ECOLOGY | BIOBANKING | OFFSETS | BUSHFIRE

Our Ref: **2588**

Date: **06 May 2022**

To **Greencapital Weemala Unit Trust**
c/- HDB Town Planning & Design

Attention **Camille Kunder**

Via Email **camille@hdb.com.au**

Dear Camille,

RE: Ecological Assessment Report for Proposed Rezoning part Lot 1006 DP 127010 128 Munibung Road, Boolaroo, 2284 NSW

As Requested, Anderson Environment & Planning (AEP) herewith provide this Ecological Assessment Report (EAR) to detail the impact of the proposed rezoning at 128 Munibung Road, Boolaroo.

The report is specifically intended to identify any impacts on biodiversity as a result of this planning proposal. The information contained within this report has been generated from a site inspection and a desktop survey of available information, combined with professional judgement.

Literature Review

Primary information sources reviewed included:

- Aerial Photograph Interpretation (API) of the site and surrounding locality;
- East Coast Flora Survey (March 2016);
- NSW Biodiversity Values Map (accessed March 2022) https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BOSETMap;
- DPIE Important Habitat Mapping (2022);
- Landuse Mapping for NSW 2017 https://datasets.seed.nsw.gov.au/dataset/nsw-landuse-2017-v1p2-f0ed;
- OEH BioNet Vegetation Classification website (accessed March 2022) https://www.environment.nsw.gov.au/NSWVCA20PRapp;
- OEH Bionet Threatened Biodiversity Profiles (accessed March 2022) https://www.environment.nsw.gov.au/AtlasApp.

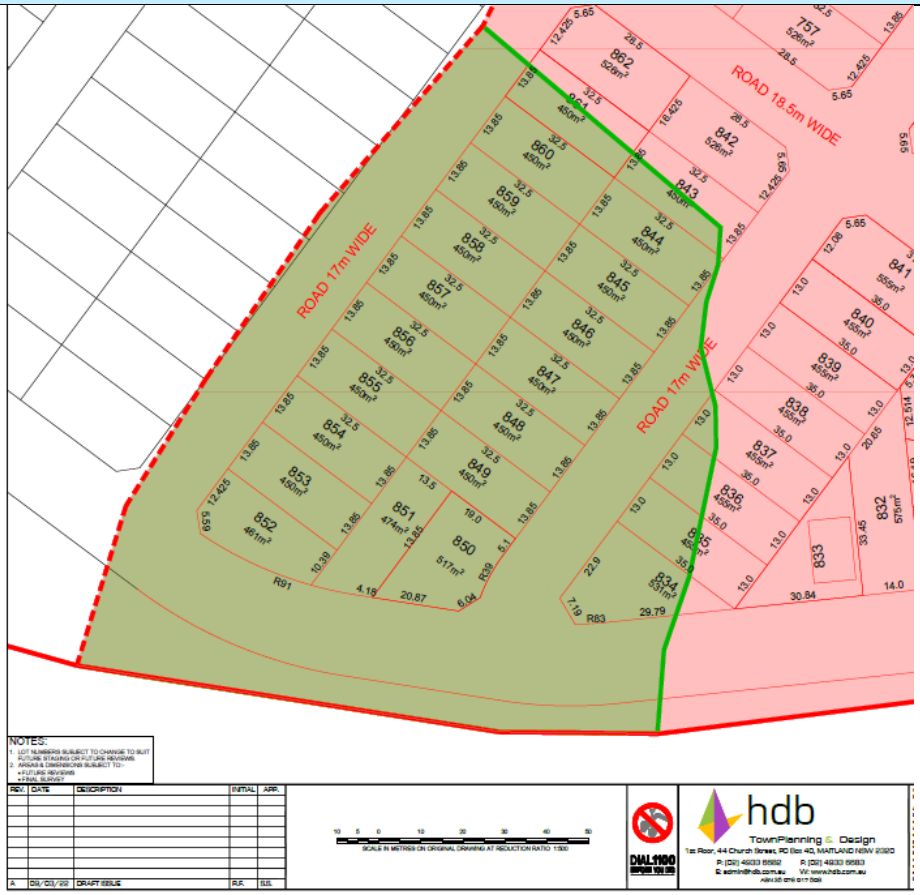
In addition, database searches were carried out, namely:

- Review of flora and fauna records held by the NSW Office of Environment & Heritage (OEH) BioNet Atlas of NSW Wildlife within 10km of the site (March 2022) https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/nsw-bionet; and
- Protected Matters Search within a 5km radius of the site on Commonwealth Department of Agriculture, Water and Environment (DAWE) (March 2022) https://www.environment.gov.au/epbc/protected-matters-search-tool.

Table 1 below provides a summary of the site characteristics.

Table 1 – Site Summary

Detail	Comments
Client	Greencapital Weemala Unit Trust c/- HDB Town Planning & Design
Address	128 Munibung Road Boolaroo, 2284 NSW (**Attachment A Figure 1**)
Titles	Part Lot 1006 DP 127010
Proposal	A Planning Proposal for rezoning from E2 to R2 for future residential development (**Attachment A – Figure 4**).
Area (approx.)	Approx. 1.68ha Subject Site comprising; • 0.23ha disturbed native shrub cover; • 1.03ha disturbed native grassland; and • 0.42ha bare ground with less than 10% vegetation cover. All of the area will be cleared
LGA	Lake Macquarie City Council
Zoning	Under the *Lake Macquarie Local Environmental Plan 2014* (the LEP, pub.31-7-2015), the broader lot is currently zoned R2 - Low density Residential Zone and R3 - Medium Density Residential with the Subject Site zoned E2 - Environmental Conservation Zone.
Minimum Lot Size	The current minimum lot size is 40ha with a proposed minimum lot size of 450m2 once rezoned to R2.
Site Description	The site is currently vacant and undeveloped. From current site inspections (aerial interpretation and ground truthing of the site) it is understood that site has been heavily modified as a result of the previous Pasminco smelter and subsequent site rehabilitation works. All topsoil has been removed from the site as part of the remediation. As such the site is highly disturbed with no canopy layer, large patches of bare ground and erosion issues despite previous sediment fencing. Vegetation within the site is currently dominated by the native coloniser species *Acacia longifolia var longifolia* located mainly along the ridge and *Imperata cylindrica* within the patchy shrub and grassland sections of the site respectively.
Site Usage	The site is currently vacant.
BOS Clearing Threshold Trigger	The minimum lot size for the proposed rezoned site is 450m^2. The area clearing threshold for minimum lots sizes that are <1ha is 0.25ha. The current estimated area of clearing is approx. 1.30ha (refer **Attachment A Figure 1 & Figure 2**). Therefore, the current proposal is above the clearing threshold of 0.25ha. The extent of native vegetation within the site is highly degraded and is limited to a few species in the mid and ground stratum levels with no canopy species present. Typically clearing of native vegetation above the clearing threshold would trigger entry into the Biodiversity Offset Scheme (BOS) however, the current site condition as described above is highly degraded and modified as a result of previous site activities and rehabilitation works. There are no biodiversity values within the site. As such although native vegetation has been identified within the Subject Site it is difficult to ascertain a Plant Community Type (PCT) and the lack of structure and function, means that the current site is unlikely to be contributing meaningfully to the broader ecosystem and biodiversity values in the area. Due to the lack of topsoil, regeneration of adjoining species is limited. It is considered highly unlikely for a significant impact to occur as part of the proposed rezoning and future development. Thus, the proposed rezoning has been assessed as an Ecological Assessment Report (EAR) with a 5-part test of significance for the re-zoning proposal. Attached snip of tentative plan for the current E2: Environmental Conservation Zone (in green) to a Residential Zone.

Detail	Comments
	
Biodiversity Values Mapping	The Subject Site does not contain BV mapped land and as such, no BV mapped lands will be impacted by the proposed development (refer **Attachment B**).
State Environmental Planning Policy (Resilience and Hazards) 2021, Coastal Management	The Subject Site is not mapped on the Coastal Viewer.
Water Management Act	There are no mapped Hydrolines within the subject site.
State Environmental Planning Policy (Biodiversity and Conservation) 2021	Koala Habitat Protection 2021 applies, see applicable section below.
Regional Vegetation Mapping	The Subject Site is not mapped as containing native vegetation under the Eastcoast Flora Survey (March 2016) vegetation mapping, however, the adjacent site to the north east with some intact remnant vegetation is mapped as Dry Sclerophyll Forests Map Unit 15h: *Lake Macquarie Spotted Gum Forest*. This is considered the equivalent to PCT 1590 - *Spotted Gum - Broad-leaved Mahogany - Red Ironbark shrubby open forest* (refer **Figure 2**).
Site Vegetation	As described above it is evident and likely that the original site vegetation was previously removed as part of the removal of all topsoil to the rock layer as part of the contaminated

