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Proposed Trial of Palm Beach (North) and Mona Vale Beach (South) Dog Off-leash Areas

Review of Environmental Factors

Prepared for Northern Beaches Council | 20 June 2023

Document control

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Niche Environment and Heritage Pty Ltd (ACN 137 111 721)
Enquiries should be addressed to Niche Environment and Heritage
PO Box 2443, Parramatta NSW 1750, Australia
Email: info@niche-eh.com

Executive summary

Niche Environment and Heritage (Niche) were commissioned by the Northern Beaches Council (Council) to prepare a Review of Environmental Factors (REF) to assess the potential environmental impacts for off-leash dog area trials at Mona Vale Beach (South) and Palm Beach (North) (referred to hereafter as the Activity). The area of the beach associated with the Activity is referred to as the Activity Area.

The purpose of this REF is to describe the proposed Activity, document and assess the likely impacts of the Activity on the environment, and detail any mitigation and management measures that will be implemented.

This REF helps to fulfil the requirements of Division 5.1 of the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act) by considering and recording for the Council a review of all matters affecting or likely to affect the environment by reason of the Activity, so that the Council may examine and take into account to the fullest extent possible those matters. As part of examining and taking into account those matters, the Council will need to determine whether the Activity is likely to significantly affect the environment.

Activity Description

Council proposes to establish two dog off-leash trial areas in the Northern Beaches Local Government Area (LGA) for a period of 12 months. During the trial period dogs will be allowed off-leash within the signposted Activity Area (defined in Section 2.3 below). Use of the off-leash areas will be subject to the following restricted times of use:

- 5.30am to 10.00am and 5.00pm to 9.00pm, Monday to Sunday (seven days a week). **Australian Eastern Daylight Time** (i.e. between the first Sunday in April to the first Sunday in October)
- 6.00am to 10.00am and 4.00pm to 7.00pm, Monday to Sunday (seven days a week). **Australian Eastern Standard Time** (i.e. the remainder of the year)

Statutory Considerations

Environmental Planning and Assessment Act 1979 (NSW)

The *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act) regulates, amongst other things, development of land.

The Activity involves development comprising the use of the Activity Areas by members of the public for recreational purposes. This Activity is properly characterised as a use for recreational purposes. *Pittwater Local Environmental Plan 2014* (PLEP) applies to the Council area, and the Activity Areas are zoned as 'RE1 Public Recreation' which permits 'Recreation areas' development with consent.

Council has commissioned an extensive investigation of the historic recreational uses of both Palm Beach and Mona Vale Beach set out in Annex 1 (Cama Report). The Cama Report demonstrates that both Palm Beach (North) and Mona Vale Beach (South) have been used as public recreation areas since at least the early 1900s.

Section 4.68(1) of the EP&A Act provides that:

> Nothing in an environmental planning instrument operates so as to require consent to be obtained under this Act for the continuance of a use of a building, work or land for a lawful purpose for which it was being used

immediately before the coming into force of the instrument or so as to prevent the continuance of that use except with consent under this Act being obtained.

Section 4.68(2)(c) provides that section 4.68(1) does not authorise "any enlargement or expansion or intensification of the use therein mentioned."

The Activity, if approved, will authorise dogs to be off leash, which would authorise the continued use of the Off Leash Areas for recreational purposes. The Activity does not involve any enlargement, expansion, or intensification of the recreation use.

This REF demonstrates that the Activity is a continuing use under s 4.68, with the result that it may continue without the need for the need for development consent under Part 4 of the EP&A Act.

While consent is not required for the Activity, the Pittwater Council *Dog Control Policy (No 30)* (Dog Policy) prohibits dogs on all beaches within the LGA. In order to authorise the Activity, Council must vary or revoke the Dog Policy and make orders under the *Companion Animals Act 1998* (CA Act) to authorise dog access to the Activity Areas.

It follows that Division 5.1 of the EP&A Act applies to Council's role as determining authority in granting these approvals, and the Activity is therefore subject to assessment under Division 5.1 of the EP&A Act.

Additionally, in consultation with relevant State Government departments, it has come to Council's attention that it is necessary to prepare Plans of Management (PoM) in relation to Crown land at Mona Vale Beach (South) and Palm Beach (North) in order for the Activity to commence. The PoM pertaining to community land at Mona Vale Beach (South) will also need to be amended.

One of the purposes of this REF is to assess and record for the Council's consideration, all matters affecting or likely to affect the environment by reason of the Activity, so that the Council may examine and take into account to the fullest extent reasonably possible those matters.

This REF assesses the Activity by reference to the factors contained in clause 171 of the *Environmental Planning and Assessment Regulations 2021* (EP&A Regulations) and the guidelines for Division 5.1 assessment.

The regulatory framework under the EP&A Act is considered in more detail at Section 4.1.1 below.

Companion Animals Act 1998 (NSW)

The Activity requires the Council to amend the Dog Policy and to make orders under the CA Act. These orders would enable the proposed Activity Areas to be used by the public as off-leash dog areas, subject to conditions the Council sees fit. The orders will include orders pursuant to section 13(6) of the CA Act that the proposed locations are off-leash dog areas subject to conditions Council sees fit.

These orders are considered in more detail at Section 4.1.2 below.

Plans of Management

The use of dogs on Mona Vale Beach is currently prohibited under the Ocean Beaches Plan of Management 2005. This PoM applies to community land under the *Local Government Act 1993*. It also purports to cover Crown land under the *Crown Land Management Act 2016* although, as indicated below, it is not a valid plan of management for the purpose of the *Crown Land Management Act 2016*. The Council will need to amend this PoM insofar as it applies to community land to remove this prohibition to enable the Activity to

proceed. A PoM is also required under the *Crown Land Management Act 2016* in respect of the Crown land at Mona Vale Beach (South).

In relation to Palm Beach (North), Council has adopted the Governor Phillip Park Plan of Management however as indicated below, it is not a valid PoM for the purpose of the *Crown Land Management Act 2016*. A PoM is required under the *Crown Land Management Act 2016* in respect of Palm Beach (North). Categories of use are required for the Crown land at Mona Vale Beach (South) and Palm Beach (North) (see Addendum).

The process to make and amend PoMs (as applicable) is set out in the *Local Government Act 1993* and the *Crown Land Management Act 2016*, depending on the nature of the land involved. A PoM in relation to the Crown land will require approval from the Minister for Lands and Water (see Addendum).

The PoM process is discussed in detail at Sections 4.1.3 below.

Environmental Impacts

The main potential environmental impacts associated with the Activity include:

- Biodiversity
- Traffic (Access and Parking)
- Waste Management
- Noise
- Aboriginal Archaeology
- Historic Heritage
- Human Health and Water Quality
- Socio economic / Landuse.

Potential impacts to these aspects have been assessed as minor or negligible. The potential for impacts to soil and groundwater contamination, greenhouse gas emissions and air quality have also been considered and concluded that adverse impacts are unlikely.

The Activity will realise a number of positive socio economic, lifestyle and liveability impacts, that are centred around the use of outdoor space, exercise and establishing and maintaining social networks.

To minimise potential environmental and social impacts from the Activity, Council has considered the size and location of the Activity Areas. Any residual impacts identified through the assessment process are proposed to be further minimised through the incorporation of mitigation and management safeguards. These mitigation and management safeguards have been consolidated in Table 27 (See Section 8.2).

Conclusion and declaration

The environmental impacts of the Activity have been identified and assessed with the key aspects subject to detailed assessment by subject matter experts. The potential impacts of the Activity on the existing environment together with the mitigation and management safeguards are detailed in Section 6. The potential impacts of the proposed Activity are considered to be relatively minor and would be unlikely to have a significant impact on the environment.

Kai Whitaker
Experienced Consultant - Environmental Approvals
Niche Environment and Heritage
2 Rixon Avenue, Bulli NSW 2500

Date: 30 May 2023
E: kwhitaker@niche-eh.com

Glossary and list of abbreviations

Term or abbreviation	Definition
Activity Area	The off-leash dog trial areas at Mona Vale Beach (South) and Palm Beach (North)
AHIMS	Aboriginal Heritage Information Management System
BC Act	*Biodiversity Conservation Act 2016*
BC Regulation	*Biodiversity Conservation Regulation 2017*
Biodiversity and Conservation SEPP	*State Environmental Planning Policy (Biodiversity and Conservation) 2021*
BV	Biodiversity Values
CA Act	*Companion Animals Act 1998*
CCPS	County of Cumberland Planning Scheme Ordinance
CEP	*Northern Beaches Council Community Engagement Policy (2017)*
CL Act	*Crown Lands Act 1989*
CLM Act	*Crown Land Management Act 2016*
CM Act	*Coastal Management Act 2016*
CMP	Barrenjoey *Headland Conservation Management Plan 2013*
Council	Northern Beaches Council
DAWE	Australian Department of Agriculture, Water and the Environment
DCP	*Pittwater 21 Development Control Plan 2013*
DD	Aboriginal Objects Due Diligence Assessment
Dog Policy	*Pittwater Council Dog Control Policy (No 30)*
DPI	Department of Primary Industries
DPE	Department of Planning and Environment 21/12/2021-1/1/2024 (formerly DPIE) - See Addendum
DPIE	Department of Planning, Industry and Environment 1/07/2019-21/12/2021 (currently DPE)
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2021*
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999*
FM Act	*Fisheries Management Act 1994*
T & I SEPP	*State Environmental Planning Policy (Transport and Infrastructure) 2021*
LEP	*Pittwater Local Environmental Plan 2014*
LG Act	*Local Government Act 1993*
LGA	Local Government Area
LGA 1919	*Local Government Act 1919 (NSW)*
Matrix	*Community Engagement Matrix (2017a)*
MNES	Matter of National Environmental Significance
Niche	Niche Environment and Heritage
NPW Act	*National Parks & Wildlife Act 1974*

NPWS	National Parks & Wildlife Services
NSW	New South Wales
PCT	Plant Community Type
PLEP	*Pittwater Local Environmental Plan 2014*
POEO Act	*Protection of the Environment Operations Act 1997*
PoM	Plan of Management
REF	Review of Environmental Factors
SCRs	Special Consultation Requirements
SEPP	State Environmental Planning Policy
T & I SEPP	*State Environmental Planning Policy (Transport and Infrastructure) 2021*
TEC	Threatened Ecological Community
ToS	Test of Significance
WLEP	*Warringah Local Environmental Plan 1985*
WM Act	*Water Management Act 2000*
WPSO	*Warringah Planning Scheme Ordinance*

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1. Introduction

The Northern Beaches Council (Council) is proposing to conduct a 12-month trial of off-leash dog areas at Palm Beach (North) and Mona Vale Beach (South) (referred to here after as the Activity). The area of beach (i.e. Activity Area) associated with the Activity is shown on Figure 1.

Niche Environment and Heritage (Niche) were commissioned by the Council to prepare this Review of Environmental Factors (REF) for the purposes of describing the Activity, documenting the likely impacts of the Activity on the environment, and detailing any mitigation and management measures to be implemented.

The Activity will enable a continuing use of Palm Beach (North) and Mona Vale Beach (South) as recreation areas, which is the purpose for which they have been lawfully used since at least the early 1900s, as detailed in the Cama Report (See Annex 1). As the Activity is a continuing recreational use, it is considered to be development permissible without consent pursuant to section 4.68 of the *Environmental Planning and Assessment Act 1979 (NSW)* (EP&A Act).

To implement the Activity, Council will need to revoke or vary the Pittwater Council *Dog Control Policy (No 30)* (Dog Policy), make orders under the *Companion Animals Act (1998)* (CA Act) and make and amend (as appropriate) Plans of Management (PoM) for Palm Beach (North) and Mona Vale Beach (South). In *Palm Beach Protection Group Incorporated v Northern Beaches Council* [2020] NSWLEC 156, the Land and Environment Court held that decisions to conduct a dog off-leash area trial and to allow dogs on-leash at a location where they were previously prohibited by making orders under section 13(6) of the CA Act (establishing an off-leash area) and revoking/varying orders under section 14 of the CA Act (which prohibited dogs from an area) are considered to be 'approvals' of an 'activity' by a 'determining authority' for the purposes of Division 5.1 of the EP&A Act. Assessment under Division 5.1 of the EP&A Act is therefore required before Council may proceed with the Activity.

This REF helps to fulfil the requirements of Division 5.1 of the EP&A Act by considering and recording for the Council, a review of all matters affecting or likely to affect the environment by reason of the Activity, so that the Council may examine and take into account to the fullest extent reasonably possible those matters. As part of examining and taking into account those matters, the Council will need to determine whether the Activity is likely to significantly affect the environment.

1.1 Background

The Northern Beaches Council LGA is located on Sydney's northern beaches, between 10 and 30 kilometres (km) north-east of the Sydney CBD. The Northern Beaches Council Local Government Area (LGA) generally stretches from Manly in the south, to Palm Beach in the North, Frenchs Forest in the west and the ocean is the eastern boundary.

The Northern Beaches Council LGA is mainly residential and national park, with some commercial and industrial areas, and some rural areas. The Council area encompasses a total land area of about 250 square kilometres, including substantial areas of water frontage, coastal foreshores, beaches, islands, national parks, bushland and reserves.

The LGA's residents enjoy an active outdoor lifestyle which involves activities at the beach, participating in social / weekend sport, bushwalking and bike trails. It is an active lifestyle with residents taking advantage of their proximity to clean waterways, wildlife and vibrant events which benefit from the existing public

infrastructure and services (e.g. transport, outdoor exercise areas, playgrounds, dog parks, gardens, parks and reserves, amenities, etc).

Analysis of the Australian Bureau of Statistics dwelling Census of Population and Housing 2016 data and Office of Local Government registered dog information indicates that up to 53% of the dwellings in the LGA have a dog (assuming one dog per dwelling). This level of dog ownership is higher than the national average at 37.5% of households (Australian Bureau of Statistics, 1995).

Within the LGA there are 29 dog off-leash areas, with each providing a different user experience. For example, there are five dog off-leash areas that provide access to water via foreshore reserves, eight are located on sporting fields that provide space for dogs to run. In addition to the general area / space provided, each off-leash dog area has supporting infrastructure (e.g. potable water, rubbish bins, a dispenser with waste bags and car parking) which are available to all recreational users. 6 of the 29 dog off-leash areas have time of use restrictions. All off-leash areas are highly valued by the community as places for people to meet, exercise and socialise outdoors with their dogs as well as a place for dogs to play, exercise and socialise. Council has in recent years received regular feedback and requests about the need for off-leash areas particularly on beaches.

The nearest off-leash dog park to the Palm Beach (North) Activity Area is the Hitchcock Park dog off-leash area, which is located approximately 4 km to the south. The nearest off-leash dog park to the Mona Vale Activity Area is the Robert Dunn Reserve dog park, which is located on the Mona Vale south headland and adjacent to the western boundary of the proposed Activity Area. The nearest dog park with water access is the Rowland Reserve off-leash area, approximately 3 km to the north west of the Mona Vale (South) Activity Area and approximately 9 km to south west of the Palm Beach (North) Activity Area.

1.1.1 History of Recreational Use

Council commissioned the Cama report to explore the uses of Palm Beach and Mona Vale Beach (Cama Report), (See Annex 1). The Cama Report details a long history of various recreational uses being undertaken at Mona Vale Beach and Palm Beach, dating back to the early 1900's. These historical recreational uses included both active (e.g. surfing and swimming) and passive (e.g. sunbathing, camping [Palm Beach only], socialising, walking) pastimes. There is also evidence of pet dogs being taken to the beach. Except for camping and pet access to the beach, this range of recreational uses for Mona Vale Beach and Palm Beach and the surrounding area is ongoing today. The ongoing recreational use of the areas has continued to evolve over time in line with changing community demands, needs, trends and now includes:

- monthly markets (Palm Beach only)
- recreational and community events such as community walks, weddings and community gatherings that are booked through Council
- On leash dog walking (excluding the beach areas)
- Recreational activities – walking, sightseeing, running, cycling, paragliding (Mona Vale only), golf (i.e. Palm Beach Golf Club and Mona Vale Golf Club).

The recognition of these locations as recreational areas has also been formalised through the landuse zoning that applies to the Activity Area and the adjacent lands.

1.1.2 General Land Uses of the Recreational Areas

The Palm Beach (North) Activity Area is surrounded by open parkland (e.g. Governor Phillip Park and the Palm Beach Golf Club), the coastal beaches of the Palm Beach peninsula, native bushland and heritage conservation areas (e.g. Ku-Ring Gai Chase National Park and the heritage listed Barrenjoey Lighthouse). The dominant land use in the general area is that of recreational and leisure activities. Other land uses

within the surrounding area are associated with dining and food outlets (e.g. the Boathouse Palm Beach Café and the Dunes restaurant). The nearest residence to the Palm Beach Activity Area is located approximately 550m to the south on Beach Road (See Figure 2).

The Mona Vale Beach (South) Activity Area is located adjacent to open parkland (i.e. Mona Vale Headland / Robert Dunn Reserve, which is an approved dog off-leash area that has been in use for more than 20 years and is not subject to time of use restrictions), the larger Mona Vale Beach area and the Mona Vale Golf Club further to the West. The dominant landuse in this general area is that of recreational and leisure activities. Further to the West of Robert Dunn Reserve is the Mona Vale Hospital and residential housing, approximately 120m and 100m respectively from the western boundary of the Activity Area (Figure 3).

Council provides various ancillary infrastructure and ongoing management services that support the wide range of recreational and leisure activities that are undertaken at these areas (e.g. North Palm Beach Surf Lifesaving Club building, bins, taps, shower, seats, car parking, fencing, lighting, signage, pedestrian pathways and trails).

1.2 Overview of the Existing Environment

As part of the continued use of the general areas for recreational and leisure actives, the existing infrastructure (e.g. roads, parking, bins, pedestrian access, fencing and amenity facilities) will be utilised to support the Activity (i.e. the use of the Activity Areas for off-leash dog walking), where possible. However, updates to some existing signage as well supplementation with supporting infrastructure (e.g. bins with a dispenser for waste bags and signage) will be required. The extent of the infrastructure required for the Activity is detailed on Figures 2 and 3.

The beach and park areas are busier in the summer months. Lifesavers/lifeguards provide a patrolled swimming area during the summer months. The beaches are also used by the community for walking, other exercise and for social interaction.

1.3 Activity objectives

The objectives of the trial are to:

- Provide additional off-leash dog areas at Palm Beach (North) and Mona Vale Beach (South), where dogs can access the beach at restricted times.
- Maintain the environmental integrity of the Activity Areas.
- Provide Council with an opportunity to monitor the utilisation of the Activity Area with regard to the local environment, other users of the locality and stakeholders.
- Assess the suitability of establishing permanent off-leash dog areas at both Activity Areas.

2. Description of the Continued Recreational Use

2.1 Need for the Activity

This Activity arose from Council's meeting of 27 April 2021 at which consideration was given to a report titled *Feasibility of Establishing Dog Off-leash Areas at Palm Beach (North) and Mona Vale Beach (South)*. Council subsequently resolved (Council resolution 111/21):

That:

1) Environmental assessments be undertaken in accordance with the *Environmental Planning and Assessment Act 1979* (and other relevant legislation) into the possibility of establishing dog off-leash areas on Palm Beach (north) and Mona Vale Beach (south), as outlined in Attachments 1 and 2 of this report.
2) The assessments referred to in (1) be undertaken in consultation with the NSW State Government.
3) The assessments referred to in (1) include consideration of additional on-leash or off-leash areas that may be required to allow for dogs to be taken to and from the possible dog off-leash areas at Palm Beach (north) and Mona Vale Beach (south).
4) The trial parameters as described in this report be placed on public exhibition for a period of 4 weeks, and that preparations for this public exhibition commence immediately.
5) The Chief Executive Officer provide a further report to Council following collation of the public exhibition report, and any other necessary assessment reports.

This proposal to consider trialling two new off-leash areas on ocean beaches aligns with community feedback and requests Council has received communications from the public in recent years including:

- That there is a need for more off-leash areas in parks and particularly beaches due to the number of dogs owned by Northern Beaches residents, the over-crowding of many of the current off-leash areas and the lack of off-leash areas on beaches and/or with water access.
- The physical and mental health benefits many people attribute to walking their dog outdoors
- The importance of off-leash areas for exercising and socialising dogs.
- The current off-leash areas are highly valued by the community as places for people to meet, exercise and socialise outdoors with their dogs and as places for dogs to play, exercise and socialise.

The Council has also received cautionary feedback from the community concerning the potential negative environmental, social and community impacts of more off-leash areas and dogs on beaches.

This feedback was received during community engagement undertaken for projects including the Unleashed Dog Exercise Area review in 2017, the Avalon Beach Reserve Off-leash Area trial in 2018, the research for the Station beach Dog Off-leash Area trial in 2019 and for the draft Open Space and Recreation Strategy in 2021.

In response to resolution 111/21 the trial parameters for the Palm Beach (North) and Mona Vale Beach (South) off-leash area proposals were placed on public exhibition from 7 May 2021 to 6 June 2021. Approximately 87% of the responses supported the Palm Beach (North) dog off-leash area proposal outright or supported with changes. Similarly, 88% of the responses for the Mona Vale (South) supported the proposal outright or with changes.

Feedback received from the 7 May 2021 to 6 June 2021 survey and observations indicate that most of the 29 off-leash areas on the Northern Beaches, particularly the five locations which provide access to water are very well used, being:

- Lagoon Park, Manly
- Flora and Ritchie Roberts Reserve, Curl Curl
- Sandy Bay, Clontarf
- Rowland Reserve, Bayview
- Progress Park, Narrabeen.

There are no dog off-leash areas within the LGA that provide access to an ocean beach.

Data from the Office of Local Government indicates that there are 53,713 dogs registered in the Northern Beaches LGA, of which:

- 823 are registered in the suburb of Palm Beach – Whale Beach
- 9,435 are registered in Palm Beach – Whale Beach and the nearby suburbs of Avalon Beach – Clareville, Bilgola, Newport
- 3,504 are registered in the suburb of Mona Vale
- 13,801 are registered in Mona Vale and the nearby suburbs of Warriewood, North Narrabeen, Narrabeen, Elanora Heights, Ingleside, Bayview.

Analysis of the Australian Bureau of Statistics dwelling Census of Population and Housing 2016 data and Office of Local Government registered dog information, indicates that up to 53% of the dwellings in the LGA have a dog (assuming one dog per dwelling). This level of dog ownership is higher than the national average of 37.5% of households with a dog as a pet (Australian Bureau of Statistics, 1995).

2.2 Existing Infrastructure and Approved Activities

The existing infrastructure which supports the mix of recreational uses at Palm Beach and Mona Vale, including the proposed Activity, are shown on Figure 2 and Figure 3 and consist of:

- Public roads and internal roads within Governor Phillip Park
- Parking spaces:
  - Palm Beach. Within Governor Philip Park there are approximately 490 off street parking spaces, 135 of which are located close to the access points for the proposed Activity Area.
  - Mona Vale. There are approximately 130 marked off street parking spaces located between Coronation Street and Narrabeen Park Parade, with further on street park available on these locations as well as Cook Terrace. The nearest parking spaces to the proposed off-leash dog Activity Area are at the intersection of Coronation Street and Narrabeen Park Parade.
- Rubbish bins: Council currently provides bins and dog faeces bags for the disposal of general litter including dog faeces within the general area of the Activity.
- Pedestrian access to proposed trial off-leash areas:
  - Access to the Palm Beach (North) off-leash area is via two sand access tracks, with the southernmost access track being the shortest distance to the off-leash area. Council's original proposal included the use of a third access track. This REF however, removes this access track as a means of access for dog walkers, and ensures that the Project Area is limited to areas zoned recreation.
  - Access to the Mona Vale (South) off-leash area is via a shared pedestrian bicycle path within Robert Dunn Reserve and two formal sand tracks. The southernmost access track includes a

staircase, while the northern sand access track has a longer but shallower gradient sand track (i.e. no stairs).

- Fencing
- Amenity facilities.

These existing infrastructure facilities support a wide range of recreational activities which have differing intensities and duration of use depending on the time of day/year, weekday/ weekend, weather conditions and season. Council will continue to monitor the use and suitability of its existing infrastructure and the management services it provides during the trial period, as it does for all the facilities provided by Council.

Council currently operates 29 dog off-leash areas that are distributed throughout the LGA. Given the spatial distribution of the off-leash areas across the LGA, the catchment area for each dog off-leash area is generally expected to be highly localised (i.e. in the order of <5 km from the respective dog off-leash area). The users of each dog off-leash area are therefore likely to be nearby residents who will walk to the dog off-leash area and, to a lesser degree, residents that live towards the edge of the catchment area or mobility impaired or time challenged residents that may travel to the off-leash area by car.

While Council provides a number of different dog off-leash area experiences throughout the LGA (i.e. access to waterways, large open spaces etc), dog owners that desire a specific and/or alternative experience (i.e. ocean beach) may be attracted to either of the Activity Areas. This may encourage the existing users of the Robert Dunn Reserve dog off-leash area and/or Governor Philip Park (dog on-leash area) to the nearby Activity Area. This is not expected to result in any additional material impacts, as these are existing users of the general recreational area and the associated supporting infrastructure. The Activity, however, may draw people who currently walk their dog but seek a new dog off-leash experience (i.e. ocean beach) from further afield and/or away from their typical dog walking location (i.e. outside the typical local catchment area). Given the travel time and effort required by this group to access the Activity Area, the potential contribution is expected to be small and predominately limited to weekends, public and school holidays periods. The corresponding fluctuation in usage numbers is expected to be within the daily, seasonal or use specific (e.g. monthly markets) range that already occurs with the general recreational use of each general location.

Ultimately, the recreational use capacity of the general recreational area, which includes the use of the Activity Areas, is limited by the existing number of cark parking spaces, the number of local residents within walking distance and public transport. The inclusion of off-leash dog walking as a recreational activity at both locations is expected to represent a small proportion of the total recreational user numbers of both locations.

2.3 The Activity

Council is proposing to undertake a 12 month trial of dog off-leash trial areas in the Northern Beaches LGA. The trial Activity Areas are known as Palm Beach (North) and Mona Vale Beach (South) (see Figure 2 and Figure 3 respectively).

During the trial period dogs will be allowed off-leash within the Activity Areas in accordance with the trial parameters. The extent of the Activity Area will be marked by signage at the access points to the beach and the northern and southern boundaries of the dog off-leash area as well as the on leash access points as shown on Figure 2 and Figure 3. Users of the Activity Areas will have access to and use of the existing infrastructure and services provided by Council (See Section 2.2).

Council will monitor the use and suitability of the Activity Area and the existing infrastructure and services during the trial period, as it does for other facilities provided by Council.

Use of both proposed off-leash dog trial Activity Areas will be restricted to the following times:

- 5.30am to 10.00am and 5.00pm to 9.00pm, Monday to Sunday (seven days a week) Australian Eastern Daylight Time
- 6.00am to 10.00am and 4.00pm to 7.00pm, Monday to Sunday (seven days a week) Australian Eastern Standard Time.

The Council Report of 27 April 2021 proposed eastern boundaries for the areas at Palm Beach (North) and Mona Vale Beach (South) which, on further review, extended beyond the LGA and Pittwater Local Environmental Plan 2014 (LEP) map boundaries. The proposed eastern boundaries of both Activity Areas were subsequently adjusted to be coincident with the eastern LGA boundary following a Council resolution at its meeting of 22 February 2022 (023/22).

Minor upgrades to supporting infrastructure is proposed as part of the Activity. This includes the replacement of some existing signage, new signage locations and the upgrade of existing general waste bins to include a dispenser for waste bags as well as the maintenance of this supporting infrastructure, as shown on Figure 2 and Figure 3.

2.3.1 Palm Beach (North)

The Palm Beach (North) Activity Area is located on the seaward side of the northern beaches peninsula at the northern end and to the east of Governor Philip Park. The proposed Palm Beach (North) Activity Area is approximately 405 metres (m) long, with the northern boundary approximately 257 m south of the Ku-ring-gai Chase National Park boundary and its southern boundary is approximately 343 m to the north of the North Palm Beach Surf Lifesaving Club (See Figure 2).

2.3.2 Mona Vale Beach (South)

The Mona Vale Beach (South) Activity Area is located at the southern end of Mona Vale Beach and is irregular in shape as shown on (Figure 3). The proposed Mona Vale (South) Activity Area is approximately 300 m long, with the northern boundary of the Activity Area is approximately 714 m to south of the Mona Vale Surf Lifesaving Club and the southern boundary approximately 571 m north of the Warriewood Surf Life Saving Club. The southern boundary of the Activity Area generally follows the base of the cliff /headland that separates Warriewood Beach from Mona Vale Beach.

2.4 Land Ownership

The schedule of lands and ownership for the Activity Areas is shown in Table 1 and Table 2 (See Figure 6 and Figure 7).

Table 1. Palm Beach (North) Schedule of Land and Ownership

Lot / DP	Owner
7004/DP1117444	Crown Lands
7006/DP1117451	Crown Lands

Lot / DP	Owner
Mean High Water Mark	Crown Lands

Table 2. Mona Vale Beach (South) Schedule of Land and Ownership

Lot / DP	Owner
1/DP1275526	Crown Lands
5/DP211456	Council
Mean High Water Mark	Crown Lands

3. Consideration of Alternatives

3.1 Alternative Ocean Beach Locations

A desktop assessment for 10 nearby ocean beach locations were investigated as part of the consideration of alternatives process (See Table 3).

As shown in Table 3, multiple factors were considered in the consideration of alternatives process with reference to the minimum requirement of 400 m of beachfront at Palm Beach (north) and 300 m of beachfront at Mona Vale beach (south) and the minimisation of potential recreational and residential landuse conflicts. Each location was assessed using a traffic light scoring approach, with the key limiting factor(s) for each location highlighted in red text.

Following the consideration of alternatives assessments, the Mona Vale and Palm Beach locations were assessed as the preferred locations for the establishment of ocean beach off-leash dog areas.

3.2 Alternative of Not Proceeding "Do Nothing"

The surrounding general area at both locations is currently used for a broad range of recreational activities. The 'do nothing' option would see the continued use of the area and associated supporting infrastructure for the wide range of recreational activities. However, the 'do nothing' option would forego the benefits of the Activity as detailed in Section 7.

The 'do nothing' option would result in a lost opportunity to utilise a portion of the existing recreational area and associated supporting infrastructure for the recreational activity of off-leash dog walking in an ideally located site with limited environmental constraints.

The 'do nothing' option would avoid the potential minor environmental impacts of the Activity, which include noise, traffic, visual and biodiversity impacts.

However, through the implementation of the management and mitigation measures described in Section 7, which are proposed as part of the REF the Activity is not expected to result in any significant impacts to the environment, nearby residents or other recreational users.

