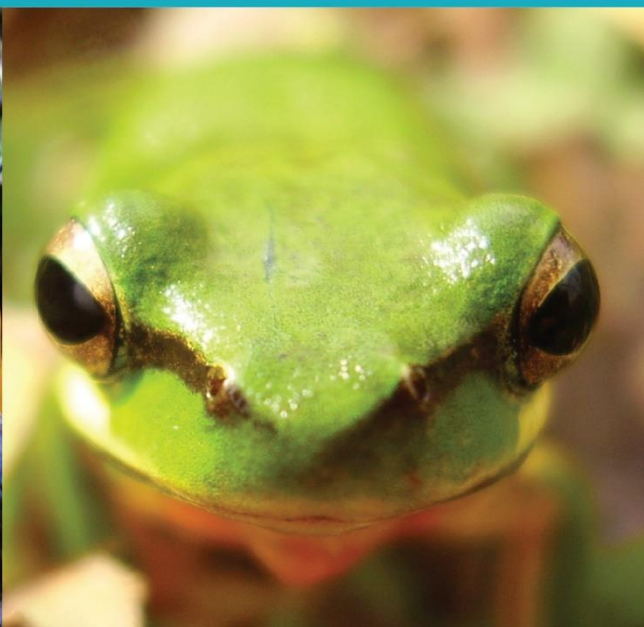




TRAVERS BUSHFIRE & ECOLOGY

A TBE ENVIRONMENTAL COMPANY



ECOLOGICAL ASSESSMENT REPORT

361-365 North Rocks Road
North Rocks

6 May 2024

(REF: 19MEC02.3EAR)



ECOLOGICAL ASSESSMENT REPORT

361-365 North Rocks Road, North Rocks

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File:	19MEC02.3EAR



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The mapping is indicative of available space and location of features which may prove critical in assessing the viability of the proposed works. Mapping has been produced on a map base with an inherent level of inaccuracy, the location of all mapped features is to be confirmed by a registered surveyor.

LIST OF ABBREVIATIONS

APZ	asset protection zone
BAM	Biodiversity Assessment Method (2020)
<i>BC Act</i>	<i>Biodiversity Conservation Act (2016)</i>
BDAR	Biodiversity Development Assessment Report
BOS	Biodiversity Offset Scheme
BPA	bushfire protection assessment
BSSAR	Biodiversity Stewardship Site Assessment Report
CEEC	Critically endangered ecological community
<i>CM Act</i>	<i>Coastal Management Act 2016</i>
DAWE	Department of Agriculture, Water and the Environment
DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment and Water
DCP	development control plan
DEC	NSW Department of Environment and Conservation (superseded by DECC from April 2007)
DECC	NSW Department of Environment and Climate Change (superseded by DECCW from October 2009)
DECCW	NSW Department of Environment, Climate Change and Water (superseded by OEHL from April 2011)
DEWHA	Commonwealth Department of Environment, Water, Heritage & the Arts (superseded by SEWPAC)
DOEE	Commonwealth Department of Environment & Energy (superseded by DAWE)
DPE	NSW Department of Planning and Environment
DPIE	NSW Department of Planning, Industry and Environment (superseded by DPE Nov 2021)
EEC	endangered ecological community
EPA	Environment Protection Authority
<i>EP&A Act</i>	<i>Environmental Planning and Assessment Act (1979)</i>
<i>EPBC Act</i>	<i>Environment Protection and Biodiversity Conservation Act (1999)</i>
<i>FM Act</i>	<i>Fisheries Management Act</i>
IBRA	Interim Biogeographic Regionalisation for Australia
LEP	local environmental plan
LGA	local government area
<i>LLS Act</i>	<i>Local Land Services Act (2013)</i>
NES	national environmental significance
<i>NPW Act</i>	<i>National Parks and Wildlife Act (1974)</i>
NRAR	Natural Resources Access Regulator (NSW)
NSW DPI	NSW Department of Industry and Investment
OEHL	Office of Environment and Heritage (superseded by DPIE from August 2019)
PCT	plant community type
PFC	projected foliage cover
RFS	NSW Rural Fire Service
ROTAP	rare or threatened Australian plants
SAII	Serious And Irreversible Impacts
SEPP	State Environmental Planning Policy
SEWPAC	Commonwealth Dept. of Sustainability, Environment, Water, Population & Communities (superseded by DOEE)
SIS	species impact statement
SULE	safe useful life expectancy
TEC	threatened ecological community
TPZ	tree preservation zone
<i>TSC Act</i>	<i>Threatened Species Conservation Act (1995) – Superseded by the Biodiversity Conservation Act (2016)</i>
VMP	vegetation management plan

EXECUTIVE SUMMARY

Travers bushfire & ecology (TBE) has undertaken an ecological inspection of 361-365 North Rocks Road, North Rocks, (as shown in Figure 1) to provide advice on the potential, likely or known constraints for any future development of the subject site. The proposal is seeking a rezoning of the subject site to facilitate implementation of the conceptual master plan. The Planning Proposal lodgement will utilise this existing preliminary assessment along with the masterplan provided in Figure 1.



Proposed masterplan

No part of the study area is affected by threatened ecological communities but there is only remnant vegetation near the northern boundary of the site. Given the highly disturbed nature of the site and extent of existing development footprints over the vast majority of the subject site, the likelihood for threatened flora to exist is considered very low, as is the case for any

planted threatened specimens. Diurnal and nocturnal fauna survey will be required as part of a future development application on site. The habitats on site are not particularly unique that hold a high ecological constraint at the time of inspections.

Any future development application will need a Biodiversity Development Assessment Report that addresses the *Biodiversity Conservation Act, 2016 (BC Act)*. With respect to whether the development will trigger the Biodiversity Offset Scheme, this is based on three (3) factors:

- does the site impact biodiversity values land as mapped by DPE?
- does the impact exceed clearing thresholds?
- will the proposal cause a 'significant impact' in light of the test of significance?

At the time this report was commissioned, the site is not mapped as containing biodiversity values. Based on the current proposal, there will be impacts that exceed the 0.25 ha or greater threshold upon native vegetation, which includes planted native vegetation. Impacts of 0.25 ha or greater upon native vegetation will trigger the Biodiversity Offset Scheme (BOS). Note, that for impacts less than 1 ha, a streamlined assessment may be undertaken, or a full BDAR for impacts of 1 ha or more. Planted native vegetation occupies 1.77 ha of the site and remnant native vegetation occupies 0.68 ha of the site. If the vegetation is subject to APZ management, it is also subjected to be counted as an impact.

