08/2019
Masterplan Report	NBRS Architecture	June 2022

Note: care has been taken to obtain all information from reliable sources; however, the author makes no representations, guarantees or warranties as to the accuracy of information provided by others. No other information has been reviewed, should this become available impacts may be subject to change.

2.6 The Site

The site is known as 3 Osman Street and is legally described as Lot 2, DP 1097082 (the site). The site is located on the corner of Martha Street & Osman Street and currently contains the Blayney District Hospital and Multi-Purpose Service. Site improvements include a range of single storey buildings, hardstand parking areas, roadways, pedestrian access pathways and landscaped gardens.

2.7 Limitations

Trees are living organisms whose health and condition can change rapidly. The conclusions and recommendations in this report are valid for one (1) year only from the date of the report, unless otherwise stated. Any changes to the site as it stands at present, for example building extensions, excavation works, importing of soils, extreme weather events etc. will invalidate this report. Any reproduction of this report must be in full colour using the report in its entirety. Impacts have been calculated only that that information made available at the time of writing this Report.

3 METHOD

3.1 Method

3.1.1 Site Inspection

A site inspection was carried out by the author with the subject trees and the general growing environment evaluated on the 13th of October 2022. The weather at the time of inspection was sunny and clear with good visibility.

The subject trees were inspected visually from ground level with the following information recorded and provided in tabulated form at ***Section 4.1***:

- Tree Species (Botanical & Common Name);
- Approximate height;
- Approximate canopy spread;
- Trunk Diameter (measured at 1.4 metres from ground level);
- Trunk Diameter at base (above root crown);
- Age class;
- Health & vigour; using foliage size, colour, extension growth, presence of disease or pest infestation, canopy density, presence of deadwood, dieback and epicormic growth as indicators;
- Condition; using visible evidence of structural defects, instability, evidence of previous pruning and physical damage as indicators;
- Suitability of the tree to the site and its existing location;
- Safe Useful Life Expectancy (SULE).

*** It shall be noted that no survey was available at the time of inspection, therefore the location of trees as shown on the plan held at Section 4,2 below are not accurate and will need to be verified by a registered surveyor prior to impacts being calculated as part of the Arboricultural Impact Assessment.**

3.1.2 Measurement

The following measurements methodologies were utilised on site and in the creation of this Report:

- Tree locations have been estimated upon on aerial imagery available and are approximate.
- Diameter at Breast Height (DBH) and Diameter Above Root Buttress (DAB) are measured using a diameter tape and expressed in millimetres.
- Heights have been relied upon from the client supplied survey plans or estimated where the tree was not surveyed.
- Canopy width is estimated using a measured stride paced out on site and expressed in metres.
- Structural Root Zone (SRZ) and Tree Protection Zone (TPZ) are measured (in accordance with AS 4970-2009) radially from the centre of the trunk.
- Development impacts and setbacks are measured from the centre of the trunk to the face of the structure in Auto CAD using the perpendicular distance function to ensure a high level of accuracy.

3.1.3 Tree ID Tagging

All trees included within this assessment have been physically tagged with an individual round aluminium number tag/ID for ease of reference. The tags have been nailed to the trunk at a height of approximately 1.5m generally facing inwards towards the site. The numbered tags reference

Refer to ***Section 4.2*** for a plan indicating the location of trees that correlate to the tagged tree numbers.

3.1.4 Safe Useful Life Expectancy (SULE)

The remaining Safe Useful Life Expectancy of a tree is an estimate of the sustainability of the tree in the landscape, calculated based on an estimate of the average age of the species in an urban area, less its estimated current age. The life expectancy of each tree has been further modified where necessary in consideration of its current health, vigour, condition and suitability to the site. The estimated SULE of each tree is shown in ***Section 4.1.***

The following ranges have been allocated to each tree:

- **Long SULE:** Trees that appear to be retainable with an acceptable level of risk for > 40 years.
- **Medium SULE:** Trees that appear to be retainable with an acceptable level of risk for 15 to 40 years.
- **Short SULE:** Trees that appear to be retainable with an acceptable level of risk for 5–15 years.
- **Remove:** Trees with a high level of risk that would need removing within the next 5 years.
- Small, Young or Regularly Pruned.

3.1.5 Landscape Significance

The landscape significance of a tree is an essential criterion to establish the importance that a particular tree may have on a site. Several factors contribute towards the assessment of a tree's significance including but not limited to condition and vigour, form, visual prominence, heritage status, indigeneity, legislative protection, cultural sentiment and future growth potential.

For the purposes of this report the Australian Institute of Consulting Arborists (IACA) Significance of a Tree, Assessment Rating System (STARS)© has been utilised. The system uses a scale of High, Medium and Low significance in the landscape. Once the landscape significance of an individual tree has been defined, the retention value can be determined.

Appendix 4 provides a full outline of assessment criteria for each significance rating as per IACA STARS (2010).

3.1.6 Retention Value

Retention values have been determined for each tree on site to establish a hierarchy for tree retention. Retention values are based on estimated life spans and their associated landscape significance rating in accordance with the Tree Retention Value Priority Matrix. This matrix established the following retention values and can be found at ***Appendix 4*** with attributed retention values found within ***Section 4***:

- Priority for Retention **(High)**
- Consider for Retention **(Medium)**
- Consider for Removal **(Low)**
- Priority for Removal

3.1.7 AS4970-2009 Protection of Trees on Development Sites

The Australian Standard, *AS4970-2009 - 'Protection of trees on development sites'*, has been used as a guide to provide recommendations for the assessed trees. The Standard provides guidance on the principles for protecting trees on land subject to development as well as principles for determining viability of tree retention. Terminology and recommended methods are consistent with *AS4970-2009*.

3.1.8 Tree Protection Zones

The assessed trees have been allocated Tree Protection Zones (TPZ). The Australian Standard, *AS4970-2009-'Protection of trees on development sites'*, has been used as a guide in the allocation of TPZs for the assessed trees. The TPZ is calculated based on trunk (stem) diameter at breast height (DBH), measured at 1.4 metres above ground level. The radius of the TPZ is calculated by multiplying the trees DBH by 12. The method provides a TPZ that addresses health and growing requirements of a tree as well as the trees stability. TPZ distances are measured as a radius from the centre of the trunk at (or near) ground level. The maximum TPZ should be no more than 15m radius and the minimum TPZ should be no less than 2m radius.

An extract of the *AS4970-2009* for calculating TPZ has been provided at ***Appendix 5*** for reference.

Nominal TPZ's have been shown on the Tree Protection Zone Plan held at ***Section 4.3***.

3.1.9 Structural Root Zone

The assessed trees have been allocated Structural Root Zones (SRZ). The Australian Standard, *AS4970-2009 - 'Protection of trees on development sites'*, has been used as a guide in the allocation of SRZ's for the assessed trees. The SRZ is a radial area extending outwards from the centre of the trunk and is calculated as follows:

SRZ (Radius) = $(D \times 50)^{0.42} \times 0.64$

Nominal SRZ's have been shown on the Tree Protection Zone Plan held at ***Section 4.3***.