Detail	Comments
	soil removal for the Pasminco site Rehabilitation. Vegetation currently within the site is dominated by the native coloniser species *Acacia longifolia var longifolia* (Sydney Golden Wattle) located mainly along the ridge and *Imperata cylindrica* (Blady Grass) within the Shrub and Grassland sections of the site respectively, with no canopy species present. Other native shrub species found within the site include *Glochidion ferdinandi var. ferdinandi* (Cheese Tree) [in shrub form], *Acacia falcata* (Sickle Wattle), *Acacia terminalis* (Sunshine Wattle), and *Callistemon rigidus* (Stiff Bottlebrush). Native ground species include *Baumea sp, Capillipedium spicigerum* (Scented-top Grass), *Hardenbergia violacea* (False Sarsaparilla), *Juncus usitatus* (Common Rush), *Pteridium esculentum* (Bracken) and *Themeda triandra* (Kangaroo Grass). No canopy vegetation was observed within the site however native canopy vegetation was observed within remnant native vegetation to the East of the Subject Site. Exotic vegetation cover was scattered throughout the site and comprised the high threat exotics; *Andropogon virginicus* (Whiskey Grass), *Ageratina adenophora* (Crofton Weed), *Arundo donax* (Giant Reed), *Bidens pilosa* (Cobblers Pegs), *Cortaderia selloana* (Pampas Grass), *Lantana camara* (Lantana), *Polygala virgata*, *Rubus anglocandicans* (Blackberry) *Senecio madagascariensis* (Fireweed), *Paspalum dilatatum* (Paspalum), *Sida rhombifolia* (Paddy's Lucerne) and *Verbena hispida* (Rough Verbena). Other exotic species observed included *Cyperus congestus, Hypochaeris radicata* (Flatweed), *Setaria pumila* (Slender Pigeon Grass), and *Trifolium sp.* (a clover). Bare, eroded areas of the site were extensive throughout the western half of the site, and scattered throughout the eastern side. Whilst native species such as *Imperata Cylindrica, Capillipedium spicigerum* and *Acacia longifolia var longifolia* are present within these areas, vegetation cover did not exceed 10% of these areas. The soil within the site is highly denuded after the suspected contaminated topsoil removal to the rock layer, with high levels of erosion effects observed throughout the site, even with prior sediment fencing installed. On the western downslope boundary and through the gullies were patches of wetland species such as *Cyperus congestus, Juncus usitatus, Typha orientalis, Arundo donax* and *Baumea sp.* Two (2) Biodiversity Assessment Method (BAM) plots were undertaken in the two vegetation zones present. The plot data was assessed through the online BAM-Calculator to determine the Vegetation Integrity Score of the site and to ascertain whether or not the vegetation on site would require offsetting and assessment under the BAM. As outlined in the BAM 2020, when assessing the thresholds for assessing and offsetting the impacts of development; Section 9.2.1 Impacts on native vegetation and TEC's (ecosystem credits); *1. The assessor must determine an offset for all impacts of proposals on PCTs that are associated with a vegetation zone that has a vegetation integrity score of* <20, where the PCT does not represent a TEC and is not associated with threatened species habitat. Utilising PCT 1590 as the best fit PCT for the site the plot data was added to the BAM-Calculator. Plot 1 assessed in the open grassland area received a VIS score of 16.7 and Plot 2 assessed in the shrubland vegetation zone received a VIS score of 11.7, demonstrating the highly disturbed nature of the Subject Site. It has been determined that no offsets would be required under the BOS and confirmed that an EAR was the best fit assessment for the current planning proposal. A full species list is included in **Attachment C**. Site photos can be viewed in **Attachment E**.

Flora and Fauna Assessment

The field surveys for the site were prepared and performed with due recognition of the State survey guidelines (DEC 2004; DECC 2009; OEH 2018, DPIE 2020).

The size of the site, the type of native vegetation and habitats remaining, the status of existing and proposed surrounding land use and the level and type of habitat linkages to proximate bushland areas were considered in formulating the methodology employed and described below.

The assessment approach was tailored to undertake sufficient works to ensure that legislative requirements were met relating to threatened species and native species in general for the proposed specific development. Where any potential doubt remained over species impact, presence within the site was assumed to ensure that a conservative approach was adopted.

Given that this is a proposed rezoning with minimal vegetation to be removed the below surveys are considered appropriate to fully understand the biodiversity of the Subject Site (refer **Attachment A Figure 3** for survey effort).

Table 2 – Survey Methodology

Survey	Target Species	Methodology used	Survey Date
Flora	Full flora survey	Random Meander. Two (2) Biodiversity Assessment Methodology (BAM) plots were undertaken to ground-truth current vegetation for mapping. A detailed flora list was compiled for the site (see **Attachment C).**	23/03/2022
	Orchids	Habitat Assessment	
Avifauna	Avifauna	Diurnal bird survey, habitat assessment, search for stick nests and incidental survey.	23/03/2022
Mammals	All mammals	Searched around shrubs and drainage lines as no canopy trees present and no hollow bearing trees, for scats, nests, tracks and incidental survey.	23/03/2022
			23/03/2022
	Microbats	Habitat Assessment	23/03/2022

Database Searches

Searches were undertaken of databases within a 10km radius of the Subject Site for BC Act listings and 5km radius for EPBC Act listings. Note that any records considered erroneous, historic only, or obviously of no relevance to the site in regards to habitat (e.g., seabirds, marine species, etc.) were omitted.

The potential for listed threatened species to occur within the site was considered and the table containing such can be found attached at the end of this letter. Detailed ecological profiles of threatened species can be found at https://www.environment.nsw.gov.au/threatenedspeciesapp/.

Subject Species

The Likelihood of Occurrence Assessment is included in **Attachment D**. Site inspection revealed only a small amount of highly degraded and fragmented native vegetation. As such, impacts to threatened species as part of the planning proposal and future development are considered to be marginal to no impact. The species in **Table 3** were considered within this ecological assessment as the site may offer marginal habitat.

Table 3 – Key Species Analysis

Guild / Species	Key Habitat Feature	Comment
N/A	N/A	Habitat assessment of the site has confirmed that there is no suitable habitat for any of the threatened species as outlined in **Attachment D: Threatened Species Appraisal- Likelihood of Occurrence Assessment**

5 - Part Test Assessment

Section 7.3 of the BC Act lists five factors that must be taken into account in determining the significance of potential impacts of proposed activities on threatened species, populations, ecological communities and/or their habitats as listed within the BC Act.

The 5-part test is used to determine whether there is likely to be a significant impact, and thus whether the Biodiversity Offsets Scheme (BOS) is triggered.

Table 3 – 5 - Part Test

Section of BC Act 7.3	Requirement	Assessment
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*	Minimal degraded native vegetation (1.3ha) is proposed to be removed as part of this development and impacts to threatened species at the population level are considered extremely unlikely.
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*	The vegetation within the site is not commensurate with any threatened ecological community.
	(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction	
c)	*in relation to the habitat of a threatened species or ecological community:* • *the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and*	As stated above; Only a small portion of native vegetation (1.3ha) is proposed to be removed. The native vegetation present on site is in a highly degraded state and exists predominantly as a few mid and ground stratum species. No suitable habitat is present for any of the potential threatened species that could occur on the Subject Site apart from some very marginal foraging habitat. No significant impacts to threatened species or ecological communities are expected.
	• *whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a*	Only a small portion of native vegetation (1.3ha) is to be removed as part of the development. Fragmentation has already occurred as part of

Section of BC Act 7.3	Requirement	Assessment
	result of the proposed development or activity, and	the broader development in the area and isolation of habitat is not considered significant or likely to occur as part of this proposal.
	• *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*	Due to the highly degraded nature of the site and small area of vegetation (1.3ha) to be removed, significant impacts to any ecological community are considered highly unlikely.
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 vegetation within the site or within proximity to the site is considered to contain outstanding biodiversity values, therefore impacts are extremely unlikely.
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 (KTP)*	The vegetation to be removed on site is minimal and impacts to KTPs such as Anthropogenic Climate Change and Native Vegetation clearing are considered to be marginal.

State Environmental Planning Policy (Biodiversity and Conservation) 2021

Chapter 4 Koala Habitat Protection 2021

State Environmental Planning Policy (Biodiversity and Conservation) 2021 (BC SEPP) commenced on the 1st March 2022, under the Environmental Planning and Assessment Act 1979, and repealing the previous State Environmental Planning Policy (Koala Habitat Protection) 2020 and State Environmental Planning Policy (Koala Habitat Protection) 2021. This Policy aims to encourage the conservation and management of areas of natural vegetation that provide habitat for koalas to support a permanent free-living population over their present range and reverse the current trend of koala population decline.

The land which comprises the Study Area has no approved koala plan of management. According to the BC SEPP 2021, the policy applies if:

4.9 Development assessment process—no approved koala plan of management for land

(1) This section applies to land to which this Chapter applies if the land—

(a) has an area of at least 1 hectare (including adjoining land within the same ownership), and

(b) does not have an approved koala plan of management applying to the land.

Review of the information identified that the Subject Site which is part of Lot 1006 DP 127010 comprises 1.68 ha and does not have an approved koala plan of management. Therefore, the BC SEPP 2021 does apply and further assessments were necessary.

(5) However, despite subclauses (3) and (4), the council may grant development consent if the applicant provides to the council –

a. information, prepared by a suitably qualified and experienced person, the council is satisfied demonstrates that the land subject of the development application –

i. does not include any trees belonging to the koala use tree species listed in Schedule 2 for the relevant koala management area, or

ii. is not core koala habitat,

Site inspections identified that there were no trees on the Subject Site and therefore none belonging to the koala use tree species listed in Schedule 2 for the relevant koala management area.

In regards to identifying the site as core koala habitat, core koala habitat is defined as;

a. *an area of land which has been assessed by a suitably qualified and experienced person as being highly suitable koala habitat and where koalas are recorded as being present at the time of assessment of the land as highly suitable koala habitat, or*

b. *an area of land which has been assessed by a suitably qualified and experienced person as being highly suitable koala habitat and where koalas have been recorded as being present in the previous 18 years.*

Highly Suitable Koala Habitat is defined as – Where trees within any PCT are the regionally relevant species of those listed in Schedule 2 for the relevant koala management area.