There are no wetlands or riparian zones within the study area that require assessment, protection or setbacks.

Given the nature of the site, there is not likely to be any 'red-flag' issues with regard to the *EPBC Act*.

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1. INTRODUCTION

This Ecological Assessment Report has been prepared by *Travers bushfire & ecology* on behalf of the proponent being *EG Funds Management Pty Ltd* (EG) to support a Planning Proposal PP-2021-3409 for rezoning at No's 361-365 North Rocks Road, North Rocks.

1.1 Site description

Table 1 provides a summary of the planning, cadastral, topographical, and disturbance details of the development footprint.

Table 1 – Site features

Location	361-365 North Rocks Road North Rocks
Area	Approximately 12.676 ha
Local government area	Parramatta Council
Zoning	R2 - Low Density Residential (reviewed April 2024)
Grid reference	317442E 626151N
Elevation	88–100 m AHD
Topography	The site has a gentle slope to the north with an average slope of around 4 degrees.
Geology and soils	Geology; Wianamatta Group – Ashfield Shale; Hawkesbury Sandstone Soils; GyMEA, Hawkesbury and Glenorie Soil Landscapes.
Catchment, drainage and stream order	The site falls north into Blue Gum Creek which then flows into Darling Mills Creek which flows in a westerly then southerly direction discharging into the Parramatta River.
Existing land use	Institute for deaf and blind children
Clearing	c. 95% of the study area has been cleared of native vegetation.

1.2 Masterplan

Figure 1 shows the amended site masterplan for the site. There is still a full-sized oval, as well as several other pocket parks, community gardens etc. throughout the site.

This plan takes into consideration some of the previous landscaping undertaken on site that includes existing mature trees, many of which are large deciduous trees.

The site was previously occupied by Next Sense (formerly the Royal Institute for Deaf and Blind Children), however has now been secured by EG given the site is now surplus to Next Sense's operational needs and their relocation to a new campus in Macquarie Park.

The Planning Proposal seeks to create North Rocks Village (see Figure 1), a Housing Diversity Precinct as expressed in Council's Local Strategic Planning Statement (LSPS). It will deliver a genuine mix of housing opportunities within a garden village setting that is respectful of existing neighbourhood character, in addition to new open space including an oval and village square. It also includes a community 'hub' comprising a library and multi-purpose community facility.

The Planning Proposal was initially submitted to the City of Parramatta Council in June 2021, however, has since been subject to a rezoning review process (ref RR2022/31). On 21 March 2024, a *Record of Decision to Submit Planning Proposal to Gateway Determination* was issued by the Sydney Central Planning Panel. This decision recommends the proposal proceeds to Gateway Determination, subject to conditions, which included some recommended design modifications.

The Planning Proposal has now been amended to adopt the panel recommendations. Key design amendments can be summarised as follows:

- Minor adjustments to building heights, including a range of 2-6 storeys across the site,
- Minor amendments to building layouts, and
- A masterplan which may facilitate an approximate 1.1:1 Floor Space Ratio.

The proposed Masterplan is depicted in Figure 1 below:



- | | | |
|---|----------------------------|----------------------------------|
| ① Oval | ⑥ Independent Living Units | ⑪ Local Parks and Gardens |
| ② Village Square | ⑦ Town Houses | ⑫ Dog Park and Community Gardens |
| ③ Central Park | ⑧ Apartments | ⑬ Pavilion and Tennis Court |
| ④ Community Hub, potential Library and Community Facilities | ⑨ Detached Houses | |
| ⑤ Aged Care | ⑩ Bushland Edge Parkland | |

Figure 1 – North Rocks Masterplan

Source: Hassell

The Planning Proposal will facilitate:

- Approximately 795 new residential dwellings (including apartments, townhouses, and detached dwellings)
- Approximately 130 independent living units and aged care (seniors housing)
- Approximately 4,400m² new community facilities
- Approximately 2,800m² retail/commercial floor space
- Associated landscaping, road network, public open space improvements, and increased tree canopy cover

We have reviewed the documentation made available to us following the Rezoning Review Process. This Ecological Assessment Report has been updated to reflect the amended project scope for submission as part of an amended Planning Proposal package.

There are no notable changes to our assessment/recommendations that previously submitted in 2022. It appears that the masterplan is more 'green' than previous and potentially more protection of the remnant bushland along the northern boundary will be afforded.

Retention of native vegetation along the northern boundary shows a degree of 'avoidance' and prioritisation in that remnant vegetation will be retained over planted native vegetation. The proposal includes an intent to increase urban tree canopy coverage from 23% to 40%.

2. SITE INSPECTION

2.1 Flora survey

A field inspection was undertaken on 23 August 2018 by botanist George Plunkett over the time frame of approximately 1.5 hrs. This was restricted to the small area of remnant native vegetation within the north of the site, primarily to confirm the plant community type (PCT) of the remnant. One (1) flora quadrat of 20 m x 20 m was undertaken within the existing native vegetation of the lot to assist in the identification of the plant community types (PCTs) present. Native vegetation boundaries were drawn to the approximate extent of any drip line. Opportunistic threatened flora searches were undertaken during stratified surveys.

An additional field inspection was undertaken by Managing Director Michael Sheather-Reid on 2 May 2019. This involved a pre-commencement inspection to provide advice on the potential ecological significance of the trees present subject to completion of detailed ecological and arboriculture assessment. Figure 5 maps the observed vegetation types.

2.2 Fauna survey

Fauna survey was undertaken by fauna ecologist Corrine Edwards on 26 July 2022. Fauna survey including afternoon diurnal survey and threatened species habitat assessment undertaken within the subject site and nearby surrounds.

Diurnal fauna survey included:

- Frog and reptile habitat searches,
- Bird census points (out to a radius of 30–50 m for 15 minutes),
- Opportunistic bird call and activity survey between census points,
- Mammal activity searches (scats, scratches, diggings, burrows, etc.)
- Placement of small and large arboreal and terrestrial hair tubes targeting mammals,
- Surveillance cameras at baited stations, and
- Habitat tree survey.
- Significant habitat tree survey.

Significant habitat trees are defined as trees containing large hollows suitable for owls/cockatoos and/or two or more good quality medium hollows and/or several small hollows and/or a tree showing notable use by a threatened species (e.g. sap feed tree, raptor nest tree, microbat roost, etc.).

Weather conditions at the time of diurnal survey were 1/8 cloud, no wind, no rain, 17°C between 10:00 – 14:00.