4 OBSERVATIONS

4.1 TREE ASSESSMENT DATA

Tree No.	*Genus & species* Common Name	Height (m)	Crown Spread (m)	DBH #1 (mm)	DBH #2 (mm)	DBH #3 (mm)	DBH #4 (mm)	DGL (mm)	TPZ Radius (m)	SRZ Radius (m)	Age Class	Health / Vitality	Structure/ Condition	SULE Rating	Landscape Significance	Retention Value	Comments
1	***Unknown species*** -	5	5	250				300	3.00	2.00	M	Average	Poor	Medium 15-40yrs	Medium	Medium	Council street tree - Osman Street frontage. Heavily pruned eastern side for roadway clearance including primary leader.
2	***Prunus sp.*** Prunus	5	5	150	150	200		250	3.50	1.85	M	Average	Poor	Medium 15-40yrs	Low	Low	Bifurcated stem at 1m with poor crown development and bias to east as a result of adjoining T3.
3	***Cupressus sp.*** Cypress	14	9	650				800	7.80	3.01	M	Average	Good	Long 40yrs +	High	High	Lower scaffold branches pruned on north side for driveway clearance. Minor 15° lean to east.
4	***Prunus 'Royal Burgundy'*** Ornamental Cherry	7	5	200	100			250	2.68	1.85	M	Average	Fair	Medium 15-40yrs	Low	Low	Neighbouring Tree - No.5 Osman Street. Pruned on north side for driveway clearance, crossing stems from 500mm with cambium damage.
5	***Liquidambar styraciflua*** Sweetgum	15	6	350				500	4.20	2.47	M	Good	Good	Long 40yrs +	High	High	Raised root crown and surface roots evident within surrounding lawn area.
6	***Liquidambar styraciflua*** Sweetgum	15	10	600				700	7.20	2.85	M	Good	Fair	Long 40yrs +	High	High	Failed central leader @ 3m with multi-stem habit. Raised root crown with surface roots evident within surrounding lawn.
7	***Prunus serrulata*** Japanese Cherry	5	5	300				350	3.60	2.13	M	Average	Poor	Medium 15-40yrs	Medium	Medium	Failed central leader, multiple wounds/cankers with decay evident, multiple past pruning events.
8	***Malus floribunda*** Crab Apple	5	8	400				400	4.80	2.25	M	Average	Good	Long 40yrs +	Medium	High	Multi-stem habit from 1.5m, low levels of small diameter deadwood throughout canopy.
9	***Quercus palustris*** Pin Oak	15	16	1100				1200	13.20	3.57	M	Average	Poor	Long 40yrs +	High	High	Council street tree - Osman Street frontage. Large tear-out of major limb at 2m with strong response growth. Large diameter branch failure at 4m, heavily pruned for powerlines, high levels of epicormic regrowth.
10	***Unknown species*** -	4	4	100	100	100	100	300	2.40	2.00	M	Good	Fair	Medium 15-40yrs	Low	Low	Heavily pruned, high levels of epicormic regrowth.
11	***Zelkova serrata*** Japanese Zelkova	6	3	250				300	3.00	2.00	SM	Good	Average	Long 40yrs +	Low	Medium	Lower and mid trunk parasitic vine infestation.
12	***Cedrus deodara*** Himalayan Cedar	10	7	450				600	5.40	2.67	M	Good	Good	Long 40yrs +	High	High	Upper crown south side pruned for powerline clearance. Apical dieback evident.
13	***Fraxinus sp.*** Flowering Ash	8	6	250	250			600	4.24	2.67	M	Average	Fair	Medium 15-40yrs	Medium	Medium	Multi-stem habit from 500mm with included unions.
14	***Cedrus deodara*** Himalayan Cedar	10	6	350	100	100	100	700	4.69	2.85	M	Good	Fair	Long 40yrs +	High	High	Multi-stem habit from ground level.
15	***Acacia rubida*** Red Stem Wattle	5	5	150	100	100	100	300	2.75	2.00	M	Average	Poor	Short 5-15yrs	Low	Low	Multiple branch failures, multiple stems from ground level with poor attachments and high levels of deadwood.
16	***Cedrus deodara*** Himalayan Cedar	10	7	400				550	4.80	2.57	M	Average	Average	Long 40yrs +	High	High	Parasitic vine infestation of lower trunk. Reduced foliage density of upper crown.
17	***Cedrus deodara*** Himalayan Cedar	11	7	400	350	300		700	7.32	2.85	M	Good	Average	Long 40yrs +	High	High	Triple trunks from ground level.

Tree No.	*Genus & species* Common Name	Height (m)	Crown Spread (m)	DBH #1 (mm)	DBH #2 (mm)	DBH #3 (mm)	DBH #4 (mm)	DGL (mm)	TPZ Radius (m)	SRZ Radius (m)	Age Class	Health / Vitality	Structure/ Condition	SULE Rating	Landscape Significance	Retention Value	Comments
18	***Acacia rubida*** Red Stem Wattle	5	6	250	200			350	3.84	2.13	M	Average	Fair	Medium 15-40yrs	Low	Low	Multi-stem habit from ground level, failure of main stem @ 1.5m.
19	***Cupressus sp.*** Cypress	8	5	300				350	3.60	2.13	M	Good	Good	Long 40yrs +	Medium	High	Parasitic vine infestation of main trunk and scaffold branches.
20	***Eucalyptus nicholii*** Narrow-leaved Peppermint	13	7	400				500	4.80	2.47	M	Average	Average	Long 40yrs +	High	High	Crown dominance to north, 10° lean of trunk to the north.
21	***Eucalyptus nicholii*** Narrow-leaved Peppermint	13	8	550				650	6.60	2.76	M	Fair	Poor	Medium 15-40yrs	High	High	Included bifurcated stems from 5m with weak attachments. Crown dominance and 20° lean of trunk to north. High levels of epicormic growth.
22	***Eucalyptus sp.*** Eucalyptus	16	10	850				950	10.20	3.24	M	Good	Average	Long 40yrs +	High	High	Upper crown skewed to north. Multiple past pruning events of lower crown to 5m.
23	***Cupressus sempervirens 'Swanes Gold'*** Swanes Golden Cypress	5	2	150				200	2.00	1.68	M	Good	Average	Long 40yrs +	Low	Medium	Stunted form, compacted soil profile.
24	***Photinia serratifolia*** Chinese Photinia	5	5	150	150	150	150	400	3.60	2.25	M	Good	Average	Medium 15-40yrs	Medium	Medium	Multiple stems from 500mm.
25	***Camellia japonica*** Camellia	4	3	100	100	100	100	250	2.40	1.85	M	Good	Average	Medium 15-40yrs	Low	Low	Eastern side of crown pruned for pedestrian access. Multi-stem habit from 200mm.
26	***Eucalyptus blakelyi*** Blakely's Red Gum	14	10	550				650	6.60	2.76	M	Good	Average	Long 40yrs +	High	High	Bifurcated stems @ 2m with sound union.
27	***Malus floribunda*** Crab Apple	6	8	250	200	200	200	500	5.13	2.47	M	Good	Average	Long 40yrs +	Medium	High	Multi-stem habit from ground level.
28	***Prunus 'Royal Burgundy'*** Ornamental Cherry	5	5	100	100	100	100	250	2.40	1.85	M	Average	Average	Medium 15-40yrs	Low	Low	Multi-stem habit from 500mm, crown bias to south.
29	***Cupressus sp.*** Cypress	5	2	150				200	2.00	1.68	M	Fair	Fair	Medium 15-40yrs	Low	Low	Row of boundary hedges x 12.
30	***Prunus 'Royal Burgundy'*** Ornamental Cherry	5	3	100	100	100	100	250	2.40	1.85	M	Fair	Fair	Medium 15-40yrs	Low	Low	Multi-stem habit from 150mm with crossing stems.
31	***Prunus 'Royal Burgundy'*** Ornamental Cherry	5	3	100	100	100	100	250	2.40	1.85	M	Fair	Fair	Medium 15-40yrs	Low	Low	Multi-stem habit from 150mm with crossing stems.
32	***Fraxinus excelsior*** European Ash	9	7	500				550	6.00	2.57	M	Average	Fair	Medium 15-40yrs	Low	Low	Multiple past pruning events with central leader removed and high levels of epicormic growth.
33	***Cupressus sempervirens*** Mediterranean Cypress	5	2	150	150			200	2.55	1.68	M	Good	Average	Long 40yrs +	Low	Medium	Twin trunks from 150mm.
34	***Eucalyptus melliodora*** Yellow Box	16	8	400	400			800	6.79	3.01	M	Average	Fair	Long 40yrs +	High	High	Included bifurcated stems from 500mm. 10° lean of trunk to north and crown bias to north.
35	***Eucalyptus melliodora*** Yellow Box	14	3	300				350	3.60	2.13	M	Average	Fair	Long 40yrs +	High	High	Crown skewed to south, poor crown development.