There were no koalas or koala records identified within 2.5kms of the site in the past 18 years and it is reiterated that there is no upper stratum or canopy species, koala use trees species or any koala habitat present within the Subject Site. As such no further survey work is considered to be required.

EPBC Act Assessment

A search was conducted in March 2022 of Matters of National Environmental Significance (MNES) as relevant to the *Environment Protection & Biodiversity Conservation Act 1999* (EPBC Act). The following MNES are considered in this assessment.

World Heritage Properties:

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

National Heritage Places:

The site is not a National Heritage Place and does not contain any matters of national heritage.

Wetlands of International Significance (declared Ramsar wetlands):

The site does not contain Ramsar wetland but is located within 10kms from the Hunter estuary wetlands.

Great Barrier Reef Marine Park:

The site is not part of, or within close proximity to, the Great Barrier Reef Marine Park.

Commonwealth Marine Areas:

The site is not part of, or within close proximity to, any Commonwealth Marine Area.

Threatened Ecological Communities:

Three (3) Threatened Ecological Communities are listed as potentially present within 5km of the site;

- EEC - Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community;
- EEC – Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland; and
- CEEC - River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria.

There is no canopy vegetation on site and the scattered mid and ground stratum vegetation on site is not commensurate with any of the listed TECs.

Threatened Species:

No threatened flora or fauna species within the EPBC Act have been identified on site.

Migratory Species:

There is potential for some of the migratory terrestrial species listed in the EPBC Act to visit the site on an irregular basis. However, it is considered that the proposal is unlikely to significantly affect the availability of potential habitat for such mobile species, or disrupt migratory patterns.

EPBC Act Assessment Conclusion:

Consideration of the EPBC Act revealed that it is unlikely that significant impacts on Matters of National Environmental Significance will occur as a result of the proposal. As such a referral is not considered likely to be necessary.

Recommendations

This proposed development has considered and determined that the proposal to remove approx. 1.3ha of native vegetation will be unlikely to have significant impacts on the ecological communities and potential threatened species that may occur on site. General recommendations are made for consideration to mitigate potential impacts on local biodiversity as a result of the development of the site.

- Maintain current fencing of the site between the proposed development and the remnant vegetation to the east in the C2 zoned lands;
- Establish and maintain appropriate erosion and sediment controls during construction and thereafter;
- Equipment should be cleaned thoroughly and disinfected before entering and exiting site to prevent weed and disease introduction such as Phytophthora cinnamomi (Root-rot fungus), Puccinia psidii (Myrtle Rust) and others; and
- Landscaping should incorporate species that are endemic to the area.

Summary

It is reiterated that historical remediation works undertaken on site as a result of the previous Pasminco smelter and subsequent site rehabilitation works has left the site with little to no biodiversity value. Consideration has been given to the Biodiversity Conservation Act, EPBC Act and other applicable legislation. Given the nature of the proposed development and the small area of impact, it is considered that there will be minimal impacts associated with this development.

We trust this information meets your requirements. Should you require any further details or clarification, please contact the writer.

