ACS Environmental Pty Ltd

BIODIVERSITY DEVELOPMENT ASSESSMENT REPORT (BDAR) FOR PROPOSED DEVELOPMENT AT 1851 PITTWATER ROAD, BAYVIEW, NSW 2104

PREPARED FOR:

Ms Marjorie Gamble
1851 Pittwater Road
Bayview

21st APRIL 2022

ACS Environmental Pty Ltd

Flora and Fauna Surveys, Biodiversity and Ecological Impact Assessment and Bushland Plans of Management Services

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The principal of 'ACS Environmental P/L has worked in the area of floristic and faunal impact assessment services for a period of greater than 20 years. He also has over 30 years of experience in scientific research (ecological) and teaching in biological science.

CURRENCY OF BIODIVERSITY DEVELOPMENT ASSESSMENT REPORT

I Peter Stricker, certify that this Biodiversity Development Assessment Report (BDAR) has been prepared on the basis of the requirements of (and information provided) the biodiversity assessment method on the 21st April 2022, the BAM report submitted to the consent authority on 21st April 2022.

The relevant application is for a planning approval for the construction of a new dual occupancy development at 1851 Pittwater Road, Bayview

Signed:  **Dated: 21/04/2022**

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GLOSSARY AND ACRONYMS

APZ - Asset Protection Zone

BAM - Biodiversity Assessment Method (2017) - supports the BC Act (2016).

BC Act - *Biodiversity Conservation Act (2016)* - legislation enacted in August 2017

CEEC - Critically Endangered Ecological Community

DAWE - Commonwealth Department of Agriculture, Water and Environment

DPI - Department of Primary Industries

DPE - Department of Planning and Environment

E (threatened species status) - Endangered species

EEC - Endangered Ecological Community as listed by the BC Act and EPBC Act

EPBC Act - Environmental Protection & Biodiversity Conservation Act (1999). Enacted to protect and manage nationally and internationally (migratory) flora, fauna and ecological communities, defined in the Act as matters of national environmental significance (NES)

Habitat - areas occupied, either territorially, periodically or occasionally, by a species, population or ecological community

IPA - Inner Protection Zone

KTP - Key threatening process, a process that threatens the survival, life cycle, abundance or potential evolutionary development of native species, populations or ecological communities (Dept of Environment and Conservation 2004). KTP's are listed under the BC Act and the EPBC Act.

Migratory species - listed under the EPBC Act and relating to international agreements to which Australia is a signatory. Includes the Japan-Australia Migratory Bird Agreement (JAMBA), Chine-Australia Migratory Bird Agreement (CAMBA) Republic of Korea Migratory Bird Agreement (ROKAMBA)

OEH - State Office of Environment and Heritage

OPA - Outer Protection Zone

PCT - Plant Community Type identified as such using the Bionet Vegetation Classification system (OEH 2018)

RoTAP - Rare or Threatened Australian Plants

SMCMA - Sydney Metropolitan Catchment Management Authority

SRZ - Structural Root Zone

Threatened species, populations or ecological communities - Entities listed by the BC Act and EPBC Act as 'Vulnerable to decreasing population growth in time', Endangered as population growth decreasing rapidly leading to eventual extinction' or 'Critically Endangered, a more extreme rate of population decrease than the former'.

TPZ - Tree Protection Zone

V (threatened species status) - Vulnerable

1 INTRODUCTION

1.1 Proposed development

In March 2022, ACS Environmental was commissioned by Ms Marjorie Gamble to survey for flora and fauna and undertake a biodiversity impact assessment for the demolition of an existing residence and the construction of a dual occupancy development at Lot B, DP 416603, 1851 Pittwater Road, Bayview.

The total area of the subject property is 1,053m^2, within which the extent of soft landscape area proposed for development is estimated at about 112.4m^2 or 0.01124ha.

The site is currently developed and contains some remnant trees of Spotted Gum, presents as a managed curtilage having been cleared of any native understorey and much of the native ground cover. The ground cover consists largely of Buffalo Grass but with native Basket Grass also prolific. Balloon Vine is also invading across the lower sections of the ground cover.

The proposal is to construct a new dual occupancy residence at the subject land.

Figure 1 is a diagram indicating the location of the subject site in the Sydney region.

Figure 2 is a locality aerial image of 1851 Pittwater Road, Bayview (blue marker), and surrounds in relation to landscapes and current urbanisation (Nearmap 2021)

Figure 3 is a locality aerial image of Bayview showing property boundaries in relation to 1851 Pittwater Road, Bayview (blue marker) (Nearmap 2021).

Figure 4 is an aerial image of the subject site at 1851 Pittwater Road, Bayview, (yellow outline) (Nearmap 2021) indicating the canopy cover of the forested vegetation.

The general vegetation of the subject site appears as a tall forest to 30% canopy cover with tree heights to 20m tall and with landscaped gardens surrounding the residence (Figure 5). There is no native understorey and the ground cover comprises native grass, landscaped Buffalo Grass, exotic weed species and with a very small extent of leaf litter (Figure 6).

The predominant tree species is Spotted Gum (*Corymbia maculata*).

The only native shrub occurring at the subject land is White Bottlebrush (*Callistemon salignus*).

The ground cover also contains small frequencies and cover of native forbs such as Pennywort, Scurvy Weed, Whiteroot, Ivy-leaved Violet and the vine, Snake Vine (Figures 5 & 6).

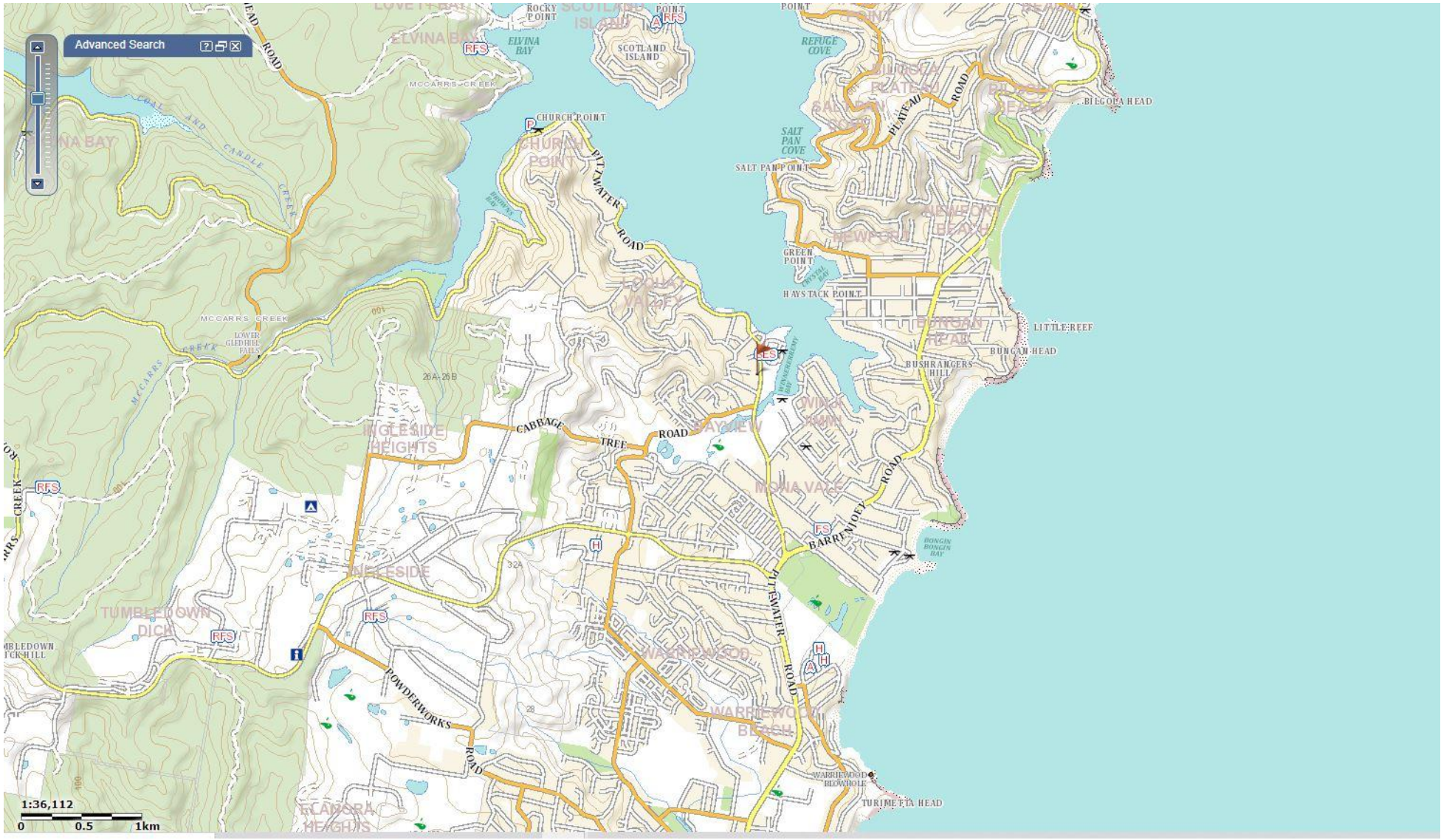

Figure 1 - Location of 1851 Pittwater Road, Bayview, within the Sydney region (red flag) (imagery from SixMaps)

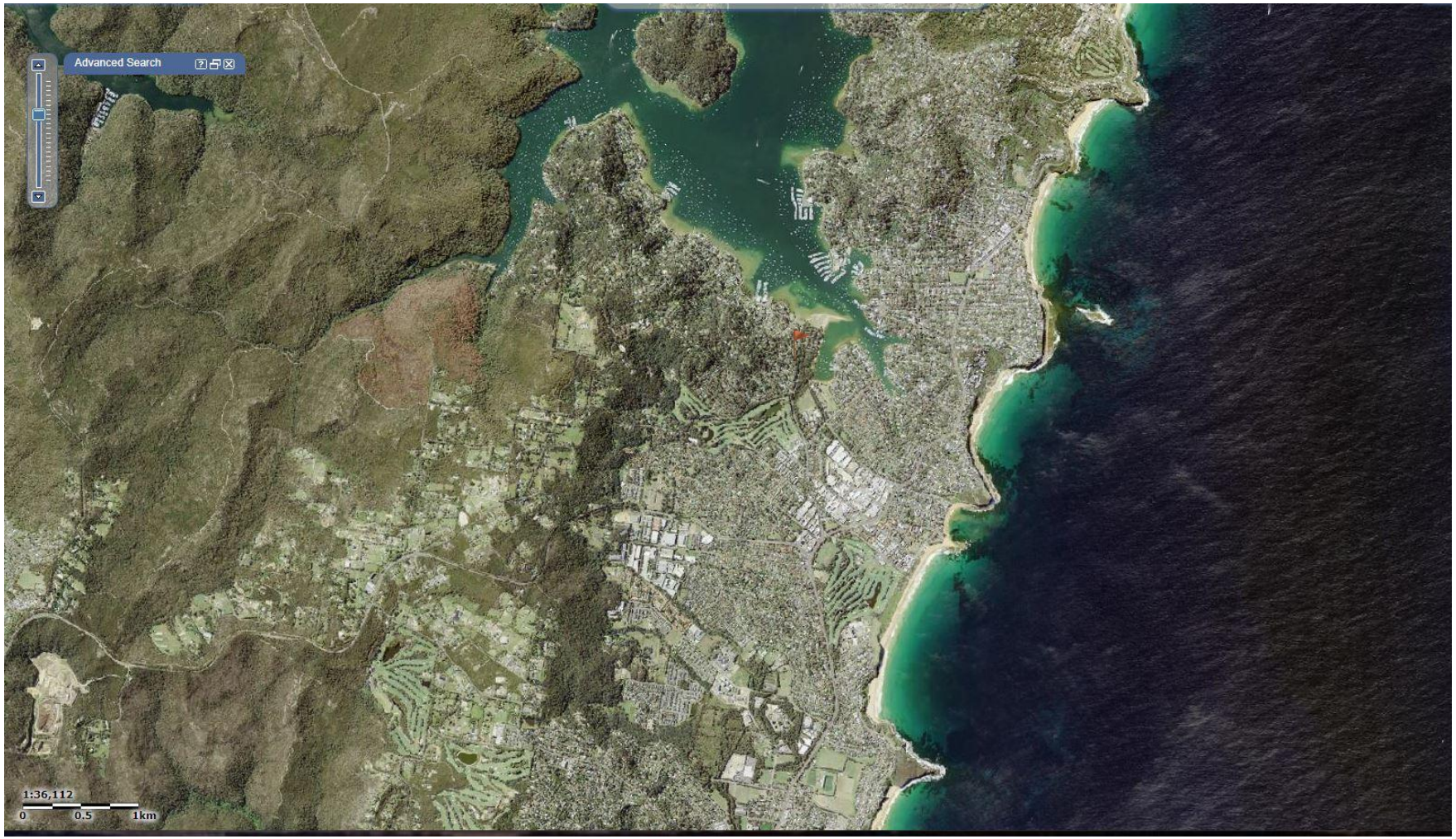

Figure 2 - Locality aerial image of 1851 Pittwater Road, Bayview (red flag), and surrounds in relation to landscapes and current urbanisation (from SixMaps)