Tree No.	*Genus & species* Common Name	Height (m)	Crown Spread (m)	DBH #1 (mm)	DBH #2 (mm)	DBH #3 (mm)	DBH #4 (mm)	DGL (mm)	TPZ Radius (m)	SRZ Radius (m)	Age Class	Health / Vitality	Structure/ Condition	SULE Rating	Landscape Significance	Retention Value	Comments
36	***Eucalyptus melliodora*** Yellow Box	16	7	250	500			600	6.71	2.67	M	Average	Fair	Long 40yrs +	High	High	Bifurcated stems @ 2m with sound union. Crown bias to north.
37	***Eucalyptus melliodora*** Yellow Box	16	5	350				400	4.20	2.25	M	Average	Fair	Long 40yrs +	High	High	Bifurcated stems @ 7m with included union and weak attachment.
38	***Eucalyptus melliodora*** Yellow Box	16	9	400				450	4.80	2.37	M	Average	Average	Long 40yrs +	High	High	Failed central leader @ 6m.
39	***Prunus 'Royal Burgundy'*** Ornamental Cherry	5	3	100	100	100		200	2.08	1.68	M	Average	Average	Medium 15-40yrs	Low	Low	Multi-stem habit from 500mm, lower branches impacting fence. Forms row of 4.
40	***Prunus 'Royal Burgundy'*** Ornamental Cherry	5	3	100	100	100		200	2.08	1.68	M	Average	Average	Medium 15-40yrs	Low	Low	Multi-stem habit from 500mm, lower branches impacting fence. Forms row of 4.
41	***Prunus 'Royal Burgundy'*** Ornamental Cherry	5	3	100	100	100		200	2.08	1.68	M	Average	Average	Medium 15-40yrs	Low	Low	Multi-stem habit from 500mm, lower branches impacting fence. Forms row of 4.
42	***Prunus 'Royal Burgundy'*** Ornamental Cherry	5	3	100	100	100		200	2.08	1.68	M	Average	Average	Medium 15-40yrs	Low	Low	Multi-stem habit from 500mm, lower branches impacting fence. Forms row of 4.
43	***Fraxinus excelsior*** European Ash	7	4	350				400	4.20	2.25	M	Good	Fair	Medium 15-40yrs	Medium	Medium	Lower crown pruned to 3m, bifurcated main trunk @ 2m.
44	***Fraxinus excelsior*** European Ash	12	12	400	600			800	8.65	3.01	M	Good	Average	Long 40yrs +	High	High	Crown lifted to 3m.
45	***Robinia pseudoacacia 'Umbraculifera'*** Mop Top Robinia	4	4	200				250	2.40	1.85	M	Average	Good	Long 40yrs +	Low	Medium	Multi-stem habit from 2m.
46	***Malus floribunda*** Crab Apple	4	4	100	100			150	2.00	1.50	M	Good	Good	Long 40yrs +	Low	Medium	Bifurcated stems from 1m.
47	***Robinia pseudoacacia 'Umbraculifera'*** Mop Top Robinia	4	5	200				250	2.40	1.85	M	Average	Good	Long 40yrs +	Low	Medium	Multi-stem habit from 2m.
48	***Pyrus calleryana*** Callery Pear	8	5	200				250	2.40	1.85	M	Good	Average	Long 40yrs +	Medium	High	Multi-stem habit from 2m.
49	***Betula pendula*** Silver Birch	5	2	100				100	2.00	1.50	SM	Fair	Poor	Medium 15-40yrs	Low	Low	Failed central leader and poor crown development.
50	***Betula pendula*** Silver Birch	5	2	100	50	50		100	2.00	1.50	SM	Average	Fair	Medium 15-40yrs	Low	Low	Multiple stems from ground level, form atypical of species.
51	***Betula pendula*** Silver Birch	6	3	100	100			150	2.00	1.50	SM	Average	Average	Medium 15-40yrs	Low	Low	Included secondary stem from 500mm
52	***Betula pendula*** Silver Birch	5	2	100	50	50		100	2.00	1.50	SM	Average	Fair	Medium 15-40yrs	Low	Low	Multi-stem habit from ground level, form atypical of species.
53	***Betula pendula*** Silver Birch	5	2	100	100			100	2.00	1.50	SM	Average	Average	Medium 15-40yrs	Low	Low	Twin stems from 150mm.

Tree No.	*Genus & species* Common Name	Height (m)	Crown Spread (m)	DBH #1 (mm)	DBH #2 (mm)	DBH #3 (mm)	DBH #4 (mm)	DGL (mm)	TPZ Radius (m)	SRZ Radius (m)	Age Class	Health / Vitality	Structure/ Condition	SULE Rating	Landscape Significance	Retention Value	Comments
54	***Betula pendula*** Silver Birch	5	2	50	50			100	2.00	1.50	SM	Average	Fair	Medium 15-40yrs	Low	Low	Twin stems from ground level.
55	***Chamaecyparis obtusa 'Crippsii'*** Golden Hinoki Cypress	7	5	150	150	150	150	350	3.60	2.13	M	Good	Average	Medium 15-40yrs	Low	Low	Multiple stems from ground level.
56	***Chamaecyparis obtusa 'Crippsii'*** Golden Hinoki Cypress	7	5	200				300	2.40	2.00	M	Good	Average	Medium 15-40yrs	Low	Low	Lower crown west side pruned to 2m
57	***Thuja plicata*** Western Red Cedar	10	7	450				550	5.40	2.57	OM	Poor	Poor	Short 5-15yrs	Medium	Low	Neighbouring tree - No.7 Queen Street. Poor crown density with high levels of crown thinning.
58	***Fraxinus excelsior*** European Ash	6	3	100	100	100	100	200	2.40	1.68	M	Good	Poor	Medium 15-40yrs	Low	Low	High levels of epicormic growth and poor crown structure.
59	***Malus floribunda*** Crab Apple	4	4	300				350	3.60	2.13	M	Good	Poor	Long 40yrs +	Low	Medium	Central leader lopped at 2m with crown consisting of entirely epicormic regrowth.
60	***Cordyline australis*** Cabbage Tree	4	4	150	150	150	150	1000	3.60	3.31	M	Average	Fair	Long 40yrs +	Low	Medium	Lopped at ground level, entirely epicormic regrowth.