Table 3. Alternative Ocean Beach Locations Considered for the Activity

Beach Name	Length of beachfront (Southern headland to Northern headland)	% of beach occupied if a 400m long off-leash dog area was proposed	Approximate chainage (metre marker) of the surf club	Maximum distance between nearest boundary of off-leash dog area to surf club (NB some locations there may be overlap)	Landuse adjoining beach front (e.g. commercial, retail, high density residential, residential, public open space, conservation)	Overall assessment
Turimetta Beach	450m	88%	N/A	N/A	Environmental Conservation	Unsuitable – insufficient beachfront
Warriewood Beach	396m	N/A	N/A	N/A	Environmental Living	Unsuitable – insufficient beachfront
Mona Vale Beach	1177m	34%	945m	571m	Public Recreation Environmental Living Low Density Residential Medium Density Residential	Potential suitable site – further assessment warranted
Basin Beach	476m	84%	N/A	76m	Environmental Living	Unsuitable – insufficient beachfront
Bungan Beach	810m	46%	624m	224m	Environmental Conservation	Unsuitable –access to potential location through surf club / main beach area
Newport Beach	1110m	36%	523m	158m	Low Density Residential Medium Density Residential Infrastructure	Unsuitable – surf club located in the middle of the beach front. Higher potential for recreational and residential landuse conflicts than other locations

Beach Name	Length of beachfront (Southern headland to Northern headland)	% of beach occupied if a 400m long off-leash dog area was proposed	Approximate chainage (metre marker) of the surf club	Maximum distance between nearest boundary of off-leash dog area to surf club (NB some locations there may be overlap)	Landuse adjoining beach front (e.g. commercial, retail, high density residential, residential, public open space, conservation)	Overall assessment
Bilgola Beach	465m	86%	70m	9m	Environmental Living	Unsuitable – insufficient beachfront and proximity to the surf club / main beach area
Avalon Beach	625m	64%	125m	68m	Environmental Conservation	Unsuitable – insufficient beachfront and proximity to the surf club / main beach area
Whale Beach	732m	54%	271m	140m	Environmental Living	Unsuitable –proximity to the surf club / main beach area. Higher potential for recreational and residential landuse conflicts than other locations
Palm Beach	2280m	17%	1170m	343m	Environmental Living Public Recreation	Potential suitable site – further assessment warranted

4. Statutory and Planning Framework

This section provides details of the relevant Commonwealth, State and local planning provisions and a discussion of the application of these provisions to the Activity.

4.1 New South Wales Legislation and Regulations

4.1.1 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act) regulates, amongst other things, development of land. 'Development' is defined in section 1.5 of the EP&A Act as including 'the use of land'.

The Activity involves development which comprises the use of existing recreational areas and supporting infrastructure by members of the public for off-leash dog recreation purposes. This development is properly characterised as a use for recreational purposes.

Pittwater Local Environmental Plan 2014 (PLEP) applies to both the Palm Beach and Mona Vale Activity Areas. The Activity Areas are zoned as 'RE1 Public Recreation'. 'Recreation areas' is a type of development permitted with consent in Zone RE1.

4.1.1.1 Continuing use for recreational purposes

Council has commissioned an extensive investigation of the historical recreational uses of both Palm Beach and Mona Vale Beach set out in Annex 1 (Cama Report). The Cama Report demonstrates that both Palm Beach (North) and Mona Vale Beach (South) have been used as public recreation areas since at least the early 1900s.

At Mona Vale Beach, swimming became popular after the legalisation of daytime sea bathing in 1903. The Warringah Shire excavated an ocean pool in 1923, appointed a permanent lifeguard in 1929, and erected reserve and beach infrastructure in the 1930s (p 27 Cama Report).

There is a similar history of recreation use of Palm Beach, including the establishment of a surf club in 1921, and the use of the beach as a camping ground from the 1930s (p 40 Cama Report).

Both beaches continue to be used by the community for the purposes of recreation. The first instrument that may have come into force to require consent be obtained for the use of the Activity Areas was the *Local Government Act 1919* (NSW) (LGA 1919), which did not come into effect in the-then Shire of Warringah until 7 June 1940. Section 311 of the LGA 1919 provided that "a building shall not be erected or altered unless the approval of the Council is obtained therefor beforehand." As discussed above, the use of the general Palm Beach and Mona Vale area (including the proposed Activity Areas) as recreation areas was well established, and indeed facilitated by the Warringah Shire at this time.

In 1951 the County of Cumberland Planning Scheme Ordinance (CCPS) came into force. Clause 28(1) of the CCPS provided that a building could not, without consent, be erected or used in a zone for a purpose specified in the land use table as requiring consent. Clause 32 of the CCPS provided that: "An existing building or existing work may be maintained and may be used for its existing use and an existing use of land may be continued…".

On 7 June 1963, the Warringah Planning Scheme Ordinance (WPSO) was gazetted. The WPSO zoned Palm Beach and Mona Vale Beach 'Existing Recreation'. Clause 30 of the WPSO provided that: "an existing building or an existing work may be maintained and may be used for its existing use and an existing use of land may be continued."

The *Warringah Local Environmental Plan 1985* (WLEP) replaced the WPSO on 11 October 1985, zoning the Activity Areas 6(a) Existing Recreation. The *Pittwater Local Environmental Plan 1993* (PLEP 1993) was gazetted on 4 February 1994, following Pittwater's separation from the Warringah LGA. It continued to zone land at Mona Vale Beach as 'existing recreation'. On 27 June 2014, the *Pittwater Local Environmental Plan 2014* (PLEP) was gazetted, zoning the land for the Activity Areas as RE1 Public Recreation. The PLEP is discussed further at Section 4.3.2 below.

On 1 September 1980 the EP&A Act commenced. Section 4.68(1) (formerly s 109) of the EP&A Act provides that:

> Nothing in an environmental planning instrument operates so as to require consent to be obtained under this Act for the continuance of a use of a building, work or land for a lawful purpose for which it was being used immediately before the coming into force of the instrument or so as to prevent the continuance of that use except with consent under this Act being obtained.

Section 4.68(2)(c) provides that section 4.68(1) does not authorise "any enlargement or expansion or intensification of the use therein mentioned."

As established in the preceding paragraphs and in the Cama Report, the use of Palm Beach (North) and Mona Vale Beach (South) as recreation areas began lawfully in the early 1900s. The recreation use of the Activity Areas remained lawful after the coming into force of the LGA 1919, the CCPS, the WPSO, the WLEP, the PLEP 1993, and continues to be permissible with consent under the PLEP.

The Activity involves a continuing use of the Activity Areas for recreational uses and will not result in an enlargement, expansion, or intensification of the recreation use.

It follows that the Activity is a continuing use under this section, which may continue without the need for development consent.

4.1.1.2 Division 5.1 Assessment

While consent under Part 4 of the EP&A Act is not required for the Activity, the Pittwater Council Dog Control Policy (No 30) (Dog Policy) under the *Companion Animals Act 1998* (CA Act) prohibits dogs on all beaches within the LGA. In order to authorise the Activity, Council must first revoke or vary the Dog Policy and make orders under the CA Act. The orders are contemplated in more detail below in Section 4.1.2.

The threshold requirements for an activity to be subject to assessment under Division 5.1 of the EP&A Act are whether there is an 'activity' that requires 'approval' from a 'determining authority'.

'Activity' is defined in section 5.1 of the EP&A Act to include 'the use of land'. The Activity is for the recreational use of land by members of the public on the beaches with their dogs, and therefore meets the definition of 'activity'.

'Determining authority' is defined as:

> a Minister or public authority and, in relation to any activity, means the Minister or public authority by or on whose behalf the activity is or is to be carried out or any Minister or public authority whose approval is required in order to enable the activity to be carried out.

'Approval' is defined as including 'a consent, licence or permission or any form of authorisation'.

To carry out the Activity, the Council (as a determining authority) will need to enable the use of the Activity Areas by revoking or varying the Dog Policy and making orders under the CA Act, which is considered in

more detail below in Section 4.1.2. The decision of Preston CJ in *Palm Beach Protection Group Incorporated v Northern Beaches Council* [2020] NSWLEC 156 held that decisions to conduct a dog off-leash area trial and to allow dogs on-leash at a location where they were previously prohibited by making orders under section 13(6) of the CA Act (establishing an off-leash area) and revoking/varying orders under section 14 of the CA Act (which prohibited dogs from an area) were "approvals" within the meaning of section 5.1 of the EP&A Act.

Additionally, PoMs will need to be made or amended in accordance with the *Local Government Act 1993* (LG Act) and *Crown Land Management Act 2016* (CLM Act).

It follows that Division 5.1 of the EP&A Act applies to the granting of these approvals. Section 5.5 provides that:

> For the purpose of attaining the objects of this Act relating to the protection and enhancement of the environment, a determining authority in its consideration of an activity shall, notwithstanding any other provisions of this Act or the provisions of any other Act or of any instrument made under this or any other Act, examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity.

Section 5.7 prevents a determining authority from carrying out an activity or granting an approval in relation to an activity that is likely to significantly affect the environment, unless an environmental impact statement is obtained.

One of the purposes of this REF is to consider and record for the Council, a review of all matters affecting or likely to affect the environment by reason of the Activity, so that the Council may examine and take into account to the fullest extent reasonably possible those matters. The Council must also determine whether the Activity is likely to significantly affect the environment.

The Council has notified the Minister for Lands and Water (see Addendum) about the off-leash dog trial, and further consultation will be undertaken prior to Council proceeding with the Activity.

As part of this assessment, it is necessary to assess the impact of the Activity by reference to the factors contained in clause 171 of the *Environmental Planning and Assessment Regulations 2021* (EP&A Regulations) and the guidelines for Division 5.1 assessment. An assessment of the clause 171 factors is provided in Annex 2.

4.1.2 Companion Animals Act 1998

The Dog Policy prohibits dogs from all beaches in the former Pittwater LGA. In *Palm Beach Protection Group Incorporated v Northern Beaches Council* [2020] NSWLEC 156, the Court considered that the policy was made in accordance with sections 14(1)(c) and (d) and 14(7) of the CA Act, which relevantly provide:

> **14 Dogs prohibited in some public places**
>
> (1) Dogs are prohibited in the following places (whether or not they are leashed or otherwise controlled)—
>
> […]
>
> (c) ***Recreation areas where dogs are prohibited*** (meaning any public place, or part of a public place, provided or set apart by a local authority for public recreation or the playing of organised games and in which the local authority has ordered that dogs are prohibited and in which, or near the boundaries of which, there are conspicuously exhibited by the local authority at reasonable intervals notices to the effect that dogs are prohibited in or on that public place or part).

d) **Public bathing areas where dogs are prohibited** (meaning any public place or any part of a public place that is used for or in conjunction with public bathing or public recreation (including a beach), in which the local authority has ordered that dogs are prohibited and in which, or near the boundaries of which, there are conspicuously exhibited by the local authority at reasonable intervals notices to the effect that dogs are prohibited in or on that public place).

[…]

(7) A local authority is authorised to make the orders contemplated by this section.

To enable the Activity, the Council would need to decide to vary the Dog Policy to create an exemption from the Dog Policy for the Activity Areas.

After varying the Dog Policy, Council would then need to make an order that the Activity Areas are dog off-leash areas subject to the mitigation actions proposed in this REF, pursuant to Council's power under section 13(6) of the CA Act. Section 13(6) provides:

> A local authority can by order declare a public place to be an off-leash area. Such a declaration can be limited so as to apply during a particular period or periods of the day or to different periods of different days. However, there must at all times be at least one public place in the area of a local authority that is an off-leash area.

As outlined in Section 4.1.1 above, these decisions and orders amount to approvals that require assessment under Division 5.1 of the EP&A Act.

4.1.3 Local Government Act 1993

The LG Act was established to provide the legal framework for the system of local government for NSW, including the use and management of community land by Council. It also applies to the management of Crown land in certain respects, including pursuant to Part 3 of the CLM Act which requires Council Crown land managers to prepare a PoM in accordance with the LG Act for dedicated and reserved Crown land (see section 4.1.3.4 below).

Section 35 of the LG Act relevantly provides:

> "**35 What governs the use and management of community land?**
>
> Community land is required to be used and managed in accordance with the following –
> - the plan of management applying to the land
>
> […]"

Section 44 of the LG Act provides:

> **44 Use of community land pending adoption of plan of management**
>
> Pending the adoption of a plan of management for community land, the nature and use of the land must not be changed.

4.1.3.1 Governor Phillip Park Plan of Management

Governor Phillip Park Plan of Management (2002) applies to North Palm Beach, including the proposed off-leash trial area. Governor Phillip Park is Crown land under the CLM Act in respect of which Council is the Crown land manager.

The key objectives of this plan of management are to:

- Conserve and enhance the Park's natural, historical and cultural environment whilst providing a diverse range of quality informal passive recreational opportunities in a unique and relatively undeveloped setting.
- Meet legislative requirements for the preparation of Plans of Management for Crown land under Section 112 of the Crown Lands Act 1989.
- Reflect community values and expectations for future use and management of Governor Phillip Park.
- Identify all issues affecting the park and its users, and to resolve such issues in a manner which is both cost-effective and achieves the objective of the Plan of Management.
- Develop detailed management strategies and actions to resolve issues, consistent with community values and expectations, in the short and medium terms.
- Prepare a Landscape Master Plan that illustrates the long-term vision and actions required to implement proposed changes and improvements to Governor Phillip Park.

The Council has consulted with NSW Crown Lands regarding the Activity, as most of the land in Governor Phillip Park (including Palm Beach North) is Crown land. Crown Lands has advised that the Governor Phillip Park Plan of Management is not a valid plan of management under the CLM Act. The Department has also indicated that a PoM would be required for the Activity to proceed because it considers the Activity amounts to a change in the nature of the use of the reserve. Such an amendment must comply with the process set out at sections 4.1.3.3 and 4.1.3.4 below.

The Department also suggests that the Northern Beaches Council should be appointed Crown Land Manager in relation to land in the Activity Area below the mean high water mark.

4.1.3.2 Ocean Beaches Plan of Management

The Ocean Beaches Plan of Management 2005 (PoM) applies to Mona Vale Beach (South). The PoM provides that "Animals on the beach with the exception of Guide Dogs for the visually impaired" is currently a prohibited use on Mona Vale Beach.

This PoM applies to community land under the LG Act. It also purports to cover Crown land under the CLM Act although, consistent with the Department's advice referred to above, it is not a valid plan of management for the purpose of the CLM Act.

It follows that the PoM must be amended in respect of the community land to remove the prohibition of dogs on Mona Vale Beach before Council makes orders authorising dogs off-leash under the CA Act. It is considered a Plan of Management is also required under the CLM Act in respect of the Crown land at Mona Vale Beach (South) - see section 4.1.3.4 below.

The Department also suggests that the Northern Beaches Council should be appointed Crown Land Manager in relation to land in the Activity Area below the mean high water mark.

4.1.3.3 Adoption and amendment of Plans of Management

Section 41 of the LG Act provides that "A council may amend a plan of management adopted under this Division by means only of a plan of management so adopted." Section 42 of the LG Act provides that "(1) A plan of management for community land may be revoked by a plan of management adopted under this Division by the council."

To adopt a plan of management, the Council must first prepare a draft plan of management: section 36. The Council must give public notice of the draft plan of management, including exhibition for at least 28 days, and a period of at least 42 days after the first day of public exhibition during which submissions may be made to the Council: section 38. The plan of management should be exhibited with other matters necessary to enable the draft plan and its implications to be understood, which includes this REF: section 38(4).

The plan of management may then be adopted by the Council after considering all submissions received: section 40. If the council decides to amend the draft plan after considering public submissions it must publicly exhibit the draft plan and REF again in accordance with section 38, unless it is of the opinion that the amendments are not substantial: section 40(2)(b).

4.1.3.4 Crown Land Management Act 2016

The CLM Act commenced on 1 July 2018 and introduced substantial changes to the ownership, use and management of Crown land in NSW. Prior to 1 July 2018, Crown land was managed under the *Crown Lands Act 1989* (CL Act) and at least ten other separate pieces of legislation.

The objects of the CLM Act are:

> *(a) to provide for the ownership, use and management of the Crown land of NSW, and*
> *(b) to provide clarity concerning the law applicable to Crown land, and*
> *(c) to require environmental, social, cultural heritage and economic considerations to be taken into account in decision-making about Crown land, and*
> *(d) to provide for the consistent, efficient, fair and transparent management of Crown land for the benefit of the people of NSW, and*
> *(e) to facilitate the use of Crown land by the Aboriginal people of NSW because of the spiritual, social, cultural and economic importance of land to Aboriginal people and, where appropriate, to enable the co-management of dedicated or reserved Crown land, and*
> *(f) to provide for the management of Crown land having regard to the principles of Crown land management.*

Part 3 deals with the management of Crown land and requires Council Crown land managers to prepare a Plan of Management in accordance with the LG Act for dedicated and reserved Crown land.

Section 2.4 of this REF notes that the Activity Areas comprise land owned by Council and the Crown.

The Council will therefore need to adopt PoMs in respect of the Crown land within the Activity Areas in accordance with the requirements of Division 3.4 of the CLM Act, which concerns Crown land managed by councils.

Section 3.21 of the CLM Act provides that "A council manager is authorised to classify and manage its dedicated or reserved Crown land as if it were public land within the meaning of the LG Act , subject to this

Division" and "Accordingly, a council manager is also authorised to manage its dedicated or reserved Crown land as if it were community land or operational land, but only as permitted or required by this Division."

Section 3.23(2) imposes an obligation on the Council to:

> as soon as practicable after it becomes the manager of the dedicated or reserved Crown land (including because of the operation of Schedule 7), assign the land to one or more categories of community land referred to in section 36 of the *Local Government Act 1993*.

The Council has not yet assigned such categories to Crown land at Mona Vale and Palm Beach (see Addendum). Council officers are currently considering the draft categorisation for numerous Crown Land reserves (including Crown Land reserves located at Palm Beach and Mona Vale Beach), taking into account community consultation on their proposed categories. Once the categories are finalised, the Council must then give written notice to the Minister of the categories to which it has assigned the land: section 3.23(4). The Minister may require the Council to alter these categories: section 3.23(5).

The Council may then adopt a plan of management in accordance with Division 2 of Part 2 of Chapter 6 of the LG Act. This process is outlined in Section 4.1.3 above.

For plans of management concerning Crown Land, the Minister for Lands and Water (see Addendum) must consent to the draft plan of management before it is adopted (*Crown Land Management Regulation 2018* r 70B).

4.1.4 Contaminated Land Management Act 1997

The *Contaminated Land Management Act 1997* was established to investigate and, where appropriate, remediate land that the Environment Protection Authority (EPA) has considered to be contaminated significantly enough to require regulation.

A search of the EPA's Public Register did not identify any known / recorded contaminated land within the Activity Areas.

4.1.5 Heritage Act 1977

The *Heritage Act 1977* encompasses non-Aboriginal artefacts or sites that are older than 50-years-old. This act aims to promote understanding, encourage conservation, provide identification and registration, provide protection and encourage adaptive reuse of State Heritage items.

Searches of the various heritage registers were undertaken for the Activity Areas, with no heritage items identified within 200m of the Activity Areas. Section 6.7 provides further details regarding the historic heritage impacts of the Activity.

4.1.6 National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (NPW Act) aims to manage the following:

- The conservation of nature
- Conservation of objects, places and features of cultural value
- Public appreciation, understanding and enjoyment of nature and cultural heritage
- Land reserved under this Act.

The Activity Areas are not located within a National Park. The Activity is not expected to directly or indirectly impact on the conservation and use of National Park land. Section 6.6 of this REF considers the impact of the Activity on the conservation of Aboriginal heritage, places and features of cultural value.

Section 7.5 of the OEH Due Diligence Code of Practice for the *Protection of Aboriginal Objects in New South Wales (2010a)* notes that the Clause 57 of the *National Parks and Wildlife Regulation 2019* removes the need to follow the due diligence process if carrying out a specifically defined "low impact activity".

An Aboriginal Objects Due Diligence Assessment has been prepared for the Activity under Part 6 of the NPW Act (See Annex 3).

4.1.7 Biodiversity Conservation Act 2016

The purpose of the *Biodiversity Conservation Act 2016* (BC Act) "is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development" (section 1.3).

Part 7 of the BC Act sets out a process of assessment for an 'activity' as defined in Part 5 of the EP&A Act. As provided in Section 4.1.1 of this REF, the Activity is such an activity. Section 7.8(2) of the BC Act provides that:

> For the purposes of Part 5 of the Environmental Planning and Assessment Act 1979, an activity is to be regarded as an activity likely to significantly affect the environment if it is likely to significantly affect threatened species.

Sections 7.2 and 7.3 of the BC Act sets out the test for determining whether an activity is likely to significantly affect threatened species. This test will be set out and considered in Section 6.2 of this REF. A biodiversity assessment has been undertaken (see Section 6.2) which concludes the activity is unlikely to significantly impact biodiversity.

4.1.8 Biodiversity Conservation Regulation 2017

The object of the *Biodiversity Conservation Regulation 2017* (BC Regulation) is to make provision for matters that are required or authorised to be prescribed by the regulations as a consequence of the enactment of the BC Act. The BC Regulation aims for the protection of threatened species, populations, communities and critical habitats in NSW.

The Activity is not required to provide biodiversity offsets under Part 6 of the BC Regulation and no land within the Biodiversity Values map (BV map) will be disturbed.

4.1.9 Biosecurity Act 2015

The aims of the *Biosecurity Act 2015* are to provide a framework for the prevention, elimination and minimisation of biosecurity risks by carriers or potential carriers.

This Activity is not likely to impact the biosecurity of the area.

4.1.10 Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* (POEO Act) regulates pollution in NSW including water pollution, air pollution, noise pollution and the pollution of land. The aims of the POEO Act are achieved by way of Protection of the Environment Policies, licensing and by the issuing of Environmental Protection Notices to persons or organisations that are found to be polluting the environment.

Council is the regulatory authority for this Activity as it is a non-scheduled activity defined by Schedule 1 of the POEO Act. For the purposes of Section 48 of the POEO Act, an Environmental Protection Licence is not required for this Activity as it is a non-scheduled activity.

4.1.11 Roads Act 1993

The *Roads Act 1993* aims to set out the rights of the public to pass along public roads, set out the rights of persons who own land adjoining a public road, establishment of procedures relating to the opening and closing of a public road and provide clarification of roads.

No roadworks or changes to the current parking arrangements are proposed by the Activity. Access and parking availability for the Activity are discussed in further detail in Section 6.3.

4.1.12 Waste Avoidance and Resource Recovery Act 2001

The *Waste Avoidance and Resource Recovery Act 2001* sets out priorities and methods to reduce waste generated and waste resource recovery within NSW, aiming to reduce environmental harm and encouraging the most efficient use of resources.

The disposal and recycling of waste are discussed in Section 6.4.

4.1.13 Water Management Act 2000

The primary piece of legislation for the management of water in NSW is the *Water Management Act 2000* (WM Act). The WM Act is designed to provide for the sustainable and integrated management of the water sources of the State for the benefit of both present and future generations.

The WM Act recognises the need to allocate and provide water for the environmental health of our rivers and groundwater systems, while also providing licence holders with more secure access to water and greater opportunities to trade water through the separation of water licences from land. The main tool in the WM Act for managing the state's water resources are water sharing plans. These are used to set out the rules for the sharing and trading of water in a particular water source between water users and the environment.

The Activity does not involve the requirement for any permits or licences under the WM Act to extract or use surface or groundwater or intersect aquifers.

4.1.14 Fisheries Management Act 1994

The *Fisheries Management Act 1994* (FM Act) relates to the conservation of the fishery resources.

Department of Primary Industries (DPI) Fisheries, assess applications for dredging and reclamation works which may harm marine vegetation and cause obstruction of fish passage in accordance with Part 7 of the FM Act and the Policy and Guidelines for Fish Habitat Conservation and Management (2013 Update).

This Activity will not involve any activities which will require an application to DPI Fisheries.

4.1.15 Marine Estate Management Act 2014

Marine Estate Management Act 2014 aims to set the over-arching strategy for the State government to co-ordinate the management of the marine estate with a focus on achieving, economic opportunities for the people, cultural, social and recreational uses, maintaining ecosystem integrity and the use of marine estate for scientific research.

This Activity is not located within a marine park or aquatic reserve.

4.1.16 Aboriginal Land Rights Act 1983

The *Aboriginal Land Rights Act 1983* (NSW) operates to provide land rights for Aboriginal persons in NSW, and to empower representative Local Aboriginal Land Councils (**LALCs**) in NSW (section 3). Section 36 provides that LALCs can have Crown Land transferred to them if at the time of their claim the land is:

- Able to be lawfully sold or leased;
- Not lawfully used or occupied;
- Not needed nor likely to be needed as residential land;
- Not needed, nor likely to be needed, for an essential public purpose; and
- Not impacted by Native Title.

While the Activity Areas comprise Crown Land, that land has been lawfully used and occupied since the early 1900s, as detailed in the Cama Report. The land is therefore ineligible for a claim under the Aboriginal Land Rights Act.

4.2 Commonwealth Legislation

4.2.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) provides for the protection of nationally significant natural or cultural values or the regulation of certain nationally significant activities. These values are known as Matters of National Environmental Significance (MNES) and the regulated activities are known as Controlled Actions and include activities which may impact on:

1. World Heritage properties.
2. National Heritage places.
3. Wetlands of international importance.
4. Commonwealth listed threatened species and ecological communities.
5. Commonwealth listed Migratory species.
6. Commonwealth marine or land areas.
7. The Great Barrier Reef Marine Park
8. Nuclear actions (including uranium mining).
9. A water resource, in relation to coal seam gas development and large coal mining development.

Approval from the Minister for the Department of Agriculture, Water and the Environment (Commonwealth Minister) is required for any action that may have a significant impact on any MNES. An assessment of the Activity's impact on MNES and the environment of Commonwealth land has been undertaken.

None of the components of the Activity will be located within a World Heritage site, a National Heritage place, a wetland of international importance, a Commonwealth marine or land area or the Great Barrier Reef Marine Park. The Activity also does not involve a nuclear action or coal seam gas development and large coal mining development.

The provisions of the EPBC Act which are relevant to the Activity are those which relate to impacts on habitat for threatened species and ecological communities listed in the EPBC Act. The Activity's impacts on these aspects and the mitigation measures and controls (safeguards) to avoid and minimise impacts on the community and environment are considered in Section 6.

As the Activity is unlikely to have a significant impact on a MNES, referral under the EPBC Act is not considered necessary.

4.2.2 Native Title Act 1993

The *Native Title Act 1993* (Cth) (NT Act) was enacted to formally recognise and protect native title rights in Australia, following the decision of the High Court of Australia *in Mabo & Ors v Queensland (No. 2)* (1992)

175 CLR 1. The NT Act is the legal recognition of Indigenous Australians' rights and interests in land and waters, according to their own traditional laws and customs.

Although there is a presumption of Native Title in any area where an Aboriginal community or group can establish a traditional or customary connection with that area, there are several ways that Native Title is taken to have been extinguished. For example, land that was designated as having freehold title prior to 1 January 1994 extinguishes Native Title, as does any commercial, agricultural, pastoral, or residential lease. Further, land that has been utilised for the construction or establishment of public works also extinguishes any Native Title rights and interests for as long as they are used for that purpose.

A search of the Register of Native Title Claims on the National Native Title Tribunal website indicates that there have been no claims made in relation to the land on which the Activity occupies.

4.3 Relevant environmental planning instruments

4.3.1 State Environmental Planning Policy (Transport and Infrastructure) 2021

State Environmental Planning Policy (Transport and Infrastructure) 2021 (T & I SEPP) aims to facilitate the effective delivery of infrastructure across the State and in particular, by identifying the environmental assessment category into which different types of infrastructure and services development fall.

Clause 2.74(1) of the T & I SEPP identifies construction or maintenance of "bins (including frames and screening)" as exempt development if the development is on a public reserve (other than Crown managed land) by or on behalf of a public authority, or on Crown managed land, by or on behalf of a council having control of the land under section 48 of the Local Government Act 1993.

Should monitoring during the trial identify a need for additional bins (as with any other Council reserve) any bin installation will be undertaken in accordance with the requirements of the T & I SEPP.

4.3.2 Pittwater Local Environmental Plan 2014

The PLEP is the current LEP for the Northern Beaches Council LGA. The Activity Areas are zoned RE1 Public Recreation (See Figure 4 and Figure 5).

The objectives of RE1 Public Recreation zone are:

- To enable land to be used for public space or recreational purposes
- Provide for a range of recreational settings and activities and compatible land uses.
- To protect and enhance the natural environment for recreational purposes.
- To provide passive and active public open space resources, and ancillary development, to meet the needs of the community.

The Activity is consistent with the objective of the RE1 zone. Development of a Recreation Area within an RE1 Zone is permitted with consent. For the reasons set out in Section 4.1.1 consent is not required in this case.

4.4 Strategic Plans

4.4.1 Local Strategic Planning statement – Towards 2040

The Local Strategic Planning Statement – Towards 2040 provides guidance for land use planning within the Northern Beaches Council LGA over a 20-year period. This encompasses the principles addressed in the Greater Sydney Regional Plan 2018 and Northern District Plan 2018 and couples this with technical studies, strategies and plans. This plan reflects local values and builds towards the 10-year vision that is established

in the Community Strategic Plan. The *Local Strategic Planning Statement* directs the Council with a range of priorities to follow. The priorities which are relevant to the Activity are:

- Healthy and valued coast and waterways
- High quality open space for recreation
- A low-carbon community, with high energy, water and waste efficiency
- An inclusive, healthy, safe and socially connected community.

4.4.2 Northern Beaches Community Strategic Plan 2040

The Community Strategic Plan considers the concerns, interests and hopes of the community for the future of the Northern Beaches Council LGA. This plan looks to achieve a safe, inclusive and connected community. This plan stipulates goals the Council intends to achieve. The goals that are relevant to this Activity are:

- Provide sustainable access to the natural environment, while recognising and protecting its cultural and heritage value
- Provide incentives and programs to encourage our community to enhance, preserve and protect our natural ecosystems
- Ensure integrated land use planning balances the environmental, social and economic needs of present and future generations
- Encourage a broad range of activities that enable social interaction, stimulate wellbeing, and support people at each stage of their lives.

4.4.3 Greater Sydney Regional Plan 2018

The Greater Sydney Regional Plan encompasses a 40-year vision that establishes a 20-year plan for growth and change of the Greater Sydney area. It aims to boost productivity and liveability, providing good jobs and skilled workers while preserving heritage and local character. The Greater Sydney Regional Plan divides the City of Sydney into three different management sections: Western Parkland City, Central River City & Eastern Harbour City. The key objectives that are laid out in this plan, that are relevant to this Activity are:

- Great places that bring people together
- Economic sectors and targeted for success
- Environmental, social and economic values in rural areas are protected and enhanced
- Accessible public open spaces, protection and enhanced
- More waste is reused and recycled.

4.4.4 Northern District Plan 2018

The Northern District Plan is 20-year plan, established to manage growth in economic, social and environmental matters to achieve the visions of the overarching 40-year, Greater Sydney Regional Plan. The Northern District Plan considers major infrastructure investments and the transport, infrastructure, services, affordable housing and open spaces that will be required as the population grows and the demographics change. The plan also acknowledges great places bring people together and protects the environmental sustainability of the landscape with strategies that enhance waterways, bushland, biodiversity and green open spaces. The key objectives that are laid out in this plan, that are relevant to this Activity are:

- Providing services and social infrastructure to meet people's changing needs
- Embraces shared recreational use of open spaces helping to develop a more collaborative city

- Encourages a healthy and active lifestyle and improves social connection
- Providing great places that are enjoyable and attractive, safe, clean and flexible with a mix of functions
- Providing great places that are inclusive of people of all ages and abilities, that offer a range of authentic local experiences and opportunities for social interactions
- Providing great places that are walkable and are of mixed land uses including social infrastructure and local services that are at the heart of the community.