3. BIODIVERSITY OFFSETS

The Biodiversity Offset Scheme (BOS) includes two (2) elements to the threshold test – a Biodiversity Values Land Map trigger and an area clearing trigger. If clearing exceeds either trigger, the BOS applies to the proposed clearing.

Where the BOS is not triggered via the two thresholds, a test of significance is required for a development proposal, in accordance with part 7.3 of the *BC Act*. If the test identifies any significant impact, then a species impact statement, avoiding and minimising the impact, and biodiversity offsetting may still be required.

3.1 Biodiversity values and land mapping

Biodiversity Values Land has not been mapped within the site – an offset is not required under this trigger. Figure 2 shows the site (red) in relation to those areas (coloured purple) as having biodiversity values. Biodiversity values are not mapped within the site, so the BOS cannot be triggered by this threshold test.



Figure 2 – Biodiversity value land in the local area

(Source: DPE – Biodiversity Values Map – April 2024)

3.2 Area clearing threshold

The area threshold varies depending on the minimum lot size shown below in the Lot Size Maps made under the Parramatta (formerly The Hills) Local Environmental Plan (LEP) 2023 (Figure 3). These maps have been imported into Mecone Mosaic which confirms the minimum lot size as 700m², still consistent with the former LEP of 2012.

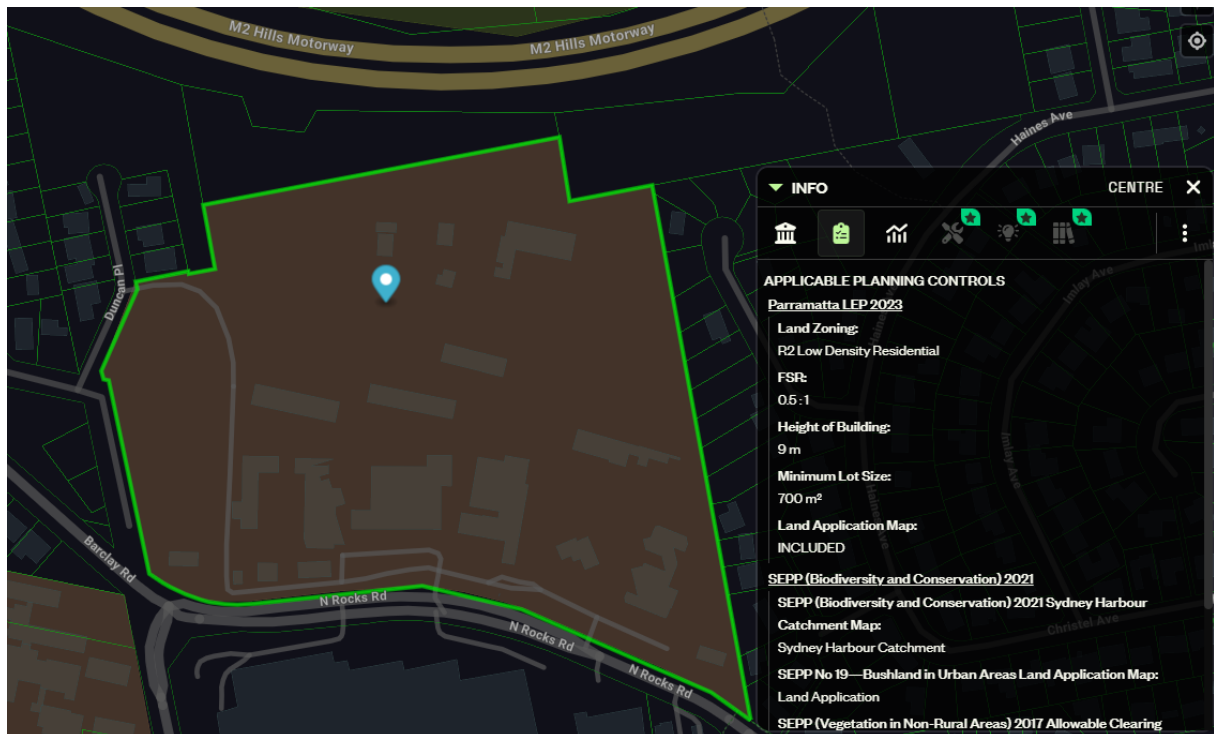


Figure 3 – Minimum subdivision lot size

Table 2 identifies that the site has a minimum lot size of 0.07 ha, and the clearing threshold for which the BOS applies is 0.25 ha. Clearing of native vegetation that equals or exceeds 0.25 ha will require entry into the BOS. Note that under the *BC Act*, native vegetation includes planted native species.

Based on the masterplan (Figure 1), greater than 0.25 ha of native vegetation will be cleared and offsetting will be required under the BOS. Whilst there may not be direct impacts for the placement of structures in native vegetation, it is likely that the native vegetation will need to be maintained within an asset protection zone. As this still has an impact upon native vegetation through selective canopy removal, thinning of mid-storey and maintenance of the ground layer, it is expected to cover an area greater than the threshold.

Table 2 – BOS entry threshold report

Biodiversity Values Map and Threshold Report		
Date of Report Generation		24/04/2024 10:13 AM
1. Biodiversity Values (BV) Map - Results Summary (Biodiversity Conservation Regulation Section 7.3)		
1.1	Does the development Footprint intersect with BV mapping?	no
1.2	Was <u>ALL</u> BV Mapping within the development footprint added in the last 90 days? (dark purple mapping only, no light purple mapping present)	no
1.3	Date of expiry of dark purple 90 day mapping	N/A
1.4	Is the Biodiversity Values Map threshold exceeded?	no
2. Area Clearing Threshold - Results Summary (Biodiversity Conservation Regulation Section 7.2)		
2.1	Size of the development or clearing footprint	115,042.1 sqm
2.2	Native Vegetation Area Clearing Estimate (NVACE) (within development/clearing footprint)	44,401.7 sqm
2.3	Method for determining Minimum Lot Size	LEP
2.4	Minimum Lot Size (10,000sqm = 1ha)	700 sqm
2.5	Area Clearing Threshold (10,000sqm = 1ha)	2,500 sqm
2.6	Does the estimate exceed the Area Clearing Threshold? (NVACE results are an estimate and can be reviewed using the Guidance)	yes
REPORT RESULT: Is the Biodiversity Offset Scheme (BOS) Threshold exceeded for the proposed development footprint area? (Your local council will determine if a BDAR is required)		yes

Note that items 2.1 and 2.6 are not relevant as the intent of drawing the polygon on site was to confirm the minimum lot size and area clearing threshold, and confirms that there is no BV mapping within the site.