Tree Inspection Data Notes & Terminology

Tree No. (Tree Number)
The tree number associated to each tree located on or adjacent to the subject site. Relates to the Tree Location Plan held at Appendix 2.

Botanical Name and Common Name
The botanical and common name of each tree is identified and recorded. Occasionally the exact species name is unknown; sp. is recorded to indicate this.

Height, Crown Width and DBH
- The trees height and crown spread is recorded in metres (m);
- The tree DBH is recorded in millimetres (mm). DBH is an abbreviation of Diameter (of the trunk) measured at Breast Height (or 1.4m from the base of the trunk). If more than one trunk is present the DBH is calculated in accordance with AS4970-2009 Protection of Trees on Development Sites

Age Class
The age class of each tree is estimated as either:
IM – Immature refers to well established but juvenile tree
SM – Semi Mature, a tree that has not grown to mature size
M – Mature, a tree that has reached mature size and will slowly increase in size over time
OM – Over Mature, a tree that has been mature for a long period and is beginning to display signs of decline, e.g. large dead branches
S – Senescent, an over mature tree that is now in decline

Health & Condition
The trees health and vigour is recorded as a measurement of:
Good - the tree does not appear to appear stressed with no excessive dieback, insect infestation, decay, deadwood or epicormic shoots
Average - the tree appears stressed and has some crown dieback, and /or a few epicormic shoots, and/or some deadwood in the crown and some new growth at branch tips. These trees may benefit from remediation of the growing environment to reduce stress and return it to good health
Fair - the tree may have areas of crown dieback, and/or epicormic shoots, and/or areas of decay, and/or reduced new growth at branch tips. These trees have been stressed for a short period of time, remediation of the growing environment may improve trees health
Poor - the tree may have large areas of crown dieback, and/or many epicormic shoots, and/or reduced new growth at branch tips. These trees have been stressed for a long period of time, remediation of the growing environment would not return the tree to good health.

SRZ (Structural Root Zone)
The SRZ is a radial area extending outwards from the centre of the trunk. This area contains the majority of the structural woody roots. This area is responsible primarily for stability. Root damage or root loss within this zone greatly increases the opportunity for decay fungi to ingress into the heartwood, causing internal decay in addition to destabilising the trees structural integrity. The SRZ is calculated as follows (This calculation is taken from the Australian Standard 4970 – 2009 Protection of Trees on Development Sites): (D x 50)0.42 x 0.64

TPZ (Tree Protection Zone)
The TPZ is a radial area measured by multiplying the DBH by twelve (12) or a circular area the size of the trees drip line, whichever is greater. This area contains the majority of the structural and feeder roots responsible for stability, gaseous exchange and water and nutrient uptake. Excavation, back filling, compaction or other disturbance should not occur in this area. The TPZ is used to identify the minimum area required for the safe retention of a given tree. This calculation is derived from the Australian Standard 4970-2009 Protection of Trees in Development Sites. An incursion up to 10% within the TPZ is potentially acceptable if no other option is available. A major encroachment (in excess of 10%) is required to be clearly justified by the Project Arborist and compensated for elsewhere. Justification methodology may vary depending on site or individual tree's health, vigour and ability to withstand disturbance and may require root investigation.

Landscape Significance
The landscape significance of a tree or group of trees is determined using a combination of health/vigour/condition, amenity, heritage and ecological values in accordance with IACA Significance of a Tree, Assessment Rating System (STARS)© (IACA 2010)©.
1. High Significance in Landscape
2. Medium Significance in Landscape
3. Low Significance in Landscape

Tree Inspection Data Notes & Terminology cont.

Retention Value (RV)
Determined by [1] tree free of visual defects and viable for retention, [2] viable for retention with minor faults which may reduce SULE, [3] trees which should not restrict development applications containing faults that are likely to become problematic in the short term, [4] trees to be considered for removal due to average condition.

High Retention - These trees are considered important for retention and should be retained and protected. Design modification or re-location of building/s should be considered to accommodate the setbacks as prescribed by the Australian Standard AS4970 Protection of trees on development sites. Tree sensitive construction measures must be implemented e.g. pier and beam etc. if works are to proceed within the Tree Protection Zone.

Medium Retention - These trees may be retained and protected. These are considered less critical; however their retention should remain priority with removal considered only if adversely affecting the proposed building/works and all other alternatives have been considered and exhausted.
Low Retention - These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.
Priority for Removal - These trees are considered hazardous, or in irreversible decline, or weeds and should be removed irrespective of development.

S.U.L.E. Categories
Safe Useful Life Expectancy (after *Barrell* 1996, modified by the author). A trees S.U.L.E. category is the life expectancy of the tree modified first by its age, health, condition, safety and location. S.U.L.E. assessments may be modified as dictated by changes in trees health and environment.
Long - Appear retainable at the time of assessment for over 40 years with an acceptable degree of risk assuming reasonable maintenance.
Medium - Appear to be retainable at the time of assessment for 15 to 40 years with an acceptable degree of risk assuming reasonable maintenance.
Short - Trees appear to be retainable at the time of assessment for 5 to15 years with an acceptable degree of risk assuming reasonable maintenance.
Very Short - Removal - Trees which should be scheduled for removal within the very short term or as specified within this report.
Small, Young or Regularly Pruned – Trees under 5m in height that can be easily moved or replaced, includes screen plantings or hedge lines.