Council actions that are informed by the Northern District Plan and are relevant to this Activity include:

Action 19: *Using a place-based and collaborative approach throughout planning, design, development and management, deliver great places by:*

a) prioritising a people-friendly public realm and open spaces as a central organising design principle

b) recognising and balancing the dual function of streets as places for people and movement

c) providing fine grain urban form, diverse land use mix, high amenity and walkability, in and within a 10-minute walk of centres

d) integrating social infrastructure to support social connections and provide a community hub

e) recognising and celebrating the character of a place and its people

Action 73: *Maximise the use of existing open space and protect, enhance and expand public open space by:*

a) *providing opportunities to expand a network of diverse, accessible, high quality open spaces that respond to the needs and values of communities as populations grow*

b) investigating opportunities to provide new open space so that all residential areas are within 400 metres of open space and all high density residential areas (over 60 dwellings per hectare) are within 200 metres of open space

c) requiring large urban renewal initiatives to demonstrate how the quantity of, or access to, high quality and diverse local open space is maintained or improved

d) planning new neighbourhoods with a sufficient quantity and quality of new open space

e) delivering shared and co-located sports and recreational facilities including shared school grounds and repurposed golf courses

f) delivering, or complementing the Greater Sydney Green Grid

g) providing walking and cycling links for transport as well as leisure and recreational trips.

Action 76: *Protect existing, and identify new, locations for waste recycling and management.*

5. Consultation

5.1 Consultation objectives

The LG Act requires that a council must establish and implement a strategy (called its community engagement strategy) for engagement with the local community when developing its plans, policies and programs and for the purpose of determining its activities. All community engagement activities conducted by Council are underpinned by principles of equity, access, participation and rights as prescribed by the LG Act.

The Northern Beaches Council Community Engagement Policy (2017) (CEP) (being the relevant CEP at the time the REF was first prepared) outlines the approach to community engagement conducted as part of Council's decision-making processes. The policy recognises that community engagement and participation processes are vital and aims to build confidence in Council's ability to plan and make decisions that will respond to the present and future needs of the community. The policy emphasises that the community should be kept informed throughout a consultation process and receive feedback that demonstrates how their input has influenced the decision.

The Community Engagement Matrix (2017a) (Matrix) is an implementation tool used by Council and provides staff with direction on engagement planning and guidance on when and how staff should engage with the community. Together the CEP and Matrix form the Council Community Engagement Framework.

The conceptual trial parameters of the proposed off leash areas at Palm Beach (North) and Mona Vale Beach (South) were placed on public exhibition from 7 May 2021 to 6 June 2021. In consideration of the feedback received changes were made to the conceptual off leash trail parameters during the preparation of the REF. The engagement was planned, implemented and reported in accordance with the CEP and Matrix.

The REF for the proposed dog off-leash trial areas Palm Beach (North) and Mona Vale Beach (South) was placed on public exhibition over a 32-day period, from 11 August 2022 to 11 September 2022 and provided the community with an opportunity to review and make a submission during that time.

In November 2022 the CEP was updated and the Matrix was replaced by a new Community Engagement Strategy. It is considered the community engagement undertaken in respect of the REF is consistent with the requirements of these documents.

5.2 Statutory and policy notification requirements

5.2.1 Policy

Council's policies that deal with community engagement were created to further the guiding principle of 'community participation' identified in section 8A(3) of the LG Act, which provides: 'Councils should actively engage with their local communities, through the use of the integrated planning and reporting framework and other measures.'

The Council has created Special Consultation Requirements (SCRs) which it commits to follow 'when undertaking high impact development on Council owned and managed land' in accordance with Council's CEP.

This Activity has been assessed by Council as Level 2 under the Matrix, meaning that it is a 'high impact development'. The Activity permits a use on land that is owned and managed by the Council. The SCRs therefore apply.

The SCRs are provided in Attachment 1 to the Matrix. They require consultation at the planning stage, the design stage, and the approval stage. The approval stage relevantly includes "e.g… Part V Assessment". Given that this REF forms part of a Part 5 assessment, it constitutes part of the approval stage. The approval stage relevantly provides that:

> Where a DA is not required, Council staff are still required to engage with the community to gain input to the development. The Matrix should be used to determine the most appropriate level of engagement.

The CEP describes how Council plans and coordinates its community and stakeholder engagement efforts in accordance with its policies and legal obligations. At a high level, this will include exhibition of the REF for not less than 28 days (in accordance with p 3 of the CEP), advertisement of the REF and proposed Activity to the community through various public mediums, accepting feedback from the community through an online portal, and directly engaging with identified stakeholders, such as relevant government agencies and beach users.

Following this exhibition process, the feedback will be considered and a further report provided to Council. Further activity may be required in relation to Plans of Management for the relevant Crown and community land.

5.2.2 Statute

Regulation 171(4)(c) of the EP&A Regulations relevantly provides that:

> (4) The review of environmental factors must be published on the determining authority's website or the NSW planning portal if—
>
> […]
>
> (c) the determining authority considers that it is in the public interest to publish the review.

This regulation will have the effect of requiring the Council to consider whether it is in the public interest to publish the REF, and if so, to publish the REF.

Additionally, any amendment to a plan of management that is required will need to be exhibited for 28 days, and the Council will need to accept public submissions for 42 days. This is discussed in more detail above in Section 4.1.3.3.

5.2.3 Conclusion

The Activity, this REF, and any amendment to a plan of management will need to be exhibited for at least 28 days. The Council will follow their policies to engage with the community regarding the Activity. The Council will need to accept public submissions on any amendment to a plan of management for at least 42 days and consider those submissions before a draft plan of management is adopted.

5.3 Consultation to date

5.3.1 Previous Feedback to Council

The following summarises relevant feedback received by Council from the community engagement undertaken prior to the contemplation of the Activity.

In recent years Council has received consistent feedback from the Northern Beaches community, including:

- That there is a need for more off-leash areas in parks and particularly beaches due to the number of dogs on the Northern Beaches, the over-crowding of many of the current off-leash areas and the lack of off-leash areas on beaches and with water access.

- The physical and mental health benefits many people attribute to walking their dog outdoors.
- The importance of off-leash areas for exercising and socialising dogs.
- The potential negative environmental, social and community impacts of more off-leash areas and dogs on beaches.

This feedback was received during community engagement undertaken for projects including the Unleashed Dog Exercise Area review in 2017, the Avalon Beach Reserve Off-leash Area trial in 2018, the research for the Station beach Dog Off-leash Area trial in 2019 and for the draft Open Space and Recreation Strategy in 2021.

5.3.2 Engagement for this Activity

At the Council meeting held on 27 April 2021, Council considered Item 13.1 Feasibility of Establishing Dog Off-leash Areas at Palm Beach (North) and Mona Vale Beach (South). In respect of Item 13.1, Council resolved (Council resolution 111/21) amongst other things that:

1. *Environmental assessments be undertaken in accordance with the EP&A Act 1979 (and other relevant legislation) into the possibility of establishing dog off-leash areas on Palm Beach (north) and Mona Vale Beach (south), as outlined in Attachments 1 and 2 of this report.*
2. *The assessments referred to in (1) be undertaken in consultation with the NSW State Government.*
3. *The trial parameters as described in this report be placed on public exhibition for a period of 4 weeks, and that preparations for this public exhibition commence immediately.*

Community and stakeholder engagement for the proposed dog off-leash areas at Palm Beach (North) and Mona Vale Beach (South) was conducted over a four-week period, from 7 May 2021 to 6 June 2021.

The objectives of the engagement, as stated above, were as follows:

- Objective 1: build community and stakeholder awareness of participation activities (inform)
- Objective 2: provide accessible information so community and stakeholders can participate in a meaningful way (inform)
- Objective 3: identify community and stakeholder concerns, local knowledge and values (consult)

The Activity was promoted through resident letters, onsite signage and stakeholder notifications including emails, social media and Council's email newsletter channels.

A project page was established on Council's 'your say' platform with information provided in an accessible and easy to read format. Since there were two proposals for dog off-leash areas, the information about each Activity (along with online comment forms) was presented in two separate tabs on the page. The page also included background information about the Activity and links to relevant Council Reports.

Feedback was captured through online comment forms embedded onto the 'your say' project page. There was a comment form for the Palm Beach (North) Activity and another for the Mona Vale (South) Activity. The forms included a question that asked respondents for their level of support on the Activity in question. People could fill in one or both forms and this was clarified on the 'your say page (https://yoursay.northernbeaches.nsw.gov.au/proposed-dog-off-leash-areas).

The following information/parameters were provided on the 'your say page for each area, followed by a question, opportunity to comment, and request for personal information so Council could communicate with the respondents if required, and gain an understanding of the respondents.

Table 4. Parameters/Info provided on the 'your say pages in 2021

Palm Beach (North)	Mona Vale Beach (South)
Provision of the proposed areas on a map	
Length of the proposed off-leash area is 400 m.	Length of the off-leash area is 300 m.
Northern boundary - 280 m south of the Ku-ring-gai Chase National Park.	Northern boundary – 720 m south of the Mona Vale Beach Surf Lifesaving Club.
Southern boundary - 300 m north of the North Palm Beach Surf Lifesaving Club.	Southern boundary – 45 m from the escarpment that separates Mona Vale Beach and Warriewood Beach
Western boundary - the eastern edge of the dunes in Governor Phillip Park.	Western boundary – the eastern edge of the dunes.
Eastern boundary - 130 m east of the eastern edge of the dunes.	Eastern boundary – 120 m east of the eastern edge of the dunes at the northern end and 50 m east of the base of the cliff face at the southern end.
Specific pathways as shown on the concept plan.	
Off-leash area times and days 4pm to 10am, 7 days a week (applies to specified pathways and the trial area on the beach)**	
12-month trial (subject to approval).	

** Notably the parameters (proposed times of use and some minor boundary adjustments) were changed by Council resolution on 22 February 2022.

The following question was asked for both locations, requiring an answer "Do you support the Project for the Palm Beach (north)/Mona Vale Beach (south) dog off-leash area?"

- Yes
- Yes, with changes
- No
- Neutral/Not sure

An open-field comments box in the form provided the respondent with space to explain or elaborate on their answer as well as any other feedback they wished to contribute. Email and written comments were also invited, and contact details for the project manager were provided should respondents have a question.

A post was also placed on the Northern Beaches Council's 'Keep A Look Out For' (KALOF) Facebook page, which is aimed at young people and families, in order to encourage young people to provide their feedback on the proposal.

5.3.3 Community Feedback

The results of Council's consultation undertaken in 2021 is summarised in Table 5.

Table 5. Community and stakeholder engagement statistics

Activity Area	Number of Responses	Yes (supported the proposal)	Yes – with changes	No (does not support the proposal)	Neutral
Palm Beach (North)	3871	3261	125	478	8
Mona Vale Beach (South)	3821	3113	170	525	13

A total of 3871 responses were received regarding Palm Beach (North) dog off-leash area with approximately 87% supporting the Activity outright or supported with changes. Of the 3871 responses approximately 83% were from Northern Beaches postcodes, with approximately 88% of these respondents supporting the Activity outright or with changes.

3821 responses were received regarding Mona Vale Beach (South), with approximately 86% supporting the Activity outright or supported with changes. Approximately 18% of the responses received were from the Mona Vale postcode. Mona Vale has a population of 10,670 (Australian Bureau of Statistic, 2021) and therefore approximately 6% of Mona Vale residents responded to the survey. The level of support for an off-leash dog park at Mona Vale Beach (South) from respondents lining in Mona Vale was less than the overall general level of support at approximately 67%.

The main themes arising from the comments received in support of the trial Activity included an increasing need for more off-leash areas, and that spending time with dogs has well-being and social benefits. The main feedback from respondents who were not in support, included concerns that dog excrement is a health and environment risk, many dog owners won't follow the rules, and environmental impacts.

A detailed thematic overview of comments received regarding both proposals and Council's responses is outlined in Table 6, which also identifies the REF sections in which the key theme have been addressed.

Table 6. Key themes, comments and Council responses

Key Theme	What we heard (summary)	Council's response	Section of REF
Need for more off leash areas on parks and particularly beaches on the Northern Beaches	1. There is an increasing need for more off leash areas on parks and beaches due to the large number of dogs and because more and more people are purchasing dogs - particularly during and since the COVID-19 period. 2. Existing off-leash areas are overcrowded particularly where there is a place to swim e.g. Rowland Reserve. New off-leash areas would spread the use and reduce crowding.	1 & 2 - The current proposal for off-leash areas on Palm Beach (north) and Mona Vale Beach (south) is in response to the demand for more off leash areas.	This document.
Health and physical and mental well-being	3. The proposed off-leash areas will encourage dog walking which enhances physical and mental well-being for people and dogs. 4. Spending time with dogs has physical, mental, well-being and social benefits for individuals, families and the community.	3 & 4 – Noted.	Section 2.1.
Other places have successful dog off leash areas why can't the Northern Beaches?	5. Other places have successful dog off-leash areas such as the Central Coast and other major cities why can't the Northern Beaches? 6. I travel to the Central Coast to walk my dog on the beach.	5 & 6 - The proposal for off leash areas on Palm Beach (north) and Mona Vale Beach (south) will assist with the demand for more off-leash areas.	This document.
Dog excrement	7. Excrement left on the beach is a health risk for people and adversely impacts the environment and reduces enjoyment of the beach. 8. Owners will not pick up after their dogs.	7. This matter has been assessed in the draft REF (Attachment 4) which found that it was not likely to have a significant impact on the environment, though mitigation and management safeguards were recommended. 7. Bins and faeces collection bags will be made available at the proposed locations.	Section 6.8.

Key Theme	What we heard (summary)	Council's response	Section of REF
		8. People taking their dogs to the proposed areas, would be required to abide by the conditions of use of the off leash areas as prescribed by Council (such as picking up after dogs) and relevant legislation such as the CA Act.	
Many dog owners do not and will not follow the off leash area rules at the proposed locations	9. Many dog owners are observed not following the rules related to dogs e.g. not picking up after their dog, dogs are off-leash when they should be on-leash, dogs are outside the boundaries of off-leash areas. 10. Given this observation there are concerns the rules will not be followed at these proposed locations and there will be conflict with other users and use and adverse impacts on the environment including from dogs being uncontrolled and outside the boundaries. 11. Owners don't pick up after their dogs on the Mona Vale headland dog off-leash area and won't on Mona Vale beach. 12. Owners do not pick up after their dogs on at other dog off-leash areas and won't on Palm Beach. 13. Owners will not be able to prevent their dogs going into the national park at Palm Beach.	9. Noted 10.11. 12. 13. People taking their dogs to the proposed areas, would be required to abide by the conditions of use of the off-leash areas as prescribed by Council and any relevant legislation such as the CA Act. And bins and faeces collection bags will be made available at the proposed locations.	Section 6.
Environmental impacts	14. Dogs and their excrement will adversely impact the environment. 15. Owners will not and will not be able to prevent their dogs entering environmentally sensitive areas.	14. This matter has been assessed in the draft REF which found that it was not likely to have a significant impact on the environment, though mitigation and management safeguards were recommended.	Sections 2.3, 3, 5 and 6.

Key Theme	What we heard (summary)	Council's response	Section of REF
	16. Proposed location at Palm Beach (north) is too close to the National Park and dogs will impact the National Park. 17. Will Council give the community an opportunity to read and comment on the environmental assessments before a decision on a trial is made?	14. Bins and faeces collection bags will be made available at the proposed locations. 15. People taking their dogs to the proposed areas, would be required to abide by the conditions of use of the off leash areas as prescribed by Council and any relevant legislation such as the CA Act. 16. Signage would be installed to indicate the boundaries of the off-leash areas. 17. The elected Council will consider whether the Review of Environmental Factors 2022 will be publicly exhibited	
Health and safety	18. Many people (individuals, children and families) are fearful of, scared of and or feel unsafe around dogs. 19. Dog excrement may impact the health of people. 20. Dogs may enter the flagged swimming areas at Palm Beach (north) or Warriewood beach where they are prohibited.	18. Noted. 19. This matter has been assessed in the draft REF which found that it was not likely to have a significant impact though mitigation and management safeguards were recommended. 20. People taking their dogs to the proposed areas, would be required to abide by the conditions of use of the off leash area as prescribed by Council and any relevant legislation such as the CA Act.	Sections 2.3 and 6.8.
Aesthetics, peace and quiet and enjoyment will be impacted	21. Dogs on these beaches will reduce the peace and quiet and enjoyment of these beautiful beaches.	21 & 22 – These matters have been assessed in the draft REF, which found that while use conflicts are possible,	Sections 2.3 and 6.5.

Key Theme	What we heard (summary)	Council's response	Section of REF
Will displace, conflict and impact other beach use and users	22. Dog activity will conflict, interrupt and limit use of the beach for other uses such as walking, swimming, kite surfing (Palm Beach) surfing and other recreational activities particularly for those who are fearful of or feel unsafe around dogs. 23. There is already an off-leash area at Mona Vale (south) on the headland and no need for beach access near here.	the Project has minimised these as far as reasonably practicable and the potential likelihood of conflict between users is considered to be low. 23. Noted	
Suggestions for; larger areas (both locations) and to consider other parks and beaches for off leash areas.	24.Both locations are not large enough nor long enough. 25.The amount of area for both locations is suitable. 26.Many locations were suggested for investigation for new off-leash areas on other beaches and suburbs.	24.25. Noted. 26. This project addresses proposals for the Palm Beach (north) & Mona Vale Beach (south). Other locations for off-leash area are to be considered through the development of the Northern Beaches Dogs in Public Places policy and guidelines in 2022.	Sections 2.3 and 3.
Times proposed for off-leash access to the proposed locations	27. For both locations: • The times are too restrictive. • There should be no time restrictions. • The times are suitable.	27. The proposed days and times have been set to provide suitable times for walking a dog and to minimise impacts on other uses.	Section 2.3.
Proposed locations	28. For both locations: • Close to my home. • Beaches are good for dogs to run, swim and have fun. • Off-leash areas on a beach - less maintenance than off-leash areas on grass in a park. • Mona Vale (south) preferred as not near National Park and near an existing off leash area.	28. Noted.	Sections 2.3, 3 and 6.
Palm Beach (north) and Mona Vale (south) is not well used	29. Palm Beach (north) and Mona Vale (south) are not well used and are good locations for off-leash areas as there would be not many users impacted compared to busier beaches. 30. Though these locations may not be as well used as other beaches this is part of their appeal.	29.30. Noted.	Sections 2.3, 3 and 6.

Key Theme	What we heard (summary)	Council's response	Section of REF
Suggestions to help make the proposed off leash areas a success	31. Many suggestions were made about how to make the proposed off-leash areas a success including; signs, bins and bags, more ranger visits and more enforcement of rules, higher and more fines, on-leash, fencing to keep dogs away from environmentally sensitive areas, owners to take responsibility, trial first, owner education, CCTV, off-leash area licence, monitoring and improved access for older people and people with mobility issues, respect and learn the rules.	31. Noted.	Section 8.2.
Compliance management by Council	32. Council's enforcement of compliance is essential to the success of the proposed off leash areas. 33. Council does not have the capacity to successfully manage the compliance of dogs currently so how will Council manage the compliance at the proposed locations?	32.33. Council effectively manages compliance matters related to dogs in alignment with Council's policies and directions and relevant legislation such as the Companion Animal Act 1998 including at the 29 existing dog off-leash areas, (some of which have water access).	Section 8.2.
Equal access and fairness	34. Dog owners and dogs should have equitable access to open space, particularly beaches. 35. It's only fair that there are some beaches where people can take their dogs. There are plenty of beaches for people.	34.35. Noted.	Section 3.
Most dog owners do and will follow the off-leash area rules	36. Most dog owners follow the rules and pick up after their dogs and would follow the rules at these proposed locations. 37. The owners that use the Mona Vale headland off-leash area are used to the rules and will follow the rules at the new location.	36.37. Noted	Section 8.2.

5.3.4 Consultation with Relevant Agencies

As part of this environmental assessment, consultation with relevant NSW State Government Agencies was conducted. The key aims of the consultation process were to inform stakeholders about the Activity and identify any issues of concern or interest to be investigated and addressed. Table 7 provides a summary of the stakeholder consultation during the preparation of the REF, a summary of comments received, and where the comment has been addressed in the REF.

Table 7. Stakeholder Consultation Summary

Stakeholder Consulted	Summary of Comment Received	Comment
National Parks and Wildlife Service (NPWS)	Prefer a location at Palm Beach further south (i.e. the northern most point of the area would align with the northern most point of Governor Phillip Park). NPWS notes that there may be potential conflicts with dogs and seals. Also, the Activity may limit NPWS's ability to use 1080 baiting methods.	Moving the Activity Area as suggested by NPWS would reduce the distance to the primary use area of the beach (i.e. the beachfront near the Surf Life Saving Club). A colony of seals is known to bask on 'seal rock' a rock outcrop located off Barrenjoey Headland. Access to this general area is along the rocky foreshore which is difficult to traverse. The northern boundary of the Palm Beach (North) Activity Area is the closest to the Ku-ring-gai Chase National Park at approximately 263m. Given the separation distance, access challenges and the general public knowledge that dogs are prohibited in National Parks, the potential for interaction between seals and dogs is considered low. The current Activity Area is located on a more secluded section of Palm Beach and reduces the potential of conflicts with dog off-leash users and other recreational users, whilst also maintaining a separation distance of approximately 257m to the boundary of the National Park.
NSW Department of Primary Industries - Fisheries	Council has sought advice from DPI Fisheries and has received no correspondence. Council has considered previous correspondence from DPI Fisheries regarding a former Station Beach proposed dog off-leash area as relevant for this Activity. DPI Fisheries recommended that Council investigate ocean beaches areas for off-leash dog parks as this presented less risks.	Both Activity Areas are associated with ocean beaches.
NSW Crown Lands	Crown Lands have advised that there is no valid PoM in place for the purpose of the CLM Act in respect of the Crown land within the Activity Areas. Crown Lands advised that the Activity	Noted and considered in Section 4.1.3.1.

Stakeholder Consulted	Summary of Comment Received	Comment
	would constitute a change to the nature and use of the reserve such that a PoM is required. Crown Lands suggested that the Northern Beaches Council should be appointed Crown Land Manager over existing or newly created reserves, as needed, particularly in relation to land below the mean high water mark. Northern Beaches Council will liaise with Crown lands in relation to appointment as Crown Land Manager and any plan of management prior to determination of the Activity, as required.	

5.3.5 Feedback from Public Exhibition of the REF

The REF for the proposed dog off-leash trial areas Palm Beach (North) and Mona Vale Beach (South) was placed on public exhibition over a 32-day period, from 11 August 2022 to 11 September 2022. A total of 879 individual submissions were received during the public exhibition of the REF. Topics raised by individual submissions are summarised in Table 8.

A comprehensive assessment of the submissions received during the public exhibition of the REF has been completed by Barbara Campany and Associates Pty Ltd. A summary of the key findings of the assessment is provided below.

Table 8 Key themes, comments and Council responses

Aspect	Number of Responses	% of Responses	Overview of comments	Overview of Council responses
Aesthetic and recreational quality value - lifestyle/mental health/community connection	123	14	The majority of these comments (60%) felt that the benefits of the Activity would be positive, while a minority (18%) disagreed. There were suggestions that dogs being off-leash would both negatively and positively impact recreational spaces.	To minimise potential negative impacts on aesthetics and recreational quality, Council has imposed time and area limits on the Activity to minimise impacts on other users. Council would also require people taking their dogs to the proposed Activity areas to comply with all relevant legislation, such as the *Companion Animals Act 1988*.
Biodiversity – flora and fauna	70	8	The majority of these comments expressed concerns about the biodiversity impacts of the Activity. The majority commented on the Council's ability to adequately protect flora and fauna from dogs running freely and expressed doubt as to dog-owner compliance. A minority of submissions agreed that the mitigation and management measurements proposed would be enough to reduce the impacts of the Activity, that dog owners love and respect the environment and are likely to comply with relevant regulatory requirements, and that other areas similar to the Activity exist.	Mitigation and management safeguards have been proposed to limit potential impacts on fauna species, including maintenance and improvement to existing dune fencing. Council would also require people taking their dogs to the proposed Activity areas to comply with all relevant legislation, such as the *Companion Animals Act 1988*.
Traffic – access and parking	26	3	The majority of these comments (80%) felt that parking would be a problem and that further studies are required. A minority (15%) felt that parking would be	Palm Beach (north) has approximately 130 marked off-street parking spaces. Increases to vehicle movements at Palm Beach (north) would be within existing seasonal and daily variations.

Aspect	Number of Responses	% of Responses	Overview of comments	Overview of Council responses
			adequately addressed by the measures proposed in the REF.	Mona Vale (south) has approximately 490 formal parking spaces. The Activity is not expected to result in any material increase to patronage at this location. The proposed times for the Activity were selected to reduce impacts from day visitors to the two locations. Council will monitor impacts on parking during the Activity.
Waste management – dog defecation	44	5	The majority of these comments focussed on owner compliance in collecting dog faeces, suggesting that this was an existing issue and that the management and mitigation measures proposed by the REF were inadequate. A minority suggested that humans cause more waste impacts than dogs through littering.	Rangers will conduct patrols to monitor compliance by dog owners. Bins and faeces collection bags will be made available at the proposed Activity areas. Council would also require people taking their dogs to the proposed Activity areas to comply with all relevant legislation, such as the *Companion Animals Act 1988*. Council will monitor compliance during the Activity.
Noise	8	<1	These comments tended to note the potential for disturbance of peace and quiet as a result of the Activity.	Council has imposed time and area limits on the Activity to minimise impacts on other users. Council would also require people taking their dogs to the proposed Activity areas to comply with all relevant legislation, such as the *Companion Animals Act 1988*.
Aboriginal archaeology	8	<1	These comments tended to note the potential for the Activity to impact Aboriginal Heritage sites and whether the impacts had been assessed.	The REF has assessed all relevant matters as required by the *Environmental Planning and Assessment Regulation 2021* (NSW), including heritage issues.
European/historic heritage	8	<1	These comments tended to note the potential for the Activity to impact the Barrenjoey Heritage Conservation Area and the incompatibility of dogs with beaches, which are themselves part of the natural heritage.	The REF has concluded that there are no constraints for Mona Vale Beach (south) in respect of European heritage. Impacts on European heritage at Palm Beach (north) have been determined to be minimal to low.

Aspect	Number of Responses	% of Responses	Overview of comments	Overview of Council responses
Human health and water quality	16	2	Just over half of these submissions commented on the impact of dog faeces and urine in the water. Other comments suggested that such fears were misplaced and that beach closure and illness is usually caused by contamination and/or algae blooms.	Both land and water-based monitoring has been undertaken to target faecal bacteria. Bacteria associated with dog waste was generally undetectable in beach sands frequented by off-leash dogs at three common off-leash areas in the LGA. Dog waste on sand is a possibility and will be impacted by owner practices and compliance. Council will require people taking their dogs to the Proposed Activity areas to comply with all relevant legislation, such as the *Companion Animals Act 1988*. Rangers will conduct patrols to monitor compliance.
Social and economic land use matters	16	2	The majority of comments in this category felt there needed to be greater transparency of the cost-benefit analysis of the Activity. Some suggested quantitative data is required. Others expressed concerns about the additional burden on Council resources if the Activity proceeds.	The cost of undertaking the Activity is not a matter required to be considered in the REF. When considering whether or not the Activity proceeds on a longer-term basis, Council will identify and consider costs of conducting the Activity, including costs to adequately implement mitigation and management safeguards.
Infrastructure – fencing, signage, bins needed for the trial	16	2	Almost 50% of these submissions expressed concern that the cost of additional services (e.g. installing new fences, bins, and signage) would be borne by all rate payers when only dog owners benefit. Other submissions commented on issues such as the placement of new fences, bins, and signage. One quarter of the submissions in this category noted that dog owners are unlikely to comply with new fences, bins, and signage.	No additional staff resources are contemplated as part of the REF, although additional Council staff may be present during the Activity commencement period to clarify the requirements to dog owners, and further educate the community and users of the off-leash area. Council staff resources that are deployed to monitor compliance related to the proposed trial areas will be sourced from current Council operational funding. If the Activity is initiated, it is likely that Council would conduct additional messaging with the community, with the aim to improve owner compliance. If the

Aspect	Number of Responses	% of Responses	Overview of comments	Overview of Council responses
				Activity is initiated, it is likely that Council would conduct additional messaging with the community, with the aim to improve owner compliance.
Assessing the trial – with baseline measures	70	8	The majority (75%) agreed with the REF findings and the way in which the assessment was completed. A minority (25%) did not agree. Some commented that the REF did not provide criteria to assess the success or failure of the Activity. Other submissions noted that the REF overstates the need for the Activity.	The purpose of the REF is to determine whether the Activity is likely to have significant impacts on the environment, rather than to provide criteria to determine the success or failure of the Activity or whether it is needed. Monitoring of various aspects of the Activity (e.g. parking, waste etc) will be undertaken during the Activity to inform Council's decision as to whether the Activity has been a success or failure. Council will develop criteria for assessing the success or failure of the Activity. These criteria are planned to be included in a future report regarding the proposal Activity. Council has recently received regular feedback seeking additional dog off-leash areas. It is reasonable for Council to investigate that feedback.
REF consultation	16	2	Nine out of the 24 comments in this category supported the extent of consultation undertaken for the REF. Eight comments suggested that no further consultation was required. The remainder of submissions expressed concerns about the Council's capacity to manage complaints from the Trial.	Exhibition of REFs is only required by the *Environmental Planning and Assessment Regulation 2021* (NSW) in certain circumstances (for instance, meeting certain capital investment thresholds). Although the Activity does not meet these thresholds, Council still exhibited the draft REF, in line with Council's Community Engagement Policy and Community Engagement Matrix (2017). Council has undertaken comprehensive community engagement in relation to the Activity and draft REF to ensure all relevant points of view are considered.