4. VEGETATION

The PCT name and description below was confirmed before the change over of PCT nomenclature and updates to the State Vegetation Type Map (Eastern NSW) of 2022. In 2023, most PCTs were decommissioned, and will need to be reviewed and reclassified.

The State Vegetation Type Map (DPE) identifies the vegetation at the rear of the property (northern boundary) to be PCT 3259 - Sydney Coastal Shale-Sandstone Forest. Based on a desktop assessment, the description preceding on PCT 1845 - Smooth-barked Apple - Red Bloodwood - Blackbutt tall open forest on shale sandstone transition soils in eastern Sydney resembles a moderately strong match to PCT 3259.

The following vegetation communities confirmed and ground-truthed to occur within the subject lot:

PCT 3259 - Sydney Coastal Shale-Sandstone Forest

Remnant native vegetation occurs as part of a small remnant close to the northern boundary of the study area and occupies approximately 0.68 ha.

Canopy – *Eucalyptus pilularis*, *Corymbia gummifera*, *E. eugenioides*, *E. punctata*, *E. resinifera*, *Syncarpia glomulifera* and *Angophora costata* are the dominant species of the canopy. Canopy projected foliage cover is estimated at 15% with a height of 15–22 m.

Mid-storey – The mid-storey is sparse and contributes less than 2% PFC. Species present include *Polyscias sambucifolia*, *Cassytha glabella*, *Bossiaea obcordata*, *Kennedia rubicunda*, *Acacia falcata*, *Pittosporum undulatum*, *Kunzea ambigua*, *Acacia decurrens* and *Breynia oblongifolia*. Exotic species such as *Senna pendula*, *Sida rhombifolia*, *Cinnamomum camphora* and *Solanum mauritianum* are also present.

Ground layer – The understorey exists primarily as managed lawn dominated by native and exotic grasses. Native species present include *Themeda triandra*, *Aristida ramosa*, *Entolasia stricta*, *Dichelachne micrantha*, *Microlaena stipoides*, *Echinopogon ovatus*, *Pimelea linearis*, *Hardenbergia violacea*, *Lomandra obliqua*, *Lepidosperma laterale*, *Glycine clandestina*, *Dianella caerulea*, *Dichondra repens* and *Phyllanthus hirtellus*, and provide a PFC of up to 50% in places, but generally less than 5%. Overall, exotic species are dominant in the ground layer and include species such as *Stenotaphrum secundatum*, *Pennisetum clandestinum*, *Setaria parviflora*, *Taraxacum officinale*, *Eragrostis curvula*, *Ehrharta erecta*, *Bidens pilosa*, *Solanum nigrum*, *Hypochaeris radicata*, *Plantago lanceolata*, *Cirsium vulgare*, *Rumex* sp., *Tradescantia fluminensis* and *Ageratina adenophora*.

This vegetation has been mapped by *The Native Vegetation of the Sydney Metropolitan Area – Version 3.0* (OEH 2016) as Smooth-barked Apple - Red Bloodwood - Blackbutt tall open forest on shale sandstone transition soils in eastern Sydney (PCT 1845), which is largely equivalent to Coastal Shale Sandstone Forest. Our quadrat results support this classification.

DPE make the following statement regarding PCT 1845 on the BioNet Vegetation Classification tool:

“20170316: There are currently no TECs associated with this PCT. It has relationships to both Duffy's Forest Ecological Community and the more westerly Shale Sandstone Transition Forest, but has been specifically excluded through the determination for the latter and fails with regard to characteristic species of the former.”

There is no mention of the threatened ecological community (TEC), Sydney Turpentine Ironbark Forest (STIF) in relation to PCT 1845. Comparing our quadrat data with the final determinations for STIF, Duffy's Forest and Shale Sandstone Transition Forest, suggests that the vegetation within the study area is not commensurate with any of these TECs.

Under the updated Eastern NSW PCT classification, PCT 1845 has been decommissioned, and is largely replaced by PCT 3259 - Sydney Coastal Shale-Sandstone Forest. Note this is the same community name as mapped by OEH (2016). This PCT has associations with the TEC Duffys Forest, as detailed in the BioNet Vegetation Classification Tool:

"Includes areas of the NSW Duffys Forest TEC where it occurs in association with laterite soils or soils derived from shale and laminite lenses on Hawkesbury sandstone geology in Ku-ring-gai, Manly, Warringah, Pittwater or Hornsby LGAs (LGA boundaries as at date of Final Determination), as per paragraph 1 of the Final Determination."

The lack of laterite soils, and location of the site outside of the LGAs defined in the final determination for Duffys Forest, indicate that the vegetation on site is not commensurate with Duffys Forest. The Duffys Forest remnants are largely confined, geographically, to the areas between Duffys Forest, St Ives, Frenchs Forest and Ingleside.

PCT 3259 also has the same potential for listing as the Duffys Forest TEC but again, considered outside of its occurrence.

Therefore, it is considered that the vegetation within the study site is not commensurate with any endangered ecological community (EEC) listed under the *Biodiversity Conservation Act 2016 (BC Act)* or *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*.

Planted vegetation

The remaining vegetation in the study area occurs as planted trees, garden beds and managed lawn. Designation of native and exotic species has relied on previous arboriculture assessment and aerial imagery, and will require more detailed field verification for any future BDAR. Historically, prior to the RIDBC being built, the site was utilised for agricultural purposes as shown on Figure 4, so all this vegetation must have been planted since that date.

Planted native trees include *Eucalyptus* spp., *Angophora costata*, *Allocasuarina torulosa*, *Syzygium* spp., *Grevillea robusta*, *Corymbia maculate* and *Melaleuca* spp. Planted native vegetation occupies at least 1.77 ha within the site. A further 0.47 ha contains mixed native and exotic vegetation.

Exotic and non-native tree species include *Corymbia citriodora*, *Liquidambar styraciflua*, *Cinnamomum camphora*, *Schinus* sp. and *Jacaranda mimosifolia* and occupy 0.81 ha within the site.

4.1 Trees

Remnant native trees are associated with the Smooth-barked Apple - Red Bloodwood - Blackbutt tall open forest in the far north of the property only. The existing mature trees within the remainder of the site are all planted specimens of either exotic or non-local species. Detailed habitat tree survey has been undertaken and locations of hollow-bearing trees are shown in Figure 5. Some trees may provide foraging resources for fauna, as noted in Section 7 but they are generally of no outstanding ecological significance and do not constitute a constraint.