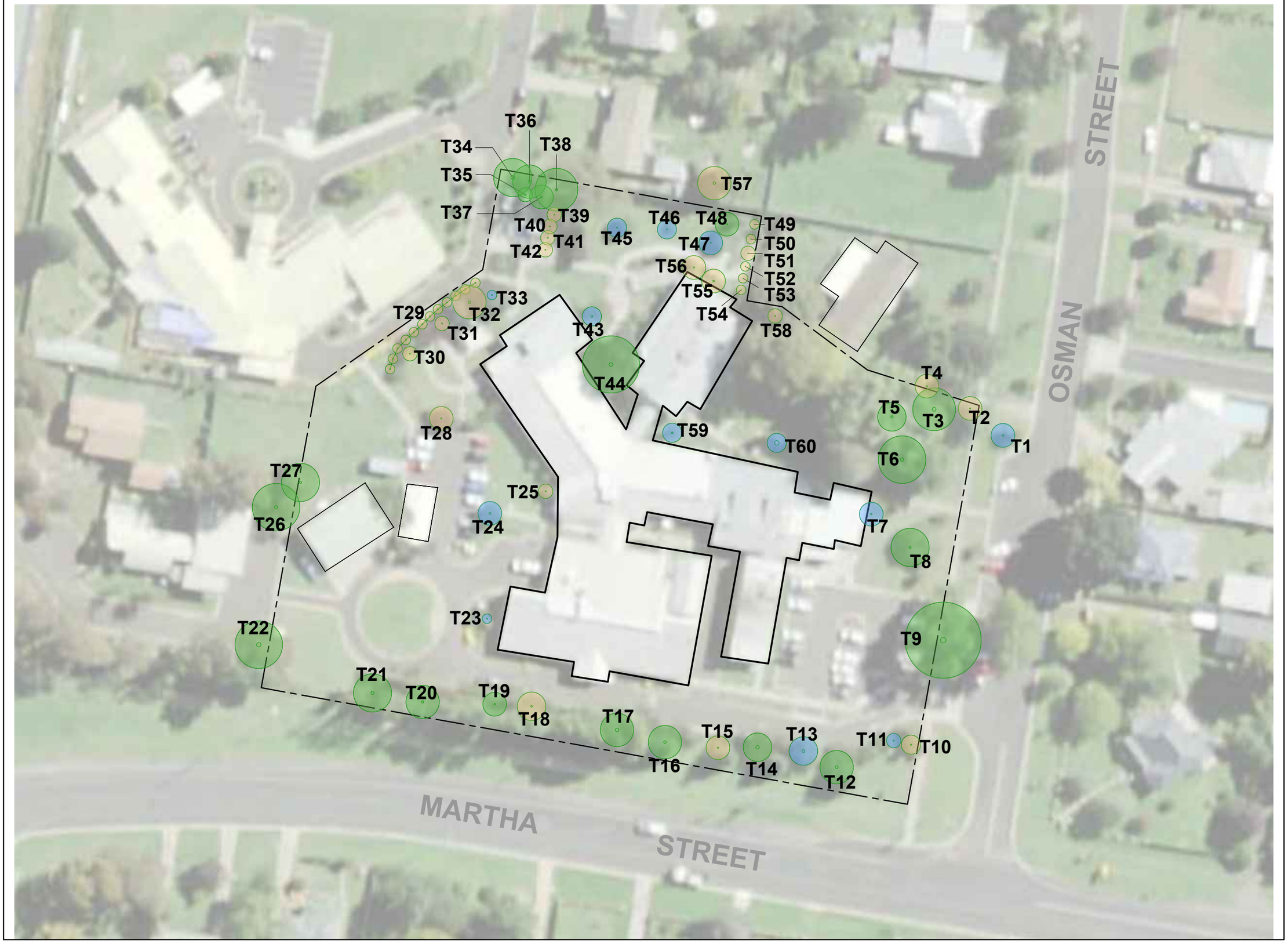
Development Impact
Brief outline of the impact of the proposed development works or ancillary construction related activities likely to impact the tree.

Retain/Remove
The proposed removal or retention recommendation in light of the proposed development related impacts.

NOTES: This report acknowledges the current Australian Standards 'Protection of Trees on Development Sites' AS 4970 – 2009 with reference to the Tree Protection Zone (TPZ): being a combination of the root and crown area requiring protection. The TPZ takes into consideration the Structural Root Zone (SRZ): The area required for tree stability. Determined by AS4970 - 2009 Figure 1,Table of determining the SRZ, section 3.3.5 of the standards. The standard states where a greater than 10% encroachment occurs the arborist is to take into consideration the schedule of determining impacts as set within AS4970 s. 3.3.4. Encroachments are referred to within this report as major or minor encroachments (AS4970 s. 3.3.2 & 3.3.3). Below is the terminology used for estimated percentage of development incursion used within this report. To retain specific trees and ensure their viability, development must take into consideration protection of the TPZ radius. The extent of inclusion within the TPZ radius has been categorised within this report as follows:

<10% - negligible incursion
>10 - <15% - low to moderate level of incursion
>15 - <20% - moderate level of incursion
>20 - <25% - moderate to high level of incursion
>25 - <35% - high level of incursion
>35% - significant incursion within the TPZ

4.2 Tree Retention Value Plan



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DIMENSIONS :
All dimensions are in millimetres unless otherwise noted. Do not scale from this drawing.

Verify all dimensions on site prior to construction.

CIVIL, STRUCTURAL, HYDRAULIC, ELECTRICAL AND SPECIALIST WATER FEATURE WORKS :
Refer to specialist and consultant's drawings for all information contained within these documents relating to and nominated as specialist and consultant work. Specialist and consultant drawing information contained in the landscape documents are indicative only and not for construction or certification purposes.