Aspect	Number of Responses	% of Responses	Overview of comments	Overview of Council responses
Policy and regulation	8	1	The majority (74%) of the submissions in this category raised concerns that the Activity was in breach of existing policy. Of the remaining comments, 13% said that regulatory requirements had not been fulfilled, 9% stated that further assessment was required and 4% said that the draft REF met minimum regulatory requirements.	A number of submissions correctly identify that the Pittwater Council Dog Control Policy (No 30) prohibits dogs from beaches. In order to authorise the Activity, Council must make orders under the *Companion Animals Act 1998* to amend the Dog Policy to authorise dog access for the Activity areas. Once the REF has been finalised, Council intends to amend the Dog Control Policy. In preparing the REF, Council has had regard to relevant provisions in the *Environmental Planning and Assessment Act 1979* (NSW) and *Environmental Planning and Assessment Regulation 2021* (NSW), as well as the Part 5 Guidelines and other relevant legislation, planning instruments and policies.
When can the trial start?	140	16	Of the comments in this category, 68% requested that Council proceed with the trial, 11% said that more off-leash areas were needed, 13% commented on dog policies in other local government areas and 8% asked about why the Activity was taking so long to commence.	Council is taking the time required so that all due diligence in regard to the Activity is undertaken.
Trial parameters	79	9	Of the comments in this category, 29% supported the proposed times and locations of the Activity, 27% requested more locations and extended hours and 20% opposed the suggested locations. The remaining 8% suggested there were already enough off-leash areas.	Council considered a range of locations for possible off-leash dog areas (see table 3 in the REF). The two proposed locations were chosen having regard to a number of factors, including the length of beachfront proposed to be occupied, distance from the nearest surf club and adjoining land uses. Council resolved to implement the proposed times during which off-leash dog access would be permitted as these include popular times to exercise dogs, such as

Aspect	Number of Responses	% of Responses	Overview of comments	Overview of Council responses
				in the mornings before work and after school drop-off and in the afternoons after work and school pick-up.
Equity / user conflicts / safety	97	11	The majority of the comments in this category (61%) described personal fears with off-leash dogs. Others discussed user conflicts with competing activities (e.g. weddings and markets). Other comments stated that the proposed times would be incompatible with existing users. A small portion of these comment (3%) suggested only allowing dogs on the beach if leashed. A further 7% said dogs should never be allowed on beaches, no matter the circumstance.	Council has imposed time and area limits on the Activity to minimise impacts on other users. Council will also require people taking their dogs to the proposed Activity areas to comply with all relevant legislation, such as the *Companion Animals Act 1988*.
Compliance / social responsibility of owners	149	17	This was the single largest concern for most respondents, with multiple comments made across different sub-themes. Of the comments in this category, 24% indicated support for dogs off-leash but also raised concerns about owners not picking up dog faeces, 13% said dogs were already off-leash in undesignated areas, 44% spoke about issues with enforcing compliance and 18% suggested the majority of dog owners are responsible.	Council will require dog owners to comply with all relevant legislation, such as the *Companion Animals Act 1988*. Rangers will conduct patrols to monitor compliance. Signage will be installed at the proposed off-leash areas with information for users including conditions of use (e.g. picking up after their dogs).
Consultation about the dog off-leash trial proposal	16	2	Of the comments in this category, 8% suggested that community members have not contributed to consultation because the issue is so divisive, with 26% stating that they were concerned about the	Exhibition of REFs is only required by the *Environmental Planning and Assessment Regulation 2021* (NSW) in certain circumstances (for instance, meeting certain capital investment thresholds). Although the Activity does not meet these thresholds, Council has still exhibited the draft REF, in line with Council's

Aspect	Number of Responses	% of Responses	Overview of comments	Overview of Council responses
			consultation process. Others commented that consultation was taking too long.	Community Engagement Policy and Community Engagement Matrix (2017). Council is undertaking comprehensive community engagement in relation to the Activity and draft REF to ensure all relevant points of view are considered.

6. Environmental Impact

6.1 Identification of Key Environmental Aspects

To assist with identifying the key environmental and community aspects that require further assessment, an environmental assessment has been completed for the Activity. Each aspect and the corresponding risks were assessed giving consideration to:

- Existing environment for the Activity Area and surrounding lands (i.e. the background environmental conditions, sensitivity to change and importance/significance of the location, features, objects and/or species present where the Activity is proposed)
- Existing land use characteristics (type, intensity, durations / patterns of use) where the Activity is proposed.
- Type/nature of the of the proposed activity. This includes the:
  - Size of the Activity – footprint.
  - Extent of the affectation zone.
  - Duration and severity of any potential impact (positive or negative).
  - Capacity of the location to accommodate the Activity.
  - Level of confidence with assessing any potential impact.
  - Ability to implement mitigation measures to address any potential impact. The controls proposed to mitigate any potential impacts are based on the controls effectively used by Council at its other 29 dog parks located across the LGA)
  - Reversibility of any impact.
- Level of concern/community interest in the Activity.

Table 9 summarises the aspects considered for the purposes of this REF and identifies the key environmental and community aspects for which further assessment has been undertaken and included in the REF.

Table 9. Review of Environmental Aspects

Environmental Aspect	Preliminary Environmental Risks Assessment	Detailed Assessment in REF
Aesthetic, recreational, scientific or other environmental quality or value.	**Aesthetic and Recreational quality or value:** The Activity occupies approximately 34% and 17% of the beachfront at Mona Vale and Palm Beach respectively. The majority of the beachfront usage will therefore remain unchanged from current patterns. This includes the high use recreational areas located generally in front of the respective surf clubs (i.e. used exclusively by its current users). Any potential aesthetic or recreational impacts are significantly mitigated by: • The large separation distances between the Activity Area and primary beach usage area located generally near the surf club building (i.e. near the flags). • Time of use restrictions. • The large distances between residential locations and the Activity and topographic / vegetation	No further assessment undertaken.

Environmental Aspect	Preliminary Environmental Risks Assessment	Detailed Assessment in REF
	shielding which limits line of sight to the Activity Areas. • The general area adjoining both proposed locations is currently used for the recreational activity of dog walking. At Palm Beach dog walking is carried out in the adjoining areas on-leash. At Mona Vale dogs are permitted off-leash in South Mona Vale Headland Reserve. **Scientific quality or value:** There are no known items of scientific quality or value within the Activity Areas which may be impacted. The Activity does not exclude any future research, discovery or protection of any scientific quality or value. **Other environmental quality or value:** See aspects below. The current aesthetic, recreational and scenic values of the land are not expected to be significantly impacted by the Activity.	
Biodiversity	The Activity Areas contain no threatened ecological communities but does contain potentially suitable habitat for threatened species list under the BC Act and EPBC Act.	See Section 6.2, Annex 4, Annex 5, and Annex 6
Traffic (Access and Parking)	The Activity has the potential to generate additional traffic and parking needs at Palm Beach (North). Existing users of the off-leash dog area at Robert Dunn Reserve are expected to also use the Mona Vale Beach (South) Activity Area. Any additional traffic and parking needs due to increased usage numbers is therefore expected to be minimal.	See Section 6.3.
Waste Management	The Activity has the potential to generate additional waste streams in the forms of general domestic litter and dog faeces.	See Section 6.4.
Noise	The Palm Beach (North) Activity Area has been located at the northern end of Governor Phillip Park and away from the primary use areas of the park. The nearest receivers to the Mona Vale Activity Area, are the residences located on Narrabeen Park Parade at a distance of approximately 70 m and the Palliative Care Mona Vale Hospital at a distance of approximately 110 m. Located between these receivers and the Activity Area is the existing off-leash dog park of Robert Dunn Reserve, and therefore the current noise impacts to these locations is unlikely to materially change.	See Section 6.5.

Environmental Aspect	Preliminary Environmental Risks Assessment	Detailed Assessment in REF
Aboriginal Cultural Heritage	The Activity has the potential to impact Aboriginal Cultural Heritage. The potential impacts of the Activity have been considered via an Aboriginal Objects Due Diligence Assessment.	See Section 6.6 and Annex 3
European and Natural Heritage	A desktop Historical Heritage assessment has determined that there would not likely be any impact in association with the Activity.	See Section 6.7.
Soil and groundwater Contamination	The Activity is not expected to result in any significant soil or groundwater contamination.	No further assessment undertaken.
Greenhouse Gas / Air Quality	The Activity will not result in any material greenhouse gas or air quality impacts.	No further assessment undertaken.
Human Health & Water Quality	The Activity could impact human health and water quality via dog faeces that have not been disposed of correctly. The potential human health impacts have been investigated via a dog faecal bacteria sand sampling program undertaken by the University of Technology Sydney. The Activity, however, is not expected to contribute to a measurable change to stormwater / water quality, during storm events.	See Section 6.8.
Visual Impacts	The Activity will not result in any significant changes to visual amenity at either Activity Area.	No further assessment undertaken.
Coastal Processes and Hazards	The Activity will not alter the natural coastal processes or hazards associated at either Activity Areas.	No further assessment undertaken.
Cumulative Impacts	The Activity is predicted to result in negligible cumulative impacts on the environment.	See section 6.9.
Other (geotechnical stability / risk to the general public)	It is noted that the cliff at the southern end of Mona Vale Beach is subject to geotechnical stability (landslip / rockfall) events (i.e. after rainfall). To mitigate the risk to the general public Council undertakes monitoring for landslip and has installed warning signage to advise the general public of this risk. The Activity is not expected to change the probability of a landslip event occurring or the potential consequence from a potential landslip event.	No further assessment undertaken.
Socio- Economic / Landuse	This Activity is likely to benefit physical, social, psychological and economic aspects within the community. There may also be negative impacts between different users of the Activity Areas and general locality.	See Section 6.10.

6.2 Biodiversity

Part 7 of the BC Act sets out a process of assessment for an 'activity' as defined in Part 5 of the EP&A Act. As provided in Section 4.1.1 of this REF, the Activity is such an activity. Section 7.8(2) of the BC Act provides that:

> For the purposes of Part 5 of the *Environmental Planning and Assessment Act 1979*, an activity is to be regarded as an activity likely to significantly affect the environment if it is likely to significantly affect threatened species.

Section 7.2(1) relevantly provides that:

> (1) For the purposes of this Part, development or an activity is likely to significantly affect threatened species if—
>
> (a) it is likely to significantly affect threatened species or ecological communities, or their habitats, according to the test in section 7.3, or
>
> […]
>
> (c) it is carried out in a declared area of outstanding biodiversity value.

Section 7.3 provides that:

> (1) The following is to be taken into account for the purposes of determining whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats—
>
> (a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,
>
> (b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity—
>
> (i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or
>
> (ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,
>
> (c) in relation to the habitat of a threatened species or ecological community—
>
> (i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and
>
> (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and
>
> (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,
>
> (d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

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

6.2.1 Threatened Species

6.2.1.1 Threatened and migratory species likelihood of occurrence

A list of threatened and migratory species with known or predicted occurrences in the locality (10 km buffer from the Activity Areas) was compiled from searches of the following databases:

- *NSW Department of Planning and Environment (DPE) BioNet, Atlas of NSW Wildlife* (DPE 2022a, DPE 2023)
- *Australian Department of Agriculture, Water and the Environment (DAWE) EPBC Act Protected Matters Report* (DAWE 2022a).

Locations of threatened and migratory species records within 5 km of the Activity Areas are shown in Figure 10 and Figure 11 (Flora); Figure 12 and Figure 13 (Fauna).

In order to adequately determine the relevant level of assessment to apply to potentially impacted species, analysis of the **likelihood of those species occurring within the Activity Areas** was completed based on the habitat requirements detailed in each species profile (DPE 2022b and DAWE 2022b). Five categories for 'likelihood of occurrence' (Table 10) were attributed to each species after consideration of criteria such as known records, presence or absence of important habitat features at the Activity Areas, results of targeted shorebird surveys and professional judgement.

It should be noted that the assessment of potential impact has been limited to the Activity Areas. It has been assumed that that the off-leash area would be controlled and restricted to those Activity Areas indicated by Council, i.e. that the potential impact of off-leash dogs would be limited to the Activity Areas as dogs would be required to be on-leash in all other areas.

Table 10. Likelihood of occurrence criteria

Likelihood rating	Threatened flora criteria	Threatened and migratory fauna criteria
Known	The species was observed within the Activity Area.	The species was observed within the Activity Area.
High	It is likely that a species inhabits or utilises habitat within the Activity Area.	It is likely that a species inhabits or utilises habitat within the Activity Area.
Moderate	Potential habitat for a species occurs within the Activity Area. Adequate field survey would determine if there is a 'high' or 'low' likelihood of occurrence for the species within the Activity Area.	Potential habitat for a species occurs within the Activity Area and the species may occasionally utilise that habitat. Species unlikely to be wholly dependent on the habitat present within the Activity Area.
Low	It is unlikely that the species inhabits the Activity Area.	It is unlikely that the species inhabits the Activity Area. If present within the Activity Area the species would likely be a transient visitor. The Activity Area contains only very common habitat for this species which the species would not rely on for its on-going local existence.
None	The habitat within the Activity Area is unsuitable for the species.	The habitat within the Activity Area is unsuitable for the species.

The likelihood of occurrence table is provided in Annex 5. The likelihood of occurrence assessment includes 24 migratory shorebird species, all of which are considered to have a low likelihood of occurrence at both Activity Areas.

Nineteen threatened and migratory fauna species including; eight bird species (5 = threatened, 2 = threatened and migratory seabirds, 1 = migratory seabirds), eight threatened mammal species, and three threatened and migratory reptile species are considered to have a moderate likelihood of occurrence within the Mona Vale Beach (South) Activity Area.

Thirteen threatened and migratory fauna species including; five bird species (4 threatened, 1 threatened and migratory seabird), five threatened mammal species, and three threatened and migratory reptile species are considered to have a moderate likelihood of occurrence within the Palm Beach (North) Activity Area. One migratory seabird has a known likelihood within the Palm Beach (North) Activity Area as it was detected flying over the 100 m buffer area.

Threatened and/or migratory species assessed as having a moderate or higher likelihood of occurrence are presented in Table 11. Formal assessments of significance (Test of Significance [ToS] under Section 7.3 of the BC Act and the EPBC Act's Significant Impact Criteria) were conducted for species considered to have a moderate or higher likelihood of occurrence and that have the potential to be impacted by the Activity (candidate species) to determine whether the Activity will have a significant impact on threatened or migratory species (Annex 6). Justification as to why ToS have not been completed for some species are detailed in Table 11.

Based on the assessment of the likely impacts of the Activity on threatened and migratory species habitat, the value of the habitat within the Activity Areas and the implementation of mitigation measures, no threatened or migratory biodiversity was determined as having the potential to be significantly impacted by the Activity.

6.2.1.2 The Little Penguin

The Little Penguin (*Eudyptula minor*) is not listed as a threatened species, however the species has been considered here due to the proximity of the Activity Areas (notably Palm Beach (North)) to a known offshore breeding population on Lion Island and the sensitive status of the species in the Sydney area, due to the *Little Penguin in the Manly Point Area Endangered Population*. The Activity Areas do not occur within the *Little Penguin in the Manly Point Area Endangered Population* critical habitat or within breeding areas of other offshore island populations and the Activity will not directly impact these populations. The species itself however is known to forage in the coastal waters adjacent to the Activity Areas, with records occurring frequently along the coast north from Sydney to Nelson Bay, and continuing less frequently further northward. The Activity Areas are not known as breeding locations for this species, and as such would not support frequent events of the species coming ashore. While Little Penguins generally only need to come ashore for breeding or moulting, and they will return to their colonies for these purposes (not known for the Activity Areas), it is feasible that foraging individuals from the nearby populations may come ashore on occasion. Should a Little Penguin come ashore it would be susceptible to dog attack, however, unless injured or for another unusual reason, this species generally comes ashore after dark and returns to the water before dawn, excluding moulting when the species will stay ashore for up to three weeks.

Table 11. Threatened and migratory species with a moderate likelihood of occurrence

Scientific name	Common name	BC Act	EPBC Act	Likelihood Mona Vale Beach (South)	Likelihood Palm Beach (North)	Formal assessment required?
Birds						
Dasyornis brachypterus	Eastern Bristlebird	E	E	Moderate	Moderate	Yes
Esacus magnirostris	Beach Stone-curlew	CE	-	Low	Moderate	Yes
Haematopus fuliginosus	Sooty Oystercatcher	V	-	Moderate	Moderate	No: while this species may fly over the Activity Areas and stop briefly on the sandy beach on occasion, the Activity Area lacks suitable intertidal foraging habitat that would result in the species spending regular time on the ground. In addition, suitable breeding habitat is absent. While the species is known from the locality and likely passes through the Activity Areas, the time spent in the Activity Areas is likely to be predominantly aerial.
Haliaeetus leucogaster	White-bellied Sea-Eagle	V	MA	Moderate	Moderate	Yes
Hieraaetus morphnoides	Little Eagle	V	-	Moderate	Moderate	Yes
Hydroprogne caspia	Caspian Tern	-	MA, M	Low	Known	Yes
Pandion haliaetus cristatus	Eastern Osprey	V	MA, M	Known	Moderate	Yes
Sterna hirundo	Common Tern	-	MA, M	Moderate	Low	Yes
Sternula albifrons	Little Tern	E	MA, M	Moderate	Low	Yes
Sternula nereis nereis	Australian Fairy Tern	-	V	Moderate	Low	Yes
Mammals						
Cercartetus nanus	Eastern Pygmy-possum	V	-	Moderate	Moderate	Yes

Scientific name	Common name	BC Act	EPBC Act	Likelihood Mona Vale Beach (South)	Likelihood Palm Beach (North)	Formal assessment required?
Chalinolobus dwyeri	Large-eared Pied Bat	V	V	Moderate	Low	No: only limited suitable foraging habitat is present. This species is nocturnal and forages aerially, it is considered unlikely that dogs will impact on this species while in flight.
Isoodon obesulus obesulus	Southern Brown Bandicoot (eastern)	E	E	Moderate	Moderate	Yes
Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	V	-	Moderate	Low	No: only limited suitable foraging habitat is present. This species is nocturnal and forages aerially, it is considered unlikely that dogs will impact on this species while in flight.
Miniopterus australis	Little Bent-winged Bat	V	-	Moderate	Moderate	
Miniopterus orianae oceanensis	Large Bent-winged Bat	V	-	Moderate	Moderate	
Myotis macropus	Southern Myotis	V	-	Moderate	Low	
Pteropus poliocephalus	Grey-headed Flying-fox	V	V	Moderate	Moderate	
Reptiles						
Caretta caretta	Loggerhead Turtle	E	E, MA, M	Moderate	Moderate	Yes
Chelonia mydas	Green Turtle	V	V, MA, M	Moderate	Moderate	Yes
Eretmochelys imbricata	Hawksbill Turtle	-	V, MA, M	Moderate	Moderate	Yes

** V = Vulnerable, E = Endangered, CE = Critically Endangered, MA = Marine, M = Migratory.*

6.2.1.3 Targeted survey methods

Survey methods were developed in accordance with:

- *EPBC Act Policy Statement 3.21—Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species* (DEE 2017a, hereafter referred to as the industry guidelines)
- *Survey guidelines for Australia's threatened birds - Guidelines for detecting birds listed as threatened under the Environment Protection and Biodiversity Conservation Act 1999* (DEWHA 2010).

Guiding information for migratory shorebird surveys (in tidal areas, as relevant to the Activity) provided in the industry guidelines is designed to assist in determining if an area represents 'important habitat' for migratory shorebirds, surveys are therefore aimed at obtaining counts and life-stage data of species present. Given the aim of the targeted surveys completed in this case was to determine presence of migratory shorebirds at the Activity Areas, guiding information relating to timing and minimum survey effort was used, while additional guiding information relating to population and life history metrics was omitted. The guiding information is provided in Table 12.

Targeted surveys for migratory shorebirds were undertaken by Niche at both Activity Areas on four separate occasions at low tide and high tide, comprising one survey that corresponded with the spring tide during December 2021, two surveys that corresponded with the neap tides during January 2022, and one survey that corresponded with the spring tide during February 2022 (see Table 13). Surveys were conducted from multiple vantage points using binoculars, which allowed a full view of the potential foraging and roosting habitat at the Activity Area, as well as within a 100 m buffer around the Activity Area (DEWHA 2010).

Limited suitable spring and neap tide dates were available each month during the survey period. Unsuitable weather conditions occurred on some of the dates with spring or neap tides. Surveys scheduled for dates with unsuitable weather conditions were conducted on supplementary days as close to the relevant tide (spring or neap) as possible when alternate dates of spring or neap tides were unavailable in the same month. Tide height was equivalent to or within 10 centimetres (cm) of the relevant tide on supplementary survey days.

In addition to the surveys conducted by Niche in 2021/2022, Council completed recent surveys in 2022/2023. Survey details and results have been included in this report.

Targeted flora surveys for Sand Spurge (*Chamaesyce psammogeton*) were undertaken at both Activity Areas during the high tide shorebird survey on 17 February 2022.

Table 12: Shorebird survey guidelines (DEE 2017a)

Survey effort	General	Timing	Relevant survey completed
Four surveys for roosting shorebirds	• The months when the majority of migratory shorebirds are present in the area. • One survey in December, two surveys in January, and one survey in February will be adequate.	• Surveys for roosting shorebirds should be conducted as close to the time of high tide as practicable and at a maximum of no more than two hours either side of high tide.	Niche: • December 2021 – spring high • January 2022 – neap high • January 2022 – neap high • February 2022 – spring high Council (Mona Vale only) • November 2022 - high • January 2023 - high • January 2023 - high

Survey effort	General	Timing	Relevant survey completed
Four surveys for foraging shorebirds	• Surveys should not be undertaken during periods of high rainfall or strong winds. • Surveys should not be undertaken when activities are taking place which cause shorebird disturbance.	• Two surveys at spring low tide (low low tide) and two surveys at neap low tide (high low tide). • Surveys for foraging shorebirds should be conducted as close to the time of low tide as practicable and at a maximum of no more than two hours either side of low tide.	Niche: • December 2021 – spring low • January 2022 – neap low • January 2022 – neap low • February 2022 – spring low Council • November 2022 – low (Palm Beach only) • December 2022 – low (Mona Vale and Palm Beach) • January 2023 – low (Mona Vale and Palm Beach)

Table 13. Shorebird survey effort

Date	Tide	Site	Start time	Duration (hours)	Tide height (m)	Temperature (°C)	Windspeed (km/h) and direction	Precipitation (mm)
Niche data 2021/2022								
21.12.2021	Spring high	Mona Vale	11.10 am	1.5	1.66	26	11-20 S	0
		Palm Beach	11.15 am	1.5	1.7	27.7	4 ESE	0
	Spring low	Mona Vale	3.05 pm	1.5	0.5	26.8	15-22 ESE	0
		Palm Beach	3.00 pm	1.5	0.6	27	20 ESE	0
11.01.2022	Neap low	Mona Vale	11.20 am	1.5	0.7	28	7 NE	0
		Palm Beach	11.10 am	1.5	0.7	26	19 E	0
	Neap high	Mona Vale	1.10 pm	1.5	1.2	24	13 E	0
		Palm Beach	1.40 pm	1.5	1.2	25	17 E	0
25.01.2022	Neap low	Mona Vale	8.55 am	1.5	0.7	21.5	4 NE	<0.1
		Palm Beach	9.00 am	1.5	0.7	22	11 NE	0
	Neap high	Mona Vale	11.40 am	1.5	1.3	22.5	11 ENE	0
		Palm Beach	11.30 am	1.5	1.3	25	11 ENE	0
17.02.2022	Spring high	Mona Vale	10.43 am	1.5	1.7	25.2	9 NNW	0
		Palm Beach	10.43 am	1.5	1.7	24.1	9 N	0
	Spring low	Mona Vale	1.56 pm	1.5	0.6	30.2	4 WNW	0
		Palm Beach	1.55 pm	1.5	0.6	29.6	7 NE	0
Council data 2022/2023 (provided by Northern Beach Council)								
8.11.2022	High	Mona Vale	5.45 pm	2.0	1.84	17.0	6 ENE	0

Date	Tide	Site	Start time	Duration (hours)	Tide height (m)	Temperature (°C)	Windspeed (km/h) and direction	Precipitation (mm)
5.11.2022	Low	Palm Beach	3.25 pm	1.2	0.19	23.0	Not recorded	0
14.12.2022	Low	Mona Vale	7.20 pm	1.5	0.54	Not recorded	Not recorded	0
	Low	Palm Beach	6.45 pm	1.5	0.25	21.0	15 W	0
20.01.2023	High	Mona Vale	6.45 am	1.5	1.9	Not recorded	Not recorded	< 1
23.01.2023	High	Mona Vale	9.33 am	1.3	2.04	19.0	15-20 SSW	0
	Low	Palm Beach	4.00 pm	1.5	0.12	Not recorded	Not recorded	0
24.01.2023	Low	Mona Vale	5.40 pm	1.5	0.16	25.0	Not recorded	0

6.2.1.4 Survey Results

No migratory shorebirds were detected at either of the Activity Areas during the targeted surveys conducted by Niche and Council. During surveys the Activity Areas were generally busy with human activity both on the beach (walking, sitting, playing cricket) and in the water (swimming and using jet skis). Dogs were observed both on and off-leash in the Mona Vale Beach (South) Activity Area during multiple surveys, and Palm Beach (North) Activity Area (Council data), and dog faeces were observed in the Palm Beach (North) Activity Area. The level of human activity and presence of dogs may have impacted the presence of shorebirds. While the guiding information states avoidance of periods of disturbance, given the nature of the Activity Areas as public recreation spaces, this criterion is difficult to meet, with ongoing activity early in the morning through to the late in the evening. This level of disturbance also informs the suitability of the site for migratory shorebirds and threatened species.

In addition, there is more suitable habitat for shorebirds at Station Beach, which is approximately 200 m west of the Palm Beach (North) Activity Area and contains PCT 1913 (not present at the Activity Areas), which is associated with the TEC '*The Shorebird Community occurring on the relict tidal delta sands at Taren Point*'. It should be noted that the habitat at Station Beach was opportunistically surveyed before and after a targeted survey at Palm Beach (North) and no migratory shorebirds were observed during that time.

One migratory seabird species and an additional potential migratory seabird species were observed during the surveys; a Caspian Tern (*Hydroprogne caspia* - EPBC Act: MA, M [J]), and a Tern species (*Laridae* sp. possibly *Sternula* sp.) that was unable to be identified to the species level as it was observed from a distance for a short time. The Caspian Tern was observed at Palm Beach (North) flying 100 m offshore. The unidentified Tern was observed at Mona Vale (South) Activity Area during two surveys. It was observed on 11 January 2022 in the water a short distance outside the northern end of the Activity Area within the 100 m buffer during a low neap tide before it flew away and was also observed flying over the Activity Area during both the low and high neap tide on the same day. The same species was then observed flying over the Activity Area and diving briefly into the water within the 100 m buffer past the southern end of the Activity Area on 17 February 2022 during the low spring tide. Based on the physical characteristics of the unidentified Tern observed, it was most likely either a Little Tern (*Sternula albifrons* - BC Act: E, EPBC Act: MA, M [B, C, J, K]) or Fairy Tern (*Sternula nereis* - EPBC Act: V, MA). As Terns are seabirds that forage in open waters, they are not considered migratory shorebirds as per the definition provided in the guidelines

for surveying migratory shorebirds (DEE 2017a) however, some Tern species are listed as migratory. It is unlikely that either Activity Area constitutes important habitat for Terns, as these species forage in open waters which are not present in the Activity Area.

Sandy beaches are a potential breeding habitat of all three of the Tern species discussed here, however given the current disturbance from human activity it is unlikely that these species nest within the Activity Areas. In addition, there are no known breeding sites documented within or adjacent to the Activity Area. Only a single breeding site in NSW is listed in the Caspian Tern species profile, which is located at Menindee Lakes in western NSW (DAWE n.d.a). None of the 70 known Little Tern nesting sites in NSW listed in the species recovery plan occur within the Activity Area (NSW NPWS 2003). The Fairy Tern species profile states that the species has been known from NSW in the past, but it is unknown if it persists there (DAWE n.d.b).

An Eastern Osprey (*Pandion haliaetus cristatus*) pair was observed by Council flying over the cliffs and dunes at Mona Vale (South) in January 2023. This species (*Pandion cristatus*) is listed as Vulnerable under the BC Act and (*Pandion haliaetus*) Migratory Marine under the EPBC Act.

A list of fauna species detected during surveys is provided in Annex 4.

Sand Spurge was not detected in either Activity Area during targeted flora surveys.

6.2.2 Endangered Ecological Communities

6.2.2.1 Vegetation Mapping

Existing vegetation mapping (DPE 2018) is provided in Figure 8 and Figure 9. Two native vegetation communities have been mapped at both the Activity Areas, being:

- PCT 772: *Coast Banksia - Coast Wattle dune scrub of the Sydney Basin Bioregion and South East Corner Bioregion*
- PCT 1204: *Spinifex beach strand grassland, Sydney Basin Bioregion and South East Corner Bioregion*.

An additional PCT, PCT 771*: Coast Banksia - Coast Tea-tree low moist forest on coastal sands and headlands, Sydney Basin Bioregion and South East Corner Bioregion* has also been mapped within 100 m of the Activity Areas (i.e. buffer areas) (See Figure 8 and Figure 9).

The above PCTs do not represent Threatened Ecological Communities (TECs).

An additional two PCTs have been mapped outside the buffer area but within 200 m of the Activity Areas, being:

- PCT 1817: *Banksia – Tea-tree – She-oak / Spiny-headed Mat-rush – Kangaroo Grass heath on clay soils on headlands around Sydney and the Central Coast*, at Mona Vale Beach (South).
- PCT 1913: *Seagrass meadows of the estuaries and lagoons of the New South Wales coast*, at Palm Beach (North).

PCT 1913 is associated with the TEC *The Shorebird Community occurring on the relict tidal delta sands at Taren Point* which is listed as Endangered under the BC Act.

6.2.3 Habitat Assessment

The habitat assessments were undertaken on 21 December 2021 by Niche Ecologists to determine flora and fauna habitat present at the Activity Areas and 100 m buffer. The potential presence of threatened

species was determined by the presence of suitable habitat. Targeted surveys were undertaken for migratory shorebirds as detailed in Section 6.2.1.3.

6.2.3.1 Marine

Marine habitat in both Activity Areas consists of sandy beaches predominantly made up of sandy sediments in the intertidal zone and a small area of subtidal habitat (Figure 14). Marine habitat in the Mona Vale Beach (South) Activity Area is a small area of scattered rocky reefs in the intertidal zone at the southern end of the Activity Area which adjoin to larger rock shelves that form a rocky headland (Figure 15). No rock pools occur within the rocky habitat. The high intertidal habitat within the Mona Vale Beach (South) Activity Area is predominately comprised of sandy sediments associated with the beach, and drying rocks associated with the broken rocky reef. The mid intertidal habitat includes sandy sediments and areas on the sides of drying rocks and crevices amongst the broken intertidal rocks and supports a variety of species of barnacles and marine molluscs. The low intertidal habitat consists of predominately sandy sediments with scattered areas of broken rocky reef. Fauna in the low intertidal zone on the rocky shore included barnacles and marine molluscs and starfish. Prey species important for foraging shorebirds are likely present within the upper several centimetres of the sandy sediments in the low intertidal and subtidal zones. Subtidal marine species may be transient visitors at the Activity Areas during high tides. Some marine species, such as marine turtles may occur in and around the Activity Areas on occasion, but the Activity Areas themselves lack key foraging resources suitable for these species. It is possible that marine turtle nesting could occur within the Activity Areas however this would likely be very isolated and infrequent due to the high levels of human disturbance present, and the fact that no known marine turtle breeding sites occur in either Activity Area. It should be noted that fur seals are known to occur at Barrenjoey Headland to the north of the Palm Beach (North) Activity Area. However no rocky areas suitable for haul outs occur within the Palm Beach (North) Activity Area. While there is limited rocky habitat suitable for haul outs within the Mona Vale Beach (South) Activity Area, it is considered unlikely to be utilised by seals due to the high level of human disturbance, presence of more suitable habitat in the locality, and lack of records of this species within 10 km of the Activity Area.

6.2.3.2 Terrestrial

Three types of terrestrial habitat occur in the Activity Areas or 100 m buffers: foredunes, dune shrublands, and rocky areas (Figure 14 and Figure 15).

Foredunes are the dominant habitat type within both Activity Areas and provide potential shelter habitat for crabs, and a transitional habitat between intertidal and dune shrubland habitats.