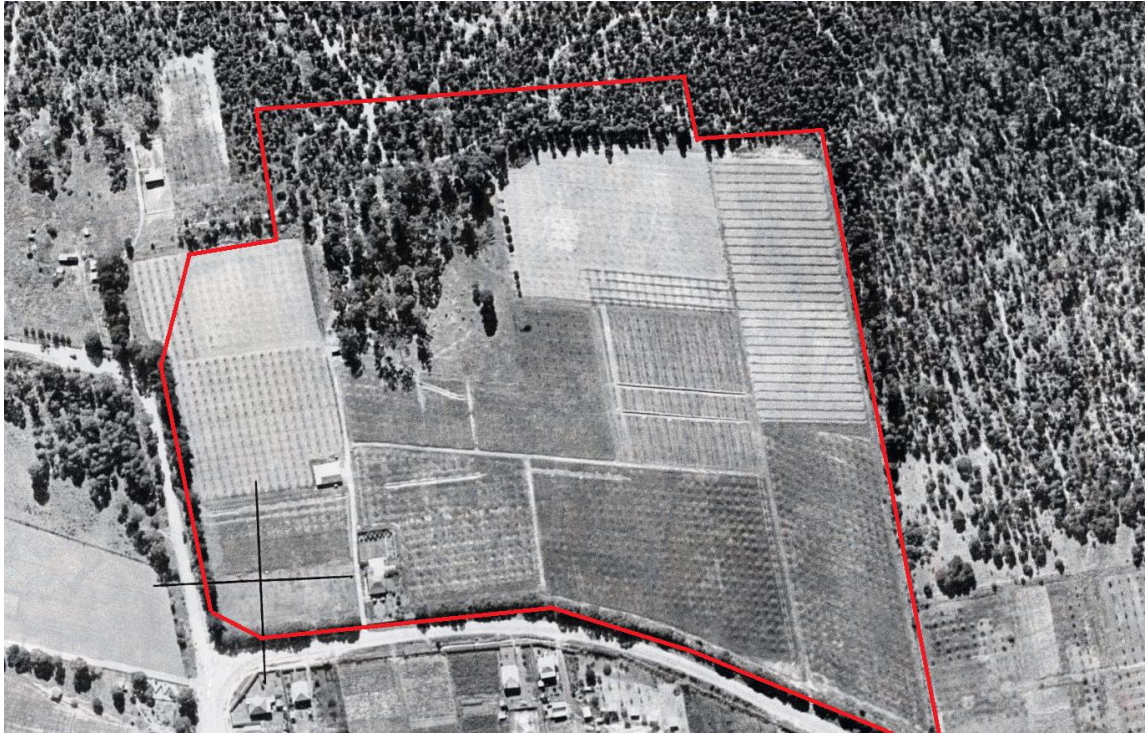


Figure 4 – Historical aerial photo from 1943 showing the majority of the site being used for agriculture. Boundary is approximate



Photo 1 – PCT 3259 in the north-east of the study area looking north (2018)



Photo 2 – PCT 3259 within Quadrat 1 looking north (2018)



Photo 3 – PCT 3259 in the north-west of the study area looking south (2018)



Figure 5 – Flora & fauna survey effort & results

5. THREATENED FLORA

The NSW BioNet database and Commonwealth Protected Matters Search were accessed to provide an indication of the threatened flora present within a 10 km radius of the study area. Table 3 lists all recorded species within 10 km and whether they have potential habitat.

Table 3 – Threatened flora potential habitat

Scientific name	BC Act status	EPBC Act status	No. records within 10 km	Potential habitat
<i>Acacia bynoeana</i>	E1	V	18	x
<i>Acacia clunies-rossiae</i>	V		1	x
<i>Acacia gordonii</i>	E1	E	3	x
<i>Acacia pubescens</i>	V	V	32	x
<i>Allocasuarina glareicola</i>	E1	E	0	x
<i>Asterolasia elegans</i>	E1	E	0	x
<i>Caladenia tessellata</i>	E1	V	1	x
<i>Callistemon linearifolius</i>	V		15	Unlikely
<i>Darwinia biflora</i>	V	V	526	Unlikely
<i>Darwinia peduncularis</i>	V		25	x
<i>Dillwynia tenuifolia</i>	V		2	x
<i>Epacris purpurascens</i> var. <i>purpurascens</i>	V		290	Low
<i>Eucalyptus camfieldii</i>	V	V	37	x
<i>Eucalyptus nicholii</i>	V	V	8	x (unless planted)
<i>Eucalyptus scoparia</i>	E1	V	1	x (unless planted)
<i>Eucalyptus</i> sp. <i>Cattai</i>	E4A	CE	16	x
<i>Galium australe</i>	E1		7	x
<i>Genoplesium baueri</i>	E1	E	23	Unlikely
<i>Genoplesium plumosum</i>	E4A	E	2	x
<i>Grammitis stenophylla</i>	E1		5	x
<i>Grevillea caleyi</i>	E4A	CE	1	x
<i>Haloragodendron lucasii</i>	E1	E	4	x
<i>Hibbertia superans</i>	E1		104	Unlikely
<i>Kunzea rupestris</i>	V	V	1	x
<i>Lasiopetalum joyceae</i>	V	V	10	x
<i>Leptospermum deanei</i>	V	V	18	x
<i>Leucopogon fletcheri</i> subsp. <i>fletcheri</i>	E1		25	x
<i>Melaleuca biconvexa</i>	V	V	2	x
<i>Melaleuca deanei</i>	V	V	64	x
<i>Pelargonium</i> sp. <i>Striatellum</i>	E1	E	0	x
<i>Persoonia hirsuta</i>	E1	E	25	x
<i>Persoonia mollis</i> subsp. <i>maxima</i>	E1	E	37	x
<i>Persoonia nutans</i>	E1	E	2	x
<i>Pimelea curviflora</i> var. <i>curviflora</i>	V	V	54	Unlikely
<i>Pimelea spicata</i>	E1	E	9	x
<i>Pomaderris brunnea</i>	E1	V	1	x

Scientific name	BC Act status	EPBC Act status	No. records within 10 km	Potential habitat
<i>Prostanthera marifolia</i>	E4A	CE	2	x
<i>Pterostylis nigricans</i>	V		1	x
<i>Pterostylis saxicola</i>	E1	E	3	x
<i>Syzygium paniculatum</i>	E1	V	22	x (unless planted)
<i>Tetradlea glandulosa</i>	V		171	Unlikely
<i>Thesium australe</i>	V	V	0	x
<i>Triplarina imbricata</i>	E1	E	4	x
<i>Wilsonia backhousei</i>	V		98	x
<i>Zannichellia palustris</i>	E1		5	x

Habitat tree no. 1 was considered to be a planted specimen of *Eucalyptus scoparia*. This will have no real constraint over the development given that the species does not naturally occur in the Sydney Basin and it will unlikely be contributing effectively to maintaining the gene pool of the species. There is potential habitat within the study site for several naturally occurring threatened flora species as listed in Table 3.