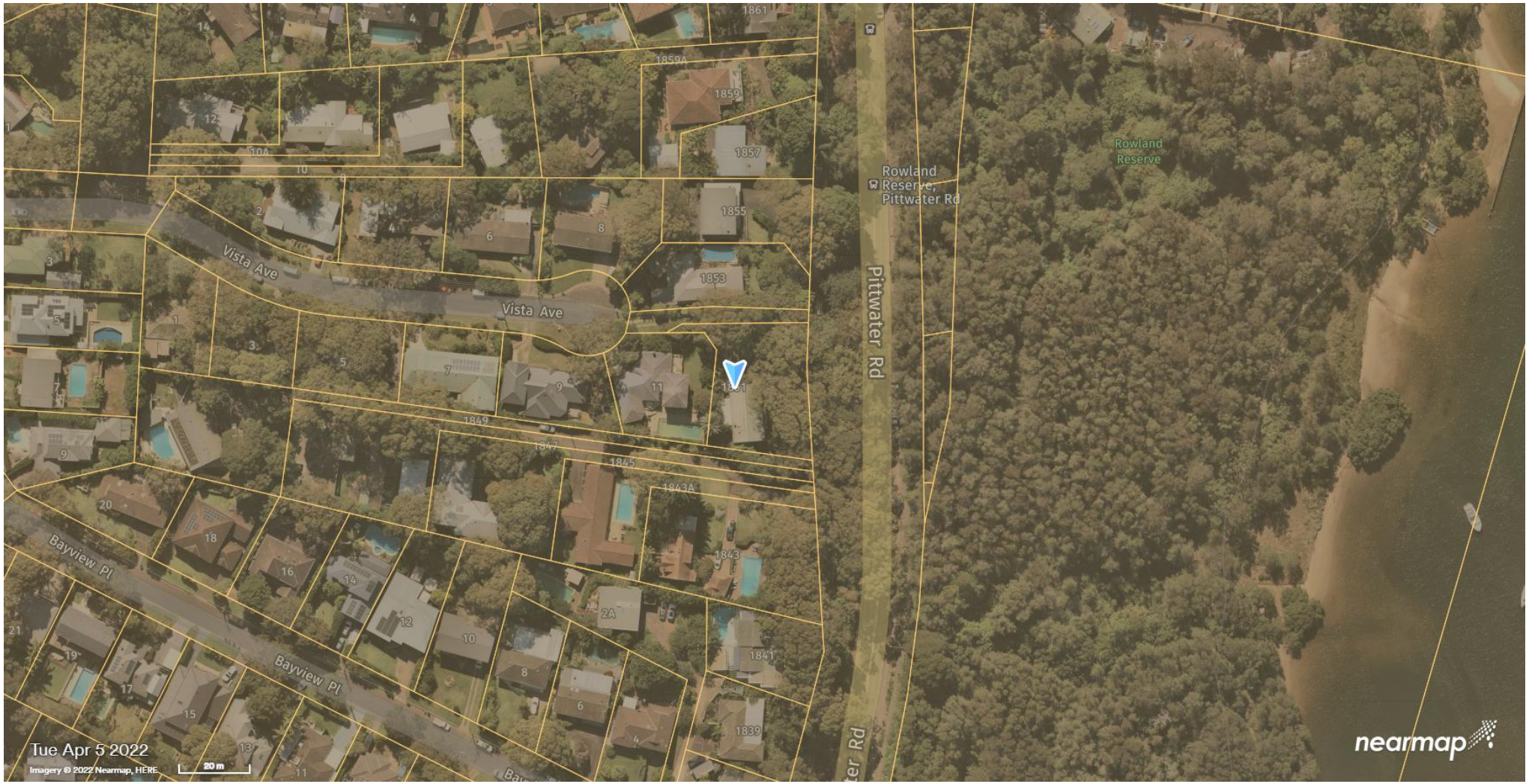

Figure 3 - Locality aerial image of part of Bayview showing property boundaries in relation to 1851 Pittwater Road, Bayview, (blue marker) (Nearmap April 2022)

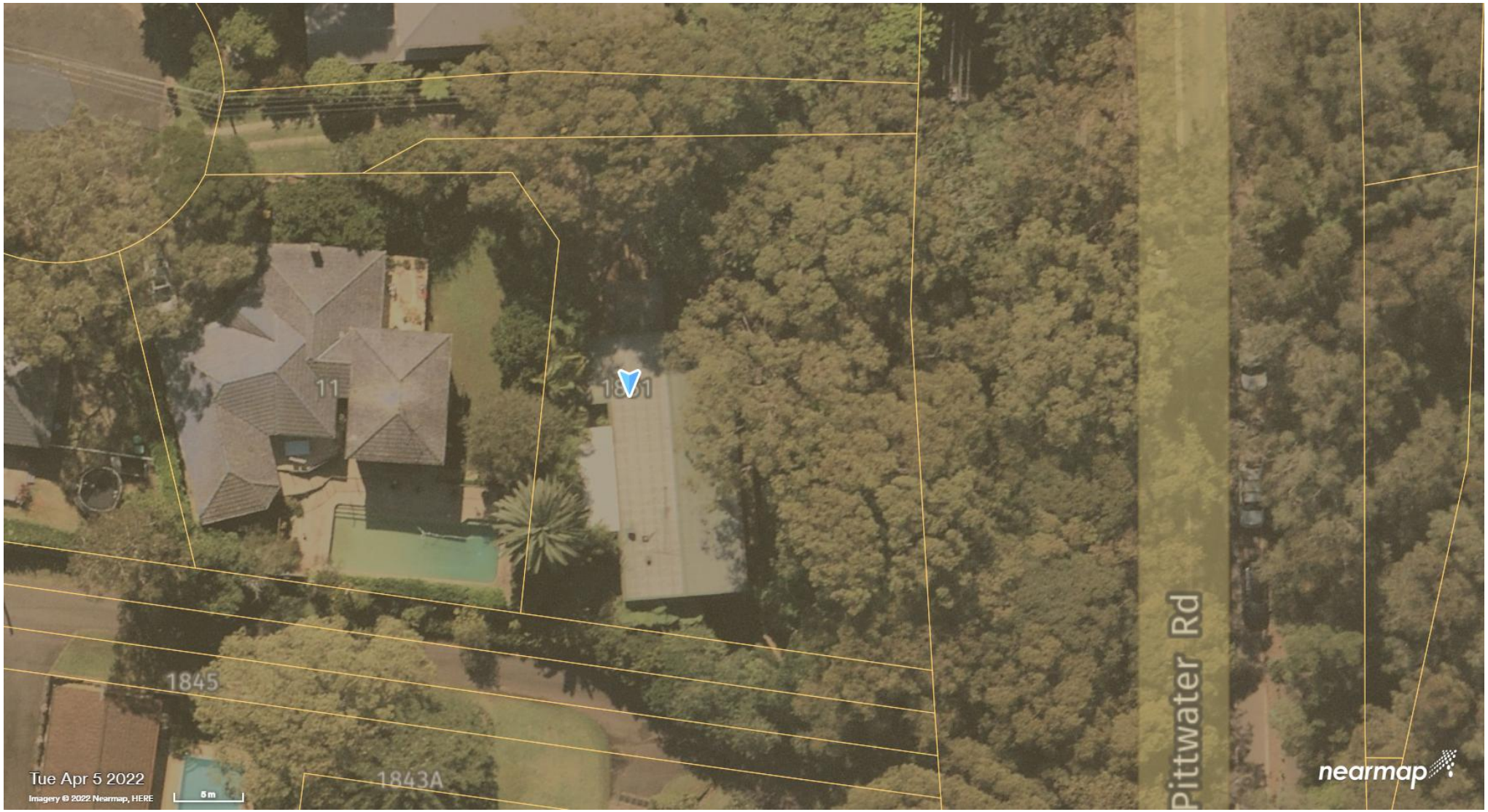

Figure 4 - Aerial image of forested canopy distribution at subject site at 1851 Pittwater Road, Bayview (blue marker within yellow outline) (Nearmap April 2022)

Figure 5 - Typical open forest vegetation occurring at and surrounding the subject site with retained canopy trees of Spotted Gum, including Tree No. 25 (The Ents Tree Consultancy (2021) (individual of Spotted Gum in foreground nearest current dwelling, proposed to be removed) and landscaped garden foliage such as Buddleja.

Figure 6 - Typical ground cover vegetation occurring in the lower sections of the subject land indicating terracing of the landform, remnant trees and incursion of Balloon Vine across the ground surface

1.2 Sampling vegetation attributes

The irregularly managed vegetation in the vicinity of the building footprint and rear yard was sampled for vegetation composition attributes in a quadrat of size 13.3 x 30m to derive a Vegetation Integrity Score (VIS). The area from the current residence to the rear boundary of the land was only about 13m wide and as such, a longer quadrat axis of 30m was surveyed within this width (see Figure 7). The entire sampling area was extended for another 20m to the south and the width extended by another 7m downslope to the east in order to sample for functional attributes (see Figure 7).

BAM attributes for floristic composition, structural variation and functional attributes were sampled on 16th March 2022.

Figure 7 indicates the location of the sampling areas at the subject property

These plots provided the attributes that were used to derive potential offsets. The plots were orientated from north to south (Figure 7).

Table 1 summarises environmental and biotic attributes recorded in the floristic plot (PLOT 1) (Figure 7).

DESCRIPTION	TALL OPEN FOREST
PLOT COORDINATES (NE corner)	-33.663957 151.301448
BEARING	180^0 S
APPROX TREE CANOPY COVER (%)	~30%
TOTAL NUMBER LOCALLY-OCCURRING NATIVE SPP	12
LOCALLY- OCCURRING NATIVE CANOPY SPP OCCURRING AT >5% COVER IN 13.3 x 30m PLOT (INCLUDING CANOPY FROM ADJACENT TREE SPECIES)	*Corymbia maculata; Oplismenus aemulus;*
LOCALLY-OCCURRING NATIVE SPP OCURRING AT <5% COVER IN 13.3 x 30m PLOT	*Cyathea australis; Commelina cyanea; Calochlaena dubia; Centella asiatica; Geranium solanderi; Pratia purpurascens; Stephania japonica; Callistemon salignus; Glochidion ferdinandi; Viola hederacea;*

Table 1 - Summarises abiotic environmental and biotic attributes recorded at sampled plot at the subject land

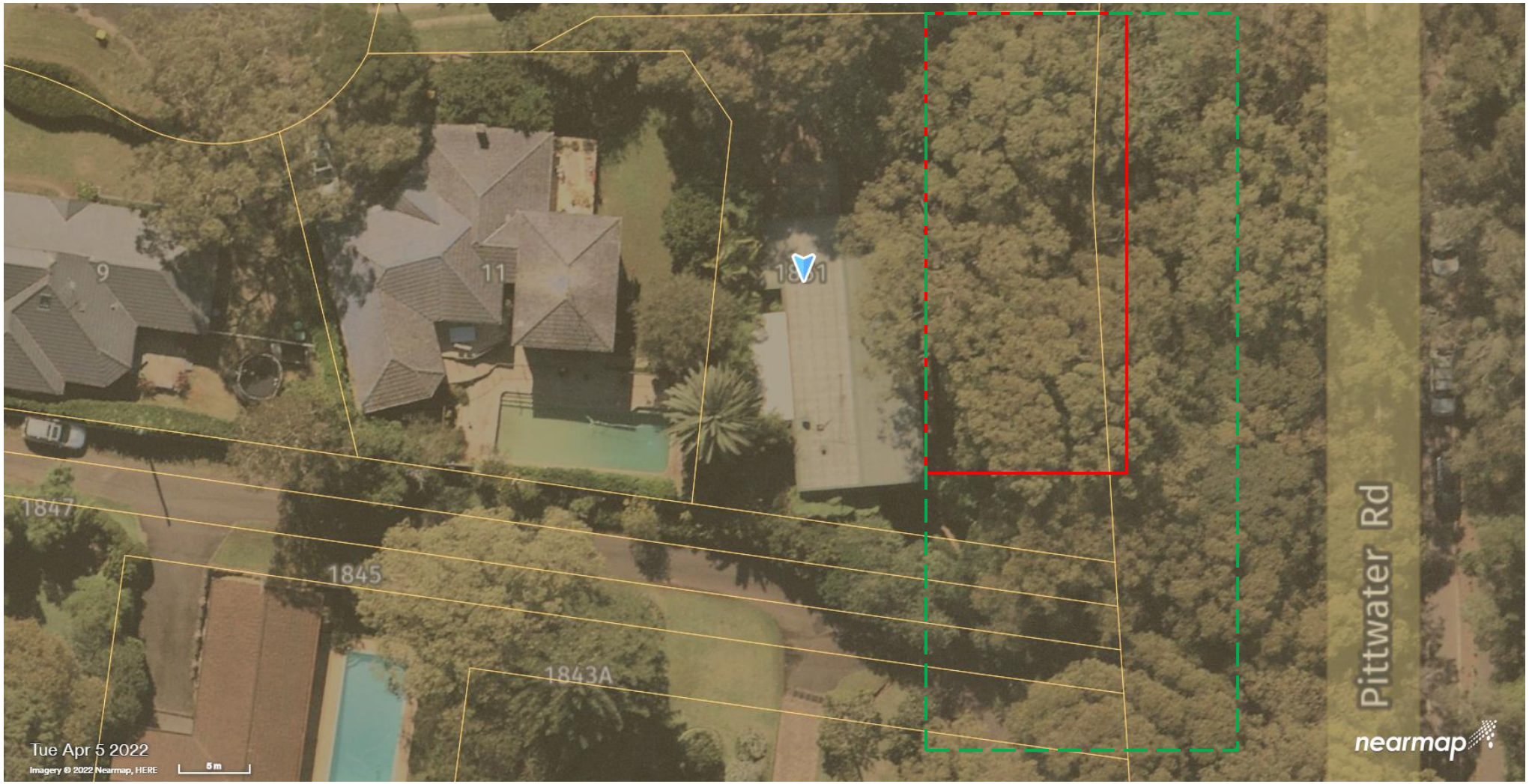

Figure 7 - Sampled quadrats for floristic and structural attributes (13.3 x 30m; red outline) and functional attributes (20 x 50m green dashed outline) at 1851 Pittwater Road, Bayview, and surrounding bushland within the zone (Nearmap 2022)

1.3 Extent of land proposed to be impacted by development

Figure 8 is the architectural scheme for the proposal indicating that an additional 112.4m^2 of soft landscaping would be required to construct the new dual occupancy residence, equivalent to the extent of potential habitat that would be lost as a result of the construction proposal.

As such, a total extent of 0.01124ha is used for potential habitat land that is impacted and included in offset evaluation by the BAM Calculator.

The mapping of Biodiversity Value indicates that there is Biodiversity Value associated with the subject property (Figure 9), and biodiversity offsets would be required for the proposal (BAM 2020).

The highly modified remnant plant community has been mapped by DPE (2022), and ground-truthed by the author, as Pittwater and Wagstaffe Spotted Gum Forest (DPE 2022).

This report will determine the number of Biodiversity Credits that may be required to offset the loss of 0.01124ha of potential Pittwater and Wagstaffe Spotted Gum Forest, the offset to be paid under the NSW Biodiversity Offsets Agreement Management Scheme (BOAMS).