Dune shrublands occur within the 100 m buffer to the West of both Activity Areas and also encroach a small amount into the Mona Vale Beach (South) Activity Area. The dune shrubland habitat within the Mona Vale Beach (South) Activity Area contains medium sized shrubs including Acacia species which provides potential foraging habitat for nectivorous birds, potential nesting and perching habitat for small passerine birds and shelter habitat for small terrestrial mammals, reptiles and ground nesting birds. The dune shrublands habitat within the Palm Beach (North) Activity Area contains low dense shrubs which provide potential shelter habitat for small terrestrial mammals, reptiles and ground nesting birds.

Small areas of rocky habitat occur within the Mona Vale Beach (South) Activity Area and 100 m buffer. No rocky habitat occurs within the Palm Beach (North) Activity Area or 100 m buffer however, rocky habitat does occur within close proximity at the northern end of the beach. Rocky habitat provides habitat for marine molluscs and crustaceans, as well as potential roosting habitat for shorebirds and seabirds.

No hollow-bearing trees were observed in any of the habitats within the Activity Areas or buffers.

6.2.4 Potential Impacts to Flora and Fauna

The proposed use of the Activity Areas has the potential to impact flora and fauna within the Activity Areas and the 100 m buffer in the following ways:

1. Disturbance of vegetation through trampling.
2. Disturbance of fauna from the presence of dogs or scents left by dogs.
3. Death of fauna as a result of dog predation.

6.2.5 Declared Area of Outstanding Biodiversity Value

The Activity is not located in an area identified of outstanding biodiversity value, as defined by the BC Act.

6.2.6 Key Threatening Processes

The Activity has the potential to result in a key threatening process listed under the BC Act; 'Predation and hybridisation by Feral Dogs, *Canis lupus familiaris*'. The key threatening process specifically notes predation pressure on a number of threatened fauna species namely Southern Brown Bandicoot, which has been identified as having a moderate likelihood of occurring within the Activity Area.

The likelihood of predation by domestic dogs rather than feral dogs will be mitigated by the requirement for dog owners to keep dogs on their leash while entering and exiting the dog-off-leash area and the mitigation and management safeguards described in Section 6.2.7. As such, the Activity is unlikely to result in an increase in a key threatening process such that will result in a significant impact to a threatened species.

6.2.7 Mitigation and Management Safeguards

Table 14 identifies the management measures to mitigate any potential biodiversity impacts. It is noted that the implementation of these measures will benefit all users.

Table 14. Biodiversity Mitigation and Management Safeguards

Potential Impact	Mitigation and Management Safeguards

Disturbance of vegetation through trampling.
Disturbance of fauna from the presence of dogs or scents left by dogs.
Death of fauna as a result of dog predation.
	• Off-leash hours must be limited to the hours of operation (i.e. generally daylight hours); refer to Section 2.3.
	• Requiring dog owners to have the dog on-lead when on the access tracks between the carparks and off-leash areas.
	• Repair/upgrade existing fencing to dog proof fencing that effectively prevents dogs from accessing any adjacent vegetated areas while still allowing movement of small terrestrial fauna
	• Periodic monitoring and maintenance of dog proof fencing to ensure it is effective and in good condition.
	• Update and supplement existing signage to educate and inform the community that:
	  ○ Details the requirements for dog owners / beach users to dispose of litter appropriately and penalties for failing to comply under the POEO Act and CA Act.
	  ○ Identifies on-leash and off-leash areas at the carpark and beach ends of the access points.
	  ○ Identifies access tracks that are not to be used by dogs either on-leash or off-leash.
	  ○ Displays the extent of the Activity Areas.
	  ○ Mark the northern, western and southern limits of the Activity Areas.
	• Maintain general waste bins at each off-leash Activity Area.

Potential Impact	Mitigation and Management Safeguards
	• Supply dog faeces collection bags if not present at each general waste bin for the Activity Areas. • Monitor use and the Activity's performance as well as compliance with these mitigation and management safeguards and undertake appropriate regulatory and enforcement action, as needed.

6.2.8 Conclusion

In conclusion, the biodiversity assessment indicates that the Activity has some potential to impact threatened fauna. However, provided the Activity implements the mitigation and management measures set out above (e.g., adjustment to existing fencing to prevent dog access while still allowing movement of small terrestrial fauna by including mesh or similar, periodic monitoring and maintenance of fencing, and updating of existing signage) the assessment demonstrates that the Activity is not likely to significantly affect threatened species for the purposes of sections 7.2 and 7.3 of the BC Act.

6.3 Traffic (Access and Parking)

6.3.1 Existing Environment

6.3.1.1 Palm Beach (North)

Travel to the Palm Beach dog off-leash area is via Beach Road and the internal road within Governor Phillip Park (See Figure 2). Beach Road connects to Barrenjoey Road, which is classified as a State Road (i.e. managed and financed by the Roads and Maritime Services) and is a primary route for travel to and from the peninsula.

There are approximately 490 off street car parking spaces within the Governor Phillip Park. Approximately 90 of which are available at the northern limit of the internal road in within Governor Phillip Park and a further 45 parking spaces adjacent to the beach at the southern end of the proposed off-leash area (See Figure 2). The adjacent beach parking locations are the nearest to and provide direct access to the off-leash area via formal sand access tracks.

Parking availability within Governor Phillip Park in the morning is high with less than 50% of the spaces occupied. While in the afternoon parking space occupancy varies between 70% and 85% of capacity (pers comm. Northern Beaches Council, 2022). Metered parking is applicable between 7am and 7pm seven days a week. Residents are provided with a parking permit on payment of their rates and enjoy unlimited free car parking within the reserve.

The internal road within Governor Phillip Park provides parking and access to Palm and Station Beaches, Ku-Ring-Gai Chase National Park, the Boathouse, Dunes Restaurant, the Surf Lifesaving Club and Governor Phillip Park generally and therefore supports a wide range of activities.

gtk consulting completed an assessment of car parking in Governor Phillip Park for the renovations of the Station Beach Boathouse, which is located on the western side of Governor Phillip Park. Surveys of the car parking demand were undertaken on Monday 27 January 2020 and Sunday 23 February 2020. It is noted that Monday 27 January was the Australia Day Public Holiday and most likely the day of highest car parking demand at any time throughout the year. Sunday 23 February was selected as representing a typical weekend summer day.

Table 15 and Table 16 show the total number of occupied and unoccupied car parking spaces at hourly intervals between 11.00am and 4.00pm.

Table 15. Parking Occupancy Monday 27 January 2020

	Parking Capacity	11am	12pm	1pm	2 pm	3 pm	4 pm
Available Spaces	**488**	320	412	455	474	486	466
Number of Vacant Spaces		168	76	33	14	2	22
% capacity used		65.6	84.4	93.2	97.1	99.6	95.5

Source gtk consulting 2020

Table 16. Parking Occupancy Sunday 23 February 2020

	Parking Capacity	11am	12pm	1pm	2 pm	3 pm	4 pm
Available Spaces	**488**	258	270	278	257	220	175
Number of Vacant Spaces		230	218	210	231	268	313
% Capacity used		52.9	55.3	57.0	52.7	45.1	35.9

Source gkt consulting 2020

The Australia Day public holiday generates one of the highest demands for coastal recreational areas. It is unreasonable to require parking facilities to accommodate this level of demand for one day a year. Sunday 23 February 2020 is considered to represent a typical summer demand. The gtk consulting survey indicates that more than 40% of the car parking spaces are not occupied within Governor Phillip Park throughout the day. It is acknowledged that parking demand will be higher within the summer months or during events such as markets. The demand for parking spaces is expected to be lower during the proposed hours of operation for off-leash dog walking activities. Given there appears to be generally sufficient capacity to accommodate additional parking demands during the peak parking demand period of 11am to 4pm, it is expected that the recreational uses of the general area including that for off-leash dog walking activities for the nominated hours of the Activity can be readily accommodated.

6.3.1.2 Mona Vale Beach (South)

Travel to the Mona Vale dog off-leash area is via Narrabeen Park Parade which connects with the wider arterial road network that services this general area (e.g. Pittwater Road) (See Figure 3). Pittwater Road is classified as a State Road (i.e. managed and financed by the Roads and Maritime Services) and is a primary route for travel to and from the peninsula.

There are approximately 130 marked parking spaces located along both Coronation Street and Narrabeen Park Parade, with further on street parking available at these locations as well as Cook Terrace. The nearest parking spaces to the off-leash dog area are at the intersection of Coronation Street and Narrabeen Park Parade. Timed parking limits apply to the parking bays within Coronation Street and Narrabeen Park Parade. There is no time limit for parallel parking in Coronation Street and Narrabeen Park Parade. Access to the off-leash area is via a shared pedestrian bicycle path and two formal sand tracks (See Figure 3). With the northern sand access track being a longer but shallower gradient track.

Parking in the area is heavily used by a mix of dog walkers, surfers, hospital staff, para gliders, people accessing the coastal walk and residents. The demand for parking spaces in the area is high with 90%-95% of the spaces occupied for most times of day (pers comm. Northern Beaches Council, 2022).

6.3.2 Potential Impacts

6.3.2.1 Palm Beach (North)

Use of the off-leash area has the potential to increase the number of vehicle movements on the adjoining road network and increase the demand for parking spaces. However, this increased traffic and demand for parking during the restricted times is expected to be within existing seasonal (i.e. higher demand during summer and school holidays / weekends) and daily (weekday and weekend) variations.

Based on the:

- level of parking availability
- limiting the time of use for the off-leash area to non-peak times
- the location of the parking areas being spatially distant from other leisure locations and
- the use of metered parking

it is unlikely that the additional traffic movements generated by the off-leash area will result in a material change to the current level of service or intersection delays. It is anticipated there would generally be adequate capacity to accommodate any minor increase in parking demands due to patronage of the off-leash dog area noting that use for the off-leash area would be restricted to non-peak times.

6.3.2.2 Mona Vale Beach (South)

The Mona Vale location is already used by dog walkers accessing the existing off-leash area within Robert Dunn Reserve. The formalisation of the off-leash trial area is not expected to result in any material change from the existing patronage and therefore no material additional traffic or parking impacts are expected. Given the limited availability of parking spaces for most of the day, it is recommended that Council review the need to implement short term restrictions at selected location(s).

6.3.3 Mitigation and Management Safeguards

Table 17 identifies the management measures to mitigate any potential traffic and parking impacts. It is noted that the implementation of these measures will benefits to all users.

Table 17. Traffic and Parking Mitigation and Management Safeguards

Potential Impact	Mitigation and Management Safeguards
Vehicles parked illegally in unmarked or grassed areas	• Maintain formalised parking bays (line marking and signage). • Increased patrols by Council officers during high peak times to monitor parking demand and ensure compliance with parking rules during the trial. • Implement short term restrictions at selected location(s) along Narrabeen Park Parade, (i.e. Mona Vale (south)) if supported by Council's monitoring of the Activity. • Monitor use and the Activity's performance as well as compliance with these mitigation and management safeguards in each season and undertake appropriate regulatory and enforcement action, as needed.
Increase parking demands during afternoon period at Palm Beach	
Increase parking demands at Mona Vale	

6.4 Waste Management

6.4.1 Existing Environment

The existing waste streams for the Palm Beach and Mona Vale locations are associated with general litter from recreational users of the beach and park areas. Sixteen (16) ecological inspections of the Palm Beach and Mona Vale locations were undertaken on four separate days in the months of December, January and February. Litter was generally observed to be disposed of correctly at both locations and the area is generally considered to be well maintained. The Northern Beaches LGA community in general places a high importance on elements of the natural environment and cleanliness of public space (Northern Beaches Council, 2018).

Council currently operates 29 dog off-leash area and provides bins for the disposal of general litter and dog faeces, as well as bags for the collection of faeces. There are already 'general' rubbish bins located at Palm Beach near the car parking areas at the northern and southern ends of the off-leash area. At Mona Vale there are bins at Narrabeen Park Road (i.e. Mona Vale Headland Park) and at the end of Golf Avenue (i.e. the nearest public access point to the proposed off-leash dog area).

6.4.2 Potential Impacts

The Activity has the potential to impact both Project Areas via the non collection and / or incorrect disposal of dog faeces and increase in litter because of increased utilisation by dog owners. The incorrect disposal of wastes (dog faeces and general litter) would detract from the visual amenity of both locations.

Council currently operates 29 off-leash areas and supplies bins, bags and a collection service for the disposal of litter including dog faeces disposed of via the bins. During the trial Council will monitor use and provide additional bins at additional locations, if needed.

6.4.3 Mitigation and Management Safeguards

Table 18 identifies the management measures to mitigate any potential waste impacts. It is noted that the implementation of these measures will benefit all users.

Table 18. Waste Mitigation and Management Safeguards

Potential Impact	Mitigation and Management Safeguards
Beach users not disposing of dog faeces correctly	• Monitor existing bin and faeces bag usage / adequacy and supplement bins and/or replenish faeces bag supplies more frequently, if needed. • Maintain general waste bins at each off-leash Activity Area. • Maintain general waste bin(s) at the nearest car parking location to each Activity Area. • Supply dog faeces collection bags if not present at each general waste bin for the Activity Areas. • Update and supplement existing signage to detail the requirements for dog owners to dispose of dog faeces and the penalties for failing to comply under the Companion Animals Act 1998 and the Protection of the Environment Operations Act 1997 (POEO Act). • Monitor use and the Activity's performance as well as compliance with these mitigation and management safeguards and undertake appropriate regulatory and enforcement action, as needed.
Increased litter from greater numbers of users	
Inadequate bin capacity	

6.5 Noise

6.5.1 Existing Environment

6.5.1.1 Palm Beach (North)

The general Palm Beach land surrounding the off-leash area is a mix of land zoning, being: Environmental Conservation (C2) (Governor Phillip Park), Public Recreation (RE1) and National Park and Nature Reserve (C1). These zones influence the existing ambient noise environment, with the primary noise sources being road traffic, meteorological conditions (e.g. wind, rain and thunder), surf conditions, birds and recreational activities. These noise sources will vary in their contribution to the ambient noise throughout the 24-hour period and also between days.

6.5.1.2 Mona Vale Beach South

The land zoning within the general area of the Mona Vale dog off-leash area consists of a mix of Low Density Residential (R2), Health Services Facilities, Infrastructure (Mona Vale Hospital) (SP2), Environmental Living (C4) and Public Recreation (RE1) zonings. The existing ambient noise environment of this general area is affected by various sources (e.g. road traffic – local and Pittwater Road, meteorological conditions (e.g. wind, rain and thunder), surf conditions, hospital users, birds and general residential activities – barking dogs, yard maintenance etc). These noise sources will vary in their contribution to the ambient noise throughout the 24-hour period and also between days.

6.5.2 Potential Impacts

6.5.2.1 Palm Beach (North)

The receivers that are most likely to be impacted by noise from the Palm Beach (North) off-leash area are primarily limited to users of the northern end of Palm Beach and Governor Phillip Park respectively. The majority of the beach users are expected to occupy the beach front near the surf club / near the flags, which are located approximately 342 m to the south of the off-leash area. This separation distance provides a degree of natural noise attenuation, limits the likely interaction between these user groups and any noise impacts on other beach users is generally expected to be minimal.

The separation distance of 343m between the off-leash area and the surf club is expected to provide a minimum of approximately 50 dBA of noise attenuation from a barking dog at 90 dBA. This attenuated noise level of 40 dBA is equivalent to the expected background noise level of the area and well below the noise level of normal conversation at 60 dBA.

Recreational users of Governor Phillip Park may experience noise impact from barking dogs. However, this impact is expected to be a relatively transient and short term as the dog moves along the off-leash area. It is also noted that the off-leash area is located at the northern end of Governor Phillip Park. With the southern end of the off-leash area coinciding with approximately 10% of Governor Phillip Park. Given the separation distance between the off-leash area and Governor Phillip Park and that 90% of Governor Phillip Park does not coincide with the off-leash area, the potential noise impact on the Park users is expected to be minimal. Any impact on other users in this area (e.g. golf club, Dunes Restaurant, the Boathouse etc) is expected to be minimal, as these users are located in excess of 180 m from the off-leash area.

6.5.2.2 Mona Vale Beach (South)

Mona Vale Headland (Robert Dunn Reserve) is located between Narrabeen Park Parade and the proposed off-leash dog area. Mona Vale Headland the Robert Dunn Reserve is already an off leash area utilised by dog walkers and has no restrictions on the time of use. The introduction of the proposed off-leash area may result in existing dog walkers utilising the proposed off-leash dog area. As this proposed area is further

away from the residential properties, hospital and other park users, the level of noise experienced at these receiver locations is likely to be less than the current levels. However, should the existing usage pattern of the dog walkers be unchanged the introduction of the off-leash area would not alter the existing noise emissions and therefore the impacts would be unchanged.

The residences above the off-leash area on Narrabeen Parade are the nearest noise receivers at Mona Vale (South) at a distance of approximately 100 m. This separation distance is expected to provide a minimum of approximately 40 dBA of noise attenuation from a barking dog at 90 dBA. This attenuated noise level of 50 dBA is well below the noise level of normal conversation at 60 dBA. It is noted that this assumes a direct line of sight between the noise source (i.e. barking dog) and receiver (i.e. resident standing in there yard) and there are noise obstacles which will deflect / absorb noise e.g. vegetation and no topographic influences. Both of which are present at Mona Vale (South) and will assist with noise mitigation in addition the 40 dBA predicted.

6.5.3 Mitigation and Management Safeguards

Table 19 identifies the management measures to mitigate any potential noise impacts.

Table 19. Noise Mitigation and Management Safeguards

Potential Impact	Mitigation and Management Safeguards
Noise disturbance from barking dogs	• Update and supplement existing signage to display off-leash use times and boundaries to maintain separation distances to sensitive receivers. • Manage any noise complaints received through Council's online or phone complaints management system. • Monitor complaint data and investigate. • Monitor use and the Activity's performance as well as compliance with these mitigation and management safeguards and undertake appropriate regulatory and enforcement action, as needed.
Noise disturbance from increased traffic	

6.6 Aboriginal Archaeology

The archaeological potential of the Mona Vale Activity Area was investigated but did not identify any known archaeological sites or the presence of archaeologically sensitive landforms (See Figure 17). Therefore, no further assessment has been undertaken and the Activity can proceed with caution.

An Aboriginal Objects Due Diligence Assessment (DD) was undertaken for the Palm Beach dog off-leash area due to the archaeologically sensitive landforms present (see Annex 3). The remainder of Section 6.6 therefore relates only to the Palm Beach (North) Activity Area.

6.6.1 Existing Environment

A search of the Aboriginal Heritage Information Management System (AHIMS) identified that no Aboriginal cultural heritage sites are recorded within the Activity Area. The nearest Aboriginal cultural heritage site is 'Palm Beach Sand Dunes' (AHIMS ID# 45-6-1433) situated approximately 130 m north-west of the Activity Area (See Figure 16).

6.6.2 Potential Impacts

A site inspection confirmed that the Midden site 'Palm Beach Sand Dunes' (AHIMS ID# 45-6-1433) does not extend into the Activity Area and will therefore not be affected by the Activity. Furthermore, the DD assessment found that the Activity Area (i.e. the area inspected) and surrounds has been heavily impacted by modification to the ground surface relating to past dune stabilisation works, revegetation programs, public recreational use of the area and ongoing natural erosion and modification of the beach, dune systems the installation of roads and car parking areas, as well as underground water and power infrastructure services.

The ground surface and subsurface has been disrupted to such an extent that the possibility of in-situ deposits within the Activity Area is low, and it recommended that the Activity can proceed with caution. No additional Aboriginal cultural heritage constraints were identified.

6.6.3 Mitigation and Management Safeguards

Table 20 identifies the management measures to mitigate any potential Aboriginal archaeological impacts.

Table 20. Aboriginal Archaeology Mitigation and Management Safeguards

Potential Impact	Mitigation and Management Safeguards
Damage of known Aboriginal objects or where Aboriginal objects are likely to occur	General • All workers should be inducted into the Activity Area, so they are made aware of their obligations under the National Parks and Wildlife Act 1974. • In the event that previously unknown Aboriginal object(s) and/or sites are discovered during the Activity, work must stop, and the unexpected finds protocol as detailed in Annex 7 implemented. • In the unlikely event that human remains are discovered, all activities must stop, and the unexpected finds protocol as detailed in Annex 7 implemented. Palm Beach (North) • Ground disturbance works are to be limited to the Activity Area • Works associated with the installation of signage identifying the dog off-leash area can proceed with caution within the Activity Area. Where possible, existing poles should be utilised for new signage. Where this is not possible, signage should be placed in an area of existing ground disturbance within the Activity Area. During the installation of the signposts, access to the area/s should be restricted to the use of existing access tracks. • Any signage to be installed outside the Activity Area is to be co-located with existing signposts or attached to an existing fence post, so that there is no ground disturbance.

6.7 Historic Heritage

6.7.1 Existing environment

Searches of the following heritage registers and listings were undertaken:

- World Heritage List
- National Heritage List
- Commonwealth Heritage List
- (non-statutory) Register of the National Estate
- State Heritage Register
- s.170 NSW State Agency Heritage Registers (s.170 Register)
- Pittwater LEP 2014
- 21 Development Control Plan (21 DCP).

The results of the searches are presented below.

6.7.1.1 Mona Vale Beach Heritage Register Searches

The searches identified that there are no listed heritage items within 200m of this Activity Area. Therefore, there are no statutory heritage constraints provided by heritage listings at the Mona Vale Beach (South) Activity Area.

6.7.1.2 Palm Beach Heritage Register Searches

The searches identified no items were within 200m of the Palm Beach (North) Activity Area. There are however several heritage sites in the wider general area and are listed in Table 21.

Table 21. Statutory Heritage Items within 200m of the Activity Area

Item Name	Item Listing Type	Level of Significance	Item number	Relationship to Activity Area
Barrenjoey Heritage Conservation Area	Pittwater LEP 2014	Local	LEP: C1	The Activity Area is located on beaches within this item.
Barrenjoey Head Lightstation	State Heritage Register (also located on the NPWS s.170 heritage asset register)	State	SHR: 00979	The Activity Area is within 300m but not inside this item's curtilage.
Barrenjoey Lighthouse and Two Cottages	Pittwater LEP 2014	Local	LEP: 2270104	The Activity Area is within 600m but not inside these items' curtilage.
Memorial Cairn (Near Lighthouse)	Pittwater LEP 2014	State	LEP: 2270093	The Activity Area is within 600m but not inside these items' curtilage.
Grave	Pittwater LEP 2014	State	LEP: 2270095	The Activity Area is within 200m but not inside these items' curtilage.
Memorial Cairn	Pittwater LEP 2014	State	LEP: 2270450	The Activity Area is within 200m but not inside these items' curtilage.
Site of Former Customs House	Pittwater LEP 2014	State	LEP: 2270102	The Activity Area is within 200m but not inside these items' curtilage.
Stone Path x13	Pittwater LEP 2014	Local	LEP: 2270127	The Activity Area is within 200m but not inside these items' curtilage.
Picnic Shelter Sheds x4	Pittwater LEP 2014	Local	LEP: 2270097	The Activity Area is within 200m but not inside these items' curtilage.

6.7.2 Potential Heritage Constraints

There are no heritage constraints associated with the Mona Vale Beach (South) Activity Area.

The Palm Beach (North) Activity Area is located within the Barrenjoey Heritage Conservation Area, which is a locally listed heritage item on the *Pittwater LEP (2014)* and is also located near to the Ku-Ring-Gai Chase National Park (section located on the Barrenjoey Headland). The Barrenjoey Headland is the location of the Barrenjoey Head Lightstation State heritage item (SHR #00979). This item is associated with several local items also located on the Barrenjoey Headland, and outside the Activity Area. These items have views towards the Activity Area but are unlikely to be affected by the proposed Activity. Towards the south of Governor Phillip Park, which is adjacent to the Activity Area, there are four locally listed shelter sheds. Out of the identified items, only the heritage conservation area is within the Activity Area, and the views to and from the other items are unlikely to be affected by the proposed Activity.

The Barrenjoey Heritage Conservation Area consists of the headland, and the majority of the peninsula, corresponding with Governor Phillip Park. While the beaches are not considered part of this heritage curtilage, other aspects of the Activity Area are within this heritage conservation area.

The local heritage items are within the former Pittwater LGA which now forms part of the Northern Beaches Council. As the LEPs have not yet been updated the local heritage items and the conservation areas listed on the *Pittwater LEP 2014* remains in force. The Development Control Plan (DCP) for this LGA is the 21 DCP. This document does not mention this conservation area and therefore has no direction for management controls.

The Conservation Management Plan (CMP) for the Barrenjoey Headland does not include the Activity Area. This document is focused on the state heritage site on the headland and its management practises. The excerpt below from the *Barrenjoey Headland CMP 2013* (see Plate 1) describes the general areas of the headland outside of the state-significant sites (i.e. Site of Former Customs House) as having low archaeological potential. It is therefore concluded that the Activity Area has low archaeological potential and that it is unlikely for there to be historic-period heritage value within the Activity Area.

8.8 ARCHAEOLOGY & ABORIGINAL HERITAGE

8.8.1 HISTORICAL ARCHAEOLOGY

Non-indigenous relics on the headland are automatically protected by the NSW *Heritage Act, 1977*. According to s60 of the Act, approval is required if relics (defined as any non-Aboriginal deposit, artefact, object or material evidence of State or Local heritage significance) will, or are likely be affected by development, moved, damaged, destroyed or excavated. Because the site is listed on the State Heritage Register, application for these activities within the listed curtilage is made pursuant to s60 of the Heritage Act.

The headland has low archaeological potential in regard to artefact deposits and buried features. The only exceptions to this are the Customs House precinct and the Stewart Towers site where the archaeological potential is high. There is also potential for sub-floor deposits in the buildings. The majority of archaeological features identified in this CMP are rock cut evidence of former structures, engravings and early evidence of access routes including the trolley way and road. Some of the engravings are fragile and seem to have eroded away over time. Many of the other features such as survey marks do not require active management.

Policy 27

- *Any excavation works within the Customs House precinct, Stewart Towers site and in the sub-floor area of the buildings in the Lighthouse Keeper's Precinct need to be subject to a Section 60 application under the Heritage Act and must conform to the requirements of any approval. Works will require monitoring. Excavation in other areas needs to be covered by a s60 exemption application. If unexpected finds are located during excavation works, any work in the area should cease until archaeological advice has been sought.*
- *The existing path through the Stewart Towers site should be re-routed as a priority in order to protect archaeological deposit.*
- *Protect the Customs House archaeological site until further investigations to determine its nature and extent are undertaken.*
- *Undertake a recording program to locate, map and record engravings across the headland.*

Plate 1. Excerpt from the Barrenjoey Headland CMP 2013

6.7.3 Potential Impacts

This section is not designed to provide an impact assessment for the Activity, but to identify any potential heritage impacts which are readily apparent without a Statement of Heritage Impact (SoHI) report.

At Mona Vale Beach, the lack of listed heritage items and the disturbed and urban nature of this Activity Area makes impacts to historic-period heritage values unlikely.

At Palm Beach, the CMP of the Barrenjoey Headland assessed the archaeological potential of the headland as low, outside of very specific sites which are located outside of the Activity Area. Impacts to sub-surface historic-period archaeology is considered to be unlikely. The register search identified several historic

period heritage items within proximity to the Activity Area however, out of these items only the Barrenjoey Heritage Conservation Area curtilage is within the Activity Area – all others will not be directly or indirectly impacted by the proposed modifications. With regard to the question of direct impacts to the conservation area, this location is already developed with car parks, signage and picnic areas. The Activity as described is Section 2 (e.g. signage and use by a section of the general public) are in keeping with the current use and practise within this heritage conservation area and would not be likely to impact the historic-period heritage value of this item.

The views to and from the heritage items surrounding the Activity Area will remain largely unchanged by the updating and supplementation of signage, and use by off-leash dog walkers. Impacts to views are unlikely and will not reduce the historic-period heritage value of the nearby heritage items.

6.7.4 Mitigation and Management Safeguards

Table 22 identifies the management measures to mitigate any potential Historic heritage impacts.

Table 22. Historic Heritage Mitigation and Management Safeguards

Potential Impact	Mitigation and Management Safeguards
Damage of known historic heritage objects or where objects are likely to occur	• Works can begin with caution. • A stop-work procedure should be implemented in the event of an unexpected find (i.e. archaeological remains not identified as part of this report). All works should cease and a qualified historic-period archaeologist consulted, in accordance with the stipulations outlined by Heritage NSW, Department of Premier and Cabinet and the Heritage Act 1977.

6.8 Human Health & Water Quality

6.8.1 Existing Environment

Currently dogs are prohibited within the proposed trial Activity Areas under the Pittwater Dog Control Policy, however during site inspections at both Activity Areas in December 2021, January 2022 and February 2022, dog faeces and dog walkers were observed.

The DPIE's *State of the beaches 2020-2021* report assesses the suitability grades of swimming areas along the coast. The suitability grades are determined by the most recent 100 water quality results and a risk assessment of the potential pollutions source. The assessments are a combination of sanitary inspections and microbial assessments.

The suitability grade for both Activity Areas was classed as very good, meaning they have generally excellent microbial water quality and very few potential sources of faecal pollution and the water is considered safe to swim almost all of the time.

The University of Technology Sydney (J Seymour 2022, pers. comm. 10 June) has undertaken an investigation on the level of faecal bacteria in beach sands which is specific to dogs at four locations within the LGA, being:

- North Steyne – In front of the surf club. This is location is highly visible to the public and lifeguards, and the likelihood of dogs being present is low and has been used as a control site. No dogs or footprint of dogs were observed during the sampling event.
- Lagoon Reserve – Queenscliff Beach, west of Stuart Sommerville Bridge. This location is a very popular off leash dog exercise area, dogs were present and active in the area at the time of sampling.

- North Curl Curl Off Leash Dog Park – lagoon entrance area. This location is similar to Lagoon Reserve at Queenscliff, in that the location is actively used by dogs.
- South Mona Vale Beach. This is one of the proposed trial locations for off leash dogs on the beach. No dogs were seen on the beach at the time of sampling; however footprints were seen throughout the sampling location suggesting dogs had been present early in the morning prior to the sampling event.

A total of 10 samples per location were collected along a 50m transect of the beach, above the high tide mark, approximately every 5 meters. The samples were analysed for the DG3 marker which targets specific bacteria found in dog faeces and is a sensitive marker which indicates the presence of dog faeces. All of the samples analysed were below the quantifiable limit (i.e., the bacteria communities that are specific to the canine gut were not detected).

6.8.2 Potential Impacts

The University of Technology Sydney investigation indicates that the faecal bacteria specific to dogs was not present regardless of whether the location was used or not used by dogs. While this does not eliminate the potential presence of dog-specific faecal bacteria at such locations, this report implies that any risk of exposure to faecal bacterial contamination as a result of the Activity is likely to be minimal. In any event, mitigation and management safeguards for the correct collection, disposal and compliance relating to dog faeces have been recommended to further reduce this already very low risk.

Given the findings of the UTS report, and the fact that both Activity Areas are already frequented by dogs, the formalisation of both Activity Areas for off-leash dog activities is not expected to result in any significant change or cumulative impact to the beach suitability grades.

6.8.3 Mitigation and Management Safeguards

Table 23 identifies the management measures to mitigate any potential waste impacts. It is noted that the implementation of these measures will benefit all users.