There are many records of *Epacris purpurascens* var. *purpurascens* within 1 km of the study area, including records within 30 m of the northern boundary of the lot. There are records of *Hibbertia superans* and *Tetradlea glandulosa* within 2 km of the study area. The native vegetation within the study site is highly disturbed and provides low to unlikely potential habitat for these species.

Additional targeted surveys for threatened flora will be required in the future depending on the proposed development. Note that several of the species are cryptic and will require adequate survey at various times of the year;

- *Tetradlea glandulosa* (Jun–Nov)
- *Darwinia biflora* (Sep–Feb)

Ideally, *Epacris purpurascens* var. *purpurascens* should be surveyed in the flowering period of Sep–Oct also. Use flowers to identify, as easily confused with *E. pulchella* and *Woollsia*. Flowering peak Sep–Oct, but flowers sporadically throughout the year. Requires a voucher specimen to be confirmed by the Royal Botanic Gardens.

If the BOS is entered into, this may have additional species for consideration in any future BDAR. Suitable survey may need to be undertaken, otherwise species must be assumed as being present. It should also be noted that if impacts to native vegetation trigger the BOS but only a streamlined assessment is required, then only those threatened entities associated with the PCT require survey. Neither *Tetradlea glandulosa* or *Darwinia biflora* are listed as potential SAIL (serious and irreversible risk) entities.

6. THREATENED FAUNA

The NSW BioNet database and Commonwealth Protected Matters Search were accessed to provide an indication of the threatened fauna present (or with considered habitat) within a 10 km radius of the study area. Table 4 lists all these species and their considered potential for habitat to occur within the study area. This potential has taken a precautionary approach based on the absence of fauna survey.

Table 4 – Threatened fauna potential habitat

Common name	BC Act status	EPBC Act status	No. records within 10 km	Potential habitat
Giant Burrowing Frog	V	V	3	x
Red-crowned Toadlet	V		75	unlikely
Green and Golden Bell Frog	E1	V	12978	x
Littlejohn's Tree Frog	V	V	0	x
Southern Bell Frog	E1	V	0	x
Stuttering Frog	E1	V	0	x
Rosenberg's Goanna	V		2	x
Freckled Duck	V		1	x
Superb Fruit-Dove	V		5	unlikely
Australasian Bittern	E1	E	9	x
Black Bittern	V		8	x
Spotted Harrier	V		3	x
White-bellied Sea-Eagle	V	C	255	x
Little Eagle	V		15	unlikely
Square-tailed Kite	V		12	unlikely
Eastern Osprey	V		3	x
Grey Falcon	E1		1	x
Black Falcon	V		2	x
Painted Honeyeater	V	V	0	unlikely
Australian Painted Snipe	E1	E	3	x
Eastern Bristlebird	E1	E	0	x
Black-tailed Godwit	V	-	14	x
Eastern Curlew	-	CE	30	x
Gang-gang Cockatoo	V		65	unlikely
Glossy Black-Cockatoo	V		32	unlikely
Little Lorikeet	V		21	potential
Swift Parrot	E1	CE	20	unlikely
Superb Parrot	V	V	2	unlikely
Barking Owl	V		10	unlikely
Powerful Owl	V		460	potential
Eastern Grass Owl	V		2	x
Masked Owl	V		9	potential
Sooty Owl	V		2	x
Brown Treecreeper (eastern)	V		1	x
Regent Honeyeater	E4A	CE	9	unlikely
White-fronted Chat	V		238	x

Common name	BC Act status	EPBC Act status	No. records within 10 km	Potential habitat
Black-chinned Honeyeater	V		1	x
Varied Sittella	V		9	unlikely
Dusky Woodswallow	V		39	x
Scarlet Robin	V		6	unlikely
Flame Robin	V		3	unlikely
Pink Robin	V		1	unlikely
Diamond Firetail	V		1	x
Spotted-tailed Quoll	V	E	10	unlikely
Koala	V	V	7	unlikely
Southern Brown Bandicoot	E1	E	0	unlikely
Eastern Pygmy-possum	V		20	potential
Yellow-bellied Glider	V		3	x
Greater Glider	-	V	3	x
Brush-tailed Rock Wallaby	E1	V	0	x
Grey-headed Flying-fox	V	V	251	potential
Yellow-bellied Sheath-tail-bat	V		29	potential
Eastern Freetail-bat	V		51	potential
Large-eared Pied Bat	V	V	2	unlikely
Eastern False Pipistrelle	V		27	potential
Little Bentwing-bat	V		21	potential
Eastern Bentwing-bat	V		193	likely
Southern Myotis	V		46	unlikely
Greater Broad-nosed Bat	V		31	potential
Eastern Chestnut Mouse	V		2	x
New Holland Mouse	-	V	0	unlikely
Cumberland Plain Land Snail	E1		24	x
Dural Woodland Snail	E1	E	34	x

If the project proceeds under the BOS, the species requiring survey is dependent upon whether or not a streamlined assessment applies. If a streamlined assessment is applicable, only species that are listed as potential SAIL entities will require consideration (e.g. cave dwelling bats, Swift Parrot, Regent Honeyeater).

Currently, the site is not mapped as important habitat for Swift Parrot or Regent Honeyeater.

7. FAUNA HABITAT RESULTS

The following notable habitat features were observed present:

- Four (4) habitat trees containing good quality small, medium and large hollows, each showing signs of use
- Two potential habitat trees showing one small hollow each
- Year-round nectar producing tree species, principally *Eucalyptus* spp.
- Winter-flowering *Eucalyptus* spp., *Corymbia maculata* and *Corymbia citriodora*
- Seed producing *Allocasuarina* trees
- Seed producing trees notably *Acacia* spp.
- Ephemeral drainage line
- Dense mid and upper-storey foliage areas
- Surface soils suitable for foraging by bandicoots

Hollow-bearing trees were surveyed during the fauna survey with a total of four (4) trees containing hollows within or close to the development footprint area. These trees were found to contain one (1) small hollow (0-5 cm in size), two (2) medium hollows (10-15cm in size) and two (2) large hollows. Two trees containing 1 small (0-5 cm) each were also noted as potential habitat trees which may provide potential roosting/breeding habitat for smaller hollow dependant fauna and have the potential to develop good quality larger hollows.