Yours faithfully,

Anderson Environment & Planning

Simon Purcell

Senior Ecologist

0405 165 721

Attachments

Attachment A: Figures

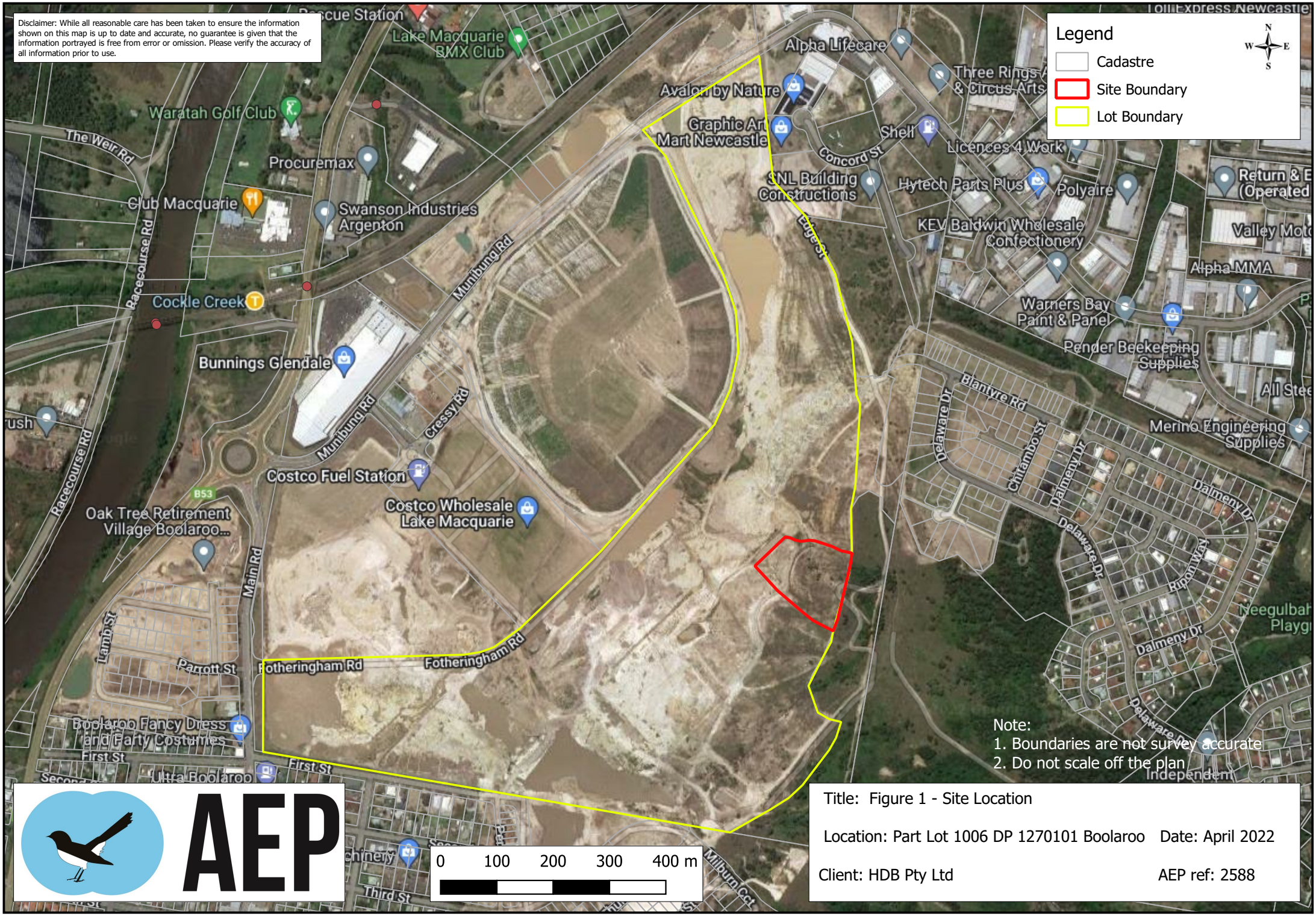
Attachment B: BOSET Report

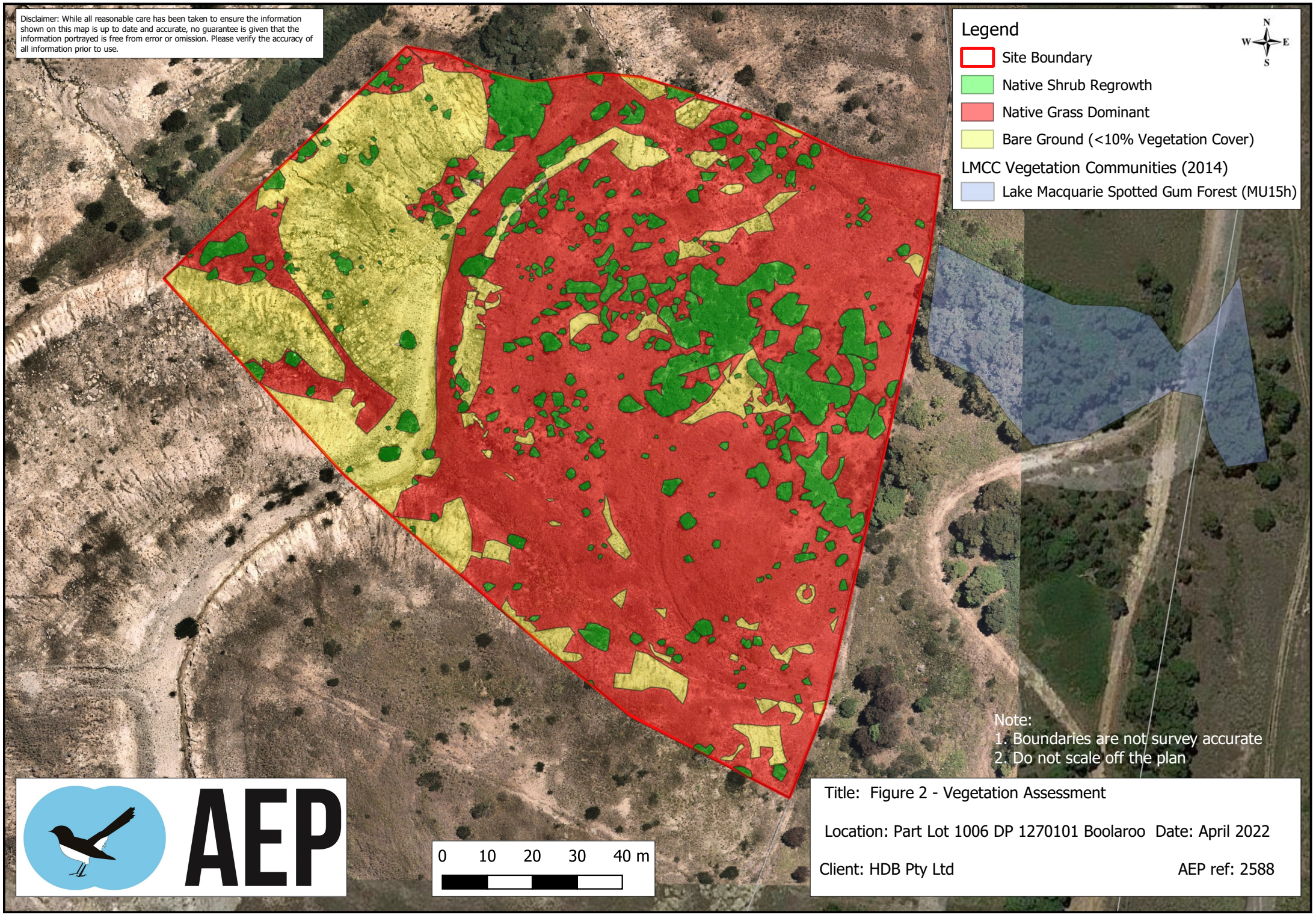
Attachment C: Flora and Fauna list

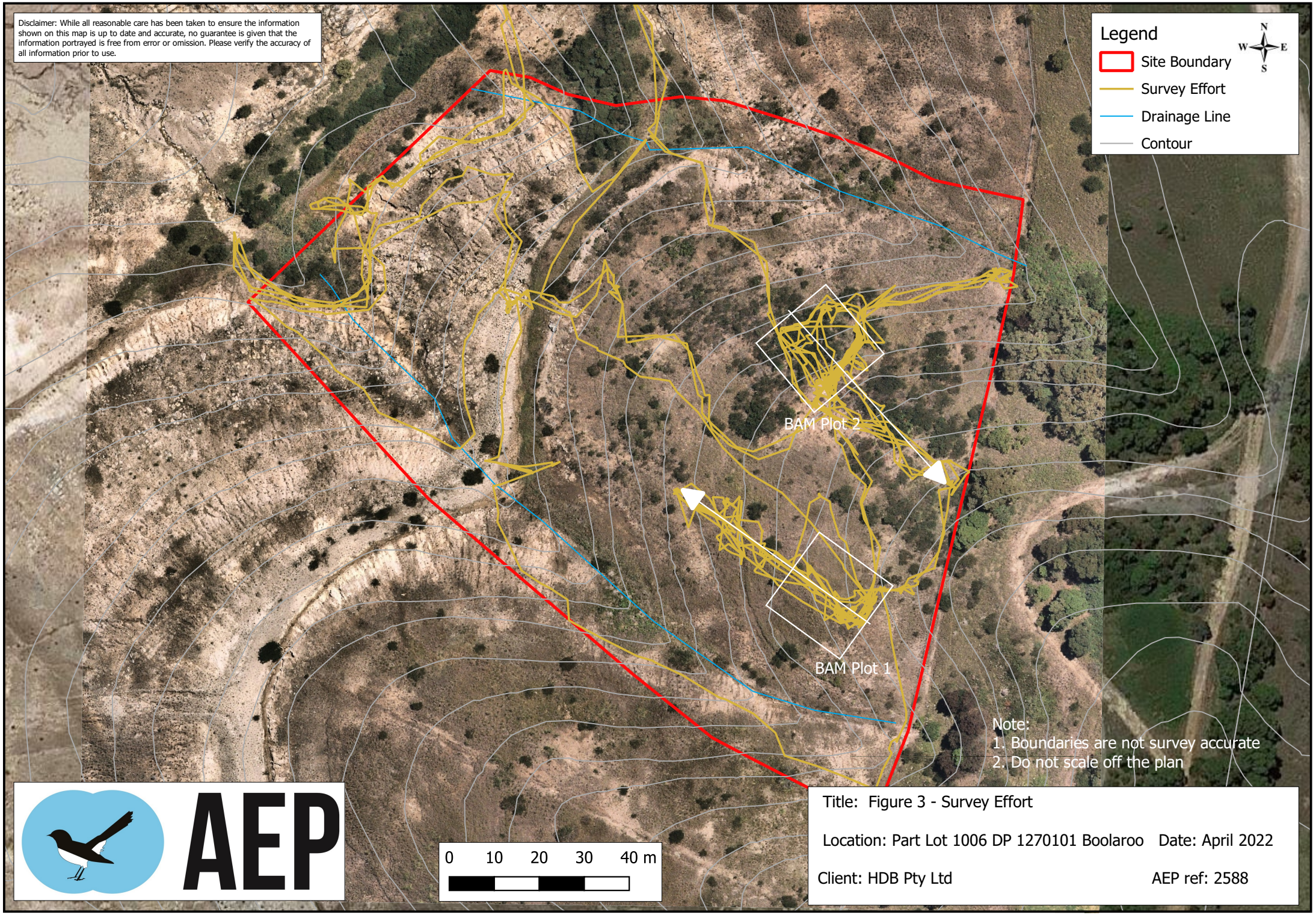
Attachment D: Likelihood of Occurrence Assessment

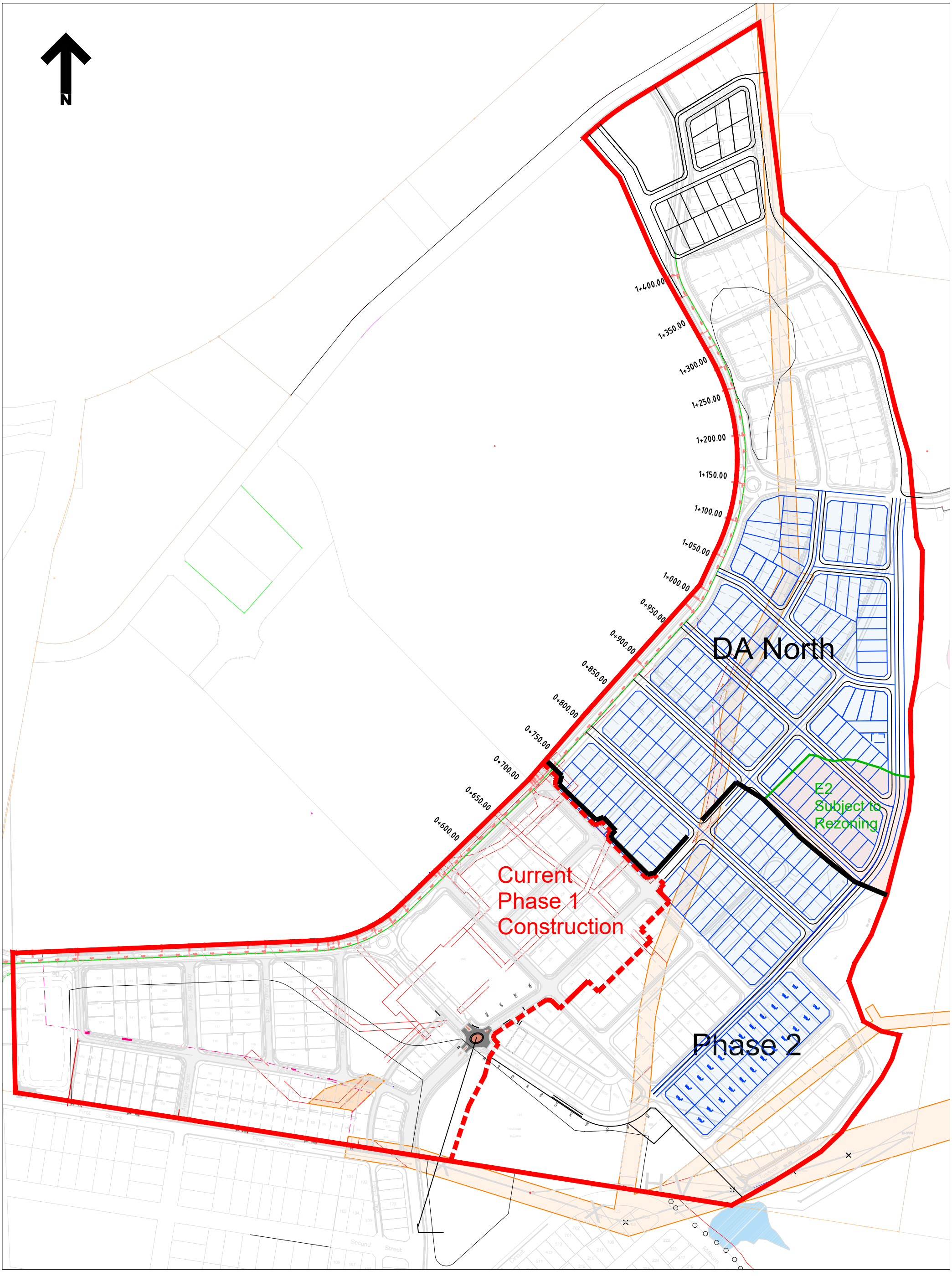
Attachment E: Site Photos

Attachment A: Figures


Disclaimer: While 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.
Legend
Cadastre
Site Boundary
Lot Boundary
N
W
E
S
Lake Macquarie BMX Club
Alpha Lifecare
Avalon by Nature
Graphic Art Mart Newcastle
Shell
Concord St
Waratah Golf Club
The Weir Rd
Procuremax
Club Macquarie
Swanson Industries Argenton
Racecourse Rd
Cockle Creek
Munibung Rd
SNL Building Constructions
Edgeley St
Hytech Parts Plus
Polyaire
KEV Baldwin Wholesale Confectionery
Alpha MMA
Warners Bay Paint & Panel
Pender Beekeeping Supplies
Bunnings Glendale
Cressy Rd
Costco Fuel Station
Costco Wholesale Lake Macquarie
Oak Tree Retirement Village Boolaroo...
B53
Main Rd
Lamb St
Parrott St
Fotheringham Rd
Boolaroo Fancy Dress and Party Costumes
First St
Ultra Boolaroo
Third St
Milburn Cct
Blantyre Rd
Delaware Dr
Chilambo St
Dalmeny Dr
Merino Engineering Supplies
Ripon Way
0
100
200
300
400 m
Note:
1. Boundaries are not survey accurate
2. Do not scale off the plan
AEP
Title: Figure 1 - Site Location
Location: Part Lot 1006 DP 1270101 Boolaroo
Date: April 2022
Client: HDB Pty Ltd
AEP ref: 2588