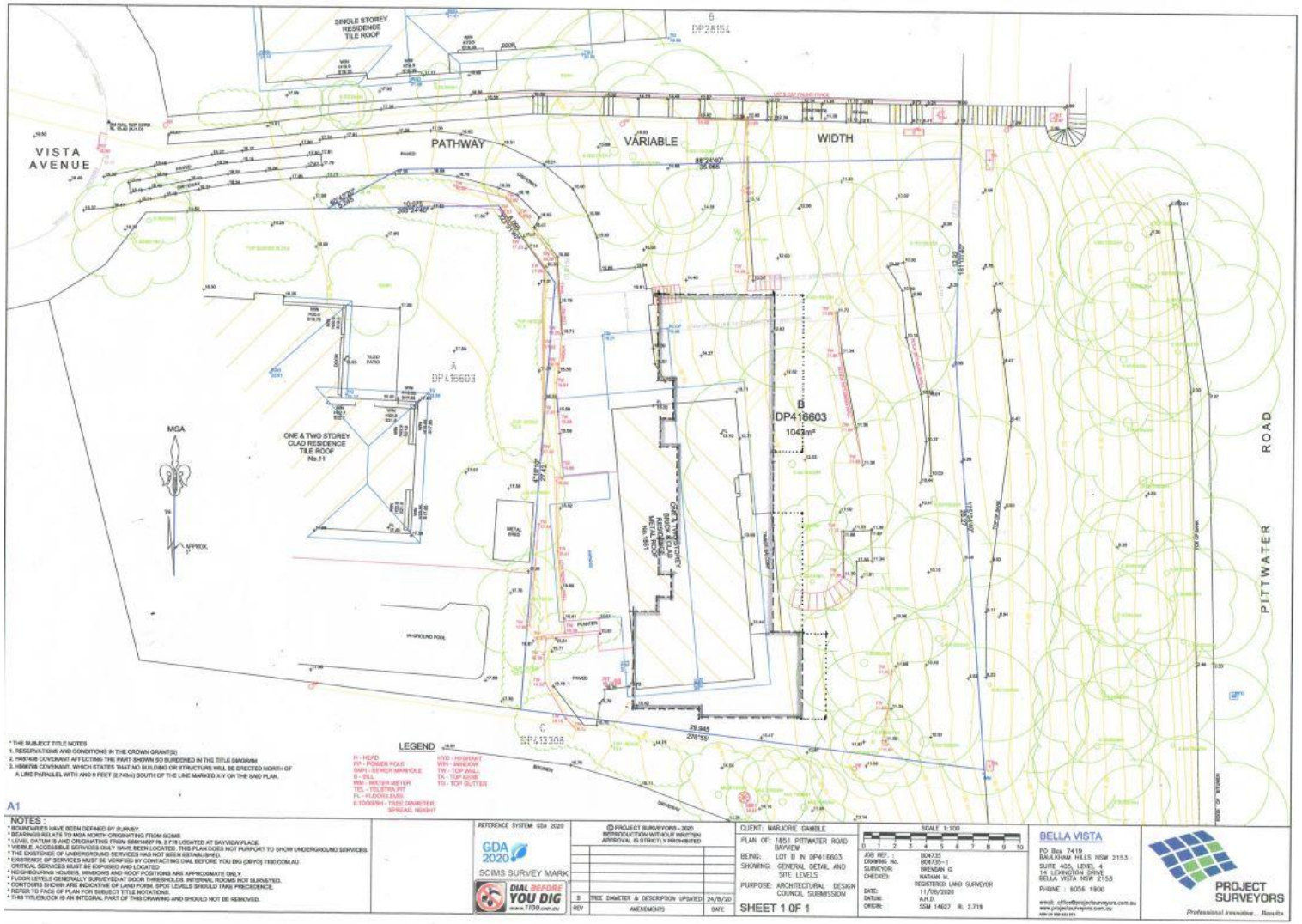

Figure 8 - Architectural representation of proposed dual occupancy development (proposed development footprint in dark black dashed outline superimposed over existing dwelling footprint in light blue outline) at 1851 Pittwater Road, Bayview (Project Surveyors 2020)

Figure 9 - Biodiversity values mapping for subject site at 1851 Pittwater Road, Bayview showing diversity value associated with potential Pittwater Spotted Gum Forest occurring in lower sections of land (purple shading) (Northern Beaches Council mapping 2022)

1.4 Topography, geology and soils

The site occurs at the crest of a hillslope that has been terraced down its slope (Figure 6) with gradients from 5 - 10^0 occurring along the slope to Pittwater Road.

The local substrate geology of the subject land occurs within the Newport Formation of the Narrabeen Group of Sandstones. The lithology of the sediments includes interbedded laminite, shale and quartz to lithic-quartz sandstone (Herbert 1983).

The Soil Landscape Series is the erosional Erina Soil Landscape Series characterised by undulating to rolling low rises and low hills on fine-grained sandstones and claystones of the Narrabeen Group (Chapman & Murphy 1989). The landscape is typified by rounded crests with moderately inclined slopes (Chapman & Murphy 1989).

Soils derived from these sediments include moderately deep to deep yellow podzolics on sandstone crests and slopes, moderately deep red podzolics on shale crests and steeper slopes, deep yellow podzolics on lower shale slopes with some deep yellow earths on footslopes (Chapman & Murphy 1989).

1.5 Current database and mapping searches

Existing information on 'Threatened Flora of the Locality', defined as an area of 5km radius around the site, was accessed from the DPE Bionet Atlas of NSW Wildlife (online BioNet 2022), Review of Commonwealth DAWE Environmental Protected Matters Search Tool for MNES records within an area of 5km radius around the site (April 2022) and RoTAP (Briggs and Leigh 1996) databases.

Other literature detailing regionally and locally threatened and significant flora and fauna, as well as plant communities of the study area, included NSW Scientific Committee Final Determinations (1996-2022), Benson and Howell (1994) and 'The Native Vegetation of the Sydney Metropolitan Catchment Management Authority Area' (OEH 2013).

1.6 Literature review

Information sources reviewed included the following:

Aerial Photograph Interpretation (API)

Relevant guidelines, including:

- DPE Biodiversity Assessment Method (BAM) (2020);
- NSW Guide to Surveying Threatened Plants (OEH 2016);
- 'Species credit' threatened bats and their habitats: NSW survey guide for the Biodiversity Assessment Method (OEH 2018);
- Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities (Department of Environment and Conservation 2004);
- DPE Threatened Species, Populations and Ecological Communities website (2021);
- Commonwealth DAWE Species, Profile and Threats Database (2021);
- Threatened species survey and assessment guidelines: field survey methods for fauna: Amphibians (DEC 2009);
- NSW Guideline to Surveying Threatened Plants (OEH 2016b);

- Survey guidelines for Australia's threatened birds. Guidelines for detecting birds listed as threatened under the Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth of Australia 2010a);

- Survey guidelines for Australia's threatened frogs. Guidelines for detecting frogs listed as threatened under the Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth of Australia 2010c);

- Survey guidelines for Australia's threatened mammals. Guidelines for detecting mammals listed as threatened under the Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth of Australia 2011);

- Survey guidelines for Australia's threatened orchids (2017);

- Guidelines for detecting bats listed as 'threatened' under the Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth of Australia 2013).

2 LANDSCAPE FEATURES

2.1 IBRA Regions and Subregions

The subject site occurs within the Pittwater IBRA Subregion of the Sydney Basin IBRA region.

2. 2 Mitchell Landscapes (NSW Landscape regions)

The landscape features of the subject site included in a 1500m buffer zone centred around the subject site occurs within the Sydney - Newcastle Barriers and Beaches landscape in the Pittwater IBRA subregion of the Sydney Basin IBRA Region. About 21% of the buffer area includes native vegetation cover (DKGIS 2022) (Figure 10).

2. 3 Extent of native vegetation

The area of native vegetation cover within a 1,500 m buffer area surrounding the site is shown in Figure 10. It is estimated that the native vegetation cover within the 1500m buffer area to the subject site is 21% and this was used in the BAM Offsets calculations.

2.4 Wetlands, Rivers, Streams and Estuaries

No significant wetlands, rivers, streams and estuaries are present within the developmental section of the subject land or any land that would affect the assessment.

2.5 Connectivity

Landscapes that retain connections between patches of otherwise isolated areas of vegetation are more likely to maintain more numerous and more diverse populations of plant and animal species (Lindenmayer and Fischer 2006).

The proposed development will result in the removal of a single individual of Spotted Gum and so will only slightly reduce the cover of canopy trees in the subject locality, the canopy connectivity maintaining a relatively continuous cover with a number of reserves including Bayview Park, Rowland Reserve and Winnerremy Bay Foreshore Reserve. It is considered that any potential connectivity to the biodiversity corridor that currently exists in the local area would not be significantly impacted (Figures 3 & 10).

2.6 Areas of Geological significance and soil hazard features

These features are not present on the subject land. The hill-slopes that characterise the subject property are stabilised by vegetative cover and no soil creep or landslip features are apparent.

2.7 Areas of Outstanding Biodiversity Value (AOBV)

AOBV are special areas that contain irreplaceable biodiversity values that are considered important to NSW, Australia or globally. No listed AOBV occur within the site or within a 1,500m area buffer around the subject site.

2.8 Site Context

2.8.1 Native vegetation cover

Native vegetation cover is calculated as a percentage cover occurring on the subject land and within the surrounding 1,500m buffer area.

Cover estimates are based on the cover of native woody and non-woody vegetation relative to the approximate benchmarks for the PCT considering the extent and condition of the vegetation.

The native vegetation cover within the 1500m buffer area is estimated at 21% (DK GIS 2022) (Figures 2 & 10).

2.8.2 Patch size

Patch size is used to describe areas that include native vegetation with a gap of less than 100m from adjacent or surrounding areas of native vegetation that occur in moderate to good condition.

The patch size for the vegetation onsite is assessed as 8.7ha (DK GIS 2022) (Figure 10).

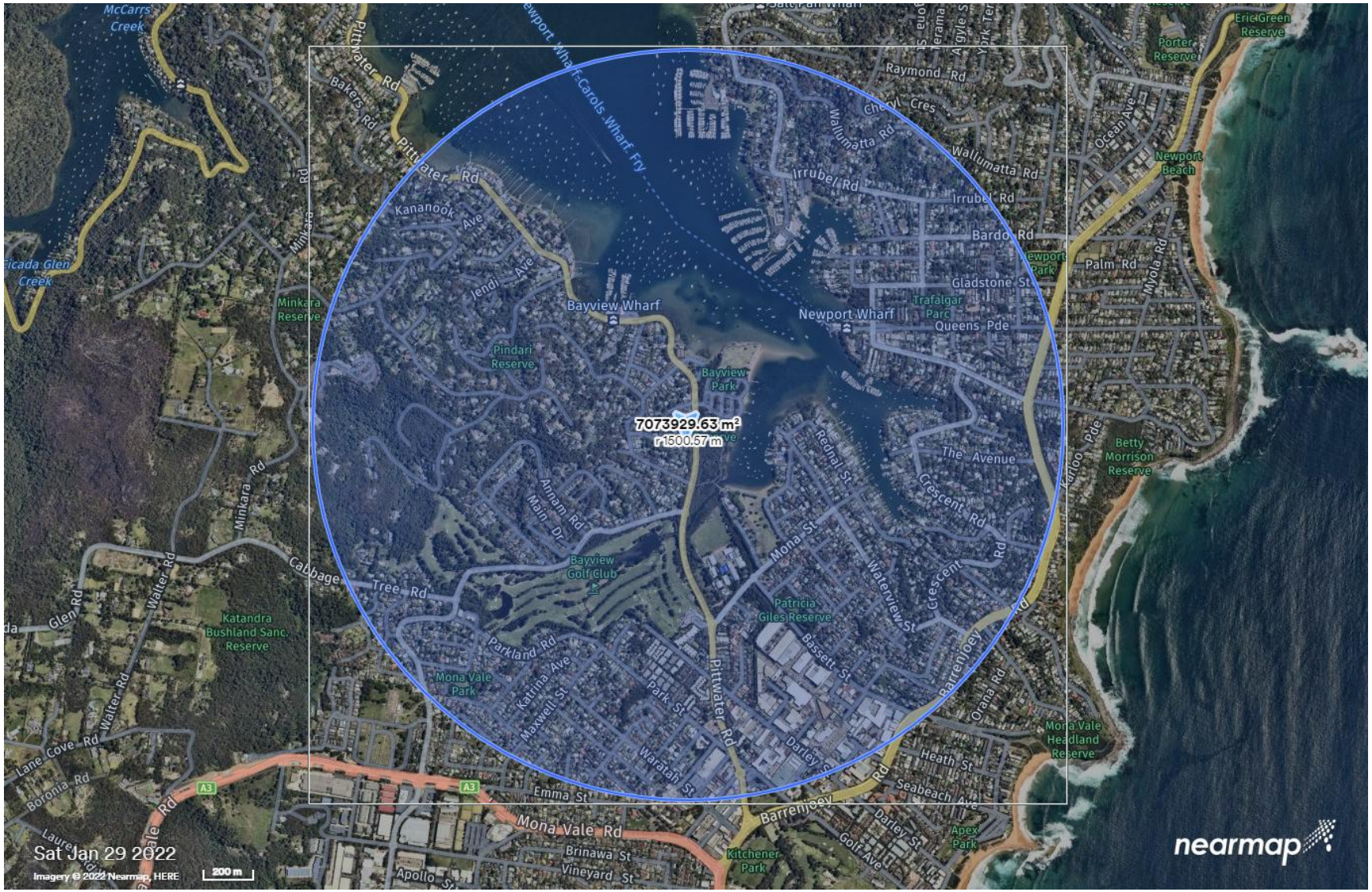

Figure 10 - Image of landscape features within 1500m radius centred around the subject site (blue circular outline) showing patchy extent of vegetated areas within reserves within the buffer zone is about 21%, also indicating extent of developed residential areas and waterways (Nearmap January 2022)

3 NATIVE VEGETATION

3.1 Native vegetation extent within the site

The total area of native vegetation cover within the site was estimated at about 413m^2 (Figures 4 & 7).

The extent of native vegetation intended for removal equates to about 112m^2 of a total amount of 413m^2 potential native vegetation habitat (or about 27% of the total vegetation of the vegetated site area) which includes the canopy of a single individual of Spotted Gum and herbaceous native and exotic grasses and weeds (Figure 8).

As such, a total of 0.0112ha was included in the impacted area on the BAM calculator.

3.2 Plant Community Types (PCT's)

3.2.1 Plant Community Type mapped and PCT assessed as occurring at the site

Mapping by DPE (2022) has mapped the vegetation at the rear of the subject site and below to Pittwater Road as Pittwater and Wagstaffe Spotted Gum Forest (Figure 11)

Figure 11 – Mapping of ecological communities over the locality including the Study Area indicating the distribution of Pittwater Spotted Gum Forest (PCT 1214) occurring in a band along Pittwater Road with some individuals of Spotted Gum occurring within the rear of the subject land (Source: DPE mapping 2022 courtesy of Land and Property Information 2015)

As such, PCT 1214, Pittwater and Wagstaffe Spotted Gum Forest, was assessed as the PCT to enter into the BAM calculator

(PCT descriptions from listed Bionet Plant Community Profiles Report DPE 2022).

Profile description of PCT 1214:

Plant Community Type ID (PCT ID): 1214 PCT Scientific Name: Spotted Gum - Grey Ironbark open forest in the Pittwater and Wagstaffe area, Sydney Basin Bioregion

Bioregion Classification Confidence Level: 2-High

Vegetation Description: Stands of Spotted Gum (*Corymbia maculata*) mark this distinctive forest on the foreshores and escarpments of the Pittwater peninsula. These trees form a tall open forest that may also include Grey Ironbark (*Eucalyptus paniculata)* and Broad-leaved White Mahogany (*Eucalyptus umbra*).