Table 23. Human Health and Water Quality Mitigation and Management Safeguards

Potential Impact	Mitigation and Management Safeguards
Beach users not disposing of dog faeces correctly	• Monitor existing bin and faeces bag usage / adequacy and supplement bins and/or replenish faeces bag supplies more frequently, if needed. • Maintain general waste bins at each off-leash Activity Area. • Maintain general waste bin(s) at the nearest car parking location to each Activity Area. • Supply dog faeces collection bags if not present at each general waste bin for the Activity Area. • Update and supplement existing signage to detail the requirements for dog owners to dispose of dog faeces and the penalties for failing to comply under the Companion Animals Act 1998 and the Protection of the Environment Operations Act 1997 (POEO Act). • Monitor use and the Activity's performance as well as compliance with these mitigation and management safeguards and undertake appropriate regulatory and enforcement action, as needed. • Public can report non-compliance about the trial to Council 24/7 online or by phone. Council will respond as per usual processes / timing

6.9 Cumulative Impacts

6.9.1 Existing Environment

Clause 171 of the EP&A Regulation requires the cumulative environmental impacts of the Activity to be considered with other existing or likely future activities. A search of DPIE's major projects register suggested there were no major projects within the Activity Area.

During inspections of the Activity Area the presence of dogs was observed at both Activity Areas.

6.9.2 Potential Impacts

Due to the existing use of the Activity Area by dog walkers, the unmitigated impacts (e.g. traffic, noise, waste) already form part of the existing baseline environment and considered in the REF. The Activity is unlikely to result in a substantial increase in patronage to either Activity Area and is predicted to result in a negligible cumulative impact at worst. Outcomes from the trial will be used to inform any future proposal for a formal off-leash area.

The implementation of the mitigation and management safeguards identified in Table 27 will assist with mitigating the existing impacts along with any additional patronage impacts should the Activity be approved.

6.10 Socio-Economic / Landuse

6.10.1 Existing Environment

The locality surrounding the Activity Areas are used for a mix of Recreation (passive and active), Residential and to a lesser degree hospitality (cafe and restaurant) activities.

6.10.2 Potential Impacts

The Activity will see the formalisation of off-leash dog park activities at Palm Beach and an additional area to that which exists at Robert Dunn Reserve, Mona Vale. The Activity will not result in any change to the mix of activities undertaken at either Activity Area.

The formalisation of the Palm Beach (North) dog off-leash site has the potential to provide economic benefits via increased passing foot traffic by the nearby cafes. However, the majority of the existing business patronage is expected to be from general recreational uses of the area and any additional patronage form the Activity is predicted to be a small overall percentage of annual turnover.

This Activity promotes the use of readily accessible outdoor spaces, provides opportunities for social connections to be established within the community, provides another mechanism which improves the liveability within the local area and provides a location that allows an activity that can be undertaken by people in various stage of life and does not restrict future alternative uses should the demographics and need of the area change. In addition to these social and lifestyle benefits, the Activity provides an avenue for exercise, which is known to provide many physical, mental and social benefits.

Conflicts with other recreational users is a possibility when it comes to the shared use of the space. This has been considered in the size and location of the Activity Areas and the incorporation of mitigation and management safeguards to further minimise any residual risks. While use conflicts are possible, the Activity has minimised these as far as reasonably practicable and the potential likelihood of conflict between users is considered to be low.

6.10.3 Mitigation and Management Safeguards

The mitigation and management safeguards identified elsewhere in the document contribute to mitigating any potential socio economic and landuse impact. Table 24 identifies the additional management measures to mitigate any potential socio economic and landuse impact.

Table 24. Socio economic / Landuse Mitigation and Management Safeguards

Potential Impact	Management Measures
Conflicts with other recreational users	• Update and supplement existing signage with clear and well-placed signage that displays off-leash times and boundaries. • Record any community complaints associated with dog off-leash activities. • Public can report non-compliance about the trial to Council 24/7 online or by phone. Council will respond as per usual processes / timing. • Dog should remain on leash along access paths. • Multiple access points to allow user preference of access. • Access tracks allow for two way a traffic to and from the off-leash area. • Provide at least two points of egress to the Activity Areas. • Monitor use and the Activity's performance as well as compliance with these mitigation and management safeguards and undertake appropriate regulatory and enforcement action, as needed.

7. Consideration of Public Exhibition Comments

Further objections to the proposal are associated with:

- Users not complying with the mitigation and management measures and therefore the impacts of the proposed off leash areas being greater than that described in the REF.
- User conflicts and safety – (e.g. no longer able to access the area, being knocked over or attacked by a dog).

Council currently provides 29 dog parks (on leash and off leash) within its LGA. The mitigation and management measures contained in the REF are consistent with that implemented at other dog park locations within the LGA. Based on Councils experience with the implementation and compliance with the mitigation and management at the 29 dog parks it operates in the LGA, the assessment contained in the REF provides a sound assessment of the impact of the Activity. It is noted that uncertainties are inherent with any impact assessment process and as such the REF contained a monitoring safeguard to monitor use and the Activity's performance as well as compliance with these mitigation and management safeguards.

The Office of Local Government provides statistics on dog attack incidents for all LGA's. Table 25 and Table 26 show the dog attack statistics for the Northern Beaches Council and all Councils in NSW respectively. Analysis of the data for the Northern Beaches Council shows that the statistics are generally consistent with the average of the LGA's across the state.

Table 25 Northern Beaches Council Dog Attack Statistics

Period	Dog attack incidents reported[1]		People involved in serious attacks[2]		People involved in less serious attacks[3]		Number of people attacked		Animals attacked		Number of Microchipped dogs in LGA[4]
	Total No.	Total %	No.	No.	No.	%	No.	%	No.	%	
1st Quarter 2022/23	48	0.07%	5	0.007%	28	0.04%	33	0.05%	26	0.04%	69,038
4th Quarter 2021/22	42	0.06%	7	0.010%	20	0.03%	27	0.04%	28	0.04%	67,891
3rd Quarter 2021/22	44	0.07%	7	0.010%	20	0.03%	27	0.04%	32	0.05%	66,991
2nd Quarter 2021/22	50	0.08%	10	0.015%	13	0.02%	23	0.03%	32	0.05%	66,131

Note

1 As an incident may involve multiple people and/or animals the total dog attack incidents reported for each council in columns E and F may not necessarily add up to the total incidents

2. These are attacks where a person was involved AND where the injury resulted in medical treatment, hospitalisation or death.

3. These are attacks where a person was involved but no injury required medical treatment etc.
4. The number of dogs microchipped in an LGA may not reflect the total number of dogs residing in that LGA.

Table 26 NSW Dog Attack Statistics All LGA

Period	Dog attack incidents reported[1]		People involved in serious attacks[2]		People involved in less serious attacks[3]		Number of people attacked		Animals attacked		Number of Microchipped dogs in LGA[4]
	Total No.	Total %	No.	No.	No.	%	No.	%	No.	%	
1st Quarter 2022/23	1280	0.05%	193	0.007%	544	0.02%	737	0.03%	1126	0.04%	2825784
4th Quarter 2021/22	1150	0.04%	191	0.007%	519	0.02%	710	0.03%	1009	0.04%	2781343
3rd Quarter 2021/22	1027	0.04%	188	0.007%	427	0.02%	615	0.02%	904	0.03%	2744122
2nd Quarter 2021/22	1092	0.04%	210	0.008%	431	0.02%	641	0.02%	953	0.04%	2705492

Note

1 As an incident may involve multiple people and/or animals the total dog attack incidents reported for each council in columns E and F may not necessarily add up to the total incidents
2. These are attacks where a person was involved AND where the injury resulted in medical treatment, hospitalisation or death.
3. These are attacks where a person was involved but no injury required medical treatment etc.
4. The number of dogs microchipped in an LGA may not reflect the total number of dogs residing in that LGA.

Council completed an internal public safety risk assessment for the proposed Activity. The existing safeguards, summarised in Section 8.2, were considered by Council to be adequate for the Activity to proceed. It is noted that a crucial aspect of the Activity will be to monitor the effectiveness of the trial and any safeguards. Outcomes from the trial will be used to inform any future proposal for a formal off-leash area.

8. Conclusions and Justification

8.1 Justification

Community consultation conducted by Council has indicated that existing off-leash areas are popular and there is a desire within sections of the community for additional off-leash areas in ocean beach locations. The proposed Activity is in response to this community feedback and looks to address Council's resolutions in relation to this matter.

The results of the initial community survey, conducted by Council prior to the REF assessment process, for the off-leash trial area show the level of support from respondents was in excess of 80% for new dog off-leash areas at Palm Beach and Mona Vale. Feedback received as part of the public exhibition of the REF was also supportive of the Activity with almost 70% of submissions agreeing with the REF findings, and/or the Activity.

The Activity will contribute to a number of the objectives established in the Strategic Plans for the LGA, such as the Community Strategic Plan 2040. The Activity also increases the utilisation of existing facilities, infrastructure and open spaces and minimises Council expenditure associated with establishing new facilities and infrastructure and minimises any additional demand on the services provided by Council.

The Activity has the potential to result in some minor environmental impacts with respect to a number of the aspects considered in this REF. However, size and location of the Activity Areas relative to other primary use areas in the locality, together with the safeguards and management measures that are detailed in this REF will ameliorate or minimise these expected impacts.

The Activity will provide socio-economic benefits via improved access and opportunities (physical, social, psychological) for users of the Activity, whilst maintain ongoing use and minimising landuse conflicts with other users. The Activity is also likely to provide some economic benefit to local businesses outside of the summer and weekend times when the majority patronage is expected to occur.

8.2 Environmental, Social and Economic Safeguards

As detailed in Section 6, the environmental, social and economic impacts of the Activity have been identified and assessed based on:

- Assessment of the existing environment (i.e. site characteristics)
- Historical / actual knowledge and data on the use of the general localities
- Consultation with government agencies
- Engagement with local community
- Expert technical assessment.

The key issues were subject to further technical assessment to identify the potential impact of the Activity. These assessments are detailed in Section 6 and the appendices to the REF.

Table 27 provide a consolidated summary of the mitigation and management measures that will apply to the Activity.

Table 27. Summary of Mitigation and Management Safeguards

Potentially impacted aspects	Mitigation and Management Safeguards
Biodiversity	• Off-leash hours must be limited to the hours of operation (i.e. daylight hours); refer to Section 2.3.

Potentially impacted aspects	Mitigation and Management Safeguards
	• Requiring dog owners to have the dog on-lead when on the access tracks between the carparks and off-leash areas. • Repair/upgrade existing fencing to dog proof fencing that effectively prevents dogs from accessing any adjacent vegetated areas while still allowing movement of small terrestrial fauna • Periodic monitoring and maintenance of dog proof fencing to ensure it is effective and in good condition. • Update and supplement existing signage to educate and inform the community that: ○ Details the requirements for dog owners / beach users to dispose of litter appropriately and penalties for failing to comply under the POEO Act and CA Act. ○ Identifies on-leash and off-leash areas at the carpark and beach ends of the access points. ○ Identifies access tracks that are not to be used by dogs either on-leash or off-leash. ○ Displays the extent of the Activity Areas. ○ Mark the northern, western and southern limits of the Activity Areas. • Maintain general waste bins at each off-leash Activity Area. • Supply dog faeces collection bags if not present at each general waste bin for the Activity Areas. • Monitor use and the Activity's performance as well as compliance with these mitigation and management safeguards and undertake appropriate regulatory and enforcement action, as needed.
Traffic and Accessibility	• Maintain formalised parking bays (line marking and signage). • Increased patrols by Council officers during high peak times to monitor parking demand during trial. • Consider whether the implementation of short-term restrictions at selected location(s) at Mona Vale is required (i.e. Narrabeen Park Parade). • Monitor use and the Activity's performance as well as compliance with these mitigation and management safeguards in each season and undertake appropriate regulatory and enforcement action, as needed.
Waste and hazardous materials	• Monitor existing bin and faeces bag usage / adequacy and supplement bins or replenish faeces bag supplies more frequently, if needed. • Ensure general waste bins are maintained at each off-leash Activity Area. • Ensure general waste bin(s) are maintained at the nearest car parking location to each Activity Area. • Supply dog faeces collection bags if not present at general waste bin at each Activity Area. • Update and supplement existing signage which details the requirements for dog owners to dispose of dog faeces and the penalties for failing to comply under the Companion Animals Act 1998 and the Protection of the Environment Operations Act 1997 (POEO Act). • Monitor use and the Activity's performance as well as compliance with these mitigation and management safeguards and undertake appropriate regulatory and enforcement action, as needed.
Noise	• Update and supplement existing signage which displays off-leash use times and boundaries to maintain separation distances to sensitive receivers. • Public can make any noise complaints during the trial to Council 24/7 online or by phone. Council will respond as per usual processes / timing. • Monitor complaint data and investigate. • Monitor use and the Activity's performance as well as compliance with these mitigation and management safeguards and undertake appropriate regulatory and enforcement action, as needed.
Aboriginal Heritage	General • All workers should be inducted into the Activity Area, so they are made aware of their obligations under the National Parks and Wildlife Act 1974.

Potentially impacted aspects	Mitigation and Management Safeguards
	• In the event that previously unknown Aboriginal object(s) and/or sites are discovered during the Activity, work must stop and the unexpected finds protocol as detailed in Annex 7 implemented. • In the unlikely event that human remains are discovered, all activities must stop and the unexpected finds protocol as detailed in Annex 7 implemented. Palm Beach (North) • Ground disturbance works are to be limited to the Activity Area • Works associated with the installation of signage identifying the dog off-leash area can proceed with caution within the Activity Area. Where possible, existing poles should be utilised for the updated signage. Similarly, where possible existing fence posts should be utilised for the supplementary signage. Where this is not possible, signage should be placed in an area of existing ground disturbance within the Activity Area. During the installation of the signposts, access to the area/s should be restricted to the use of existing access tracks. • Any updated signage to be installed is to be co-located with existing sign post or attached to an existing fence post, so that there is no ground disturbance.
	• Works can begin with caution. • A stop-work procedure should be implemented in the event of an unexpected find (i.e. archaeological remains not identified as part of this report). All works should cease and a qualified historic-period archaeologist consulted, in accordance with the stipulations outlined by Heritage NSW, Department of Premier and Cabinet and the Heritage Act 1977.
Socio-economic / Landuse	• Update and supplement existing signage to display off-leash times and boundaries. • Record any community complaints associated with dog off-leash activities and take appropriate action. • Dog should remain on leash along access paths. • Maintain the existing multiple access points to allow user preference of access. • Maintain existing access tracks to allow for two way a traffic to and from the off-leash area. • Maintain existing two points of egress to the Activity Areas.

8.3 Conclusion

The Activity has been the subject of an assessment under Part 5 of the EP&A Act. The REF has examined and taken into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the proposed activity. The Activity, as described in the REF, will meet the activity objectives but may result in some minor impacts. The implementation and effective management of the mitigation and management safeguards that are detailed in this REF will eliminate, ameliorate, or further minimise these expected impacts.

The Activity will realise a number of positive socio economic, lifestyle and liveability outcomes, that are centred around the use of outdoor space, exercise and establishing and maintaining social networks.

The environmental impacts of the Activity are not likely to be significant and therefore an Environmental Impact Statement is not required. The biodiversity assessment indicates that the Activity is not likely to significantly affect threatened species providing the mitigation and management safeguards as summarised in Table 27 are implemented. The Activity will not impact on any Matters of National Environmental Significance.

Having regard to the above, it is concluded that the Activity is not likely to significantly affect the environment.

9. Certification

I certify that I have reviewed and endorsed the contents of this REF document and, to the best of my knowledge, it is in accordance with the EP&A Act, the EP&A Regulation and the Guidelines approved under clause 170 of the EP&A Regulation, and the information it contains is neither false nor misleading

Name	Position	Date	Signature

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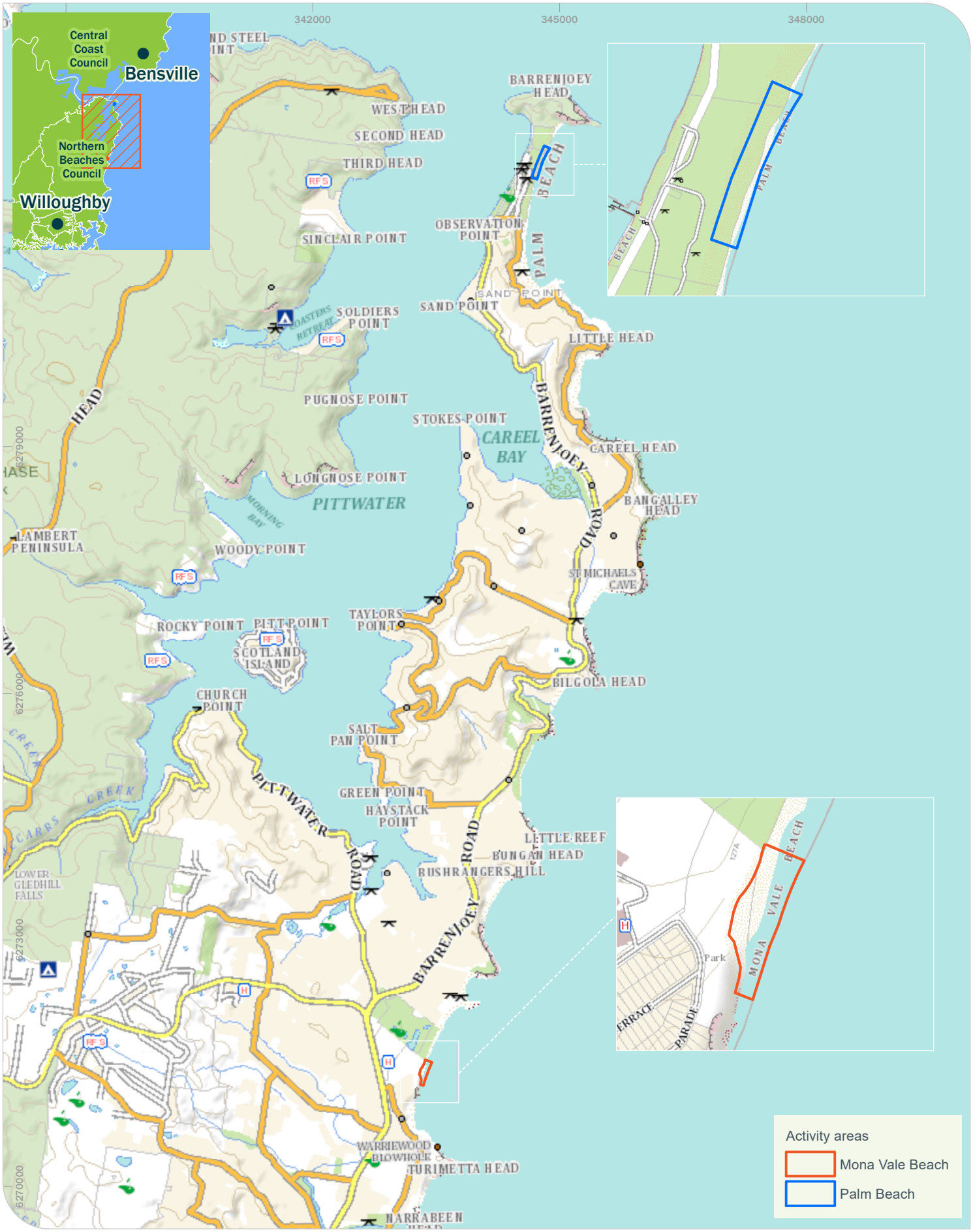
Figures



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GDA 1994 MGA Zone 56

Locality Map

Northern Beaches Dog Off-leash Trial

Niche PM: Justin Merdith
Niche Proj. #: 7029
Client: Northern Beaches Council

Figure 1

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GDA 1994 MGA Zone 56

Palm Beach (North) - Site Map

Northern Beaches Dog Off-leash Trial

Niche PM: Justin Merdith
Niche Proj. #: 7029
Client: Northern Beaches Council

Figure 2

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GDA 1994 MGA Zone 56

Mona Vale Beach (South) - Site Map

Northern Beaches Dog Off-leash Trial

Niche PM: Justin Merdith
Niche Proj. #: 7029
Client: Northern Beaches Council

Figure 3

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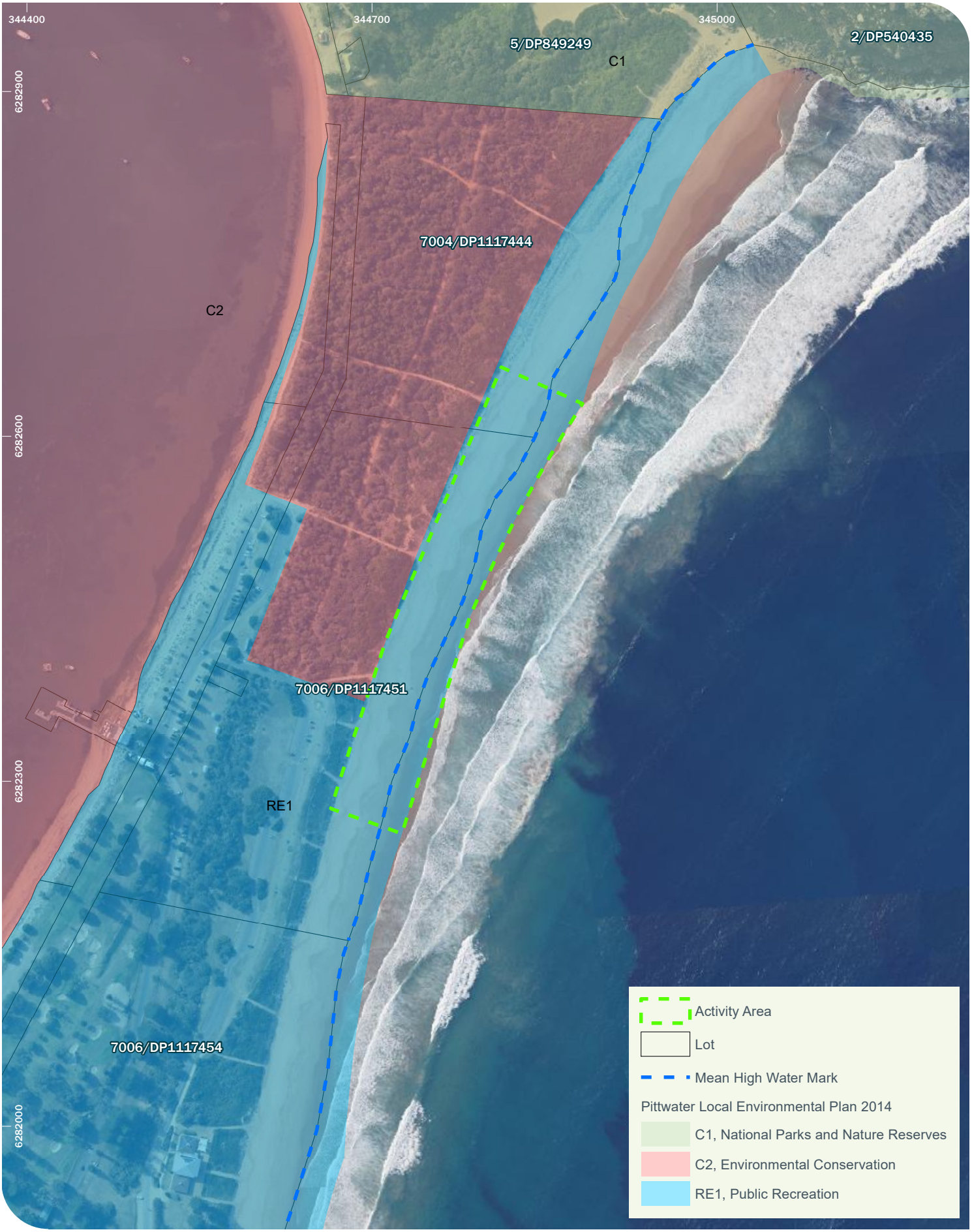

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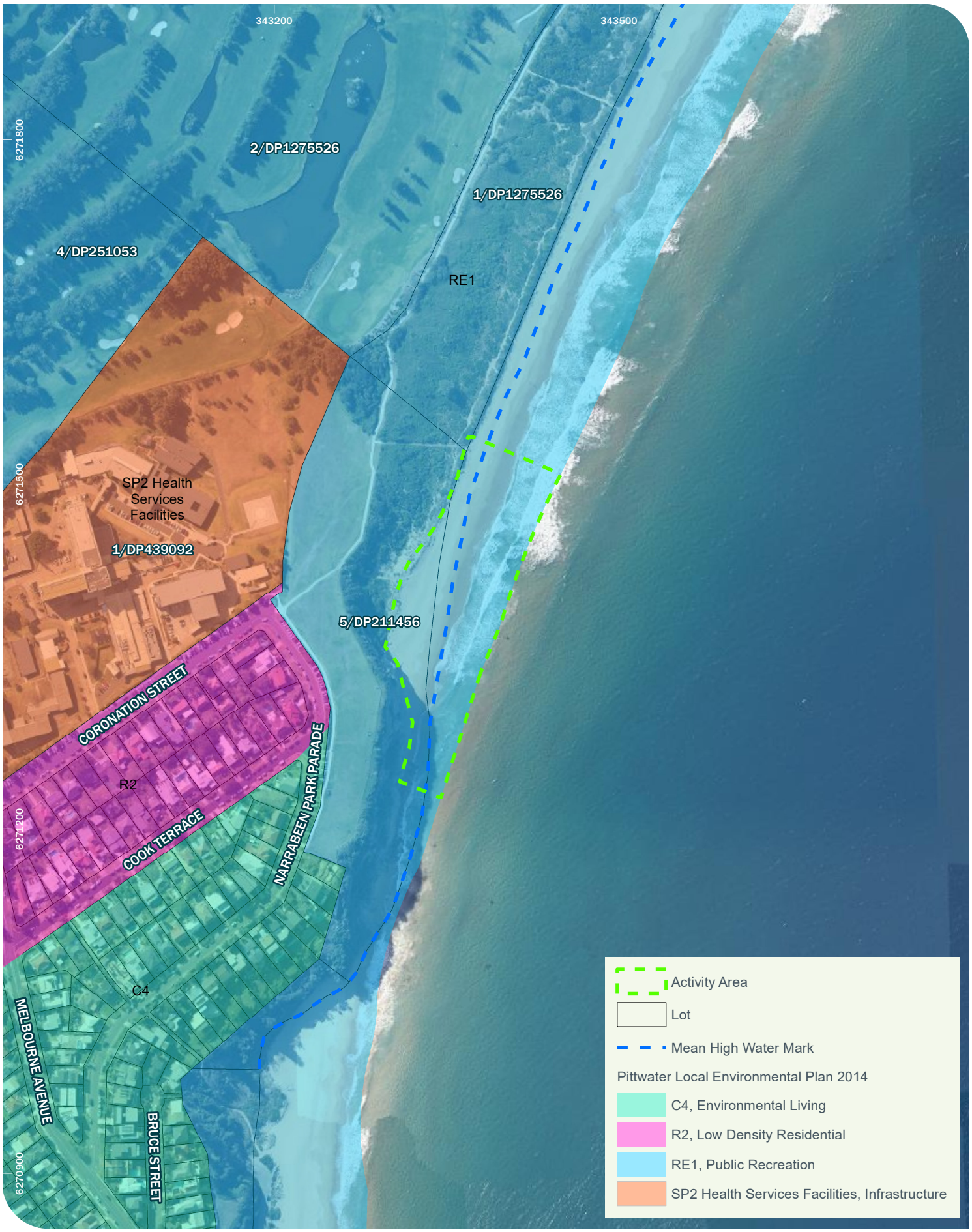
Niche PM: Justin Merdith
Niche Proj. #: 7029
Client: Northern Beaches Council

Palm Beach (North) - Land Zoning
Northern Beaches Dog Off-leash Trial

Figure 4



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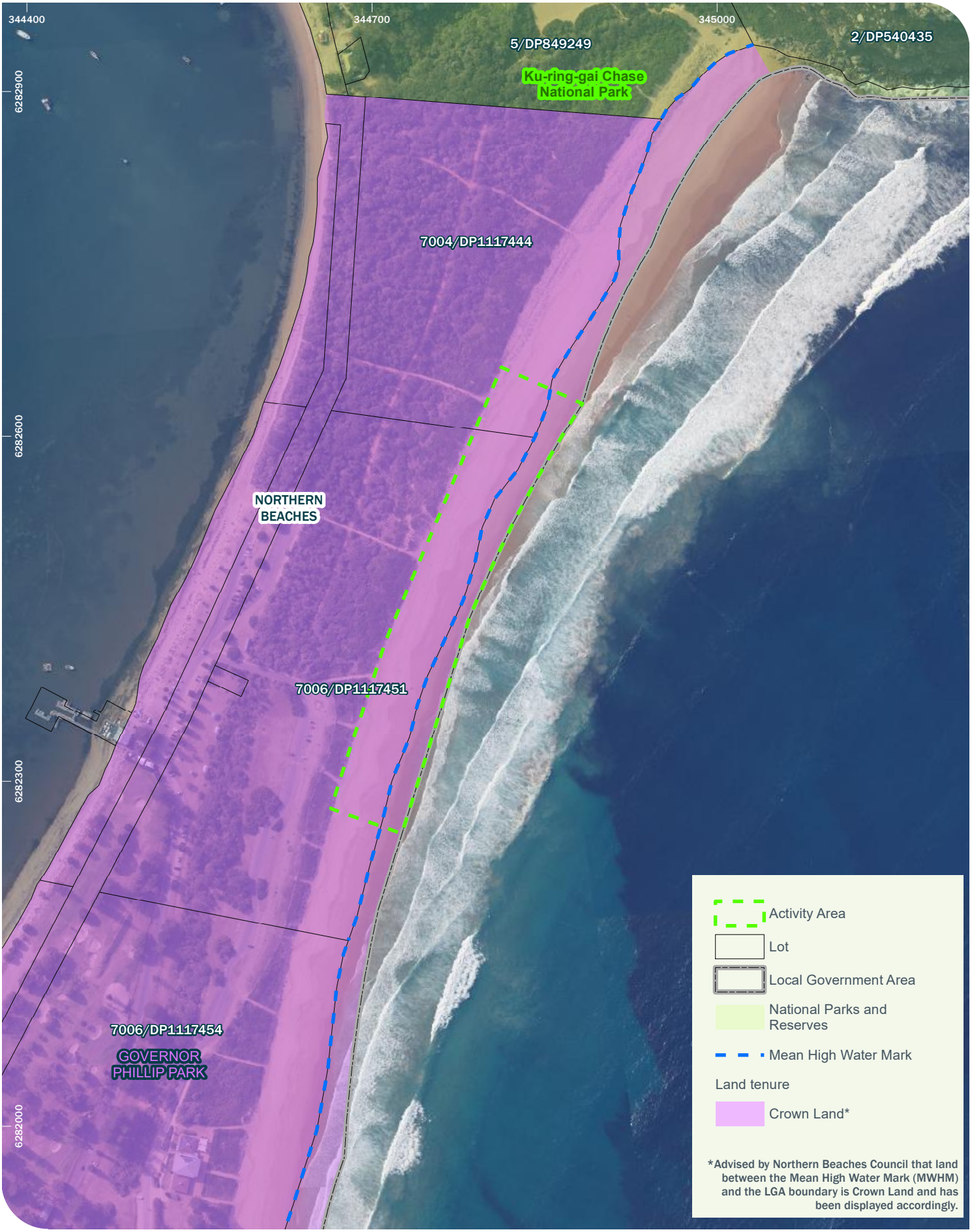
Mona Vale Beach (South) - Land Zoning
Northern Beaches Dog Off-leash Trial