Disclaimer: While 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.
Legend
Site Boundary
Native Shrub Regrowth
Native Grass Dominant
Bare Ground (<10% Vegetation Cover)
LMCC Vegetation Communities (2014)
Lake Macquarie Spotted Gum Forest (MU15h)
N
W
E
S
Note:
1. Boundaries are not survey accurate
2. Do not scale off the plan
AEP
0 10 20 30 40 m
Title: Figure 2 - Vegetation Assessment
Location: Part Lot 1006 DP 1270101 Boolaroo Date: April 2022
Client: HDB Pty Ltd
AEP ref: 2588


Disclaimer: While 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.
Legend
Site Boundary
Survey Effort
Drainage Line
Contour
N
W
E
S
BAM Plot 2
BAM Plot 1
Note:
1. Boundaries are not survey accurate
2. Do not scale off the plan
AEP
0 10 20 30 40 m
Title: Figure 3 - Survey Effort
Location: Part Lot 1006 DP 1270101 Boolaroo Date: April 2022
Client: HDB Pty Ltd AEP ref: 2588



NOTE: ALL DIMENSIONS, AREAS, LOT NUMBERS EASEMENTS & NUMBER OF LOTS ARE SUBJECT TO THE APPROVAL OF COUNCIL & OTHER AUTHORITIES AND TO THE FINAL SURVEY & LINEN PLAN AND SHOULD BE CONSIDERED AS CONCEPTUAL ONLY. DO NOT RELY ON THE INFORMATION IN THIS PLAN FOR ANY PURCHASE, DISPOSAL OR OTHER MATTER.

Revision B 8/03/2022
Scale 1:4000 @ A3
Job No. 21114

Weemala - Proposed Small Lot Subdivision

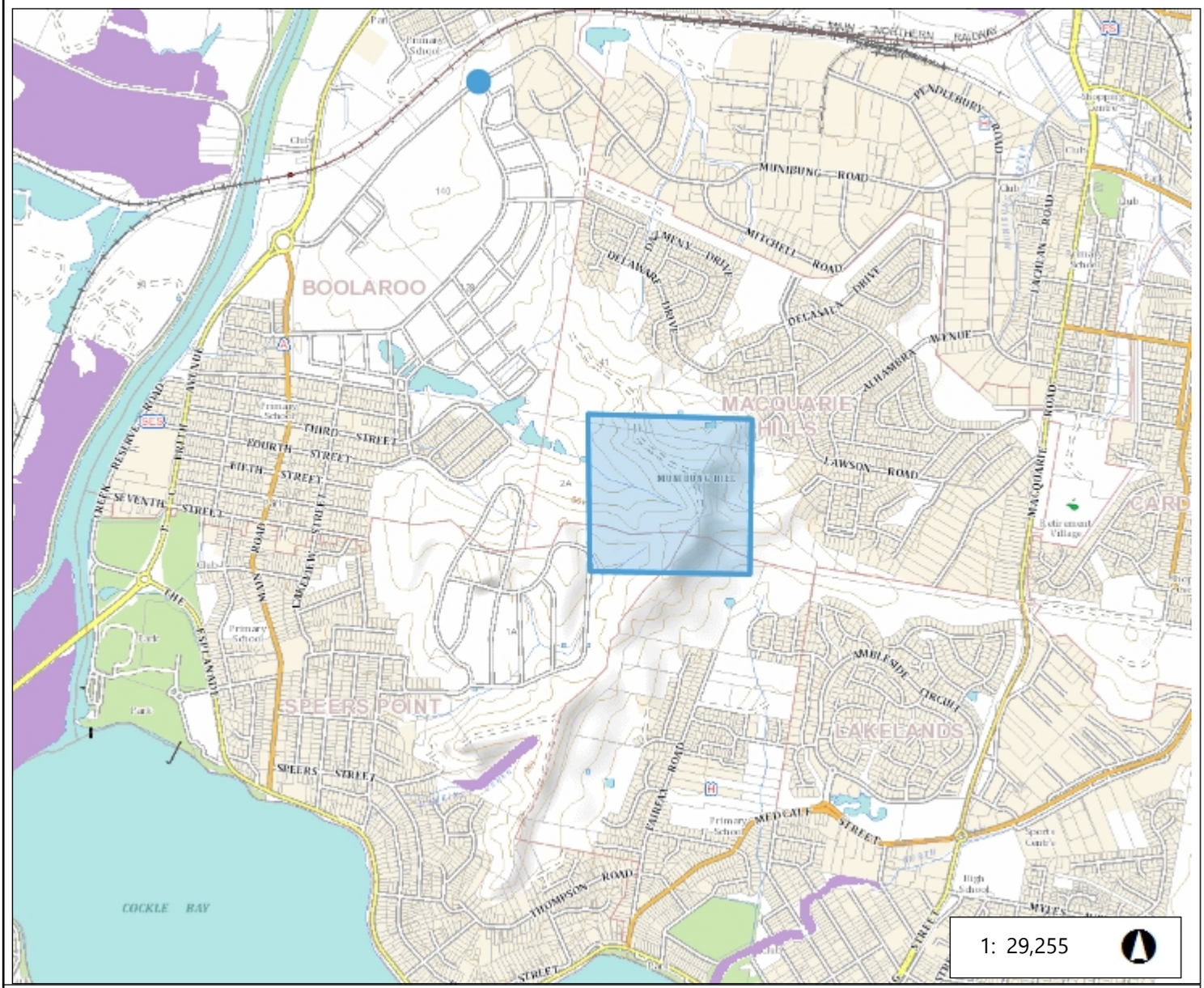
For Discussion

PO Box 40 Maitland NSW 2320
1st Floor, 44 Church Street
Maitland NSW 2320
T: 02 4933 6682
F: 02 4933 6683
www.hdb.com.au

hdb
TownPlanning&Design
planning > design >development

Attachment B: BOSET Report

Biodiversity Values Map



1,486.1 0 743.07 1,486.1 Metres

WGS_1984_Web_Mercator_Auxiliary_Sphere

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

Legend

- Biodiversity Values that have been mapped for more than 90 days
- Biodiversity Values added within last 90 days

Notes

Biodiversity Values Map and Threshold Report

Results Summary

Date of Calculation	31/03/2022 2:43 PM	**BDAR Required***
Total Digitised Area	410,102.2 sqm	
Minimum Lot Size Method	LEP	
Minimum Lot Size 10,000sqm = 1ha	450 sqm	
Area Clearing Threshold 10,000sqm = 1ha	2,500 sqm	
Area clearing trigger Area of native vegetation cleared	Unknown #	Unknown #
Biodiversity values map trigger Impact on biodiversity values map(not including values added within the last 90 days)?	no	no
Date of the 90 day Expiry	N/A	

*If BDAR required has:

- at least one 'Yes': you have exceeded the BOS threshold. You are now required to submit a Biodiversity Development Assessment Report with your development application. Go to https://customer.lmbc.nsw.gov.au/assessment/AccreditedAssessor to access a list of assessors who are accredited to apply the Biodiversity Assessment Method and write a Biodiversity Development Assessment Report
- 'No': you have not exceeded the BOS threshold. You may still require a permit from local council. Review the development control plan and consult with council. You may still be required to assess whether the development is '"likely to significantly affect threatened species' as determined under the test in s. 7.3 of the Biodiversity Conservation Act 2016. You may still be required to review the area where no vegetation mapping is available.

Where the area of impact occurs on land with no vegetation mapping available, the tool cannot determine the area of native vegetation cleared and if this exceeds the Area Threshold. You will need to work out the area of native vegetation cleared - refer to the BMAT user guide for how to do this.

On and after the 90 day expiry date a BDAR will be required.

Disclaimer

This results summary and map can be used as guidance material only. This results summary and map is not guaranteed to be free from error or omission. The State of NSW and Department of Planning and Environment and its employees disclaim liability for any act done on the information in the results summary or map and any consequences of such acts or omissions. It remains the responsibility of the proponent to ensure that their development application complies will all aspects of the *Biodiversity Conservation Act 2016.*

The mapping provided in this tool has been done with the best available mapping and knowledge of species habitat requirements. This map is valid for a period of 30 days from the date of calculation (above).

Acknowledgement

I as the applicant for this development, submit that I have correctly depicted the area that will be impacted or likely to be impacted as a result of the proposed development.