At the lower heights of the eucalypt stratum an open cover of Forest Oak (*Allocasuarina torulosa*) often occurs. The midstorey usually comprises a mixed layer of mesic and dry shrub species and occasional palms. Shrub species include Blueberry Ash (*Elaeocarpus reticulatus),* Scentless Rosewood (*Synoum glandulosum* subsp. *glandulosum*), Narrow-leaved Geebung (*Persoonia linearis*) and Mountain Holly (*Podolobium ilicifolium*). Like many Spotted Gum forests along coastal New South Wales Burrawang (*Macrozamia communis*) can assume a prominent component of the ground layer above a scatter of grasses, ferns and small vines. An abundance of Blady Grass (*Imperata cylindrica* var. *major*) is notable where there is a history of frequent fire.

Pittwater Spotted Gum Forest has recently been subject to review by Bell and Stables (2012). These authors concluded that this forest has a close association with Narrabeen sediments exposed on rises, escarpments and footslopes throughout northern Pittwater LGA and the Wagstaff peninsula in the Gosford LGA. The forest spans a number of aspects and topographic positions but is rarely found above 100 metres above sea level. It receives between 1150 and 1300 millimetres of mean annual rainfall. It is estimated that 75 per cent of its pre-European distribution has been cleared in the Pittwater and Gosford urban areas (Bell and Stables 2012) with some remaining stands impacted by the encroachment of urban weeds.

Vegetation Formation:; Wet Sclerophyll Forests (Grassy sub-formation);

Vegetation Class: Southern Lowland Wet Sclerophyll Forests;

IBRA Bioregion: Sydney Basin; **IBRA Sub-region:** Pittwater

LGA: PITTWATER; CENTRAL COAST;

Upper Stratum Species: *Corymbia maculata; Eucalyptus paniculata; Eucalyptus umbra*; *Allocasuarina torulosa; Elaeocarpus reticulatus; Glochidion ferdinandii; Corymbia gummifera; Eucalyptus botryoides;*

Mid Stratum Species: *Podolobium ilicifolium; Macrozamia communis; Notelaea longifolia; Synoum glandulosum* subsp. *glandulosum;*

Ground Stratum Species: *Billardiera scandens; Dianella caerulea; Entolasia stricta; Lomandra longifolia; Xanthorrhoea macronema; Microlaena stipoides* var. *stipoides; Schelhammera undulata; Themeda australis;*

TEC Assessed: : Listed BC Act, E: Pittwater and Wagstaffe Spotted Gum Forest in the Sydney Basin Bioregion (Equivalent);

PCT Percent Cleared: 71.00

3.2.2 Plot data used in BAM Calculator

The area containing Plot 1 (Figure 7) was subject to BAM analysis for a Vegetation Integrity Score that may require biodiversity offsets.

The data for Plot 1 is presented in Appendix 1.

The native species occurring in the plot is indicated in Table 1.

Appendix 2 lists native and exotic species occurring within the subject land.

3.2.3 Flora species occurring in plot

The flora species complement and respective cover values of the sampled plot and the subject land are listed in Appendix 1 and Appendix 2 respectively.

3.2.4 Fauna species and potential fauna habitat

Since the subject area subject to offsets (Figure 7) is largely cleared of all natural understory components and incorporating a largely managed curtilage ground stratum cover, there is currently a low potential habitat for ground dwelling fauna, with little structural habitat for sheltering and few plant species available for foraging (Figures 5 & 6). Natural tree canopy cover is continuous across the immediate locality, habitat suitable for arboreal species, species of microchiropterans and species of avifauna.

3.3 Vegetation Integrity Assessment

3.3.1 Vegetation Zone

A vegetation zone is defined as an area of vegetation having the same PCT and occurring in a similar condition state. Within the subject land (Figures 4, 5 & 6), the vegetation appears fairly

well-structured in relation to canopy species but highly degraded and depauperate in the understorey and ground strata.

A total of 12 naturally-occurring native species were recorded in Plot 1, with only the native tree species Spotted Gum and the grass species Basket Grass occurring with a high percentage canopy cover (Appendix 1 & 2).

A predominant weed species that occurs at the rear of the subject land is Balloon Vine (*Cardiospermum grandiflorum*) (Appendix 2; Figure 6).

The general condition of the vegetation in regard to BAM analysis was regarded as 'poor' since the vegetation was species poor, managed curtilage and fairly degraded (Figures 5 & 6).

3.3.2 Patch size

The patch size for relatively continuous patches of native vegetation within the buffer area and aligned with the vegetation of the subject land is estimated at 8.7ha (DKGIS 2022). This area was used for patch size in the BAM calculation.

3.3.3 Vegetation Integrity Score

Plot 1 included tree species comprised of Spotted Gum (*Corymbia maculata*) and Cheese Tree (*Glohidion ferdinandi*) which was present in the assemblage in lower frequency and cover.

The only shrub species occurring in the assemblage was White Bottlebrush (*Callistemon salignus*) with a low cover score (Appendix 1 & 2). The plot was located as shown in Figure 7.

Quantitative measures for species composition, structure and function attributes were derived from the intact vegetation within the plot as listed in Table 2 of BAM (2020) and indicated in Table 2.

The 50m x 20m plot was located within intact vegetation, including similar vegetation occurring outside the subject land as the land did not contain sufficient area to contain the larger plot (Figure 7). Scores derived from the 20m x 50m plot were used to sample for functional attributes (Table 2).

Condition attributes use to assess composition of vegetation	Condition attributes use to assess structure within vegetation	Condition attributes use to assess functionality within vegetation
Tree richness	Tree cover	Number large trees
Shrub richness	Shrub cover	Tree regeneration potential
Grass and grass-like richness	Grass and grass-like cover	Tree stem size classes
		Tree hollows
Forb richness	Forb cover	Total length of fallen logs
Fern richness	Fern cover	Litter cover
Other richness (Twiners, Palms etc)	Other cover (Twiners etc)	High Threat Weed cover

Table 2 - Condition attributes for composition, structure and function at plots (Table 1; Figure 7) which were sampled for BAM analysis (from Table 2 in BAM 2020).

Table 3 tabulates the plot scores for the attributes listed in Table 2 for the plot.

PLOT 1 (Figure 7)

Life-form	Tree	Shrub	Grass & Grass-like	Forb	Fern	Other
Counts for composition	2	1	1	5	1	2
Counts for cover (%)	31	0.5	30	6.5	0.5	1.1

Number large trees (>80cm DBH)	Tree regeneration.	Tree stem size classes (cm)				Length fallen logs	litter cover (%)	Tree Hollows	HTW (%)
		10-19	20-29	30-49	50-79				
0	absent	no	yes	yes	yes	0m	2.2	0	29.5

Table 3 - Condition attributes for composition, structure and function in Plot 1 (Figure 7)

Table 4 summarises the condition attributes for composition, structure and functionality of the biota in the plot which were sampled for BAM analysis, with the resultant Vegetation Integrity Score (VIS) based on the area of 0.01124ha impacted (from Table 2 in BAM 2020). The VIS is used to calculate the offset credits required and the costs incurred for clearing native vegetation at the subject land.

PLOT 1 (Figure 7)				
ATTRIBUTE	COMPOSITION SCORE	STRUCTURE SCORE	FUNCTION SCORE	VEGETATION INTEGRITY SCORE (VIS)
PCT 1237	18	45.8	11.4	21.1

Table 4 - Condition attribute scores for composition, structure, function and VIS at Plot 1 for PCT 1214

4 THREATENED SPECIES

4.1 Ecosystem Credit Species

These species are those where the likelihood of occurrence of the species potential elements of the species habitat can reasonably be predicted by vegetation surrogates and features of the landscape, or for which targeted species surveys have a low probability of detection.

The Threatened Biodiversity Data Collection (TBDC) has identified 23 potential ecosystem credit species as predicted by vegetation surrogates and landscape features. These are listed and addressed in the following Table 5.

4.2 Species Credit Species (Candidate Species)

These species are those where the likelihood of occurrence of the species, or potential suitable elements of the species habitat, cannot be reliably predicted by vegetation surrogates and landscape features and can more reliably be detected by species surveys.

The TBDC has identified 9 potential candidate species and these are listed and addressed in the following Table 5.

In accordance with Section 5.3 of BAM (2020) a targeted species survey must be undertaken for a threatened candidate species that is likely to occur at the site based on the application of Steps 1 - 3 in Sub-sections 5.2.1 - 5.2.3 (BAM 2020).

The habitat features for breeding for some microchiropteran species (such as caves, rocky overhangs and escarpments) are not present on the subject land that is proposed to be impacted.

The assemblage presents as a managed curtilage particularly at the upper sections of the land and is cleared of understorey and highly degraded at the lower sections of the land (Figures 5 & 6) and many of these species would not be expected to occur at the subject site where habitat may otherwise be suitable, and it is considered that targeted surveys in this case would not achieve any purpose.

As such, Table 5 lists all Ecosystem Credit and Species Credit Species (Candidate Species) listed in the TBDC and addresses their suitability to the habitat and likelihood of occurrence.

Table 5 – Ecosystem species and Candidate species assessment table for PCT 1214 at 1851 Pittwater Road, Bayview

SPECIES & COMMON NAME	DESCRIPTION/HABITAT REQUIREMENTS AND PREFERENCES (CONSTRAINTS) (from species profiles DPE 2022)	HABITAT SUITABILITY FROM DPE PROFILES; TDBC AND CALCULATOR TICK BOXES	HISTORICAL RECORDS (TO 20 YEARS PREVIOUS)	PREDICTED ECOSYSTEM SPECIES ASSESSMENT; AND/OR CANDIDATE SPECIES ASSESSMENT
PLANTS				
Rhodamnia rubescens **Scrub Turpentine**	Shrub or small tree to 25m tall with red/brown fissured bark. Found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest usually on volcanic and sedimentary soils.	Potential habitat onsite is managed curtilage or otherwise degraded	Total of 29 records within last 20 years within 5km radius of subject site. Nearest record is about 600m to the south-west at Bayview Golf Club links This distinctive large life-form species was not observed during targeted searches within the degraded area of the subject site and can be deemed to not occur and to be not impacted.	**A candidate species credit species but habitat is either managed curtilage or degraded and targeted searches did not locate individuals of this species.** No further surveys required
Diuris bracteata	Terrestrial herb. Dry sclerophyll woodland and forest with a predominantly grassy understorey. In recent years, however, extant populations from north-west of Gosford have been recorded and this area is now the only known area of occurrence of the species. All known plants fall within the Central Coast Local Government Areas.	Potential habitat of managed curtilage or otherwise degraded habitat onsite is unsuitable	None	**A candidate species credit species but does not occur at site.** Species requirements do not occur onsite and site is managed curtilage or otherwise degraded
Genoplesium baueri **Bauer's Midge Orchid**	Terrestrial orchid to 15cm tall, occurs in sparse sandy dry sclerophyll forest habitat and moss outcrops over sandstone.	Potential managed curtilage or degraded habitat onsite is unsuitable	One record occurs some 3.6km to the south at North Narrabeen	**A candidate species credit species but does not occur at site.** Species requirements do not

				occur onsite and site is managed curtilage or otherwise degraded.
SPECIES & COMMON NAME	**DESCRIPTION/HABITAT REQUIREMENTS AND PREFERENCES (CONSTRAINTS) (from species profiles DPE 2022)**	**HABITAT SUITABILITY FROM DPE PROFILES; TDBC AND CALCULATOR TICK BOXES**	**HISTORICAL RECORDS (TO 20 YEARS PREVIOUS)**	**PREDICTED ECOSYSTEM SPECIES ASSESSMENT; AND/OR CANDIDATE SPECIES ASSESSMENT**
Hygrocybe aurantipes	A small brightly coloured gilled fungus that occurs in warm temperate gallery forests dominated by Lilly Pilly (*Acmena smithii*), Grey Myrtle (*Backhousia myrtifolia*), Cheese Tree (*Glochidion ferdinandi*) and Sweet Pittosporum (*Pittosporum undulatum*)	Potential managed curtilage and otherwise degraded habitat onsite is unsuitable	None	**A candidate species credit species but does not occur at site.** Species requirements do not occur onsite and site is a managed curtilage and otherwise degraded.
ANIMALS				
Hirundapus caudacutus **White-throated Needletail**	Summer migrant to coastal and sub-coastal eastern Australia	Occurs over a range of habitats in summer months where it forages in the airspace over forests, woodlands, urban areas, grasslands and water. May occasionally roost in trees	6 records in last 20 years. Nearest record some 1.4km to the south at Mona Vale	**Ecosystem species credit species.** May overfly area. Most trees retained in locality and on subject land, considered to have no significant impact. No further surveys required.
Hieraaetus morphnoides **Little Eagle**	The Little Eagle is seen over woodland and forested lands and open country, extending into the arid zone. It tends to avoid rainforest and heavy forest. The Little Eagle searches for prey on the wing or from a high exposed perch, taking prey from the ground, the shrub layer or the canopy. Prey includes rabbits, other live mammals and insects.	Habitat unsuitable as it is highly shaded degraded wet sclerophyll forest rather than open forest or woodland	6 records in last 20 years. Nearest record about 1.4km to the south at Mona Vale	**Ecosystem species credit species.** Habitat degraded and unsuitable. Many trees retained, considered to have no significant impact. No further surveys required