Niche PM: Justin Merdith
Niche Proj. #: 7029
Client: Northern Beaches Council

Figure 5



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Palm Beach (North) - Land Tenure
Northern Beaches Dog Off-leash Trial

Niche PM: Justin Merdith
Niche Proj. #: 7029
Client: Northern Beaches Council

Figure 6

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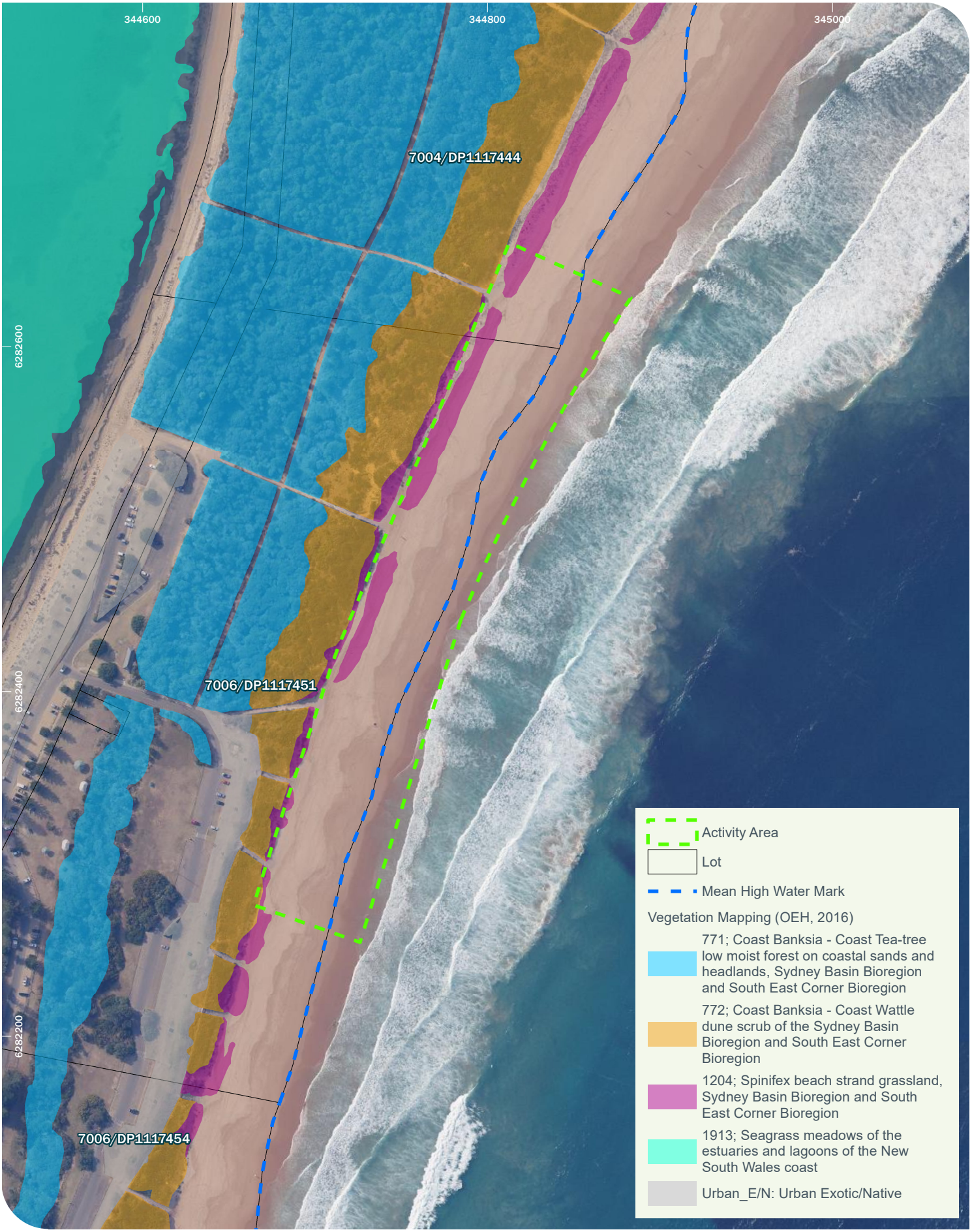
GDA 1994 MGA Zone 56

Mona Vale Beach (South) - Land Tenure
Northern Beaches Dog Off-leash Trial

Niche PM: Justin Merdith
Niche Proj. #: 7029
Client: Northern Beaches Council

Figure 7



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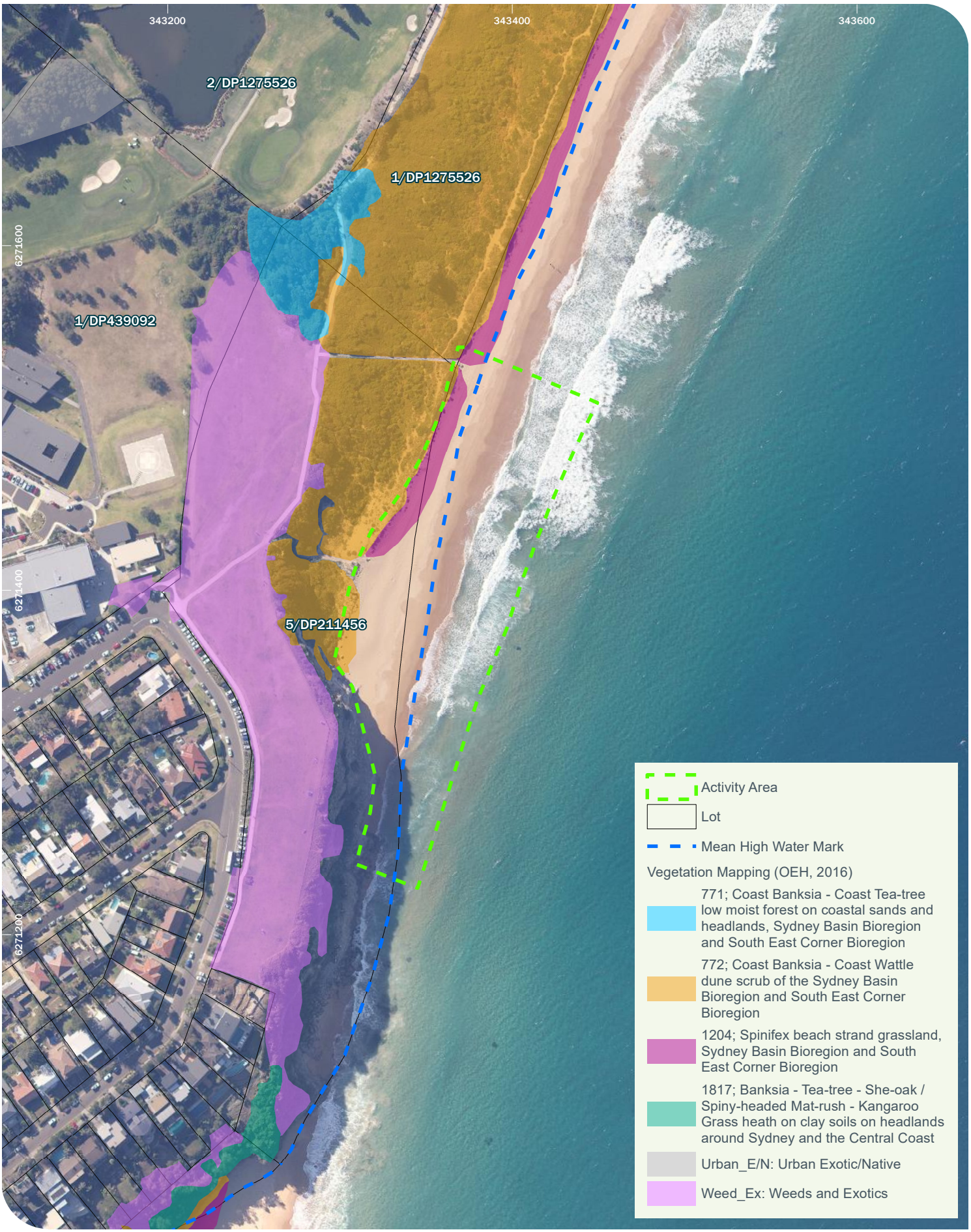
Palm Beach (North) - Vegetation Mapping

Northern Beaches Dog Off-leash Trial

Niche PM: Justin Merdith
Niche Proj. #: 7029
Client: Northern Beaches Council

Figure 8



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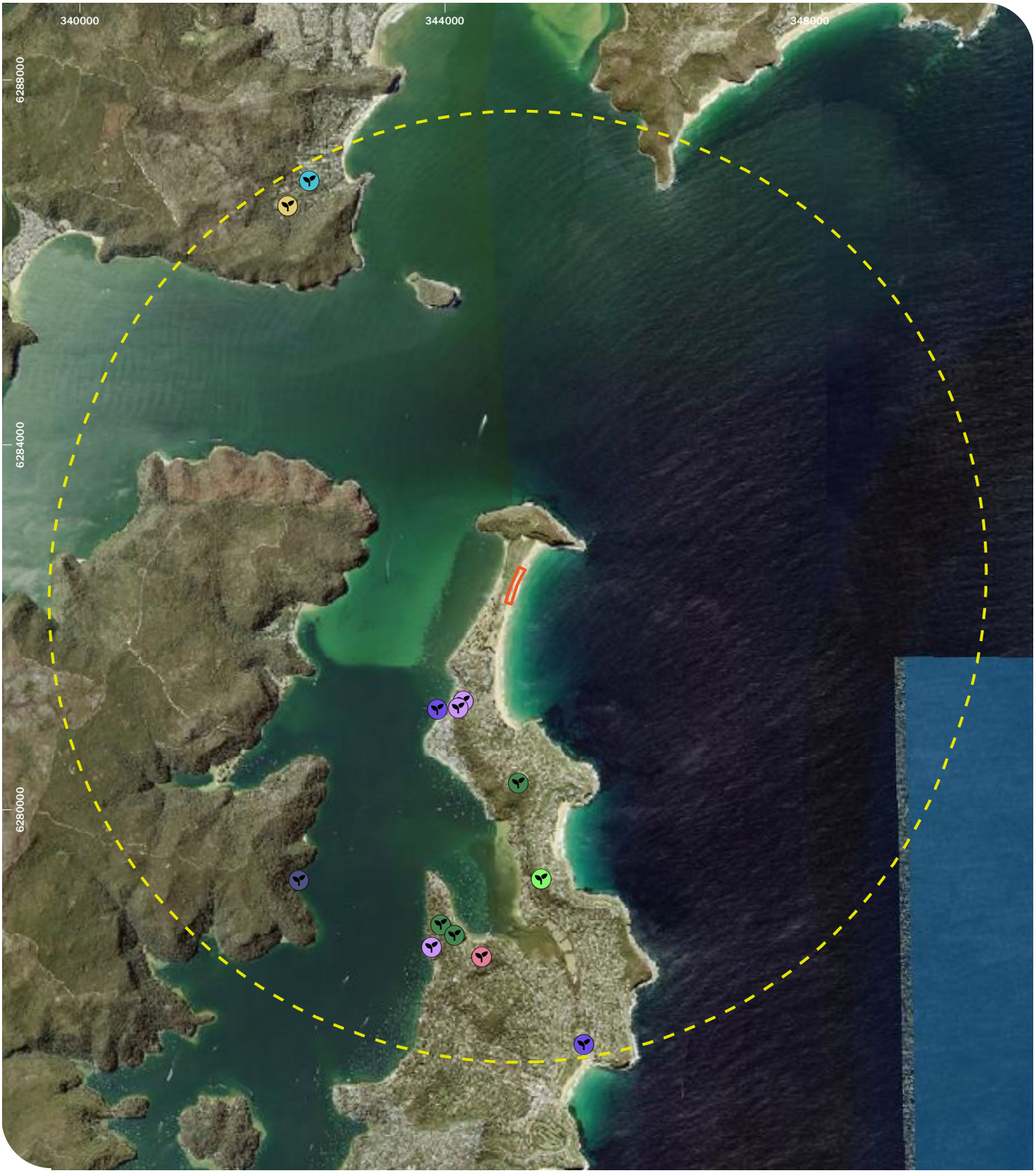
Mona Vale Beach (South) - Vegetation Mapping

Northern Beaches Dog Off-leash Trial

Niche PM: Justin Merdith
Niche Proj. #: 7029
Client: Northern Beaches Council

Figure 9



Activity Area

5km search area

Flora

Boronia umbellata

Chamaesyce psammogeton

Eucalyptus nicholii

Grevillea shiressii

Macadamia integrifolia

Maundia triglochinoides

Rhodamnia rubescens

Syzygium paniculatum

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km

GDA 1994 MGA Zone 56

Threatened Flora within 5km of the Project Area
Palm Beach (North)
Northern Beaches Dog Off-leash Trial

Niche PM: Justin Merdith
Niche Proj. #: 7029
Client: Northern Beaches Council

Figure 10

Activity Area

5km search area

Flora

Chamaesyce psammogeton

Epacris purpurascens var. purpurascens

Eucalyptus camfieldii

Eucalyptus nicholii

Isotoma fluviatilis subsp. fluviatilis

Kunzea rupestris

Lasiopetalum joyceae

Macadamia integrifolia

Pimelea curviflora var. curviflora

Prostanthera densa

Rhodamnia rubescens

Syzygium paniculatum

Tetratheca glandulosa

niche Environment and Heritage

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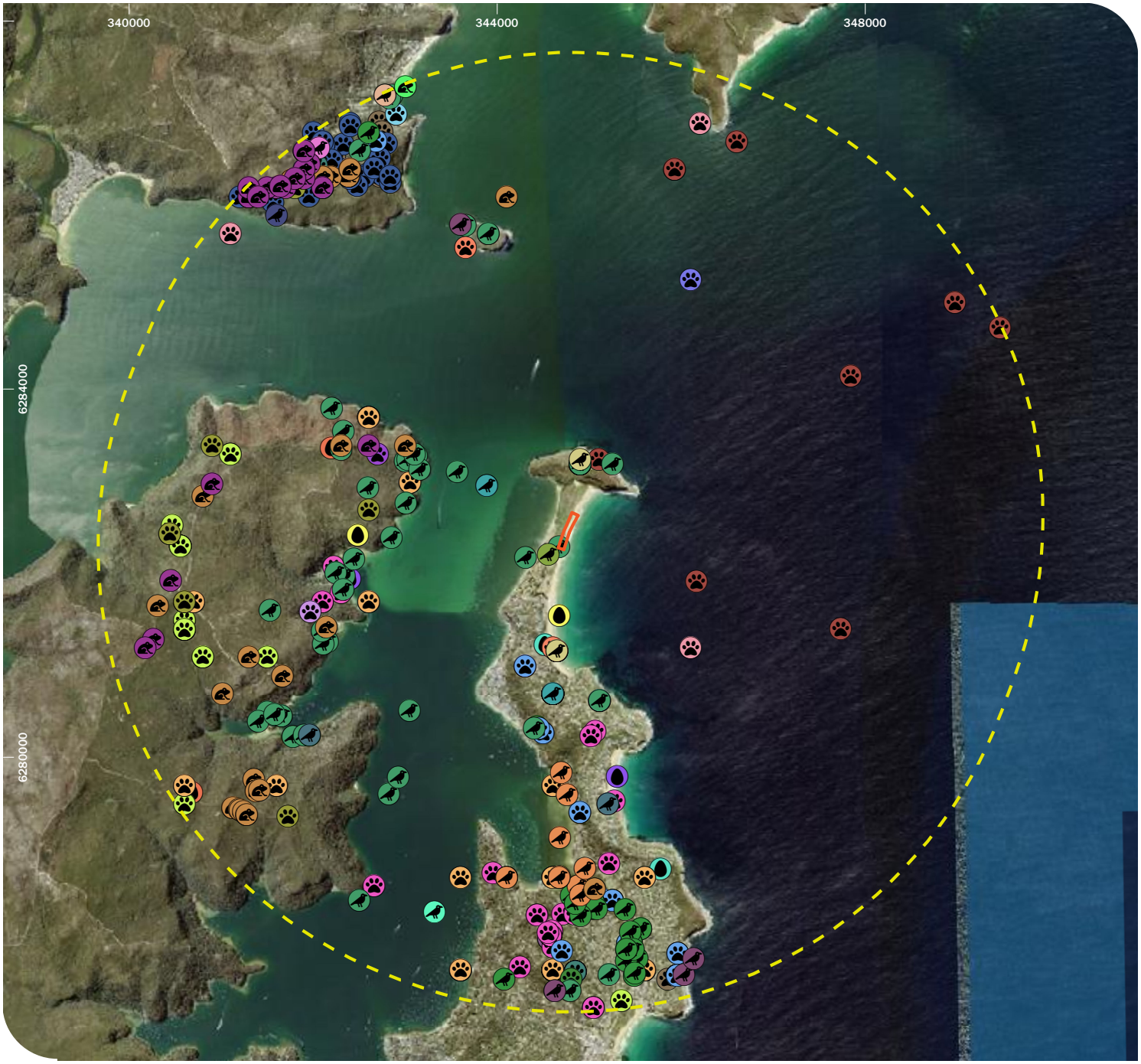
GDA 1994 MGA Zone 56

Threatened Flora within 5km of the Project Area
Mona Vale Beach (South)
Northern Beaches Dog Off-leash Trial

Niche PM: Justin Merdith
Niche Proj. #: 7029
Client: Northern Beaches Council

Figure 11



- Activity Area
- 5km search area

Amphibia

- Giant Burrowing Frog
- Green and Golden Bell Frog
- Red-crowned Toadlet

Aves

- Bush Stone-curlew
- Dusky Woodswallow
- Eastern Curlew
- Flame Robin
- Little Eagle
- Little Lorikeet
- Pied Oystercatcher
- Scarlet Robin
- Sooty Oystercatcher
- Sooty Tern
- Superb Fruit-Dove
- Varied Sittella
- Wandering Albatross
- White-bellied Sea-Eagle

Mammalia

- Australian Fur-seal
- Eastern Cave Bat
- Eastern Coastal Free-tailed Bat
- Eastern Pygmy-possum
- Greater Broad-nosed Bat
- Greater Glider
- Grey-headed Flying-fox
- Humpback Whale
- Koala
- Koala in the Pittwater Local Government Area
- Large Bent-winged Bat
- Large-eared Pied Bat
- Little Bent-winged Bat
- New Holland Mouse
- New Zealand Fur-seal
- Southern Brown Bandicoot (eastern)
- Southern Myotis
- Southern Right Whale
- Sperm Whale
- Spotted-tailed Quoll
- Squirrel Glider
- Squirrel Glider on Barrenjoey Peninsula, north of Bushrangers Hill

Reptilia

- Green Turtle
- Hawksbill Turtle
- Loggerhead Turtle
- Rosenberg's Goanna

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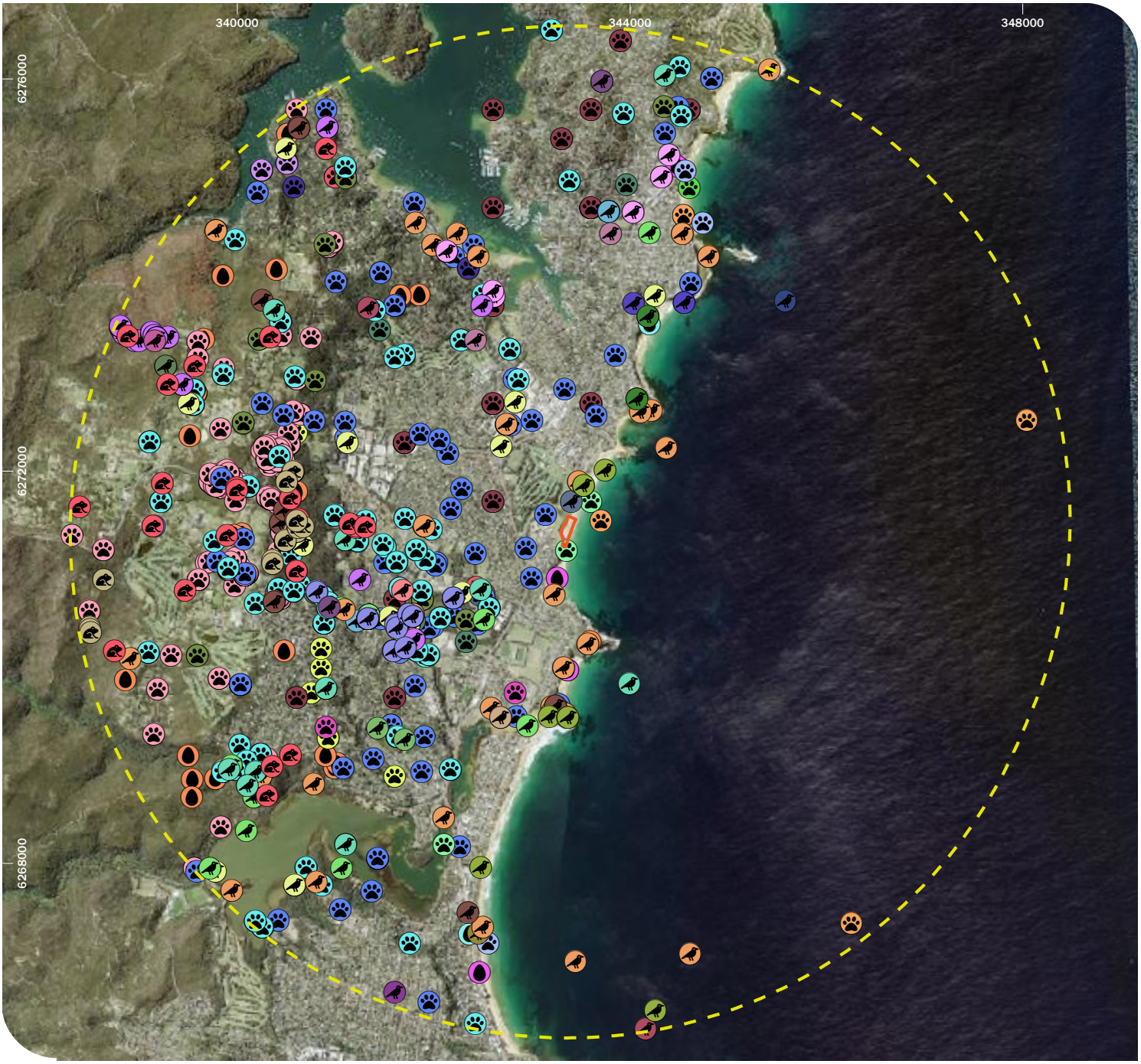
GDA 1994 MGA Zone 56

Threatened Fauna within 5km of the Project Area
Palm Beach (North)
Northern Beaches Dog Off-leash Trial

Niche PM: Justin Merdith
Niche Proj. #: 7029
Client: Northern Beaches Council

Figure 12



- Activity Area
- 5km search area

Amphibia
- Giant Burrowing Frog
- Green and Golden Bell Frog
- Red-crowned Toadlet

Aves
- Australasian Bittern
- Australian Painted Snipe
- Black Bittern
- Black-browed Albatross
- Black-chinned Honeyeater (eastern subspecies)
- Brown Treecreeper (eastern subspecies)
- Bush Stone-curlew
- Dusky Woodswallow
- Flesh-footed Shearwater
- Grey-headed Albatross
- Little Eagle
- Little Lorikeet
- Regent Honeyeater
- Rose-crowned Fruit-Dove
- Scarlet Robin
- Shy Albatross
- Sooty Oystercatcher
- Superb Fruit-Dove
- Terek Sandpiper
- Varied Sittella
- Wandering Albatross
- White-bellied Sea-Eagle
- White-throated Needletail
- Wompoo Fruit-Dove

Mammalia
- Dugong
- Eastern Cave Bat
- Eastern Coastal Free-tailed Bat
- Eastern False Pipistrelle
- Eastern Pygmy-possum
- Greater Broad-nosed Bat
- Grey-headed Flying-fox
- Humpback Whale
- Koala
- Koala in the Pittwater Local Government Area
- Large Bent-winged Bat
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- Southern Myotis
- Southern Right Whale
- Sperm Whale
- Spotted-tailed Quoll
- Squirrel Glider
- Yellow-bellied Sheathtail-bat

Reptilia
- Green Turtle
- Loggerhead Turtle
- Rosenberg's Goanna

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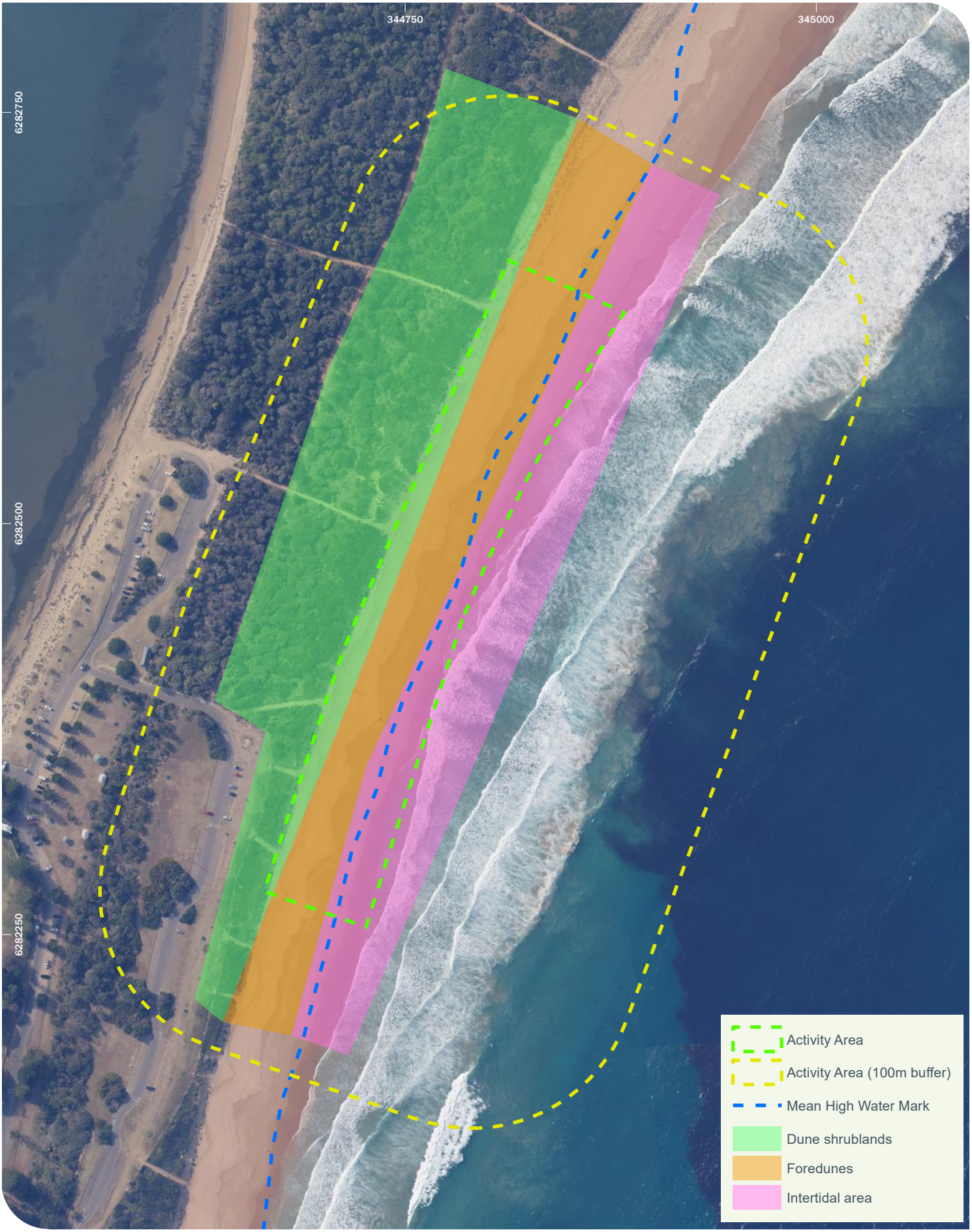
Threatened Fauna within 5km of the Project area
Mona Vale Beach (south)
Northern Beaches Dog Off-leash Trial

Niche PM: Justin Merdith
Niche Proj. #: 7029
Client: Northern Beaches Council

Figure 13



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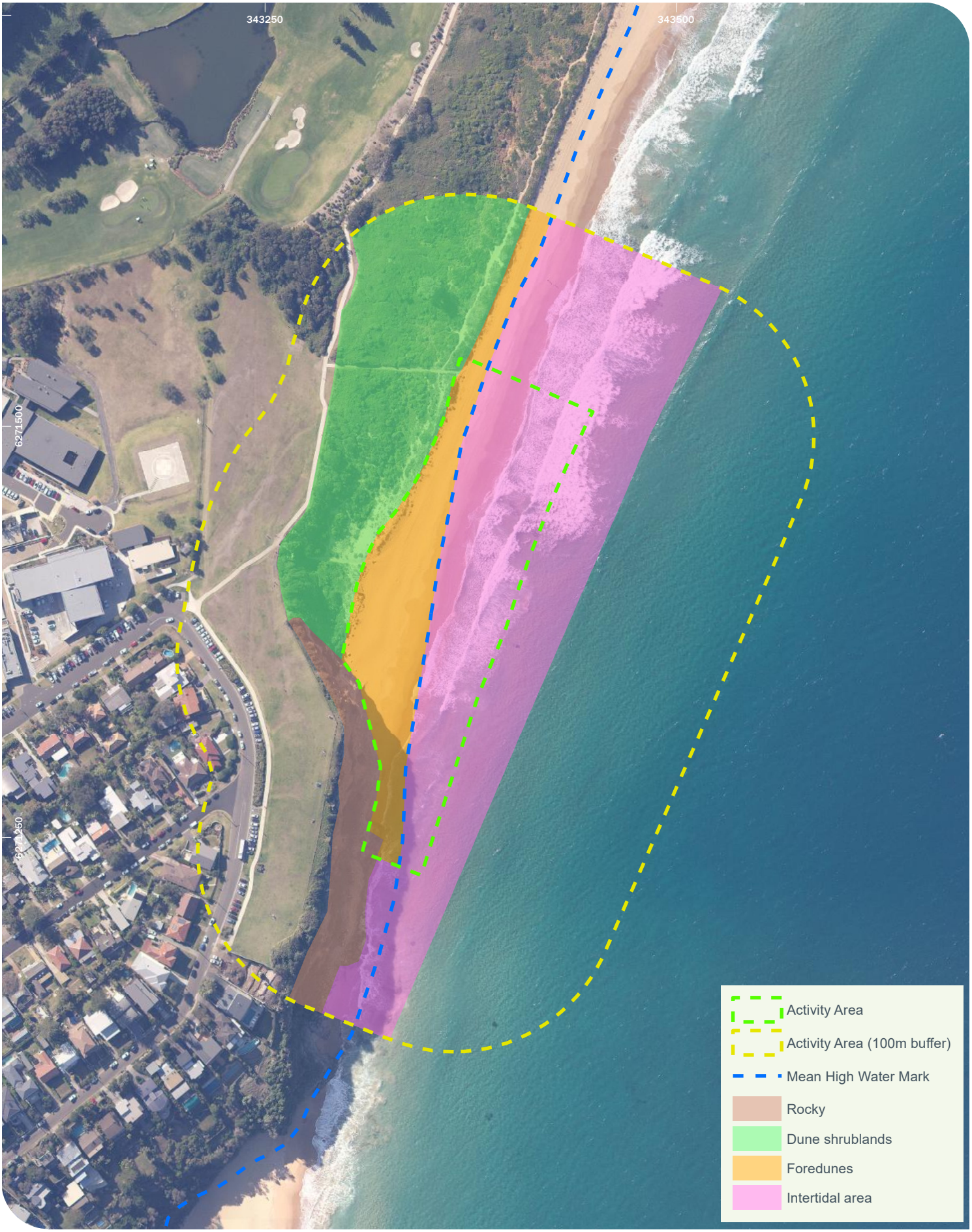
GDA 1994 MGA Zone 56

Palm Beach (North) - Habitat Map

Northern Beaches Dog Off-leash Trial

Niche PM: Justin Merdith
Niche Proj. #: 7029
Client: Northern Beaches Council

Figure 14



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Mona Vale Beach (South) - Habitat Map
Northern Beaches Dog Off-leash Trial

Niche PM: Justin Merdith
Niche Proj. #: 7029
Client: Northern Beaches Council

Figure 15

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Palm Beach (North) - Cultural Heritage Sites

Northern Beaches Dog Off-leash Trial

Niche PM: Justin Merdith
Niche Proj. #: 7029
Client: Northern Beaches Council

Figure 16

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Mona Vale Beach (South) - Cultural Heritage Sites

Northern Beaches Dog Off-leash Trial

Niche PM: Justin Merdith
Niche Proj. #: 7029
Client: Northern Beaches Council

Figure 17

Annex 1 Historical Recreational Uses

Mona Vale Beach (south) and Palm Beach (north)

Date	Version	Issued by
22 June 2022	Final	Nicole Cama

1. EXECUTIVE SUMMARY

This report presents primary source material which demonstrates the historic uses of Mona Vale Beach and Palm Beach. While it does not provide a detailed contextual history of the suburbs of Palm Beach and Mona Vale, it comprises historical evidence which is site-specific and relevant to the recreational uses of the subject sites.