Signature_____ Date: 31/03/2022 02:43 PM

Attachment C: Observed Flora list

Family	Scientific Name	Common Name
Asteraceae	*Ageratina adenophora**	Crofton Weed
Asteraceae	*Bidens pilosa**	Cobbler's Pegs
Asteraceae	*Hypochaeris radicata**	Flatweed
Asteraceae	*Senecio madagascariensis**	Fireweed
Cyperaceae	*Baumea sp.*	
Cyperaceae	*Cyperus congestus**	
Dennstaedtiaceae	*Pteridium esculentum*	Bracken
Fabaceae	*Acacia falcata*	Sickle Wattle
Fabaceae	*Acacia longifolia var. longifolia*	Sydney Golden Wattle
Fabaceae	*Acacia terminalis*	Sunshine Wattle
Fabaceae	*Hardenbergia violacea*	False Sarsparilla
Fabaceae	*Trifolium sp.**	A Clover
Juncaceae	*Juncus usitatus*	Common Rush
Liliaceae	*Lilium sp.**	
Malvaceae	*Sida rhombifolia**	Paddy's Lucerne
Myrtaceae	*Callistemon rigidus*	Stiff Bottlebrush
Phyllanthaceae	*Glochidion ferdinandi var. ferdinandi*	Cheese Tree
Poaceae	*Andropogon virginicus**	Whisky Grass
Poaceae	*Arundo donax**	Giant Reed
Poaceae	*Capillipedium spicigerum*	Scented-top Grass
Poaceae	*Cortaderia selloana**	Pampas Grass
Poaceae	*Imperata cylindrica*	Blady Grass
Poaceae	*Panicum sp.*	
Poaceae	*Paspalum dilatatum**	Paspalum
Poaceae	*Setaria pumila**	Pale Pigeon Grass
Poaceae	*Themeda triandra*	Kangaroo Grass
Polygalaceae	*Polygala virgata**	
Rosaceae	*Rubus anglocandicans**	Blackberry
Typhaceae	*Typha orientalis*	Cumbungi
Verbenaceae	*Lantana camara**	Lantana
Verbenaceae	*Verbena hispida**	Rough Verbena

Attachment C: Observed and Expected Fauna list (threatened species in bold)

Family Name	Scientific Name	Common Name	Surveyed Observations
			Observed (O), Heard (W), Scat (P), Marking (M), Tracks/scratchings (F), Nest (E), Burrow (FB)
Amphibians			
Myobatrachidae	*Crinia signifera*	Common Eastern Froglet	
Myobatrachidae	*Pseudophryne bibronii*	Bibron's Toadlet	
Myobatrachidae	*Pseudophryne coriacea*	Red-backed Toadlet	
Myobatrachidae	*Uperoleia fusca*	Dusky Toadlet	
Myobatrachidae	*Uperoleia laevigata*	Smooth Toadlet	
Myobatrachidae	*Uperoleia tyleri*	Tyler's Toadlet	
Hylidae	*Litoria caerulea*	Green Tree Frog	
Hylidae	*Litoria dentata*	Bleating Tree Frog	
Hylidae	*Litoria fallax*	Eastern Dwarf Tree Frog	
Hylidae	*Litoria latopalmata*	Broad-palmed Frog	
Hylidae	*Litoria nasuta*	Rocket Frog	
Hylidae	*Litoria peronii*	Peron's Tree Frog	
Hylidae	*Litoria revelata*	Revealed Frog	
Hylidae	*Litoria tyleri*	Tyler's Tree Frog	
Hylidae	*Litoria verreauxii*	Verreaux's Frog	
Limnodynastidae	*Limnodynastes peronii*	Brown-striped Frog	
Limnodynastidae	*Limnodynastes tasmaniensis*	Spotted Grass Frog	
Reptiles			
Chelidae	*Chelodina longicollis*	Eastern Snake-necked Turtle	
Scincidae	*Bellatorias major*	Land Mullet	
Scincidae	*Cryptoblepharus virgatus*	Cream-striped Shinning-skink	
Scincidae	*Ctenotus robustus*	Robust Ctenotus	

Family Name	Scientific Name	Common Name	Surveyed Observations
			Observed (O), Heard (W), Scat (P), Marking (M), Tracks/scratchings (F), Nest (E), Burrow (FB)
Scincidae	*Eulamprus quoyii*	Eastern Water-skink	
Scincidae	*Lampropholis delicata*	Dark-flecked Garden Sunskink	
Scincidae	*Lampropholis guichenoti*	Pale-flecked Garden Sunskink	
Scincidae	*Saiphos equalis*	Three-toed Skink	
Scincidae	*Tiliqua scincoides*	Eastern Blue-tongue	
Agamidae	*Amphibolurus muricatus*	Jacky Lizard	
Agamidae	*Intellagama lesueurii*	Eastern Water Dragon	
Agamidae	*Pogona barbata*	Bearded Dragon	
Varanidae	*Varanus varius*	Lace Monitor	
Typhlopidae	*Anilios proximus*	Proximus Blind Snake	
Colubridae	*Dendrelaphis punctulatus*	Common Tree Snake	
Elapidae	*Cacophis squamulosus*	Golden-crowned Snake	
Elapidae	*Demansia psammophis*	Yellow-faced Whip Snake	
Elapidae	*Hemiaspis signata*	Black-bellied Swamp Snake	
Elapidae	*Pseudechis porphyriacus*	Red-bellied Black Snake	
Elapidae	*Pseudonaja textilis*	Eastern Brown Snake	
Bird			
Megapodiidae	*Alectura lathami*	Australian Brush-turkey	
Phasianidae	*Coturnix pectoralis*	Stubble Quail	
Phasianidae	*Synoicus ypsilophora*	Brown Quail	
Anatidae	*Anas superciliosa*	Pacific Black Duck	
Anatidae	*Chenonetta jubata*	Australian Wood Duck	
Columbidae	*Columba leucomela*	White-headed Pigeon	
Columbidae	*Columba livia*	Rock Dove	

Family Name	Scientific Name	Common Name	Surveyed Observations
			Observed (O), Heard (W), Scat (P), Marking (M), Tracks/scratchings (F), Nest (E), Burrow (FB)
Columbidae	*Geopelia humeralis*	Bar-shouldered Dove	
Columbidae	*Ocyphaps lophotes*	Crested Pigeon	
Columbidae	*Spilopelia chinensis*	Spotted Turtle-Dove	
Podargidae	*Podargus strigoides*	Tawny Frogmouth	
Caprimulgidae	*Eurostopodus mystacalis*	White-throated Nightjar	
Aegothelidae	*Aegotheles cristatus*	Australian Owlet-nightjar	
Apodidae	*Hirundapus caudacutus*	White-throated Needletail	
Ardeidae	*Egretta novaehollandiae*	White-faced Heron	
Threskiornithidae	*Threskiornis moluccus*	Australian White Ibis	
Threskiornithidae	*Threskiornis spinicollis*	Straw-necked Ibis	
Accipitridae	*Accipiter cirrocephalus*	Collared Sparrowhawk	
Accipitridae	*Accipiter fasciatus*	Brown Goshawk	
Accipitridae	*Accipiter novaehollandiae*	Grey Goshawk	
Accipitridae	*Aquila audax*	Wedge-tailed Eagle	
Accipitridae	*Aviceda subcristata*	Pacific Baza	
Accipitridae	*Circus approximans*	Swamp Harrier	
Accipitridae	*Elanus axillaris*	Black-shouldered Kite	
Accipitridae	*Haliastur sphenurus*	Whistling Kite	O
Accipitridae	*Milvus migrans*	Black Kite	
Falconidae	*Falco berigora*	Brown Falcon	
Falconidae	*Falco cenchroides cenchroides*	Nankeen Kestrel	
Falconidae	*Falco longipennis*	Australian Hobby	
Falconidae	*Falco peregrinus*	Peregrine Falcon	
Charadriidae	*Vanellus miles*	Masked Lapwing	

Family Name	Scientific Name	Common Name	Surveyed Observations
			Observed (O), Heard (W), Scat (P), Marking (M), Tracks/scratchings (F), Nest (E), Burrow (FB)
Cacatuidae	*Cacatua galerita*	Sulphur-crested Cockatoo	
Cacatuidae	*Cacatua sanguinea*	Little Corella	
Cacatuidae	*Cacatua tenuirostris*	Long-billed Corella	
Cacatuidae	*Eolophus roseicapilla*	Galah	
Cacatuidae	*Zanda funereus*	Yellow-tailed Black-Cockatoo	
Psittacidae	*Alisterus scapularis*	Australian King-Parrot	
Psittacidae	*Glossopsitta concinna*	Musk Lorikeet	
Psittacidae	*Platycercus elegans*	Crimson Rosella	
Psittacidae	*Platycercus eximius*	Eastern Rosella	
Psittacidae	*Psephotus haematonotus*	Red-rumped Parrot	
Psittacidae	*Trichoglossus chlorolepidotus*	Scaly-breasted Lorikeet	
Psittacidae	*Trichoglossus haematodus*	Rainbow Lorikeet	
Cuculidae	*Cacomantis flabelliformis*	Fan-tailed Cuckoo	
Cuculidae	*Centropus phasianinus*	Pheasant Coucal	
Cuculidae	*Eudynamys orientalis*	Eastern Koel	
Cuculidae	*Scythrops novaehollandiae*	Channel-billed Cuckoo	
Strigidae	*Ninox novaeseelandiae*	Southern Boobook	
Tytonidae	*Tyto javanica*	Eastern Barn Owl	
Alcedinidae	*Dacelo novaeguineae*	Laughing Kookaburra	
Alcedinidae	*Todiramphus sanctus*	Sacred Kingfisher	
Coraciidae	*Eurystomus orientalis*	Dollarbird	
Ptilonorhynchidae	*Ptilonorhynchus violaceus*	Satin Bowerbird	
Maluridae	*Malurus cyaneus*	Superb Fairy-wren	W
Maluridae	*Malurus lamberti*	Variegated Fairy-wren	