SPECIES & COMMON NAME	DESCRIPTION/HABITAT REQUIREMENTS AND PREFERENCES (CONSTRAINTS) (from species profiles DPE 2022)	HABITAT SUITABILITY FROM DPE PROFILES; TDBC AND CALCULATOR TICK BOXES	HISTORICAL RECORDS (TO 20 YEARS PREVIOUS)	PREDICTED ECOSYSTEM SPECIES ASSESSMENT; AND/OR CANDIDATE SPECIES ASSESSMENT
ANIMALS				
Callocephalon fimbriatum **Gang Gang Cockatoo (foraging)**	Has a preference for wetter forests and woodlands from sea level to > 2,000m on the Great Dividing Range, timbered foothills and valleys, timbered watercourses, coastal scrubs, farmlands and suburban gardens. Favours old growth forest and woodland attributes for nesting and roosting. Nests are located in hollows that are 10 cm in diameter or larger and at least 9m above the ground in eucalypts.	Habitat suitable for foraging. No hollows were observed in any mature trees for either roosting or breeding.	Foraging habitat may occur at the subject land but only 1 mature tree to be removed. Total of 2 records within last 20 years, with nearest record occurring some 1.3km to the south-west along Cabbage Tree Road	**Ecosystem species credit species.** May occasionally forage at the site, and most trees will be retained in the degraded forest, so species foraging not significantly impacted. No further surveys required
Calyptorhynchus lathami **Glossy Black Cockatoo (foraging)**	Inhabits open forest and woodlands of the coast and the Great Dividing Range up to 1000 m in which stands of she-oak species, particularly Black She-oak (*Allocasuarina littoralis*), Forest She-oak (*A. torulosa*) or Drooping She-oak (*A. verticillata*) occur. Forest She-oak is the preferred foraging resource. Roosts in the canopy of tall trees, occasionally in tree hollows. Nests in deep hollows in eucalypts.	Habitat unsuitable for foraging with no individuals of Forest Oak occurring within degraded area to be impacted. No hollows for roosting or breeding	Single record about 6.5km to the south at North Narrabeen in last 20 years,	**Ecosystem species credit species.** Unsuitable foraging and/or breeding habitat in degraded forest. No further surveys required
Anthochaera phyrgia **Regent Honeyeater**	The species inhabits dry open forest and woodland, particularly Box-Ironbark woodland, and riparian forests of River Sheoak. Regent Honeyeaters inhabit woodlands that support a significantly high abundance and species richness of bird species. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes. Every few years non-breeding flocks are	Habitat unsuitable. DPE Mapping not indicated at subject site.	33 records within 5km radius of subject land, mostly 3.6km to the west in Ku-ring-gai Chase National Park	**Dual Ecosystem and candidate species credit species. Not included as a 'Species Credit Species'** Habitat unsuitable. Mapped areas distribution of species not recorded at Bayview (BOAMS)

	seen foraging in flowering coastal Swamp Mahogany and Spotted Gum forests, particularly on the central coast and occasionally on the upper north coast. Birds are occasionally seen on the south coast. The Regent Honeyeater is a generalist forager, although it feeds mainly on the nectar from a relatively small number of eucalypts that produce high volumes of nectar. Key eucalypt species include Mugga Ironbark, Yellow Box, White Box and Swamp Mahogany. Flowering of associated species such as Thin-leaved Stringybark *Eucalyptus eugenioides* and other Stringybark species, and Broad-leaved Ironbark *E. fibrosa* can also contribute important nectar flows at times. Nectar and fruit from the mistletoes *Amyema miquelii, A. pendula* and *A. cambagei* are also utilised. When nectar is scarce lerp and honeydew can comprise a large proportion of the diet. Insects make up about 15% of the total diet and are important components of the diet of nestlings.			No further surveys required
Artamus cyanopterus cyanopterus **Dusky Woodswallow**	Inhabits dry, open eucalypt forests and woodlands, with an open or sparse understorey of eucalypt saplings, acacias and other shrubs, and ground-cover of grasses or sedges and fallen woody debris. Primarily eats invertebrates, mainly insects, which are captured whilst hovering or sallying above or under the canopy, primarily over leaf litter and dead timber. Also occasionally take nectar, fruit and seed. Depending on location and local climatic conditions (primarily temperature and rainfall), the dusky woodswallow can be resident year round or migratory. Nest sites	Degraded wet sclerophyll habitat unsuitable	No records in locality over past 20 years.	**Ecosystem species credit species.** Unsuitable foraging and/or breeding habitat. No further surveys required

	vary greatly, but generally occur in shrubs or low trees, living or dead, horizontal or upright forks in branches, spouts, hollow stumps or logs			
SPECIES & COMMON NAME	**DESCRIPTION/HABITAT REQUIREMENTS AND PREFERENCES (CONSTRAINTS) (from species profiles DPE 2022)**	**HABITAT SUITABILITY FROM DPE PROFILES; TDBC AND CALCULATOR TICK BOXES**	**HISTORICAL RECORDS (TO 20 YEARS PREVIOUS)**	**PREDICTED ECOSYSTEM SPECIES ASSESSMENT; AND/OR CANDIDATE SPECIES ASSESSMENT**
ANIMALS				
Glossopsitta pusilla **Little Lorikeet**	Little Lorikeets mostly occur in dry, open eucalypt forests and woodlands. They have been recorded from both old-growth and logged forests in the eastern part of their range, and in remnant woodland patches and roadside vegetation on the western slopes. Little lorikeets are considered to be nomadic, likely in a response to food availability. These lorikeets usually forage in small flocks, feeding mainly on nectar and pollen, but also fruit of eucalypts, melaleucas and mistletoes. The little lorikeet breeds from May to September, nesting in tree hollows, with small diameter entrance holes. Most breeding records are located on the western slopes.	Degraded habitat unsuitable for foraging and breeding	Total of 7 records in locality over last 20 years. Nearest record about 2.3km to the west near Ku-ring-gai Chase National Park.	**Ecosystem species credit species.** Unsuitable foraging and/or breeding habitat. No further surveys required
Lathamus discolor **Swift Parrot**	On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations which may occur on Blackbutt. Winter migrant to coastal NSW where they feed in the following trees; Swamp Mahogany (*E. robusta)*, Forest Redgum (*E. tereticornus*), Spotted Gum (*Corymbia maculata*), Red	Habitat includes Spotted Gum for foraging. However, only one mature tree proposed for removal so foraging habitat would remain largely unchanged. No trees showed any evidence of lerp infestations. Breed in	Total of 15 records in locality over last 20 years. Nearest about 1.6km to the south at Mona Vale (DPE 2022)	**Dual Ecosystem and candidate species credit species.** **Not included as a Species Credit Species.** Habitat for foraging may be suitable and all but one individual of Spotted Gum trees will remain. Mapped areas distribution of

	Bloodwood (*Corymbia gummifera).* Breed in Tasmania in Tasmanian Blue Gum (*Eucalyptus globulus*)	Tasmania, so excluded as a candidate species for breeding at the site.		species not recorded at Bayview (BOAMS) No further surveys required
SPECIES & COMMON NAME	**DESCRIPTION/HABITAT REQUIREMENTS AND PREFERENCES (CONSTRAINTS) (from species profiles DPE 2022)**	**HABITAT SUITABILITY FROM DPE PROFILES; TDBC AND CALCULATOR TICK BOXES**	**HISTORICAL RECORDS (TO 20 YEARS PREVIOUS)**	**PREDICTED ECOSYSTEM SPECIES ASSESSMENT; AND/OR CANDIDATE SPECIES ASSESSMENT**
ANIMALS				
Ninox strenua **Powerful Owl**	Inhabits a range of vegetation types, from woodland and open sclerophyll forest to tall open wet forest and rainforest. The Powerful Owl requires large tracts of forest or woodland habitat but can occur in fragmented landscapes as well. It roosts by day in dense vegetation comprising species such as Turpentine *Syncarpia glomulifera*, Black She-oak *Allocasuarina littoralis*, Blackwood *Acacia melanoxylon*, Rough-barked Apple *Angophora floribunda,* Cherry Ballart *Exocarpus cupressiformis* and a number of other eucalypt species.	May occasionally forage and roost in the area. However, no evidence (presence of pellets or droppings at base of trees occurring nearby or on tree trunks) of this species using the subject site for roosting or foraging. The subject site is not regarded as core habitat for Powerful Owl.	Total of 488 records in last 20 years (likely relating to sightings of same birds within the locality over this time). No possum dreys were noted at the subject site. Records are presented in a 1km grid pattern across the locality with about a 500m error range at each location (DPE 2022)	**Ecosystem species credit species.** Unsuitable breeding habitat. All but one tree retained, considered to have no significant impact. No further surveys required
Ninox connivens **Barking Owl (foraging)**	Inhabits eucalypt woodland, open forest, swamp woodlands and, especially in inland areas, timber along watercourses. Dense vegetation is used occasionally for roosting. During the day they roost along creek lines, usually in tall understorey trees with dense foliage such as *Acacia* and *Casuarina* species, or the dense clumps of canopy leaves in large *Eucalypts*. Live alone or in pairs. Territories range from 30 to 200 hectares and birds are present all year (Debus 1997).	Degraded wet sclerophyll forest habitat unsuitable. No breeding habitat available. Therefore, the subject site is not regarded as core habitat for this species.	Total of 21 records in locality within last 20 years. One record about 550m to the north (DPE 2022).	**Ecosystem species credit species.** Unsuitable foraging or breeding habitat. Most trees retained, considered to have no significant impact. No further surveys required

SPECIES & COMMON NAME	DESCRIPTION/HABITAT REQUIREMENTS AND PREFERENCES (CONSTRAINTS) (from species profiles DPE 2022)	HABITAT SUITABILITY FROM DPE PROFILES; TDBC AND CALCULATOR TICK BOXES	HISTORICAL RECORDS (TO 20 YEARS PREVIOUS)	PREDICTED ECOSYSTEM SPECIES ASSESSMENT; AND/OR CANDIDATE SPECIES ASSESSMENT
ANIMALS				
Tyto novahollandiae **Masked Owl**	Extends from the coast where it is most abundant to the western plains. Overall records for this species fall within approximately 90% of NSW, excluding the most arid north-western corner. There is no seasonal variation in its distribution. Lives in dry eucalypt forests and woodlands from sea level to 1100 m. A forest owl, but often hunts along the edges of forests, including roadsides. The typical diet consists of tree-dwelling and ground mammals, especially rats. Pairs have a large home-range of 500 to 1000 hectares. Roosts and breeds in moist eucalypt forested gullies, using large tree hollows or sometimes caves for nesting.	Degraded wet sclerophyll habitat unsuitable. No breeding habitat available	Habitat unsuitable. Only two records in locality over last 20 years in Ku-ring-gai National Park (DPE 2022).	**Ecosystem species credit species.** Unsuitable or foraging breeding habitat. Most trees retained, considered to have no significant impact. No further surveys required
Daphoenositta chrysoptera **Varied Sittella**	Inhabits eucalypt forests and woodlands, especially rough-barked species and mature smooth-barked gums with dead branches, mallee and *Acacia* woodland. The Varied Sittella feeds on arthropods gleaned from crevices in rough or decorticating bark, dead branches, standing dead trees, and from small branches and twigs in the tree canopy.	Potential degraded wet sclerophyll habitat suboptimal.	Three records in locality, nearest at Mullet Creek about 3km to south of subject site (DPE 2022)	**Ecosystem species credit species.** Most trees retained, degraded wet sclerophyll habitat suboptimal, proposal considered to have no significant impact. No further surveys required

SPECIES & COMMON NAME	DESCRIPTION/HABITAT REQUIREMENTS AND PREFERENCES (CONSTRAINTS) (from species profiles DPE 2022)	HABITAT SUITABILITY FROM DPE PROFILES; TDBC AND CALCULATOR TICK BOXES	HISTORICAL RECORDS (TO 20 YEARS PREVIOUS)	PREDICTED ECOSYSTEM SPECIES ASSESSMENT; AND/OR CANDIDATE SPECIES ASSESSMENT
ANIMALS				
Petroica boodang **Scarlet Robin**	The species inhabits dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs. Prefers abundant logs and fallen timber which do not occur at the subject site. For breeding, prefers ridges in dry eucalypt forest and woodland.	Habitat unsuitable	2 records in locality, nearest about 2.3km to the north-east at Bilgola Heights (DPE 2022)	**Ecosystem credit species** Habitat managed curtilage, degraded and unsuitable.
Pandion cristatus **Eastern Osprey**	The species favours coastal areas, especially the mouths of large rivers, lagoons and lakes. Feeds on fish over clear, open water. Breed from July to September in NSW. Nests are made high up in dead trees or in dead crowns of live trees, usually within one kilometre of the sea. .	Habitat unsuitable	18 records in vicinity, nearest 1.9km to the east at Bungan Beach (DPE 2022)	**Ecosystem credit species** Habitat managed curtilage, degraded and unsuitable. No nests in any trees.
Phascolarctus cinereus **Koala**	Occurs in natural eucalypt forests and woodlands. Koala feed trees include: Forest red gum *Eucalyptus tereticornis;* Tallowwood, *Eucalyptus microcorys*; Grey Gum, *Eucalyptus punctata*; Manna Gum, *Eucalyptus viminalis*; River Red Gum, *Eucalyptus camaldulensis*; Broad leaved scribbly gum, *Eucalyptus haemastoma*; Scribbly gum and Swamp Mahogany, *Eucalyptus robusta.* Many other eucalypt species are categorised as Koala Shelter Trees.	Degraded wet sclerophyll habitat unsuitable. No recognised Koala food trees at site. No evidence of Koalas, no scats or scratch marks on trees.	Total of 1sighting in 2006 over last 20 years in the locality at about 3.6km to the north-east at Clareville (DPE 2022)	**Ecosystem species credit species.** Degraded habitat unsuitable. Many trees retained, considered to have no significant impact. No further surveys required