LEGEND

- HIGH RETENTION VALUE
- MEDIUM RETENTION VALUE
- LOW RETENTION VALUE

Issue	Code	Issue Description	By	Chk	Date
A	AP	FOR APPROVAL	NZ	GT	28.10.22

PRE - Preliminary AP - Approval T - Tender CON - Construction

PROJECT

BLAYNEY MPS
3 OSMAN STREET,
BLAYNEY

DRAWING TITLE

TREE RETENTION VALUE PLAN

CLIENT

Drawn : NZ
Designed : GT
Project No. : F320
Bar Scale

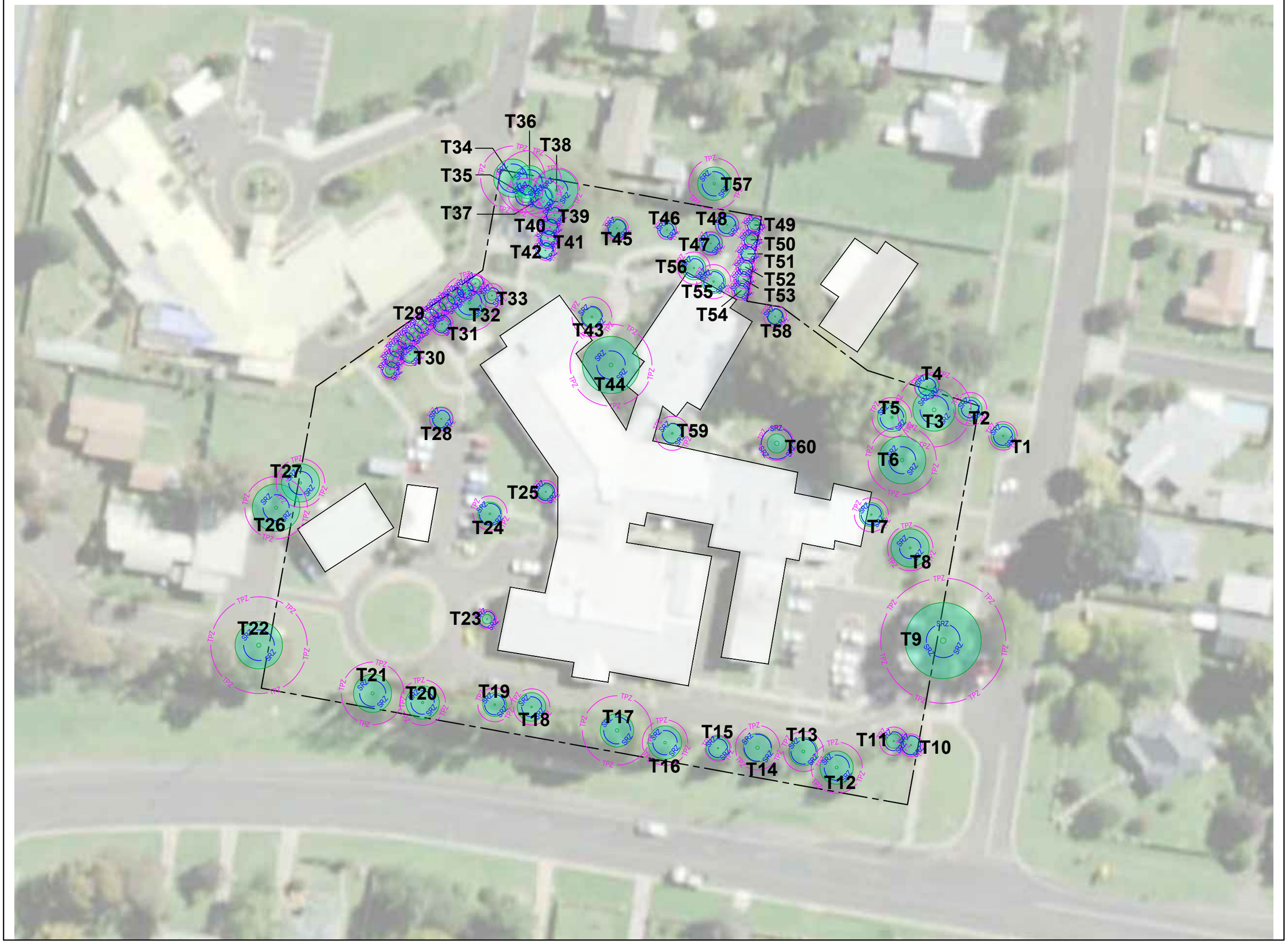
N

1:750 @ A3

SHEET NUMBER
F320_TLP_01

REVISION
A

4.3 Tree Protection Zone Plan



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CIVIL, STRUCTURAL, HYDRAULIC, ELECTRICAL AND SPECIALIST WATER FEATURE WORKS :
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LEGEND

PROTECTED TREE

TREE PROTECTION ZONE (TPZ)

STRUCTURAL ROOT ZONE (SRZ)

Issue	Code	Issue Description	By	Chk	Date
A	AP	FOR APPROVAL	NZ	GT	28.10.22

PRE - Preliminary AP - Approval T - Tender CON - Construction

PROJECT

3 OSMAN STREET,
BLAYNEY

DRAWING TITLE

TREE PROTECTION ZONE PLAN

CLIENT

Drawn : NZ
Designed : GT
Project No. : F320
Bar Scale

N

1:750 @ A3

SHEET NUMBER
F320_TLP_02

REVISION
A

5 DISCUSSION

5.1 Trees of High Retention Value

Eighteen (18) site trees (**Trees 3, 6, 8, 12, 14, 16, 17, 19, 20, 21, 27, 34, 35, 36, 37, 38, 44 & 48**), three (3) neighbouring trees (**Trees 5, 22 & 26**) located at No. 5 Osman Street and No. 2-4 Oldham Place and one (1) Council Street tree (**Tree 9**) were assessed as having **'High'** retention value. These mature trees were generally nominated a 'Long' Safe Useful Life Expectancy (SULE) and must be retained and protected as part of any site redevelopment. The future design of the proposed development as well as services infrastructure and site level modification should consider the setbacks as prescribed by the *Australian Standard AS4970 Protection of trees on development sites*. The relevant Tree Protection Zones (TPZs) and Structural Root Zones (SRZs) for these trees have been calculated in ***Section 4.1*** and shown diagrammatically in ***Section 4.2*** and should be referred to during the design development stage to ensure satisfactory offsets are provided to mitigate impacts wherever possible.

5.2 Trees of Medium Retention Value

Twelve (12) site trees (**Trees 7, 11, 13, 23, 24, 33, 43, 45, 46, 47, 59 & 60**) and one (1) Council Street tree (**Tree 1**) were assessed as having a **'Medium'** retention value. Generally, these are mature specimens in average health and condition with ratings of 'Medium' for both SULE and Landscape Significance. These trees are generally suitable for retention and wherever possible, these trees are to be retained unless the design does not allow.

Tree 1 is located outside the site boundaries within the Osman Street frontage – this tree must therefore be considered a priority for retention with necessary offsets afforded to minimise future development impact.

5.3 Trees of Low Retention Value

Twenty-four (24) site trees (**Trees 2, 10, 15, 18, 25, 28, 29, 30, 31, 32, 39, 40, 41, 42, 49, 50, 51, 52, 53, 54, 55, 56, 57 & 58**) were assessed as having a **'Low'** retention value. These trees are considered to provide 'Low' Landscape Significance.

One (1) neighbouring tree (**Tree 4**) of **'Low'** retention value is located at No. 5 Osman Street. This tree must therefore be considered a priority for retention with necessary offsets afforded to minimise future development impact.

Once further plans and information become available, CPS will assess and advise in relation to any further tree impacts as part of the final Arboricultural Impact Assessment (AIA) to be submitted to Council, private certifying authority (PCA) or the relevant approval authority.

5.4 Tree Locations & Positions

As outlined in ***Section 3.4***, the location of trees shown within this Report are approximate only and not sufficiently accurate for the purposes of preparing the Stage 2 Arboricultural Impact Assessment. Tree positions will need to be verified by a registered surveyor and a new survey prepared which includes all trees as tagged on site.

6 CONCLUSION

A total of sixty (60) trees were observed to be located on and adjoining the subject site including four (4) neighbouring trees, and two (2) Council Street trees. A breakdown of the trees is provided below.

- **Priority for Retention: Trees 3, 6, 8, 12, 14, 16, 17, 19, 20, 21, 27, 34, 35, 36, 37, 38, 44 & 48** – These site trees, as well as neighbouring trees (**Trees 4, 5, 22, 26**) and Council Street trees (**Trees 1 & 9**) are considered important for retention and should be retained and protected as part of any site redevelopment. The design of buildings, services infrastructure, landscaping and site level modification should consider the setbacks as prescribed by the *Australian Standard AS4970 Protection of trees on development sites*. Tree sensitive construction measures must be implemented if works are to proceed within TPZ's.

- **Consider for Retention: Trees 7, 11, 13, 23, 24, 33, 43, 45, 46, 47, 59 & 60** – These trees should be retained and protected. These trees are considered less critical; however, their retention should remain a priority with removal considered only if adversely affecting the proposed building/works and all other alternatives have been considered and exhausted.

- **Consider for Removal: Trees 2, 10, 15, 18, 25, 28, 29, 30, 31, 32, 39, 40, 41, 42, 49, 50, 51, 52, 53, 54, 55, 56, 57 & 58** - These trees are not considered important for retention, nor require any special works or design modification to be implemented for their retention.

As noted in ***Section 2.4***, no development consent or approval is required from Blayney Shire Council prior to the removal or pruning of any tree on the subject site – note, this does not include any tree outside the site boundaries.

Once additional information becomes available and design documentation finalised, it is recommended an Arboricultural Impact Assessment be prepared to calculate any impacts to existing trees, advise of any design modifications necessary and determine those trees requiring removal to facilitate construction and those trees to be retained and protected.