Family Name	Scientific Name	Common Name	Surveyed Observations
			Observed (O), Heard (W), Scat (P), Marking (M), Tracks/scratchings (F), Nest (E), Burrow (FB)
Maluridae	*Stipiturus malachurus*	Southern Emu-wren	
Acanthizidae	*Acanthiza chrysorrhoa*	Yellow-rumped Thornbill	
Acanthizidae	*Acanthiza lineata*	Striated Thornbill	
Acanthizidae	*Acanthiza nana*	Yellow Thornbill	
Acanthizidae	*Acanthiza pusilla*	Brown Thornbill	
Acanthizidae	*Gerygone mouki*	Brown Gerygone	
Acanthizidae	*Gerygone olivacea*	White-throated Gerygone	
Acanthizidae	*Sericornis frontalis*	White-browed Scrubwren	
Pardalotidae	*Pardalotus punctatus*	Spotted Pardalote	
Pardalotidae	*Pardalotus striatus*	Striated Pardalote	
Meliphagidae	*Acanthorhynchus tenuirostris*	Eastern Spinebill	
Meliphagidae	*Anthochaera carunculata*	Red Wattlebird	
Meliphagidae	*Anthochaera chrysoptera*	Little Wattlebird	
Meliphagidae	*Caligavis chrysops*	Yellow-faced Honeyeater	
Meliphagidae	*Entomyzon cyanotis*	Blue-faced Honeyeater	
Meliphagidae	*Lichmera indistincta*	Brown Honeyeater	
Meliphagidae	*Manorina melanocephala*	Noisy Miner	
Meliphagidae	*Manorina melanophrys*	Bell Miner	
Meliphagidae	*Meliphaga lewinii*	Lewin's Honeyeater	
Meliphagidae	*Melithreptus brevirostris*	Brown-headed Honeyeater	
Meliphagidae	*Melithreptus lunatus*	White-naped Honeyeater	
Meliphagidae	*Myzomela sanguinolenta*	Scarlet Honeyeater	
Meliphagidae	*Philemon corniculatus*	Noisy Friarbird	
Meliphagidae	*Phylidonyris niger*	White-cheeked Honeyeater	

Family Name	Scientific Name	Common Name	Surveyed Observations
			Observed (O), Heard (W), Scat (P), Marking (M), Tracks/scratchings (F), Nest (E), Burrow (FB)
Psophodidae	*Psophodes olivaceus*	Eastern Whipbird	
Campephagidae	*Coracina novaehollandiae*	Black-faced Cuckoo-shrike	
Pachycephalidae	*Colluricincla harmonica*	Grey Shrike-thrush	
Pachycephalidae	*Pachycephala pectoralis*	Golden Whistler	
Pachycephalidae	*Pachycephala rufiventris*	Rufous Whistler	
Oriolidae	*Oriolus sagittatus*	Olive-backed Oriole	
Oriolidae	*Sphecotheres vieilloti*	Australasian Figbird	
Artamidae	*Artamus leucoryn*	White-breasted Woodswallow	
Artamidae	*Cracticus nigrogularis*	Pied Butcherbird	
Artamidae	*Cracticus torquatus*	Grey Butcherbird	
Artamidae	*Gymnorhina tibicen*	Australian Magpie	
Artamidae	*Strepera graculina*	Pied Currawong	
Dicruridae	*Dicrurus bracteatus*	Spangled Drongo	
Rhipiduridae	*Rhipidura albiscapa*	Grey Fantail	
Rhipiduridae	*Rhipidura leucophrys*	Willie Wagtail	W
Rhipiduridae	*Rhipidura rufifrons*	Rufous Fantail	
Corvidae	*Corvus coronoides*	Australian Raven	OW
Monarchidae	*Grallina cyanoleuca*	Magpie-lark	
Petroicidae	*Eopsaltria australis*	Eastern Yellow Robin	
Cisticolidae	*Cisticola exilis*	Golden-headed Cisticola	
Acrocephalidae	*Acrocephalus australis*	Australian Reed-Warbler	
Locustellidae	*Cincloramphus timoriensis*	Tawny Grassbird	
Hirundinidae	*Hirundo neoxena*	Welcome Swallow	
Hirundinidae	*Petrochelidon ariel*	Fairy Martin	

Family Name	Scientific Name	Common Name	Surveyed Observations
			Observed (O), Heard (W), Scat (P), Marking (M), Tracks/scratchings (F), Nest (E), Burrow (FB)
Hirundinidae	*Petrochelidon nigricans*	Tree Martin	
Sturnidae	*Acridotheres tristis*	Common Myna	
Sturnidae	*Sturnus vulgaris*	Common Starling	
Zosteropidae	*Zosterops lateralis*	Silvereye	
Dicaeidae	*Dicaeum hirundinaceum*	Mistletoebird	
Estrildidae	*Neochmia temporalis*	Red-browed Finch	W
		`Mammals	
Tachyglossidae	*Tachyglossus aculeatus*	Short-beaked Echidna	
Dasyuridae	*Antechinus stuartii*	Brown Antechinus	
Peramelidae	*Isoodon macrourus*	Northern Brown Bandicoot	
Macropodidae	*Macropus giganteus*	Eastern Grey Kangaroo	P
Macropodidae	*Notamacropus rufogriseus*	Red-necked Wallaby	
Macropodidae	*Wallabia bicolor*	Swamp Wallaby	
Pteropodidae	***Pteropus poliocephalus***	**Grey-headed Flying-fox**	
Pteropodidae	*Pteropus scapulatus*	Little Red Flying-fox	
Rhinolophidae	*Rhinolophus megaphyllus*	Eastern Horseshoe-bat	
Emballonuridae	***Saccolaimus flaviventris***	**Yellow-bellied Sheathtail-bat**	
Molossidae	***Austronomus australis***	**White-striped Freetail-bat**	
Molossidae	***Micronomus norfolkensis***	**Eastern Coastal Free-tailed Bat**	
Molossidae	*Ozimops ridei*	Eastern Free-tailed Bat	
Vespertilionidae	*Chalinolobus dwyeri*	Large-eared Pied Bat	
Vespertilionidae	*Chalinolobus gouldii*	Gould's Wattled Bat	
Vespertilionidae	*Chalinolobus morio*	Chocolate Wattled Bat	
Vespertilionidae	***Falsistrellus tasmaniensis***	**Eastern False Pipistrelle**	

Family Name	Scientific Name	Common Name	Surveyed Observations
			Observed (O), Heard (W), Scat (P), Marking (M), Tracks/scratchings (F), Nest (E), Burrow (FB)
Vespertilionidae	***Myotis macropus***	**Southern Myotis**	
Vespertilionidae	*Nyctophilus geoffroyi*	Lesser Long-eared Bat	
Vespertilionidae	*Nyctophilus gouldi*	Gould's Long-eared Bat	
Vespertilionidae	*Scoteanax rueppellii*	Greater Broad-nosed Bat	
Vespertilionidae	*Scotorepens orion*	Eastern Broad-nosed Bat	
Vespertilionidae	*Vespadelus darlingtoni*	Large Forest Bat	
Vespertilionidae	*Vespadelus pumilus*	Eastern Forest Bat	
Vespertilionidae	*Vespadelus regulus*	Southern Forest Bat	
Vespertilionidae	*Vespadelus troughtoni*	Eastern Cave Bat	
Vespertilionidae	*Vespadelus vulturnus*	Little Forest Bat	
Miniopteridae	***Miniopterus australis***	**Little Bent-winged Bat**	
Miniopteridae	***Miniopterus orianae oceanensis***	**Large Bent-winged Bat**	
Muridae	*Mus musculus*	House Mouse	
Muridae	*Rattus fuscipes*	Bush Rat	
Muridae	*Rattus lutreolus*	Swamp Rat	
Muridae	*Rattus rattus*	Black Rat	
Canidae	*Vulpes vulpes*	Fox	
Leporidae	*Oryctolagus cuniculus*	Rabbit	

Attachment D: Likelihood of Occurrence Assessment

Scientific Name	Common Name	NSW status	Comm. status	BioNet records 10kms	Likelihood of Occurrence
Flora					
Syzygium paniculatum	Magenta Lilly Pilly	E1		1	Species not detected on site and unlikely to go undetected considering its conspicuous form and the small size of the Subject Site. No suitable habitat. Considered unlikely to occur.
Rhodamnia rubescens	Scrub Turpentine	E4A	CE	2	Species not detected on site. This species is known to occur in wet sclerophyll and rainforest. No suitable habitat. Considered unlikely to occur.
Tetratheca juncea	Black-eyed Susan	V	V	1422	Although there are many BioNet records within a 5km radius search, all are more than 3kms away from the Subject Site. Species not detected on site even though it is outside the flowering period. Given the completely modified nature of the site, it is considered unlikely that the site would provide suitable habitat for the species and considered unlikely to occur.
Angophora inopina	Charmhaven Apple	V	V	606	A large cluster of BioNet records occur approx. 600m north west of the Subject Site, however species not detected on site. Given the completely modified nature of the site, it is considered unlikely that the site would provide suitable habitat for the species and considered unlikely to occur.
Melaleuca biconvexa	Biconvex Paperbark	V	V	3	Species not detected on site and unlikely to go undetected considering its conspicuous form and the small size of the Subject Site. No suitable habitat. Considered unlikely to occur.
Grevillea parviflora subsp. parviflora	Small-flower Grevillea	V	V	30	The majority of BioNet records are located 4kms from the Subject Site. Species not detected on site. Given the completely modified nature of the site, it is considered unlikely that the site would provide suitable habitat for the species and considered unlikely to occur.
Callistemon linearifolius	Netted Bottle Brush	V,3		81	Although there are many BioNet records within a 5km radius search, all are located more than 3kms away from the Subject Site. Species not detected on site, although there was a *Callistemon rigidus* observed close to the boundary. Given the completely modified nature of the site, it is considered unlikely that the site would provide suitable habitat for the species and considered unlikely to occur.
Cryptostylis hunteriana	Leafless Tongue Orchid	V,P,2	V	1	Species not detected on site. No suitable habitat. Considered unlikely to occur.