Hollow-bearing tree data for the development footprint is provided in Table 6.

The recorded hollows may be suitable for hollow-dependent threatened species with considered potential to occur including Powerful Owl, Masked Owl, Little Lorikeet, Eastern Pygmy-possum, East-coast Freetail Bat, Eastern False Pipistrelle and Greater Broad-nosed Bat. Further detailed fauna assessment for the abovementioned hollow dependant species is recommend to confirm the presence/absence of these species. It is also recommended that where possible hollows be retained within the development landscape.

If the BOS is entered into, the BAM calculator may have other additional species for consideration, and survey during breeding periods may have to be accommodated if it exists on site.

In addition, given the time lapsed between the fauna site inspection to progression of a DA, habitat attributes may need to be reconfirmed.

7.1 Fauna habitat observations

The fauna habitats present within the site are identified within the following table.

Table 5 – Observed fauna habitat

Topography				
Flat	Gentle ✓	Moderate	Steep	Drop-offs
Vegetation structure				
Closed Forest	Open Forest	Woodland	Heath	Grassland ✓
Disturbance history				

Topography						
Fire		Under-scrubbing ✓		Cut and fill works ✓		
Tree clearing ✓		Grazing				
Soil landscape						
DEPTH:	Deep	Moderate ✓	Shallow	Skeletal		
TYPE:	Clay ✓	Loam ✓	Sand	Organic		
VALUE:	Surface foraging ✓		Sub-surface foraging		Denning/burrowing ✓	
WATER RETENTION:	Well Drained ✓	Damp / Moist	Water logged ✓	Swamp / Soak		
Feed resources						
FLOWERING TREES:	Eucalypts ✓		Corymbias		Melaleucas	
	Banksias		Acacias ✓			
SEEDING TREES:	Allocasuarinas ✓		Conifers			
WINTER FLOWERING EUCALYPTS:	C. maculata	E. crebra	E. globoidea		E. sideroxylon	
	E. squamosa	E. grandis	E. multicaulis		E. scias	
	E. robusta	E. tereticornis	E. agglomerata		E. siderophloia	
FLOWERING PERIODS:	Autumn	Winter	Spring ✓		Summer ✓	
OTHER:	Mistletoe	Figs / Fruit	Sap / Manna ✓		Termites ✓	
Foliage protection						
UPPER STRATA:	Dense		Moderate		Sparse ✓	
MID STRATA:	Dense		Moderate		Sparse ✓	
PLANT / SHRUB LAYER:	Dense		Moderate		Sparse ✓	
GROUNDCOVERS:	Dense		Moderate		Sparse ✓	
Hollows / logs						
TREE HOLLOW:	Large		Medium ✓		Small ✓	
TREE HOLLOW TYPES	Spouts / branch ✓	Trunk ✓	Broken Trunk ✓		Basal Cavities ✓	Stags
GROUND HOLLOW:	Large		Medium		Small ✓	
Vegetation debris						
FALLEN TREES:	Large		Medium		Small ✓	
FALLEN BRANCHES:	Large		Medium		Small ✓	
LITTER:	Deep		Moderate ✓		Shallow ✓	
HUMUS:	Deep		Moderate ✓		Shallow ✓	
Drainage catchment						
WATER BODIES	Wetland(s)	Soak(s)	Dam(s)	Drainage line(s) ✓	Creek(s)	River(s)
RATE OF FLOW:	Still		Slow ✓		Rapid	
CONSISTENCY:	Permanent		Perennial		Ephemeral ✓	
RUNOFF SOURCE:	Urban / Industrial ✓	Parkland		Grazing	Natural ✓	
RIPARIAN HABITAT:	High quality	Moderate quality		Low quality	Poor quality	
Artificial habitat						

Topography			
STRUCTURES:	Sheds ✓	Infrastructure ✓	Equipment
SUB-SURFACE	Pipe / culvert(s) ✓	Tunnel(s)	Shaft(s)
FOREIGN MATERIALS:	Sheet	Pile / refuse	

7.2 Habitat tree data

Hollow-bearing trees observed within the study area are tabulated below.

Table 6 – Habitat tree data

Tree no	Scientific name	Common name	DBH (cm)	Height (m)	Spread (m)	Vigour (%)	Hollows & other habitat features recorded
HT001	<i>E. scoparia</i>	Wallangarra white gum	54	12	8	85	1 x 10-15 cm branch hollow
HT002	<i>E. pilularis</i>	Blackbutt	89	20	12	90	1 x 5-10 cm spout hollow
HT003	<i>E. pilularis</i>	Blackbutt	108	23	14	75	1 x 15-20 cm narrow trunk hollow
HT004	<i>E. pilularis</i>	Blackbutt	63,69	24	8	75	1 x 10-15 cm trunk hollow

8. THREATENED ECOLOGICAL COMMUNITIES

Native vegetation within the study area is not part of any recognised threatened ecological community (see discussion in Section 4 Vegetation).

9. ENDANGERED POPULATIONS

There are six endangered populations known within 10 km of the subject site. These are:

- *Marsdenia viridiflora* R. Br. subsp. *viridiflora* in the Bankstown, Blacktown, Camden, Campbelltown, Fairfield, Holroyd, Liverpool and Penrith local government areas.
- Tadgell's Bluebell (*Wahlenbergia multicaulis*) in the local government areas of Auburn, Bankstown, Baulkham Hills, Canterbury, Hornsby, Parramatta and Strathfield
- *Pomaderris prunifolia* in the Parramatta, Auburn, Strathfield and Bankstown Local Government Areas
- Gang-gang Cockatoo population in the Hornsby and Ku-ring-gai Local Government Areas
- White-fronted Chat population in the Sydney Metropolitan Catchment Management Area
- Long-nosed Bandicoot population in inner western Sydney

The study area is located within the Parramatta Local Government Area (LGA). Therefore, the *Marsdenia viridiflora* and Gang-gang Cockatoo endangered populations do not occur within the subject site from a spatial or LGA perspective.

No individuals of the above-mentioned taxa were observed during the flora survey.

Pomaderris prunifolia is a small shrub 1–3 m in height. The only nearby specimens are located in Rydalmere. Most specimens occur near creek banks. It is considered that the subject site is unlikely to host the species.