Should you have any queries in relation to the information presented, please feel free to contact me.

Sincerely,

Greg Tesoriero
PRINCIPAL CONSULTING ARBORIST
Dip. Hort. (Arboriculture) AQF Level 5
Registered Consulting Arborist No. 3008
QTRA No. 6291

Arboriculture Australia 2022 REGISTERED CONSULTING ARBORIST

QTRA Registered User

7 REFERENCES

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APPENDIX 1

IACA Significance of a Tree, Assessment Rating System (STARS)© (IACA 2010)©

In the development of this document IACA acknowledges the contribution and original concept of the Footprint Green Tree Significance & Retention Value Matrix, developed by Footprint Green Pty Ltd in June 2001.

The landscape significance of a tree is an essential criterion to establish the importance that a particular tree may have on a site. However, rating the significance of a tree becomes subjective and difficult to ascertain in a consistent and repetitive fashion due to assessor bias. It is therefore necessary to have a rating system utilising structured qualitative criteria to assist in determining the retention value for a tree. To assist this process all definitions for terms used in the *Tree Significance - Assessment Criteria* and *Tree Retention Value - Priority Matrix*, are taken from the IACA Dictionary for Managing Trees in Urban Environments 2009.

This rating system will assist in the planning processes for proposed works, above and below ground where trees are to be retained on or adjacent a development site. The system uses a scale of *High*, *Medium* and *Low* significance in the landscape. Once the landscape significance of an individual tree has been defined, the retention value can be determined. An example of its use in an Arboricultural report is shown as Appendix A.

Tree Significance - Assessment Criteria

1. High Significance in landscape

- The tree is in good condition and good vigour;
- The tree has a form typical for the species;
- The tree is a remnant or is a planted locally indigenous specimen and/or is rare or uncommon in the local area or of botanical interest or of substantial age;
- The tree is listed as a Heritage Item, Threatened Species or part of an Endangered ecological community or listed on Councils significant Tree Register;
- The tree is visually prominent and visible from a considerable distance when viewed from most directions within the landscape due to its size and scale and makes a positive contribution to the local amenity;
- The tree supports social and cultural sentiments or spiritual associations, reflected by the broader population or community group or has commemorative values;
- The tree's growth is unrestricted by above and below ground influences, supporting its ability to reach dimensions typical for the taxa *in situ* - tree is appropriate to the site conditions.

2. Medium Significance in landscape

- The tree is in fair-good condition and good or low vigour;
- The tree has form typical or atypical of the species;
- The tree is a planted locally indigenous or a common species with its taxa commonly planted in the local area
- The tree is visible from surrounding properties, although not visually prominent as partially obstructed by other vegetation or buildings when viewed from the street,
- The tree provides a fair contribution to the visual character and amenity of the local area,
- The tree's growth is moderately restricted by above or below ground influences, reducing its ability to reach dimensions typical for the taxa *in situ*.

3. Low Significance in landscape

- The tree is in fair-poor condition and good or low vigour;
- The tree has form atypical of the species;
- The tree is not visible or is partly visible from surrounding properties as obstructed by other vegetation or buildings,
- The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area,
- The tree is a young specimen which may or may not have reached dimension to be protected by local Tree Preservation orders or similar protection mechanisms and can easily be replaced with a suitable specimen,
- The tree's growth is severely restricted by above or below ground influences, unlikely to reach dimensions typical for the taxa *in situ* - tree is inappropriate to the site conditions,
- The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms,
- The tree has a wound or defect that has potential to become structurally unsound.

Environmental Pest / Noxious Weed Species

- The tree is an Environmental Pest Species due to its invasiveness or poisonous/ allergenic properties,
- The tree is a declared noxious weed by legislation.

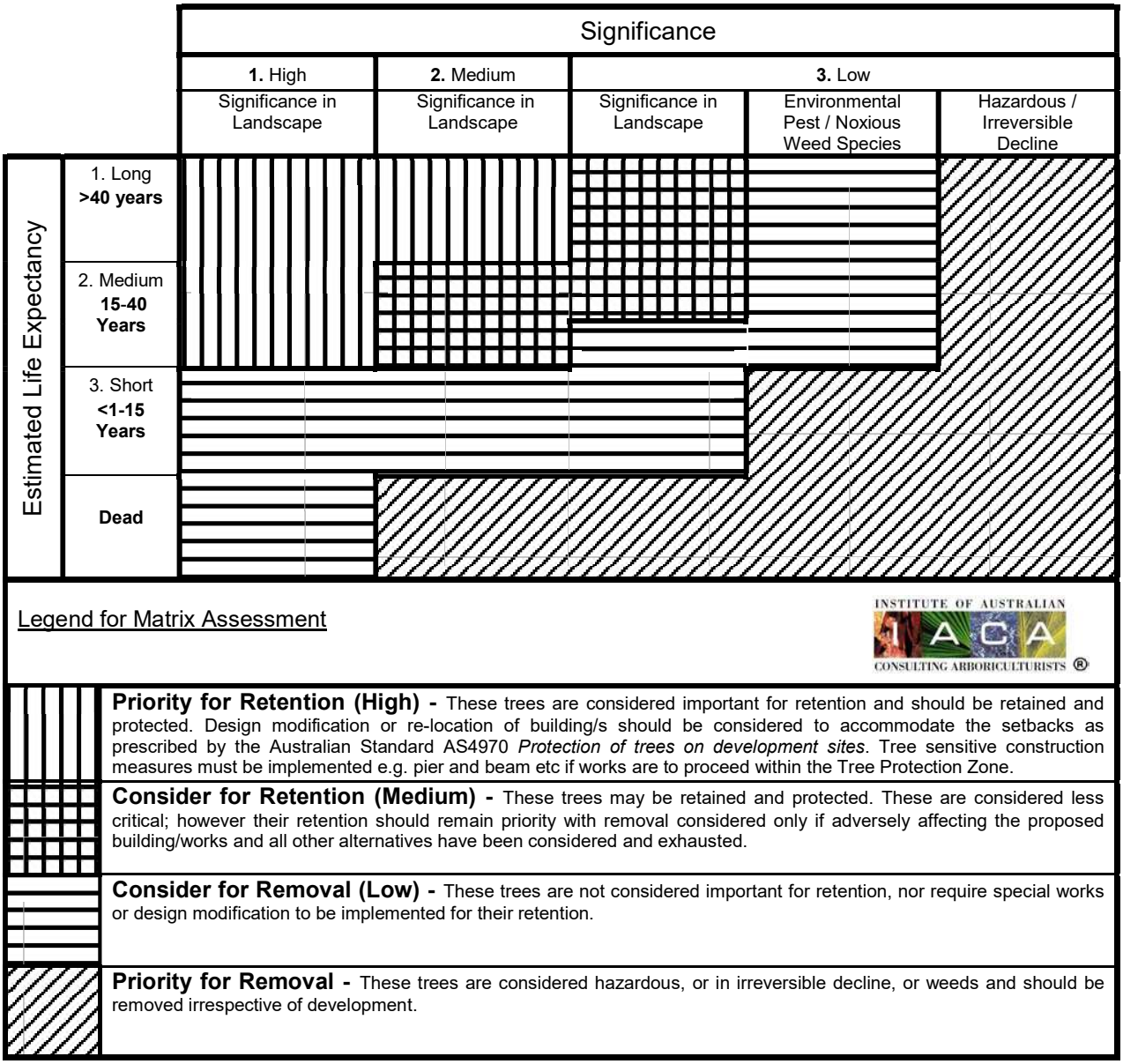
Hazardous/Irreversible Decline

- The tree is structurally unsound and/or unstable and is considered potentially dangerous,
- The tree is dead, or is in irreversible decline, or has the potential to fail or collapse in full or part in the immediate to short term.