Scientific Name	Common Name	NSW status	Comm. status	BioNet records 10kms	Likelihood of Occurrence
Aves					
Lathamus discolor	Swift Parrot	E1,P,3	CE	7	Not mapped as Important Area for Swift Parrot. This species is not known to breed on mainland Australia. There are no trees associated with foraging within the Subject Site. Unlikely to occur or be impacted by proposed development.
Anthochaera phrygia	Regent Honeyeater	E4A,P	CE	1	Not mapped as Important Area for Regent Honeyeater. The species inhabits dry open forest and woodland, particularly Box-Ironbark woodland, and riparian forests of River Sheoak. No suitable habitat on site. Unlikely to occur or be impacted by proposed development.
Cuculus optatus	Oriental Cuckoo	P	C,J,K	2	This species mainly inhabits forests, occurring in coniferous, deciduous and mixed forest. No suitable habitat on site. Unlikely to occur or be impacted by proposed development.
Ptilinopus regina	Rose-crowned Fruit-Dove	V,P		1	Rose-crowned Fruit-doves occur mainly in sub-tropical and dry rainforest and occasionally in moist eucalypt forest and swamp forest, where fruit is plentiful. No suitable habitat on site. Unlikely to occur or be impacted by proposed development.
Ptilinopus superbus	Superb Fruit-Dove	V,P		2	Inhabits rainforest and similar closed forests where it forages high in the canopy, eating the fruits of many tree species such as figs and palms. No suitable habitat on site. Unlikely to occur or be impacted by proposed development.
Haliaeetus leucogaster	White-bellied Sea-Eagle	V,P		16	Potential to occur foraging over the site as <2kms to ocean, however, the proposed development is unlikely to impact available foraging habitat in the locality. No suitable stick nests observed on site.
Hieraaetus morphnoides	Little Eagle	V,P		2	Potential to occur foraging over the site, however, the proposed development is unlikely to impact available foraging habitat in the locality. No suitable stick nests observed on site.
Glossopsitta pusilla	Little Lorikeet	V,P		6	This species primarily feeds on flowering *Eucalyptus*, *Angophora*, and *Melaleuca* – while nesting in *Eucalyptus* hollows. No suitable habitat on site. Unlikely to occur or be impacted by proposed development.
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	V,P		1	Found in eucalypt woodlands dominated by stringybarks or other rough-barked eucalypts. No suitable habitat on site. Unlikely to occur or be impacted by proposed development.
Daphoenositta chrysoptera	Varied Sittella	V,P		5	This species prefers eucalyptus forest and woodlands. No suitable habitat on site. Unlikely to occur or be impacted by proposed development.
Artamus cyanopterus cyanopterus	Dusky Woodswallow	V,P		2	Prefers open dry forest and woodlands. No suitable habitat on site. Unlikely to occur or be impacted by proposed development.

Scientific Name	Common Name	NSW status	Comm. status	BioNet records 10kms	Likelihood of Occurrence
Petroica boodang	Scarlet Robin	V,P		1	Prefers dry eucalyptus forests and woodlands with abundant logs and timber. No suitable habitat on site. Unlikely to occur or be impacted by proposed development.
Pandion cristatus	Eastern Osprey	V,P,3		14	All BioNet records are located closer to the coast line and waterways. Potential to occur foraging over the site, however, the proposed development is unlikely to impact available foraging habitat in the locality.
Callocephalon fimbriatum	Gang-gang Cockatoo	V,P,3	E	1	No suitable habitat on site and no nesting potential. Unlikely to occur or be impacted by proposed development.
Ninox connivens	Barking Owl	V,P,3		1	Potential to occur foraging over the site, however, the proposed development is unlikely to impact available foraging habitat in the locality. No trees on site for potential nesting.
Ninox strenua	Powerful Owl	V,P,3		71	BioNet records indicate multiple 2019 sightings of Powerful Owl near a nest tree, <500m north east from the Subject Site. Potential to occur foraging over the site, however, the proposed development is unlikely to impact available foraging habitat in the locality. No trees on site for potential nesting.
Tyto novaehollandiae	Masked Owl	V,P,3		6	Prefers to inhabit dry eucalyptus forest and woodlands Potential to occur foraging over the site, however, the proposed development is unlikely to impact available foraging habitat in the locality. No trees on site for potential nesting.
Tyto tenebricosa	Sooty Owl	V,P,3		3	Prefers to inhabit moist eucalyptus forest and rainforest. Potential to occur foraging over the site, however, the proposed development is unlikely to impact available foraging habitat in the locality. No trees on site for potential nesting.
Mammals					
Dasyurus maculatus	Spotted-tailed Quoll	V,P	E	4	Quolls use hollow-bearing trees, fallen logs, other animal burrows, small caves and rock outcrops as den sites. No suitable habitat on site. Unlikely to occur or be impacted by proposed development.
Phascolarctos cinereus	Koala	V,P	E	2	Both BioNet koala records from 2015 and 2016 are located near Cameron Park, >4kms from the Subject Site. No suitable habitat on site with no *Eucalyptus* or any tree on site. Unlikely to occur or be impacted by proposed development.
Cercartetus nanus	Eastern Pygmy-possum	V,P		2	No suitable habitat on site. Unlikely to occur or be impacted by proposed development.
Petaurus australis	Yellow-bellied Glider	V,P		2	No suitable habitat on site. Unlikely to occur or be impacted by proposed development.
Petaurus norfolcensis	Squirrel Glider	V,P		90	Closest BioNet record from 2002 is 750m north of the Subject Site. Currently there is no suitable habitat on site with no hollows or feed trees. Therefore, it is considered unlikely to be impacted by proposed development.

Scientific Name	Common Name	NSW status	Comm. status	BioNet records 10kms	Likelihood of Occurrence
Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	163	Although there are multiple BioNet records, none are on the Subject Site. Potential to occur very marginal foraging over the site, however, the proposed development is unlikely to impact available foraging habitat in the locality. No roosting/breeding habitat present.
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	V,P		1	Potential to occur foraging over the site, however, the proposed development is unlikely to impact available foraging habitat in the locality. No roosting/breeding hollows or habitat present.
Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	V,P		21	Potential to occur very marginal foraging over the site, however, the proposed development is unlikely to impact available foraging habitat in the locality. No roosting/breeding habitat present.
Chalinolobus dwyeri	Large-eared Pied Bat	V,P	V	2	Potential to occur very marginal foraging over the site, however, the proposed development is unlikely to impact available foraging habitat in the locality. No roosting/breeding habitat present.
Falsistrellus tasmaniensis	Eastern False Pipistrelle	V,P		2	Potential to occur very marginal foraging over the site, however, the proposed development is unlikely to impact available foraging habitat in the locality. No roosting/breeding habitat present.
Myotis macropus	Southern Myotis	V,P		3	Potential to occur very marginal foraging over the site, however, the proposed development is unlikely to impact available foraging habitat in the locality. No roosting/breeding habitat present.
Scoteanax rueppellii	Greater Broad-nosed Bat	V,P		7	Potential to occur very marginal foraging over the site, however, the proposed development is unlikely to impact available foraging habitat in the locality. No roosting/breeding habitat present.
Vespadelus troughtoni	Eastern Cave Bat	V,P		4	Potential to occur very marginal foraging over the site, however, the proposed development is unlikely to impact available foraging habitat in the locality. No roosting or breeding habitat present.
Miniopterus australis	Little Bent-winged Bat	V,P		83	Potential to occur very marginal foraging over the site, however, the proposed development is unlikely to impact available foraging habitat in the locality. No suitable roosting or breeding habitat present.
Miniopterus orianae oceanensis	Large Bent-winged Bat	V,P		57	Potential to occur very marginal foraging over the site, however, the proposed development is unlikely to impact available foraging habitat in the locality. No suitable roosting or breeding habitat present.

Attachment E: Site Photos

Above: General site condition – Looking south west within Subject Site on ridge

Below: Bare ground and erosion looking south west from middle of Subject Site

Above: General site condition, looking north west

Below: Dominant shrub layer of colonising *Acacia longifolia var longifolia,* looking south west within Subject Site

Above: Dominant ground cover of Imperata cylindrica, **looking north from within Subject Site**

Below: Highly degraded ground conditions with opportunistic regrowth

Above: Roadway created that has diverted natural drainage

Below: Erosion conditions within Subject Site, looking west