The Tadgells Bluebell (*Wahlenbergia multicaulis*) endangered population does occur within the Parramatta LGA. However, the closest and only record of this species within 10 km is located 8 km to the south-east of the subject site. Therefore, it is considered that the presence of this species within the subject site is very unlikely.

The closest record of the White-fronted Chat to the subject site is 7 km to the south-east. This species is not capable of flying across 7 km of urbanised landscape and requires saltmarsh or estuarine habitat. Therefore, the presence of this population within the subject site is not likely due to a lack of suitable habitat.

The closest record for the Long-nosed Bandicoot population in inner western Sydney is a single record located at Concord at a distance of more than 10 km on the other side of Parramatta River. Therefore, the likelihood of this species occurring within the subject site is highly unlikely.

No endangered fauna populations are expected to occur within the subject site due to high levels of previous disturbance and the lack of suitable habitat.

10. LOCAL ENVIRONMENTAL PLAN

Travers bushfire & ecology investigated the proposed changes contained in the draft local environment plan (LEP). This investigation undertaken in 2020 found that amendments to the LEP would include maps that identified important vegetation as proposed biodiversity lands in the north-eastern corner of the site. On review of the Planning Portal information and mapping in May 2024, the locations of the biodiversity lands remains unchanged. Comparison of LEP mapped biodiversity lands is shown below in Figure 6 and Figure 7.



Figure 6 – Draft 2020 LEP map of biodiversity lands (accessed 2020)



Figure 7 – LEP 2023 map of biodiversity lands (accessed May 2024)

Section 6.3 of the LEP 2023 applies to these areas mapped green.

LEP Clause 6.3 Biodiversity

- (1) The objective of this clause is to maintain terrestrial and aquatic biodiversity, including by—
 - (a) protecting native fauna and flora, and
 - (b) protecting the ecological processes, and the habitat elements providing connectivity on the land, that are necessary for their continued existence, and
 - (c) encouraging the conservation and recovery of native fauna and flora and their habitats.
- (2) This clause applies to land identified as “Biodiversity” on the [Natural Resources Map](#).
- (3) In deciding whether to grant development consent to development on the land, the consent authority must consider—
 - (a) whether the development is likely to have—
 - (i) an adverse impact on the condition, ecological value and significance of the fauna and flora on the land, and
 - (ii) an adverse impact on the importance of the vegetation and habitat elements on the land to the survival of native fauna, and
 - (iii) the potential to fragment, disturb or diminish the biodiversity structure, function and composition of the land, and

- (iv) an adverse impact on the habitat elements providing connectivity on the land, and
- (v) an adverse impact on the habitat of threatened species, populations or ecological communities, and
- (b) appropriate measures proposed to avoid, minimise or mitigate adverse impacts of the development.
- (4) Development consent must not be granted to development on the land unless the consent authority is satisfied the development—
 - (a) is designed, and will be sited and managed, to avoid adverse environmental impact, or
 - (b) if the impact cannot be avoided—is designed, and will be sited and managed, to minimise the impact, or
 - (c) if the impact cannot be minimised—will be managed to mitigate the impact.

11. ADDITIONAL ASSESSMENTS UNDER THE ENVIRONMENTAL PROTECTION AND BIODIVERSITY ACT (EPBC ACT)

The native vegetation within the study area is not part of any recognised threatened ecological community under the *EPBC Act*.

Under the *EPBC Act*, the following PCTs are recognised as commensurate with the CEEC *Turpentine-Ironbark Forest of the Sydney Basin Bioregion*: 792, 1183, 1281, 1284 and 1848.

Although PCT 1845 has some similarities with this CEEC, as discussed in Section 4, it is not recognised as being part of any threatened ecological community under the *EPBC Act*.

More detailed survey will need to be undertaken for fauna species as part of a development application. The likelihood of significant impacts upon fauna species will depend on the proposed development and how it impacts fauna habitat. Given the historical use of the site and partly impacted native vegetation, we do not envisage any major issues.

12. CONNECTIVITY AND CORRIDORS

There is bushland connectivity located along the southern boundary of the M2 Motorway (Figure 8). This connectivity is 2 km long with the subject site located close to the mid-point. Vegetation along the southern side of the M2 Motorway is fragmented by small gaps such as the powerline easement located in the north-eastern parts of the study area.

The M2 motorway is approximately 65 m wide at this point with a large screening fence which effectively isolates the southern bushland fringes within the study area and adjoining lands from the larger areas of bushland along Blue Gum Creek to the north. There is a drainage line that passes under the motorway to the north west of the study area that provides some connectivity across the motorway.

As the vegetation within the study area is located on the edge of the vegetation remnant, its removal would not break any local habitat connectivity.



Figure 8 – Local connectivity

13.CONCLUSIONS AND RECOMMENDATIONS

This ecological advice confirms the following ecological attributes:

- The remnant native vegetation is not representative of any threatened ecological community. The likelihood of threatened flora on site is considered very low given prior impacts and land use. General and targeted survey for threatened fauna species, and targeted survey for threatened flora species will be required at the DA stage. This will need to be undertaken at various times of the year as noted in Sections 5 and 6. Note that if the BOS is triggered, some additional species associated with PCT 3259 will require assessment.
- The study area contains 2.45 ha of native vegetation, which includes 0.68 ha remnant vegetation along the site's northern boundary and 1.77 ha of planted native species across the remained of the site. A further 0.47 ha of mixed native and exotic also exists on site. The BOS area threshold for vegetation impact is 0.25 ha, therefore any clearing of native vegetation, including planted native vegetation, equal to or above 0.25 ha will require a biodiversity offset to be obtained.

Under the *BC Act*, any proposal within the site is likely to trigger the BOS depending on the extent of vegetation removal. Based on the draft Masterplan, greater than 0.25 ha of native vegetation may be impacted although likely to be largely planted native vegetation in the middle of the site given there is some degree of setback proposed off the northern boundary. The impact of the APZ, which will be in the form of selective canopy removal, mid-storey and ground layer maintenance also needs consideration.

A separate *EPBC Act* assessment including any referral is unlikely, subject to the presence of *EPBC*-listed threatened species and the potential impacts.

If you require any further information, please do not hesitate to contact the undersigned, Michael Sheather-Reid (Managing Director) on (02) 4340 5331 or at <mailto:ecology@bushfireenvironmental.com.au> or auservicedesk@traverseecology.com.au.

Yours faithfully,



Michael Sheather-Reid
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