SPECIES & COMMON NAME	DESCRIPTION/HABITAT REQUIREMENTS AND PREFERENCES (CONSTRAINTS) (from species profiles DPE 2022)	HABITAT SUITABILITY FROM DPE PROFILES; TDBC AND CALCULATOR TICK BOXES	HISTORICAL RECORDS (TO 20 YEARS PREVIOUS)	PREDICTED ECOSYSTEM SPECIES ASSESSMENT; AND/OR CANDIDATE SPECIES ASSESSMENT
ANIMALS				
Dasyrus maculata **Spotted-tail Quoll**	Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Individual animals use hollow-bearing trees, fallen logs, small caves, rock crevices, boulder fields and rocky-cliff faces as den sites (Edgar & Belcher 1995).	Habitat is within surrounding urban development and no suitable den sites occur. Habitat suboptimal.	Two records in locality, nearest record about 3.6km to the south-west near North Narrabeen (DPE 2022). The loss of a small area of managed curtrilage habitat in the locality is not expected to compromise the foraging behavior or lifecycle of this highly mobile species	**Ecosystem species credit species.** Habitat suboptimal. Many trees retained. The loss of a small area of potential habitat (0.0112ha) will not compromise the foraging behavior or lifecycle of this highly mobile species No further surveys required
Pteropus poliocephalus **Grey-headed Flying-fox**	Grey-headed Flying Fox (*Pteropus poliocephalus*). This species congregates in large camps and is found in a variety of habitats including rainforest, mangroves, Melaleuca swamps, wet and dry sclerophyll forests and also cultivated areas. The species feeds on the blossoms of more than 80 plant species, especially eucalyptus blossom and the fruits of a number of palm species. Flowering species of eucalypts such as Swamp Mahogany (*Eucalyptus robusta*) and Forest Red Gum (*Eucalyptus.tereticornis)* and Paperbarks (*Melaleuca quinquenervia*), are particularly important. Distances of up to 30km from the camp are often travelled, with 60-70km sometimes covered per night	Potential foraging habitat suboptimal but much of the habitat in the locality is retained.	Many records occur across the locality (Figure 12), this species foraging on flowering eucalypts at various seasonal times (DPE 2022).	**Ecosystem species credit species.** Many trees retained. The loss of a single individual of Spotted Gum will not compromise the foraging behavior or lifecycle of this highly mobile species May forage in the area as part of a wider foraging range. No further surveys required

	to reach a particular food source. The Grey-headed Flying Fox (*Pteropus poliocephalus)* was not sighted during the survey, which occurred during mid-morning when the bats would be roosting in camps, but may be attracted to flowering Eucalyptus trees on occasion.			
SPECIES & COMMON NAME	**DESCRIPTION/HABITAT REQUIREMENTS AND PREFERENCES (CONSTRAINTS) (from species profiles DPE 2022)**	**HABITAT SUITABILITY FROM DPE PROFILES; TDBC AND CALCULATOR TICK BOXES**	**HISTORICAL RECORDS (TO 20 YEARS PREVIOUS)**	**PREDICTED ECOSYSTEM SPECIES ASSESSMENT; AND/OR CANDIDATE SPECIES ASSESSMENT**
ANIMALS				
Saccolaimus flaviventris **Yellow-bellied Sheathtail-Bat**	The Yellow-bellied Sheathtail-bat is a wide-ranging species found across northern and eastern Australia. There are scattered records of this species across the New England Tablelands and North West Slopes. Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows. When foraging for insects, flies high and fast over the forest canopy, but lower in more open country. Forages in most habitats across its very wide range, with and without trees; appears to defend an aerial territory.	May occasionally forage in area as part of a wider range, though no roosting habitat such as tree hollows or mammal burrows at subject site.	No records across the locality over the past 20 years (DPE 2022).	**Ecosystem species credit species.** Many trees retained. The loss of a small area of potential habitat would not compromise the foraging behavior or lifecycle of this highly mobile species. No breeding habitat. May forage in the area as part of a wider foraging range. No further surveys required
Micronomus norfolkensis **Eastern Coastal Freetail Bat**	Occurs in dry sclerophyll forest and woodland east of the Great Dividing Range. Roost mainly in tree hollows but will also roost under bark or in man-made structures. Insectivorous. Forages on insects below the canopy.	Degraded wet sclerophyll forest habitat suboptimal. No roosting habitat or breeding habitat at subject site.	Total of 20 records occur within a 5km radius of the site. Nearest record only about 200m to the north (DPE 2022).	**Ecosystem species credit species.** Most trees retained with associated insect populations. The loss of a small area of degraded suboptimal habitat

				will not compromise the foraging behavior or lifecycle of this highly mobile species May forage in the area as part of a wider foraging range. No further surveys required
SPECIES & COMMON NAME	**DESCRIPTION/HABITAT REQUIREMENTS AND PREFERENCES (CONSTRAINTS) (from species profiles DPE 2022)**	**HABITAT SUITABILITY FROM DPE PROFILES; TDBC AND CALCULATOR TICK BOXES**	**HISTORICAL RECORDS (TO 20 YEARS PREVIOUS)**	**PREDICTED ECOSYSTEM SPECIES ASSESSMENT; AND/OR CANDIDATE SPECIES ASSESSMENT**
ANIMALS				
Chalinobus dwyeri **Large-eared Pied Bat**	These bats roost in shallow caves in escarpments, particularly in sandstone and forage in remnant native dry and wet open forests, woodlands and rainforests.	No roosting or breeding habitat at site. No sandstone cliffs or rocky cave habitat features. Habitat is managed curtilage and otherwise degraded forest.	18 records occur, mainly to the south-west, nearest occurring about 2.2km at Ingleside Heights (DPE 2022)	**Included as a candidate species credit species.** No roosting or breeding habitat occurs at subject site, no caves, rocky areas or cliff structures at subject site. No further surveys required.
Miniopterus australis **Little Bentwing Bat (Breeding habitat)**	Habitat in moist eucalypt forest, rainforest, vine thicket, wet and dry sclerophyll forest, Melaleuca swamps, dense coastal forests and banksia scrub. Generally found in well-timbered areas. Little Bentwing-bats roost in caves, tunnels, tree hollows, abandoned mines, stormwater drains, culverts, bridges and at night forage for small insects beneath the canopy of densely vegetated habitats. No breeding habitat onsite	May forage in area below canopy for insects. No breeding habitat onsite, no caves, tunnels, tree hollows or other roosting or breeding habitat features.	Total of 59 records across the landscape, nearest record about 1.4km to the north-east at Newport (DPE 2022)	**Included as a Dual Ecosystem and candidate species credit species.** No roosting or breeding habitat (caves, cliffs, rocky escarpments etc) occur at subject site. Most trees and tree canopy retained. No further surveys required

SPECIES & COMMON NAME	DESCRIPTION/HABITAT REQUIREMENTS AND PREFERENCES (CONSTRAINTS) (from species profiles DPE 2022)	HABITAT SUITABILITY FROM DPE PROFILES; TDBC AND CALCULATOR TICK BOXES	HISTORICAL RECORDS (TO 20 YEARS PREVIOUS)	PREDICTED ECOSYSTEM SPECIES ASSESSMENT; AND/OR CANDIDATE SPECIES ASSESSMENT
ANIMALS				
Miniopterus orianae oceanensis **Large Bentwing Bat** **(Breeding)**	This sub species of Bentwing Bat occurs from Cape York to central Vic. Occurs in wet and dry sclerophyll forests and rainforests. Roost within man-made structures. Known roost sites include caves, disused mines, storm-water drains, culverts and buildings. However maternity roosts occur in sandstone or limestone cave systems. Will form scattered smaller colonies, mostly within 300km of the larger maternity cave (Churchill 1998). Active all year round, foraging mostly on moths above the tree canopy. Feeds over large areas of land and has been reported to travel up to 70 km in one night (Dwyer 1995). No breeding habitat onsite.	May forage in area above the canopy for insects. No breeding habitat onsite, no caves, tunnels, tree hollows or other roosting or breeding habitat features.	Total of 93 records occur across the locality, the closest near the subject site (DPE 2022) (Figure 13).	**Included as a Dual Ecosystem and candidate species credit species.** No roosting or breeding habitat (caves, cliffs, rocky escarpments etc) occur at subject site. Most trees and upper tree canopy retained so foraging habitat unchanged.. No further surveys required
Pseudomys novaehollandiae **New Holland Mouse**	Known to inhabit open heathlands, woodlands and forests with a heathland understorey and vegetated sand dunes	Habitat unsuitable, managed curtilage and highly degraded	All records within 5kKu-ring-gai Chase National Park (DPE 2022)	**Ecosystem credit species** Habitat unsuitable
Varanus rosenbergi **Rosenbergs Goanna**	Found in heath, open forest and woodland. Associated with termites, the mounds of which this species nests in; termite mounds are a critical habitat component. Individuals require large areas of habitat. Feeds on carrion, birds, eggs, reptiles and small mammals. Shelters in hollow logs, rock crevices and in burrows, which they may dig for themselves, or they may use other species' burrows, such as rabbit warrens.	Habitat unsuitable, managed curtilage and highly degraded	Total of 31 records in locality, nearest about 770m to the west at Minkara Resort (DPE 2022)	**Ecosystem credit species** Habitat unsuitable. Shrub and ground cover components of site are highly degraded but most trees retained. No further surveys required.

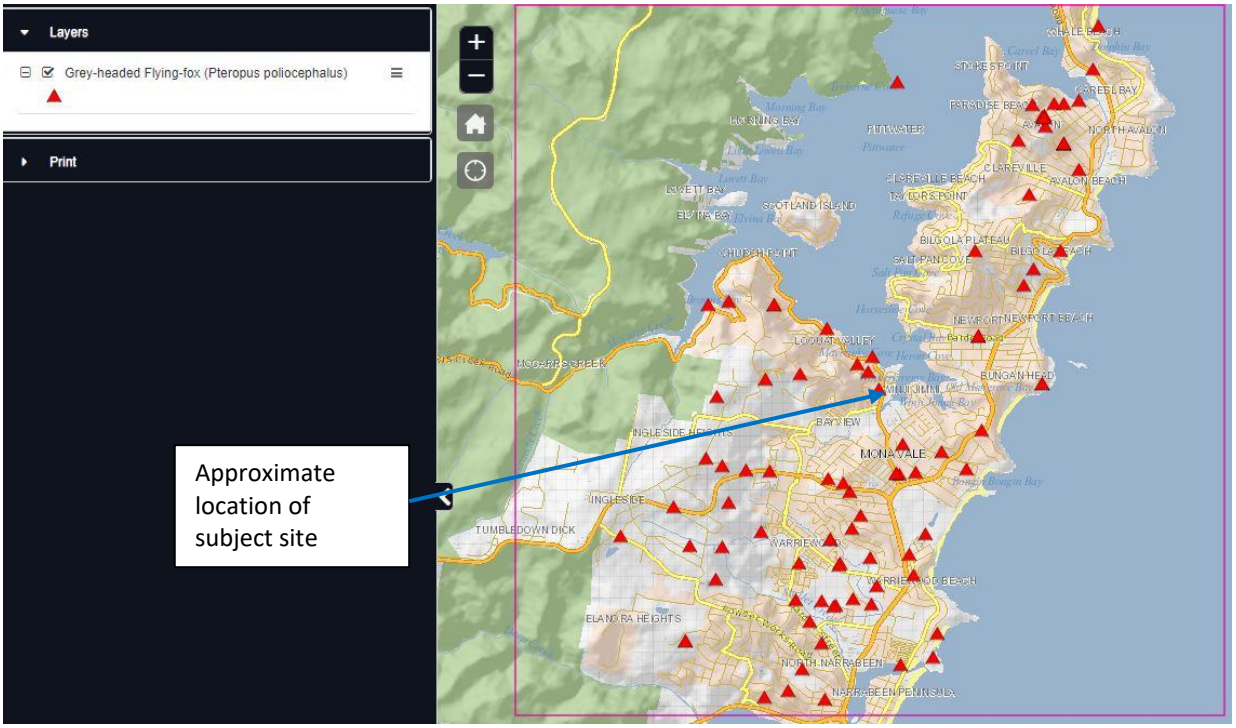

Figure 12 - Records for occurrence of the Grey-headed Flying Fox within the locality in the past 20 years that may occasionally forage at or in the vicinity of the subject site at 1851 Pittwater Road, Bayview

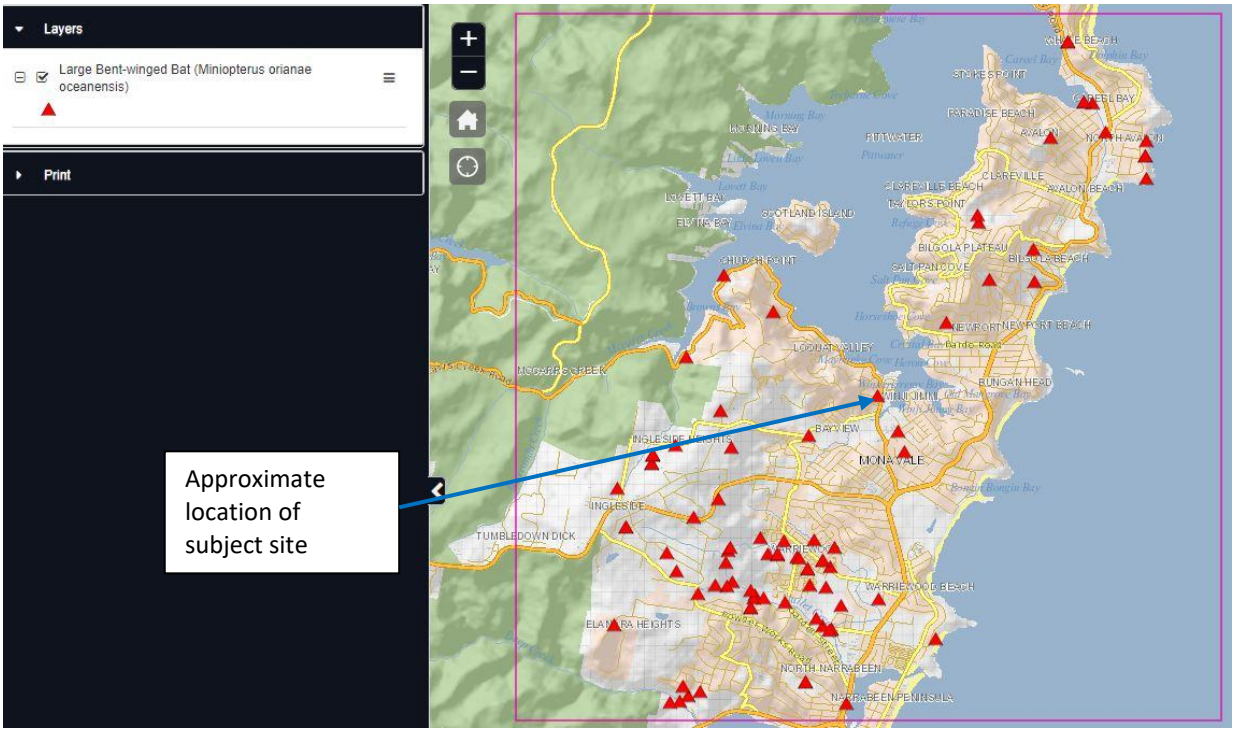

Figure 13 - Records for occurrence of the Large Bent-winged Bat within the locality in the past 20 years, a species that may occasionally forage at or in the vicinity of the subject site at 1851 Pittwater Road, Bayview

4.3 Description of impacts

4.3.1 Direct impacts to subject site

The proposed building envelope and extent of associated construction comprises a small extent of the undeveloped eastern section of the subject land, the area estimated at about 112m^2 (or 0.0112ha) (Figures 8).

A total of only 1 native tree, an individual of Spotted Gum to 18m tall that occurs close to the current residence on its eastern flank (Figure 5) (Tree Number 25: Ents Tree Consultancy 2021), is proposed to be removed to accommodate the proposed dual occupancy (Ents Tree Consultancy 2021).

Attributes for this tree and all individuals occurring within the subject land and in adjacent allotments are tabulated in the Arboricultural Impact Assessment Report (Ents Tree Consultancy 2021).

A total of 7 individuals of Spotted Gum will be retained on the property, as well as many others that occur within an easement on the northern side of the subject land as well as many that form a band of Pittwater and Wagstaffe Spotted Gum Forest down the slope to the east of the subject land (Figures 3, 4, 7, 8 & 9).

4.3.2 Potential for runoff, erosion and sedimentation during construction

Construction activities could potentially encourage soil erosion and increase local sediment wash downslope and in the downstream areas. Sediment fences and placement of hay bales along downslope contours could lessen these impacts.

Though unlikely, accidental leaks, oil spills, fuel, cement or other substances seeping down slope could also act to pollute stormwater along Pittwater Road below (Figure 3).