The tree is to have a minimum of three (3) criteria in a category to be classified in that group.

Note: The assessment criteria are for individual trees only, however, can be applied to a monocultural stand in its entirety e.g. hedge.

Table 1.0 Tree Retention Value - Priority Matrix.



USE OF THIS DOCUMENT AND REFERENCING

The IACA Significance of a Tree, Assessment Rating System (STARS) is free to use, but only in its entirety and must be cited as follows:

IACA, 2010, *IACA Significance of a Tree, Assessment Rating System (STARS)*, Institute of Australian Consulting Arboriculturists, Australia, www.iaca.org.au

REFERENCES

Australia ICOMOS Inc. 1999, *The Burra Charter – The Australian ICOMOS Charter for Places of Cultural Significance*, International Council of Monuments and Sites, www.icomos.org/australia

Draper BD and Richards PA 2009, *Dictionary for Managing Trees in Urban Environments*, Institute of Australian Consulting Arboriculturists (IACA), CSIRO Publishing, Collingwood, Victoria, Australia.

Footprint Green Pty Ltd 2001, *Footprint Green Tree Significance & Retention Value Matrix*, Avalon, NSW Australia, www.footprintgreen.com.au

The following example shows the IACA **Significance** of a **Tree, Assessment Rating System** (STARS) used in an Arboricultural report.

Tree Significance

Determined by using the Tree Significance - Assessment Criteria of the *IACA Significance of a Tree, Assessment Rating System* (STARS)© (IACA, 2010), Appendix B.

Trees 14, 16, 17/3, 19 and 20/4 are of high significance with the remaining majority of medium significance and a few of low significance. Tree 14 is significant as a prominent specimen and a food source for indigenous avian fauna. Tree 16 as a non-locally indigenous planting is of good from and prominent *in situ*; Tree 17/3 as a stand of 6 street trees along the Davey Street frontage screening views to and from the site and contiguous with trees in Victoria Park extending the aesthetic influence of the urban canopy to the site. Similarly for Trees 20/4 as street trees in Long Road and Tree 19 as an extant exotic planting as a senescent component of the original landscaping. The trees of low significance are recent plantings as fruit trees – Avocados, and 1 Cootamundra Wattle as a non-locally indigenous tree in irreversible decline and potentially structurally unsound.

Significance Scale

1 – High
2 – Medium
3 – Low

Significance Scale	1	2	3
Tree No. / Stand No.	14, 16, 17/3, 19, 20/4	1/1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12/2, 15, 18, 21/5	3, 13, 22

Tree Retention Value

Determined by using the Retention Value - Priority Matrix of the *IACA Significance of a Tree, Assessment Rating System* (STARS)© (IACA, 2010), Appendix B.

Retention Value

High – Priority for Retention
Medium – Consider for Retention
Low – Consider for Removal
Remove - Priority for Removal

Retention Value	High Priority for Retention	Medium Consider for Retention	Low Consider for Removal	Remove Priority for Removal
Tree No. / Stand No.	1/1, 5, 17/3*, 19	2, 4, 6, 7, 8, 9, 10, 11, 14, 15, 16, 18, 20/4*, 21/5	3, 12/2, 13,	22

* Trees located within the neighbouring property and should be retained and protected.

APPENDIX 2 - EXTRACT FROM AS4970 2009 PROTECTION OF TREES ON DEVELOPMENT SITES

Section 3, Determining the tree protection zones of the selected trees

3.1 Tree protection zone (TPZ)

"The tree protection zone (TPZ) is the principal means of protecting trees on development sites. The TPZ is a combination of the root area and crown area requiring protection. It is an area isolated from construction disturbance, so that the tree remains viable.

The TPZ incorporates the structural root zone (SRZ) (refer to Clause 3.3.5)."

3.2 Determining the TPZ

The radius of the TPZ is calculated for each tree by multiplying its DBH x 12.

TPZ = DBH x 12

where

DBH = trunk diameter measured at 1.4 m above ground

Radius is measured from the centre of the stem at ground level.

3.3.5 Structural root zone (SRZ)

"The SRZ is the area required for street stability. A larger area is required to maintain a viable tree. The SRZ only needs to be calculated when a major encroachment into a TPZ is proposed. Root investigation may provide more information on the extent of these roots."

Determining the SRZ

The radius of the TPZ is calculated for each tree by multiplying its DBH x 12.

SRZ radius = $(D \times 50)^{0.42} \times 0.64$

where

D = trunk diameter, in metres, measured above the root buttress.

Note: The SRZ for trees less than 0.15 m will be 1.5 m (see Figure 1).

The curve can be expressed by the following formula:

$R_{SRZ} = (D \times 50)^{0.42} \times 0.64$

NOTES:

1 R_{SRZ} is the structural root zone radius.

2 D is the stem diameter measured immediately above root buttress.

3 The SRZ for trees less than 0.15 m diameter is 1.5 m.

4 The SRZ formula and graph do not apply to palms, other monocots, cycads and tree ferns.

5 This does not apply to trees with an asymmetrical root plate.

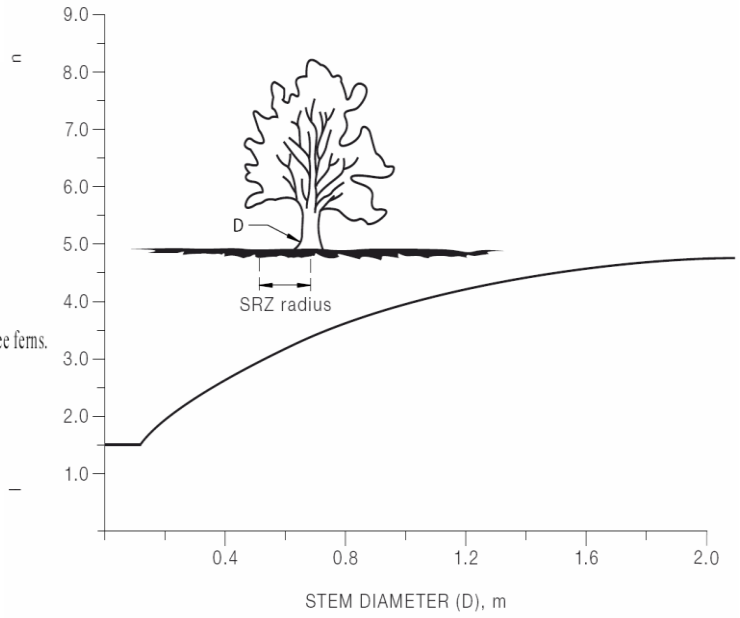


FIGURE 1 STRUCTURAL ROOT ZONE