A certified Construction Environment Management Plan (CEMP) should be provided with the approved application prior to issue of the Construction Certificate to address any of these potential issues.

4.3.3 Biodiversity Credits for PCT 1214 (Pittwater and Wagstaffe Spotted Gum Forest)

The vegetation community assessed occurring at the rear of the subject site is a degraded component of the native vegetation described as Pittwater and Wagstaffe Spotted Gum Forest in the Sydney Basin Bioregion, an ecological community that is listed as Endangered on

registers of the BC Act (2016), occurring in a mostly structurally, functionally and floristically degraded or modified condition (Figures 5 & 6).

This assessment (prepared using the BAM-C Offsets Calculator) has determined that for the clearing of 0.0112ha of a stand of Pittwater and Wagstaffe Spotted Gum in mostly poor degraded condition, one (1) ecosystem credit should be required to offset impacts to the removal of 0.0112ha of the potential canopy area of this community.

4.3.4 Serious and Irreversible Impacts (SAII)

Species and ecological communities with a 'very high' biodiversity risk weighting are considered to be a potential serious and irreversible impact (SAII). These 'potential SAII entities' are identified by the BAM calculator (BAM 2020).

The determination of serious and irreversible impacts on biodiversity values is to be made by the consent authority in accordance with the principles set out in the BC Regulation. To assist the consent authority, the guidance document 'Guidance to Assist a Decision Maker to determine a serious and irreversible impact' includes criteria that enable the application of the four principles set out in clause 6.7 of the BC Regulation. These criteria provide a guide to identify the species and ecological communities that are likely to be the subject of serious and irreversible impacts.

These four principles include the following (BC Regulation 2018):

An impact is to be regarded as serious and irreversible if it is likely to contribute significantly to the risk of a threatened species or ecological community becoming extinct because:

(a) it will cause a further decline of the species or ecological community that is currently observed, estimated, inferred or reasonably suspected to be in a rapid rate of decline, or

(b) it will further reduce the population size of the species or ecological community that is currently observed, estimated, inferred or reasonably suspected to have a very small population size, or

(c) it is an impact on the habitat of the species or ecological community that is currently observed, estimated, inferred or reasonably suspected to have a very limited geographic distribution, or

(d) the impacted species or ecological community is unlikely to respond to measures to improve its habitat and vegetation integrity and therefore its members are not replaceable. (3

For the purpose of this clause, a decline of a species or ecological community is a continuing or projected decline in:

(a) an index of abundance appropriate to the taxon, or

(b) the geographic distribution and habitat quality of the species or ecological community.

PCT 1214 in the Sydney Basin Bioregion is listed as a threatened entity with about 76% of its distribution cleared and 24% remaining, including within conservation reserves.

The relatively small area of the ecological community to be cleared represents a decrease of about 0.004% of the 275ha of the Pittwater and Wagstaffe Spotted Gum Forest community that is retained throughout the Sydney Basin Bioregion (OEH 2016), and it is considered that the biodiversity offset would compensate for this very small decrease in extent of the community, that occurs in a highly degraded condition (with very low opportunity for natural recovery) in the locality and in the wider regional area.

4.3.5 Potential direct impacts

4.3.5.1 Removal of vegetation and potential habitat

The impacts would include the removal of 0.0112ha of potential Pittwater and Wagstaffe Spotted Gum occurring in a managed curtilage and in an otherwise degraded condition, including the removal of 1 individual of Spotted Gum, being a mature tree in good condition and with high amenity (Figure 5) (Ents Tree Consultancy 2021).

4.3.5.2 Potential for runoff, sedimentation and erosion during construction

Due to the sloping ground surface of the subject land, construction activities could potentially lead to some soil erosion and some increase in sediment load downslope.

The potential for accidental leaks/spills of oil, fuel, cement or other substances entering the downslope storm water drainage flows. Sediment fences and hay bales installed along downslope contours from construction activities would serve to reduce potential erosion of land surfaces and decrease the sediment wash downslope.

An approved Construction Environment Management Plan (CEMP) must be prepared for the proposal and be provided with the approved application prior to issue of the Construction Certificate to address these potential issues.

4.3.5.3 Potential temporary noise, dust, excessive lighting and vibration disturbance during construction

The potential effects of temporary but excessive noise, dust, bright lighting and vibration disturbance during construction activities upon potential fauna are difficult to predict.

Potential impacts may include negative effects on predator-prey interactions and changes to roosting and breeding behaviours in the short term.

An approved Construction Environment Management Plan (CEMP) must be prepared for the proposal and be provided with the approved application prior to issue of the Construction Certificate to address these potential issues.

4.3.6 Indirect impacts

Indirect impacts occur when the proposal or activities relating to the construction or operation of the proposal may affect adjacent or proximal areas of native vegetation, threatened ecological communities or threatened species habitat beyond the subject site.

Potential indirect impacts to flora and fauna would include hydrological changes to the surface water-runoff flow. Additional hard surface areas created as a result of the proposed construction would be expected to potentially result in some changes to the current hydrological regime, however, it is proposed that all water run-off would be directed to the current urban stormwater management system.

4.3.7 Prescribed and uncertain impacts

Prescribed impacts on biodiversity values includes any potential impacts that are not a result of direct vegetation clearing or construction development that have been prescribed by the Biodiversity Conservation Regulation (2017), these listed in Table 6 as follows:

Attributes or features of the habitat	Potential impacts	Actions to alleviate or ameliorate potential impacts
Species using caves, cliffs, karsts or crevices. Includes potential roosting sites for cave-dwelling microchiropterans	None, as these natural features do not occur at or in the vicinity of the subject site	Not applicable
Habitat of threatened species associated with rocks	Not applicable	Not applicable
Habitat of threatened species associated with man-made structures such as drainage pipes	None, as these man-made features do not occur at or in the vicinity of the subject site	Not applicable
Habitat of threatened species associated with non-native vegetation	Not applicable	Not applicable

Attributes or features of the habitat	Potential impacts	Actions to alleviate or ameliorate potential impacts
Connectivity of habitats within and between allotments facilitating movement of species across their range	Some small degree of connectivity reduced as one canopy tree will be removed	Connectivity maintained as only 1 tree would be removed, this occurring at the eastern side of the current residence (Ents Tree Consultancy 2021)
Movement of threatened species required to maintain life cycles	Some small extent of connectivity reduced as one canopy trees will be removed but considered insufficient to cause decline in maintenance of life cycles, particularly with regard to avian and arboreal fauna	Some small extent of connectivity reduced as 1 tree would be removed, however this individual occurs at the eastern edge of the current residence (Ents Tree Consultancy 2021). As such, the proposal is unlikely to cause any decline in maintenance of life cycles, particularly with regard to avian fauna
Hydrological regimes required to sustain threatened species	Not applicable	Not applicable

Table 6 - List of potential prescribed impacts which may occur as a result of proposed development

4.3.8 Avoidance/minimisation of impacts

Avoidance of impacts has been achieved by preserving the canopy vegetation that occurs at the most eastern and southern sections of the allotment (Ents Tree Consultancy 2021). A total of 9 native trees, including 7 mature individuals of Spotted Gum and 2 individuals of White Bottlebrush (*Callistemon salignus*) will be retained (Ents Tree Consultancy 2021) in association with stands of trees occurring in adjacent reserved allotments to the north and east (Figures 3, 4, 7, 8 & 9).

A Vegetation Management Plan for the proposal should be prepared detailing management actions to protect any retained trees occurring within or adjacent to the construction footprint, as well as a weeding program to remove all invasive HTW weeds from the property following construction.

5 IMPACT SUMMARY

5.1 Serious and irreversible impacts (SAII)

OEH (2017) 'Guidance to Assist a Decision-maker to Determine a Serious and Irreversible Impact' lists the ecological communities and species that are 'potential serious and irreversible impact (SAII) entities'.

Pittwater and Wagstaffe Spotted Gum Forest (PCT 1214) in the Sydney Basin Bioregion is listed as an endangered ecological community listed on registers of the BC Act (2016).

It is estimated that about 275ha of this community occurs extant within the Sydney Basin Bioregion, including 67ha that occurs in the reserved area within the SMCMA (OEH 2016). Estimates for the occurrence of the extant area of the community in Sydney Basin Bioregion are not available, though it is expected to be significantly greater (OEH 2016). It is estimated that about 76% of its natural distribution has been removed (OEH 2016).

The community at the subject site is a managed curtilage and otherwise highly degraded with a low VI Score of just 21.1 (Table 4) a qualification critical to its conservation status and to its assessment as to whether the removal of a small area would constitute a SAII. This small area of the ecological community represents a decrease of 0.004% of the 275ha of the community that is retained throughout the SMCMA (OEH 2016), and it is considered that the biodiversity offset would compensate for this small decrease in extent of a highly degraded patch of the Pittwater and Wagstaffe Spotted Gum Forest community in the locality and in the wider regional area.

5.2 Impacts that require an Offset

Table 7 summarises the impact to areas of PCT 1214 that require an offset.

Vegetation Zone (Description)	PCT	Extent of area impacted	Current Vegetation Integrity Score (VIS)	Future Vegetation Integrity Score	Number of Ecosystem credits required
Small patch of highly degraded Pittwater and Wagstaffe Spotted Gum Forest) **(Figures 5 & 6)**	**1214**	**0.0112ha**	**21.1**	**0**	**1**

6 BIODIVERSITY CREDIT REPORT (LIKE FOR LIKE)

For the proposed development at 1851 Pittwater Road, Bayview, one (1) credit is assessed as having been generated with the loss of 0.0112ha of a patch of Pittwater and Wagstaffe Spotted Gum Forest ecological community occurring within a managed curtilage and otherwise in poor degraded condition though supporting mature canopy trees in good condition (Figures 5 & 6).

The vegetation is assessed as having a very low floristic, structural and functional integrity in the canopy tree, shrub and ground strata. There is very low composition of natural species in the assemblage, a low spread of tree DBH sizes with no regeneration occurring and little functional aspects to the vegetation to provide foraging, sheltering or breeding habitat opportunity for any fauna.

At least 7 individuals of the Pittwater and Wagstaffe Spotted Gum Forest will be retained within the remaining 0.1053ha of the subject property, a loss of 10.6% of potential habitat that occurs at the subject site (Figures 3, 4, 5, 6, 7, 8, & 9).

The Biodiversity Credit Report for the proposal is as follows:

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id 00032589/BAAS18125/22/00032592	Proposal Name DUAL OCCUPANCY DEVELOPMENT AT 1851 PITTWATER ROAD BAYVIEW	BAM data last updated * 24/11/2021
Assessor Name PETER STRICKER	Assessor Number BAAS18125	BAM Data version * 50
Proponent Names MARJORIE GAMBLE	Report Created 21/04/2022	BAM Case Status Finalised
Assessment Revision 1	Assessment Type Part 4 Developments (Small Area)	Date Finalised 21/04/2022
BOS entry trigger BOS Threshold: Biodiversity Values Map	* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.	

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
Pittwater and Wagstaffe Spotted Gum Forest in the Sydney Basin Bioregion	Endangered Ecological Community	1214-Pittwater Spotted Gum forest

Species
Nil

BAM Biodiversity Credit Report (Like for like)

Additional Information for Approval

PCT Outside Ibra Added

None added

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
Calyptorhynchus lathami / Glossy Black-Cockatoo
Pandion cristatus / Eastern Osprey

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
1214-Pittwater Spotted Gum forest	Pittwater and Wagstaffe Spotted Gum Forest in the Sydney Basin Bioregion	0.0	0	1	1

BAM Biodiversity Credit Report (Like for like)

1214-Pittwater Spotted Gum forest

Like-for-like credit retirement options

Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
Pittwater and Wagstaffe Spotted Gum Forest in the Sydney Basin Bioregion This includes PCT's: 1214, 1589	-	1214_POOR	No	1	Pittwater, Cumberland, Sydney Cataract, Wyong and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Species Credit Summary

No Species Credit Data

Credit Retirement Options

Like-for-like credit retirement options

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Appendix 1 - Field Data for Plot 1 at 1851 Pittwater Road, Bayview

BAYVIEW Q1			Covers	Native	Trees	Shrubs	Forb	Grass	Fern	Other	Exotic	High Threat	Zone	Easting (1)	Northing (1)
			# spp	Count	Count	Count	Count	Count	Count	Count	Count	Count	56	-33.663957	151.301448
					2	1	5	1	1	2	16	6	UTM	Orientation	180°S
	Cover	Abundance	Sum Cover	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum		BAM Attributes 20X50m plot	
Species					31	0.5	6.5	30	0.5	1.1		29.5		Stem classes	
Callistemon salignus	0.5	1												80+	0
Calochlaena dubia	0.5	10												50-79	2
Centella asiatica	1	50												30-49	7
Commelina cyanea	1	30												20-29	2
Corymbia maculata	30	1												10-19	0
Cyathea australis	1	1												5-9	0
Geranium solanderi	1	30													
Glochidion ferdinandi	1	1												<5	0
Oplismenus aemulus	30	>1000												Hollows	0
Pratia purpurascens	0.5	20												Length of logs (m)	0
Stephania japonica	0.1	5												Litter cover	2.2
Viola hederacea	3	200												Rock	10

Appendix 2: Floristic species assemblage recorded in Plot 1 (quadrat 13.3 x 30m) at1851 Pittwater Road, Bayview

KEY

Status
* - exotic
HTW - High Threat Weed
pl - planted

Vegetation
Poor form of Pittwater and Wagstaffe Spotted Gum Forest

Relative cover value (% cover in 13.3 x 30m quadrat)

STATUS	SCIENTIFIC NAME	COMMON NAME	PLOT WITHIN SUBJECT SITE
	FILICOPSIDA		
	Aspleniaceae		
pl?	*Asplenium australasicum*	Birds Nest Fern	2
	Cyatheaceae		
	Cyathea australis	Rough Tree Fern	1
	Davalliaceae		
*	*Nephrolepis cordifolia*	Fishbone Fern	0.5
	Dicksoniaceae		
	Calochlaena dubia	Soft Bracken	0.5
	MAGNOLIOPSIDA: MAGNOLIDAE		
	Altingiaceae		
*pl	*Liquidambar styraciflua*	Sweet Gum	8
	Apiaceae		
	Centella asiatica	Pennywort	1
	Asteraceae		
*	*Bidens pilosa*	Cobblers Pegs	0.1
*	*Conyza bonariensis*	Flaxleaf Fleabane	7
*	*Roldana petasitis*	Roldana	3
*	*Sonchus oleraceus*	Common Sowthistle	2

STATUS	SCIENTIFIC NAME	COMMON NAME	PLOT WITHIN SUBJECT SITE
	Bignoniaceae		
* pl	*Jacaranda mimosifolia*	Jacaranda	3
	Caesalpinaceae		
*	*Senna pendula* var. *glabrata*	Common Cassia	1
	Geraniaceae		
	Geranium solanderi		1
	Lauraceae		
*	*Cinnamomum camphora*	Camphor Laurel	1
* pl	*Persea americana*	Avocado	5
	Pratia purpurascens	Whiteroot	0.5
	Menispermaceae		
	Stephania japonica var. *discolor*	Snake Vine	0.1
	Myrtaceae		
	Callistemon salignus	Sweet-willow Bottlebrush	0.5
	Corymbia maculata	Spotted Gum	30
	Ochnaceae		
HTW	*Ochna serrulata*	Mickey Mouse Plant	0.5
	Oxalidaceae		
*	*Oxalis latifolia*		0.5
	Phyllanthaceae		
	Glochidion ferdinandi	Cheese Tree	1
	Polygonaceae		
*	*Acetosa sagittata*	Turkey Rhubarb	1
	Proteaceae		
nat	*Grevillea robusta*	Silky Oak	0.5
	Rutaceae		
* pl	*Murraya paniculata*	Orange Jessamine	2

STATUS	SCIENTIFIC NAME	COMMON NAME	PLOT WITHIN SUBJECT SITE
	Sapindaceae		
HTW	*Cardiospermum grandiflorum*	Balloon Vine	25
	Solanaceae		
*	*Solanum nigrum*	Black Nightshade	1
	Verbenaceae		
HTW	*Lantana camara*	Lantana	3
	Violaceae		
	Viola hederacea f. F	Ivy-leaved Violet	3
	MAGNOLOPSIDA: LILIDAE		
	Agavaceae		
pl	*Cordyline stricta*	Narrow-leaf Palm Lily	1
	Anthericaceae		
*pl, nat	*Chlorophytum comosum*	Ribbon Plant	2
	Araceae		
* pl	*Monstera deliciosa*	Fruit Salad Plant	3
	Arecaceae		
*pl	*Howea forsteriana*	Kentia Palm	1
	Asparagaceae		
HTW	*Asparagus aethiopicus*	Asparagus Fern	1
	Commelinaceae		
	Commelina cyanea	Scurvy Weed	1
	Iridaceae		
*	*Agapanthus praecox*	Agapanthus	0.1
	Musaceae		
* pl	*Musa paradisiaca*	Banana	3
	Poaceae		
*	*Digitaria ciliaris*	Summer Grass	0.5
*	*Ehrharta erecta*	African Veldt Grass	10
	Oplismenus aemulus	Basket Grass	30

STATUS	SCIENTIFIC NAME	COMMON NAME	PLOT WITHIN SUBJECT SITE
	Poaceae		
*	*Stenotaphrum secundatum*	Buffalo Grass	20
	Strelitzaceae		
*pl	*Strelitzia nicolai*	Wild Banana	2

Appendix 3 - BAAS Profile for P Stricker

Planning, Industry & Environment

CERTIFICATE OF ACCREDITATION AS A BIODIVERSITY ASSESSMENT METHOD ASSESSOR under the *Biodiversity Conservation Act 2016* (NSW)

BAM Assessor		
Peter Stricker		
Accreditation number	**Accreditation date (Date of issue)**	**Expiry Date of**
BAAS18125	17 July 2021	17 July 2024

The person named above is accredited under section 6.10 of the *Biodiversity Conservation Act 2016* (NSW) (**BC Act**) as a Biodiversity Assessment Method Assessor to apply the Biodiversity Assessment Method in connection with the preparation of biodiversity stewardship site assessment reports, biodiversity development assessment reports and biodiversity certification assessment reports pursuant to Part 6 of the BC Act.

The accreditation is in force until and including the Expiry Date. The accreditation is subject to the conditions set out in the *Accreditation Scheme for the Application of the Biodiversity Assessment Method*, under the BC Act, and the conditions specified on the reverse of this certificate.

LUCIAN MCELWAIN

Manager Ecosytem Programs
Department of Planning, Industry & Environment

NOTES

- DPIE maintains a register of Accredited Biodiversity Assessment Method (BAM) Assessors accessible from the DPIE website.
- The BAM Assessor's accreditation expires on the Expiry Date unless renewed in accordance with the *Accreditation Scheme for the Application of the Biodiversity Assessment Method*. It is the BAM Assessor's responsibility to monitor the Expiry Date of their accreditation, and apply for any renewal with sufficient time for the application to be processed prior to the Expiry Date.
- Words and expressions used in this accreditation instrument and which are also used in the Act have the same meaning.

Appendix 4 - BAM Summary Reports

NSW GOVERNMENT

BAM Credit Summary Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00032589/BAAS18125/22/00032592	DUAL OCCUPANCY DEVELOPMENT AT 1851 PITTWATER ROAD BAYVIEW	24/11/2021
Assessor Name	Report Created	BAM Data version *
PETER STRICKER	21/04/2022	50
Assessor Number	BAM Case Status	Date Finalised
BAAS18125	Finalised	21/04/2022
Assessment Revision	Assessment Type	BOS entry trigger
1	Part 4 Developments (Small Area)	BOS Threshold: Biodiversity Values Map

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	TEC name	Current Vegetation integrity score	Change in Vegetation integrity (loss / gain)	Area (ha)	Sensitivity to loss (Justification)	Species sensitivity to gain class	BC Act Listing status	EPBC Act listing status	Biodiversity risk weighting	Potential SAII	Ecosystem credits

Pittwater Spotted Gum forest											
1	1214_POOR	Pittwater and Wagstaffe Spotted Gum Forest in the Sydney Basin Bioregion	21.1	21.1	0.01	PCT Cleared - 71%	High Sensitivity to Potential Gain	Endangered Ecological Community	Not Listed	2.00	TRUE	1
											Subtotal	**1**
											Total	**1**

Species credits for threatened species

Vegetation zone name	Habitat condition (Vegetation Integrity)	Change in habitat condition	Area (ha)/Count (no. individuals)	Sensitivity to loss (Justification)	Sensitivity to gain (Justification)	BC Act Listing status	EPBC Act listing status	Potential SAII	Species credits

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id
00032589/BAAS18125/22/00032592

Proposal Name
DUAL OCCUPANCY DEVELOPMENT AT 1851 PITTWATER ROAD BAYVIEW

BAM data last updated *
24/11/2021

Assessor Name
PETER STRICKER

Assessor Number
BAAS18125

BAM Data version *
50

Proponent Name(s)
MARJORIE GAMBLE

Report Created
21/04/2022

BAM Case Status
Finalised

Assessment Revision
1

Assessment Type
Part 4 Developments (Small Area)

Date Finalised
21/04/2022

BOS entry trigger
BOS Threshold: Biodiversity Values Map

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
Pittwater and Wagstaffe Spotted Gum Forest in the Sydney Basin Bioregion	Endangered Ecological Community	1214-Pittwater Spotted Gum forest

Species
Nil

Additional Information for Approval

PCT Outside Ibra Added

None added

BAM Biodiversity Credit Report (Variations)

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
Calyptorhynchus lathami / Glossy Black-Cockatoo
Pandion cristatus / Eastern Osprey

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
1214-Pittwater Spotted Gum forest	Pittwater and Wagstaffe Spotted Gum Forest in the Sydney Basin Bioregion	0.0	0	1	1.00

1214-Pittwater Spotted Gum forest

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
Pittwater and Wagstaffe Spotted Gum Forest in the Sydney Basin Bioregion This includes PCT's: 1214, 1589	-	1214_POOR	No	1	Pittwater,Cumberland, Sydney Cataract, Wyong and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Variation options

Formation	Trading group	Zone	HBT	Credits	IBRA region

	Wet Sclerophyll Forests (Grassy sub-formation)	Tier 3 or higher threat status	1214_POOR	No	1	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Species Credit Summary

No Species Credit Data

Credit Retirement Options

Like-for-like options

BAM Candidate Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00032589/BAAS18125/22/00032592	DUAL OCCUPANCY DEVELOPMENT AT 1851 PITTWATER ROAD BAYVIEW	24/11/2021
Assessor Name	**Report Created**	**BAM Data version ***
PETER STRICKER	21/04/2022	50
Assessor Number	**Assessment Type**	**BAM Case Status**
BAAS18125	Part 4 Developments (Small Area)	Finalised
Assessment Revision	**Date Finalised**	**BOS entry trigger**
1	21/04/2022	BOS Threshold: Biodiversity Values Map

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

List of Species Requiring Survey

Name	Presence	Survey Months

Threatened species Manually Added

None added

Threatened species assessed as not on site

Refer to BAR for detailed justification

Common name	Scientific name	Justification in the BAM-C
Bauer's Midge Orchid	Genoplesium baueri	Habitat degraded
Diuris bracteata	Diuris bracteata	Habitat degraded
Hygrocybe aurantipes	Hygrocybe aurantipes	Habitat degraded
Large Bent-winged Bat	Miniopterus orianae oceanensis	Habitat degraded
Large-eared Pied Bat	Chalinolobus dwyeri	Habitat degraded Habitat constraints
Little Bent-winged Bat	Miniopterus australis	Habitat degraded
Regent Honeyeater	Anthochaera phrygia	Habitat degraded

Scrub Turpentine	Rhodamnia rubescens	Habitat degraded
Swift Parrot	Lathamus discolor	Habitat degraded

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00032589/BAAS18125/22/00032592	DUAL OCCUPANCY DEVELOPMENT AT 1851 PITTWATER ROAD BAYVIEW	24/11/2021
Assessor Name	**Report Created**	**BAM Data version ***
PETER STRICKER	21/04/2022	50
Assessor Number	**Assessment Type**	**BAM Case Status**
BAAS18125	Part 4 Developments (Small Area)	Finalised
Assessment Revision	**BOS entry trigger**	**Date Finalised**
1	BOS Threshold: Biodiversity Values Map	21/04/2022

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name	Vegetation Types(s)
Barking Owl	Ninox connivens	1214-Pittwater Spotted Gum forest
Dusky Woodswallow	Artamus cyanopterus cyanopterus	1214-Pittwater Spotted Gum forest
Eastern Coastal Free-tailed Bat	Micronomus norfolkensis	1214-Pittwater Spotted Gum forest
Gang-gang Cockatoo	Callocephalon fimbriatum	1214-Pittwater Spotted Gum forest
Grey-headed Flying-fox	Pteropus poliocephalus	1214-Pittwater Spotted Gum forest
Koala	Phascolarctos cinereus	1214-Pittwater Spotted Gum forest
Large Bent-winged Bat	Miniopterus orianae oceanensis	1214-Pittwater Spotted Gum forest
Little Bent-winged Bat	Miniopterus australis	1214-Pittwater Spotted Gum forest
Little Eagle	Hieraaetus morphnoides	1214-Pittwater Spotted Gum forest
Little Lorikeet	Glossopsitta pusilla	1214-Pittwater Spotted Gum forest

Masked Owl	Tyto novaehollandiae	1214-Pittwater Spotted Gum forest
New Holland Mouse	Pseudomys novaehollandiae	1214-Pittwater Spotted Gum forest
Powerful Owl	Ninox strenua	1214-Pittwater Spotted Gum forest
Regent Honeyeater	Anthochaera phrygia	1214-Pittwater Spotted Gum forest
Rosenberg's Goanna	Varanus rosenbergi	1214-Pittwater Spotted Gum forest
Scarlet Robin	Petroica boodang	1214-Pittwater Spotted Gum forest
Spotted-tailed Quoll	Dasyurus maculatus	1214-Pittwater Spotted Gum forest
Swift Parrot	Lathamus discolor	1214-Pittwater Spotted Gum forest
Varied Sittella	Daphoenositta chrysoptera	1214-Pittwater Spotted Gum forest
White-throated Needletail	Hirundapus caudacutus	1214-Pittwater Spotted Gum forest
Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris	1214-Pittwater Spotted Gum forest

Threatened species Manually Added

None added

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Common Name	Scientific Name	Plant Community Type(s)
Eastern Osprey	Pandion cristatus	1214-Pittwater Spotted Gum forest
Glossy Black-Cockatoo	Calyptorhynchus lathami	1214-Pittwater Spotted Gum forest

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C
Eastern Osprey	Pandion cristatus	Refer to BAR
Glossy Black-Cockatoo	Calyptorhynchus lathami	Refer to BAR

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BAM Vegetation Zones Report

Proposal Details

Assessment Id	Assessment name	BAM data last updated *
00032589/BAAS18125/22/00032592	DUAL OCCUPANCY DEVELOPMENT AT 1851 PITTWATER ROAD BAYVIEW	24/11/2021
Assessor Name	**Report Created**	**BAM Data version ***
PETER STRICKER	21/04/2022	50
Assessor Number	**Assessment Type**	**BAM Case Status**
BAAS18125	Part 4 Developments (Small Area)	Finalised
Assessment Revision	**Date Finalised**	**BOS entry trigger**
1	21/04/2022	BOS Threshold: Biodiversity Values Map

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Vegetation Zones

#	Name	PCT	Condition	Area	Minimum number of plots	Management zones

1	1214_POOR	1214-Pittwater Spotted Gum forest	POOR	0.01	1	

Biodiversity payment summary report

Assessment Id	Payment data version	Assessment Revision	Report created
00032589/BAAS18125/22/00032592		1	21/04/2022

Assessor Name	Assessor Number	Proposal Name	BAM Case Status
PETER STRICKER	BAAS18125	DUAL OCCUPANCY DEVELOPMENT AT 1851 PITTWATER ROAD BAYVIEW	Finalised

Assessment Type	Date Finalised	BOS entry trigger
Part 4 Developments (Small Area)	21/04/2022	BOS Threshold: Biodiversity Values Map

PCT list

Price calculated	PCT common name	Credits
Yes	**1214** - Pittwater Spotted Gum forest	1

Species list

Price calculated	Species	Credits

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

NSW GOVERNMENT

Biodiversity payment summary report

IBRA sub region	PCT common name	Threat status	Offset trading group	Risk premium	Administrative cost	Methodology adjustment factor	Price per credit	No. of ecosystem credits	Final credits price
Pittwater	**1214** - Pittwater Spotted Gum forest	Yes	Pittwater and Wagstaffe Spotted Gum Forest in the Sydney Basin Bioregion	18.83%	$120.18	1.5516	$3,690.56	1	$3,690.56

Subtotal (excl. GST)	**$3,690.56**
GST	**$369.06**
Total ecosystem credits (incl. GST)	**$4,059.62**

Species credits for threatened species

Species profile ID	Species	Threat status	Price per credit	Risk premium	Administrative cost	No. of species credits	Final credits price

No species available

Biodiversity payment summary report

Grand total	**$4,059.62**

Assessment Id	Proposal Name	Page 3 of 3
00032589/BAAS18125/22/00032592	DUAL OCCUPANCY DEVELOPMENT AT 1851 PITTWATER ROAD	