The historical evidence, in the form of council minutes, government legislation and gazettes, newspaper articles, and photographs, indicate the following key findings:

- Both Mona Vale Beach and Palm Beach, and their adjoining public reserves, have been used as a public recreation area since at least the early 1900s, and these beaches continue to provide recreational opportunities for the local community and visitors.
- The activities encompassed by public recreation at Mona Vale Beach remain surfing, swimming and other forms of exercise and passive recreation.
- Activities at Palm Beach also include surfing, swimming and sunbathing, and have historically also included camping.
- The *Local Government Act* has enabled council to regulate building construction and 'improve and embellish public reserves which are under its care, control and management'.
- Palm Beach in particular became a frequent haunt for the city's socialites from at least the 1920s, and there are many examples of photographic material featuring these prominent Sydneysiders with their pet dogs at the beach.
- At least since the 1920s the presence of dogs on Mona Vale Beach has attracted complaint from residents, and throughout the 20th century there have been various attempts to police the presence of dogs and other animals at the beach.

Nicole Cama, MPHA

Professional Historian

Cover image: Unidentified women Christmas holidaying at Palm Beach, photograph by Samuel J Hood Studio, 1929 (Source: State Library of NSW, Home and Away - 2976)

CONTENTS

LIST OF FIGURES

2. INTRODUCTION

2.1 BACKGROUND

This report was prepared by for Northern Beaches Council and its purpose is to research and present source material or evidence illustrating the historic use of Mona Vale Beach and Palm Beach, with particular focus on the use of these sites for public recreation.

2.2 METHODOLOGY

This report is based on research of both primary and secondary source materials and is fully referenced. A full reference list is provided in section 4. Sources include:

- Photographic materials from the collections of the Northern Beaches Library Local Studies, National Library of Australia, and State Library of NSW;
- Aerial photographs available via NSW Spatial Services' Historical Imagery viewer;
- Newspaper and magazine articles digitised via the National Library of Australia's Trove; and
- The minutes of the former Warringah Council via the Northern Beaches Library's History Hub website.

The preparation of this report is governed by the New South Wales Expert Witness Code of Conduct.

2.3 SITE LOCATION(S)

Mona Vale Beach is located 28 kilometres north of the Sydney Central Business District. Palm Beach is both a suburb and a beach located about 41 kilometres north of the Sydney Central Business District. Both Mona Vale and Palm Beach are contained within the local government area of the Northern Beaches Council.

This report pertains to two areas of each beach located in the south of Mona Vale Beach and north of Palm Beach, toward the Barrenjoey Headland.

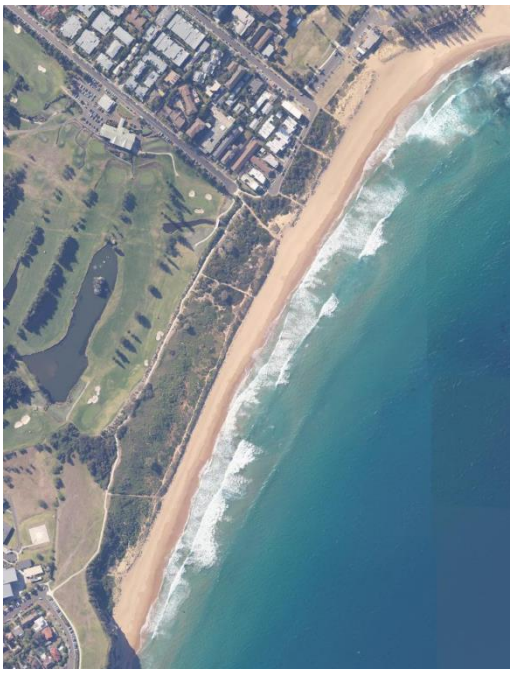


Figure 1: Mona Vale Beach (south), 17 August 2018 (Source: NSW Spatial Services, SIX Maps)

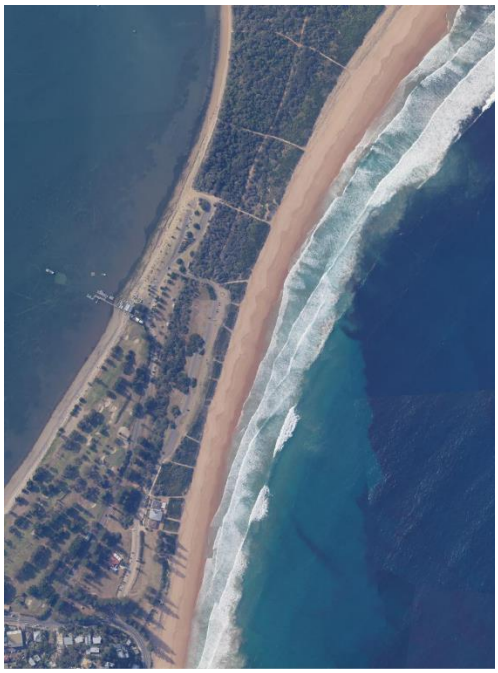


Figure 2: Palm Beach (north), 30 August 2018 (Source: NSW Spatial Services, SIX Maps)

2.4 AUTHORSHIP

This report was prepared by Nicole Cama, accredited historian (MPHA), who was engaged as an independent expert in May 2022, using a history written by Dr Charles Pickett, historian and curator, in September 2021. Some supplemental historical information, references and all historical images have been researched and added by Nicole Cama.

2.5 LIMITATIONS

This report provides a summary history (authored by Dr Charles Pickett) of recreational uses of Mona Vale Beach and Palm Beach. A detailed history of the sites covering themes including Aboriginal history, European settlement, chain of title and residential development is outside the scope of this report.

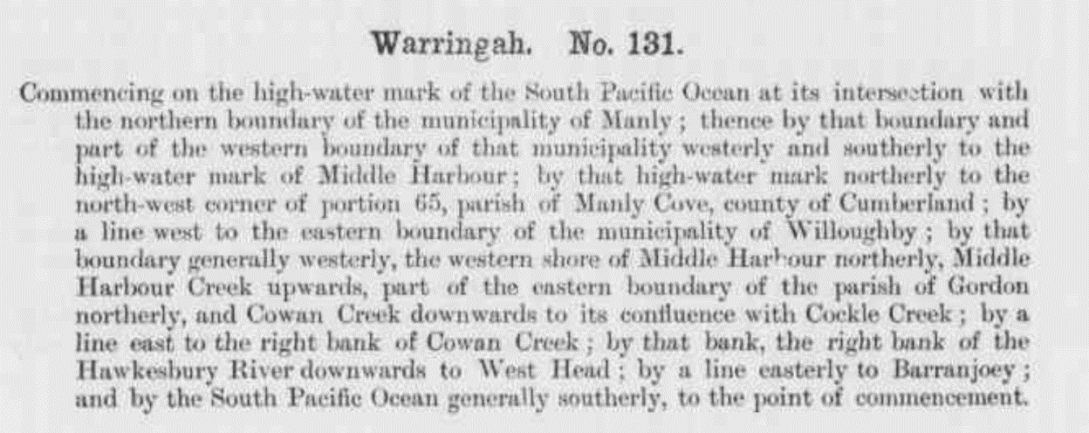
3. HISTORICAL OVERVIEW

3.1 LEGISLATIVE FRAMEWORK

***Note**: The following information regarding legislation governing use of the subject sites was provided by Northern Beaches Council. Headings, citations, definitions and images have been added by Nicole Cama.*

3.1.1 Municipal boundaries 1905

Warringah Shire Council became a shire on 7 March 1906 following the passage of the *Local Government (Shires) Act 1905*. The boundaries of the Shire of Warringah were fixed by proclamation published in the NSW Government Gazette No 121, 7 March 1906.[1]



Warringah. No. 131.

Commencing on the high-water mark of the South Pacific Ocean at its intersection with the northern boundary of the municipality of Manly; thence by that boundary and part of the western boundary of that municipality westerly and southerly to the high-water mark of Middle Harbour; by that high-water mark northerly to the north-west corner of portion 65, parish of Manly Cove, county of Cumberland; by a line west to the eastern boundary of the municipality of Willoughby; by that boundary generally westerly, the western shore of Middle Harbour northerly, Middle Harbour Creek upwards, part of the eastern boundary of the parish of Gordon northerly, and Cowan Creek downwards to its confluence with Cockle Creek; by a line east to the right bank of Cowan Creek; by that bank, the right bank of the Hawkesbury River downwards to West Head; by a line easterly to Barranjoey; and by the South Pacific Ocean generally southerly, to the point of commencement.

Figure 3: Government Gazette of the State of New South Wales, 'Proclamation', 7 March 1906, 1637, http://nla.gov.au/nla.news-article226474400

3.1.2 'Parks and recreation grounds' 1907

In 1907 proclamation powers enabled Shire councils the power to establish and maintain 'parks and recreation grounds' (see sections 3.3.2 and 3.4.2 for information on the establishment of public reserves at Mona Vale and Palm beaches).[2]

3.1.3 Building regulation 1919

The *Local Government Act 1919* commenced on 22 December 1919. The act defined a 'public place' as a 'public road, bridge jetty, wharf, road-ferry, or other place which the public are entitled to use, but does not include a public reserve', while a public reserve was defined as 'public park

[1] 'Proclamation', *Government Gazette of the State of New South Wales*, 7 March 1906, 1593 and 1637, http://nla.gov.au/nla.news-article226474400; 'The New Shires', *Sydney Morning Herald*, 5 January 1906, 3, http://nla.gov.au/nla.news-article14721846.

[2] 'Proclamation', *Government Gazette of the State of New South Wales*, 20 November 1907, 6308, http://nla.gov.au/nla.news-article226586177.

and any land dedicated or reserved from sale by the Crown for public health, recreation, enjoyment or other public purpose of the like nature, but does not include a common.'[3]

Part XI of the *Local Government Act 1919* concerned building regulation, with 'building' defined as 'any structure or any part thereof.'[4] Section 311, within part XI, provided that 'a building shall not be erected or altered unless the approval of the Council is obtained therefore beforehand.'[5] Section 305 noted:

> *(2) The council of a shire may control and regulate the erection of buildings –*
>
> *(a) in those portions of the shire with respect to which, at the commencement of this Act, the council has acquired the powers of paragraph (xliii) of section one hundred and nine of the Local Government Act, 1906, and this Part shall apply to those portions of the shire accordingly; and*
>
> *(b) in any urban areas, towns, or villages to which the Governor, by proclamation, applies the provisions of this part.*[6]

In 1940 Part XI of the *Local Government Act 1919* was applied 'to the whole of the Shire of Warringah' via proclamation.[7]

3.1.4 Planning schemes

On 21 March 1947 the Minister for Local Government, John Joseph Cahill, gave notice of his approval of the resolution of Warringah Shire Council, dated 7 January 1947, deciding to prepare a scheme in respect of all land within the Shire.[8]

On 27 June 1951 the County of Cumberland Planning Scheme ('CCPS 1951') was made, by section 2 of the *Local Government (Amendment) Act 1951*. Clause 32 of CCPS 1951 provided that 'An existing building or existing work may be maintained and may be used for its existing use and an existing use of land may be continued.'[9] Clause 32 operated so that existing buildings and existing

[3] 'Local Government Act 1919 No 41' (1919), 327, http://classic.austlii.edu.au/au/legis/nsw/num_act/lga1919n41209/.
[4] Local Government Act 1919 No 41, Part XI, Division I, section 304, 486.
[5] Local Government Act 1919 No 41, Part XI, Division 4, Section 311, 489.
[6] 'Local Government Act 1906 No 56' (1906), Part XIII, Division 2, section 109, 423-26, http://classic.austlii.edu.au/au/legis/nsw/num_act/lga1906n56209/; Local Government Act 1919 No 41, Part XI, Division 2, section 305, 487.
[7] 'Local Government Act, 1919', *Government Gazette of the State of New South Wales*, 7 June 1940, 2448, http://nla.gov.au/nla.news-article225101671.
[8] 'Local Government Act, 1919', *Government Gazette of the State of New South Wales*, 21 March 1947, 641, http://nla.gov.au/nla.news-article224767159.
[9] 'Local Government Amendment Act 1951 No 18' (1951), Part IV, Section 32, 130, http://classic.austlii.edu.au/au/legis/nsw/num_act/lga1951n18289.

works on the land immediately before the coming into force of CCPS 1951 could be maintained and used for their existing use, and an existing use of the land could be continued.

On 7 June 1963, Warringah Planning Scheme Ordinance ('WPSO 1963') was gazetted. WPSO 1963 embodied the planning scheme prepared by Warringah Shire Council pursuant to its resolution dated 7 January 1947. 'Existing use' was defined as 'use of a building, work or land for the purpose for which it was used immediately before the appointed day….'[10] The scheme map designated a 'light green' colour for 'parks, recreational areas and foreshore reservations' (Figure 5).[11]

6. OPEN SPACE: (a) Existing Recreation.	Dark green tint..	Any purpose authorised by Part XIII of the Act.	Agriculture; forestry; caravan parks; racecourses; showgrounds; sports-grounds; drainage; roads; public utility installations.	Any purpose other than those permitted by Column III and Column IV.
(b) Private Recreation.	Dark green tint with yellow edging.	Golf courses and bowling-greens; recreation areas.	Dwelling-houses or residential buildings required for use or occupation by persons employed in connection with a purpose referred to in Column III; shops; commercial premises or industries required in connection with a purpose referred to in Column III; any purpose incidental to a purpose referred to in Column III; public utility installations.	Any purpose other than those permitted by Column III and Column IV.
(c) Proposed Recreation.	Light green tint with dark green edging.	Any purpose authorised by Part XIII of the Act.	Roads; agriculture; forestry; drainage; public utility installations.	Any purpose other than those permitted by Column III and Column IV.

Figure 4: Government Gazette of the State of New South Wales, 'Local Government Act, 1919 - Proclamation', 7 June 1963, 1578, http://nla.gov.au/nla.news-article220327565

[10] 'Local Government Act, 1919 - Proclamation', *Government Gazette of the State of New South Wales*, 7 June 1963, 1568, http://nla.gov.au/nla.news-article220327565.
[11] 'Local Government Act, 1919 - Proclamation', 1573.

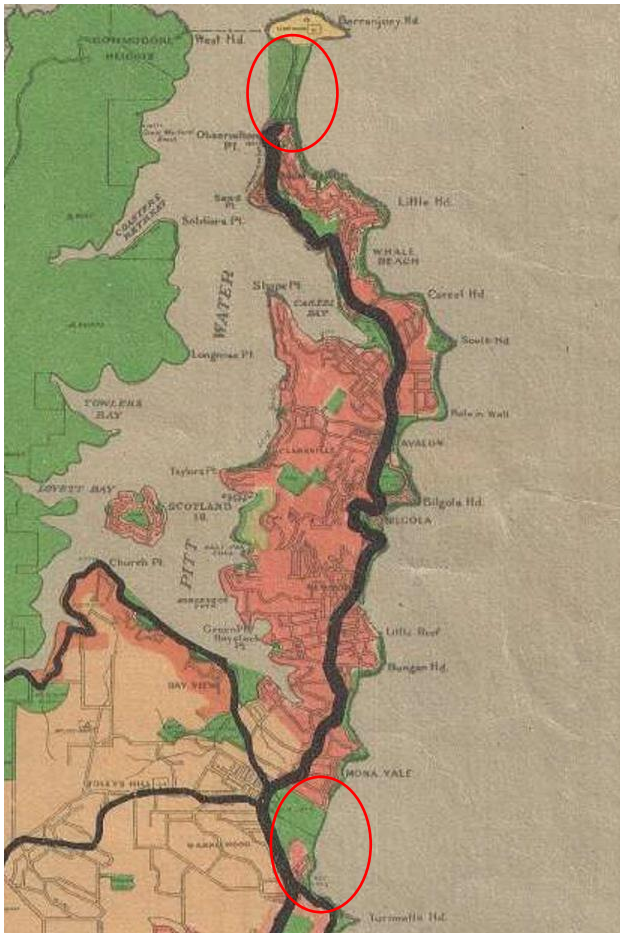


Figure 5: County of Cumberland Planning scheme map showing the subject sites shaded green representing 'Parks and recreation areas, foreshore reservations and places of natural beauty or advantage', 1951 (Source: Northern Beaches Council)

Figure 6: Shire of Warringah Planning Scheme map showing Mona Vale Beach (south) shaded a dark green signifying zone 6(a) 'Existing Recreation', 1963 (Source: Northern Beaches Council)

Figure 7: Shire of Warringah Planning Scheme map showing Palm Beach shaded a dark green signifying zone 6(a) 'Existing Recreation', 1963 (Source: Northern Beaches Council)

WPSO 1963 zoned the land at Palm and Mona Vale beaches '6(A) Existing Recreation'. Additionally, Palm Beach was designated as part of a 'Foreshore Scenic Protection Area', which was defined as 'any land shown on the scheme map by black hatchings and any land declared by proclamation to be a Foreshore Scenic Protection Area….'[12]

Clause 27(1) of WPSO 1963 provided that a building or work could not, without consent, be erected, carried out or used in a zone for a purpose specified in the land use table (Figure 4) as requiring consent. Clause 28(a) of WPSO 1963 provided that land in a zone could not be used, without consent, for a purpose for which a building or work in the same zone may be erected, carried out or used only with consent.[13] The WPSO 1963 also noted:

30. An existing building or an existing work may be maintained and may be used for its existing use and an existing use of land may be continued.

31. ….the responsible authority may consent to the alteration, enlargement, rebuilding or extension (including the erection of new buildings or the carrying out of new works of an ancillary character) of any existing building or existing work for its existing use.[14]

3.1.5 Environmental Planning and Assessment Act 1979

On 1 September 1980, the *Environmental Planning and Assessment Act 1979* commenced. WPSO 1963 was deemed to be an environmental planning instrument under the Act. The provisions of Division 4.11 of the Act apply to protect use of a building, work or land for a lawful purpose that is an existing use (under the former sections 106, 107 and 109 of the Act).

106. In this Division, 'existing use' means –

(a) The use of a building, work or land for a lawful purpose immediately before the coming into force of an environmental planning instrument having the effect of prohibiting that use….

107. (1) Except where expressly provided in this Act, nothing in this Act or an environmental planning instrument prevents the continuance of an existing use….

109. Nothing in an environmental planning instrument operates so as to require consent to be obtained under this Ac for the continuance of a use of a building, work or land for a lawful purpose for which it was being used immediately before the coming into force of the instrument

[12] 'Local Government Act, 1919 - Proclamation', 1569.
[13] 'Local Government Act, 1919 - Proclamation', 1579.
[14] 'Local Government Act, 1919 - Proclamation', 1579.

or so as to prevent the continuance of that use except with consent under this Act being obtained.[15]

3.1.6 Local Environment Plans

Division 4 of the *Environmental Planning and Assessment Act 1979* allowed for the preparation of a local environmental plan by a council.[16] *Warringah Local Environmental Plan 1985* (LEP) was gazetted on 11 October 1985.[17] The Warringah LEP repealed WPSO 1963 and zoned the land at Palm and Mona Vale beaches 6(a) Existing Recreation, and Palm Beach was designated as part of the 'Foreshore Scenic Protection Area'.

Figure 8: Shire of Warringah Planning Scheme map showing Mona Vale Beach (south) shaded a dark green signifying zone 6(a) 'Existing Recreation', 1985 (Source: Northern Beaches Council)

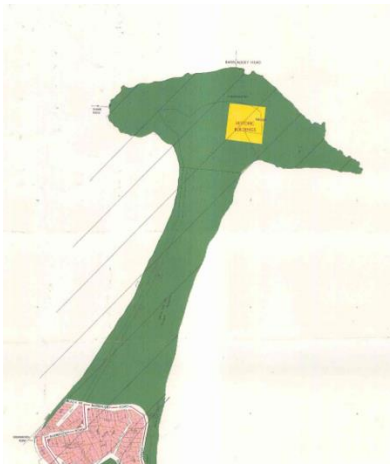


Figure 9: Shire of Warringah Planning Scheme map showing Palm Beach shaded a dark green signifying zone 6(a) 'Existing Recreation' and hatched to represent a 'Foreshore Scenic Protection Area', 1985 (Source: Northern Beaches Council)

On 4 February 1994, *Pittwater Local Environmental Plan 1993* was gazetted.[18] The Pittwater LEP 1993 incorporated the provisions of Warringah LEP 1985 into a local environmental plan for the area of Pittwater (clause 2). Pittwater had by this time separated as a local government area from Warringah. It continued to zone land at Mona Vale Beach as 'existing recreation'.

On 27 June 2014, *Pittwater Local Environmental Plan 2014* was gazetted. Pittwater LEP 2014 zoned the land at Palm and Mona Vale beaches as 'RE1 Public Recreation' with objectives and permitted uses as follows:

[15] 'Environmental Planning and Assessment Act 1979 No 203' (1979), Part IV, Section 106, 107 and 109, 80-82, https://legislation.nsw.gov.au/view/html/1979-12-21/act-1979-203.
[16] Environmental Planning and Assessment Act 1979 No 203, Division 4, 38.
[17] 'Environmental Planning and Assessment Act 1979', *Government Gazette of the State of New South Wales*, 11 October 1985, 5362, http://nla.gov.au/nla.news-article231293270.
[18] 'Environmental Planning and Assessment Act 1979', *Government Gazette of the State of New South Wales*, 4 February 1994, 501, http://nla.gov.au/nla.news-article231929549.

1 Objectives of zone

- *To enable land to be used for public open space or recreational purposes.*
- *To provide a range of recreational settings and activities and compatible land uses.*
- *To protect and enhance the natural environment for recreational purposes.*
- *To allow development that does not substantially diminish public use of, or access to, public open space resources.*
- *To provide passive and active public open space resources, and ancillary development, to meet the needs of the community.*

2 Permitted without consent

Building identification signs; Environmental protection works; Horticulture; Markets; Roads

3 Permitted with consent

Aquaculture; Centre-based child care facilities; Community facilities; Environmental facilities; Information and education facilities; Kiosks; Public administration buildings; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Respite day care centres; Restaurants or cafes; Signage; Take away food and drink premises; Water recreation structures

4 Prohibited

Any development not specified in item 2 or 3.[19]

[19] 'Pittwater Local Environmental Plan 2014', NSW Legislation, accessed 13 June 2022, https://legislation.nsw.gov.au/view/html/inforce/current/epi-2014-0320#pt-cg1.Zone_RE1.

Figure 10: Pittwater Local Environment Plan 2014 zoning plan showing Mona Vale Beach (south) shaded green (RE1 'Public Recreation), 2014 (Source: NSW Department of Planning, NSW Planning Portal)

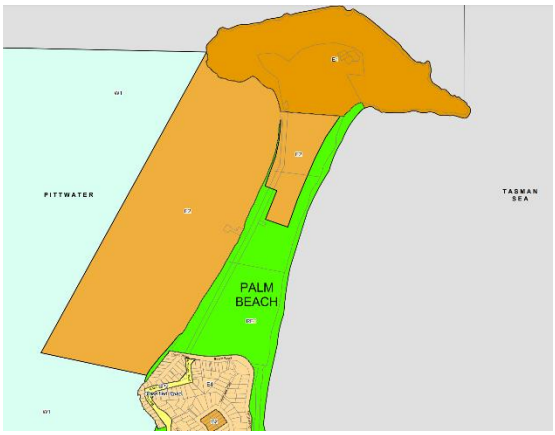


Figure 11: Pittwater Local Environment Plan 2014 zoning plan showing Palm Beach shaded green (RE1 'Public Recreation), 2014 (Source: NSW Department of Planning, NSW Planning Portal)

3.1.7 Summary of legislation

Date commenced	Name of legislation and/or instrument	Description
7/03/1906	Local Government (Shires) Act	Boundaries of the Warringah Shire fixed by proclamation (no. 131)[20]
20/11/1907	Local Government Act	'The establishment and maintenance of parks and recreation grounds'[21]
22/12/1919	Local Government Act	'a building shall not be erected or altered unless the approval of the Council is obtained therefore beforehand'[22]
7/06/1940	Local Government Act 1919 Proclamation	Part XI of the Local Government Act 1919 applied to the whole of the Shire of Warringah
27/06/1951	Local Government (Amendment) Act 1951	'An existing building or existing work may be maintained and may be used for its existing use and an existing use of land may be continued.'[23]
7/06/1963	Warringah Planning Scheme Ordinance	'An existing building or an existing work may be maintained and may be

[20] 'Proclamation', 7 March 1906, 1637.
[21] 'Proclamation', 20 November 1907, Paragraph XIII, 6308.
[22] Local Government Act 1919 No 41, Part XI, Section 311, 489.
[23] Local Government Amendment Act 1951 No 18, Part IV, Section 32, 130.

		used for its existing use and an existing use of land may be continued.'[24]
1/09/1980	Environmental Planning and Assessment Act	Existing use protected under sections 106, 107 and 109.
11/10/1985	Warringah Local Environment Plan	Repealed Warringah Planning Scheme Ordinance 1963, and zoned Palm and Mona Vale beaches as 'existing recreation'.
4/02/1994	Pittwater Local Environmental Plan	Incorporated the provisions of Warringah LEP 1985 into a local environmental plan for the area of Pittwater, encompassing Mona Vale and Palm beaches.
27/06/2014	Pittwater Local Environmental Plan	Zoned the land at Palm and Mona Vale beaches as 'RE1 Public Recreation'.

3.2 THE GARIGAL CLAN

The Pittwater and Northern Beaches area forms part of the traditional lands of the Garigal (Caregal) clan. The Garigal thrived on the coastal waters of the area, hunting fish and collecting shellfish including oysters, whelks and mussels.

The Northern Beaches area has more than 300 Aboriginal sites with the oldest dating back to 6,000 years ago. The hundreds of sites protected by Council include middens, rock carvings, camp sites, rock shelters and art.[25]

Many place names retain its Aboriginal heritage, including Barrenjoey, which means 'young kangaroo'.[26] At least three identified sites remain on the Barrenjoey Headland including two rock shelter sites and an open midden site.[27]

[24] 'Local Government Act, 1919 - Proclamation', 1579.
[25] 'Aboriginal Heritage', Northern Beaches Council, 29 May 2018, https://www.northernbeaches.nsw.gov.au/council/news/aboriginal-heritage.
[26] 'Aboriginal Heritage'.
[27] Amy Chew et al., 'Barrenjoey Headland: Conservation Management Plan' (NSW Office of Environment and Heritage, 2013), 8.

3.3 MONA VALE (SOUTH)

3.3.1 The Jenkins Estate

The first name of Mona Vale Beach was Bongin Bongin, said to mean 'many shells'. Bongin Bongin beach retained its name well into the twentieth century; the bay at its northern end is still known as Bongin Bongin Bay.

The inhabitants of the Northern Beaches lived primarily from the bounty of the sea, diving or fishing from canoes or the tidal rock platforms dividing the beaches. This activity was common into the 1830s but the advent of land grants and fenced pastures forced the founding inhabitants from their historic lands.

The Northern Beaches was isolated from Sydney by water and poor transport, while much of the terrain was inhospitable to farming. Mona Vale, like most of the peninsular north of Manly, was home to few people and did not become a residential or pleasure address until the end of the century.

By 1850 four families owned most of the land from Manly to Mona Vale; the most prominent landholder and pastoralist was James Jenkins who with his daughter Elizabeth acquired land from Narrabeen to Mona Vale, using convicts to build the first road from the Harbour to Mona Vale. Mona Vale, named for Mona Vale Farm occupied by the Foley family, became notorious during the 1850s for feuds between the Foleys and the neighbouring Collins and Farrell families, involving cattle stealing, vandalism and two unsolved murders.[28]

[28] 'The Story of Mona Vale', *Empire*, 15 May 1865, 3, http://nla.gov.au/nla.news-article64138157.

Figure 12: Rock Lily Hotel, Mona Vale, 1900 (Source: Northern Beaches Council Library Local Studies, Record number 43733)

In the aftermath the area stagnated until about 1886 when artist and hairdresser Leon Houreux opened the Rock Lily Hotel by the recently improved Pittwater Road. The Rock Lily ran a bus service from Manly for its tourist and day tripper clientele. A more ambitious resort was envisaged by Newtown haberdasher George Brock who in 1894 purchased the swampy land behind the central part of Mona Vale beach, drained and filled the lagoon, laid out a golf course and polo field and built a 37-room resort and golf club. 'Brock's Folly' failed under his debts in 1907 but was reborn as Le Corniche restaurant and hotel. The building was demolished to build home units after 1953.

Figure 13: La Corniche (formerly Brock's Folly), Mona Vale overlooking Mona Vale Beach, c1915 (Source: Northern Beaches Council Library Local Studies, Record number 40114)

Figure 14: View from La Corniche showing what was then known as Bongin Bongin Beach (Mona Vale Beach), c1911 (Source: Northern Beaches Council Library Local Studies, Record number 40117)

3.3.2 Establishment of Public Reserves

Mona Vale was part of Warringah Shire, formed by the *Local Government (Shires) Act 1905*. The boundaries of the Shire ran to the mean high-water mark 'of the South Pacific Ocean' and other waterways.[29] In 1907 the Shire gained via proclamation powers including:

> *XIII. The establishment and maintenance of parks and recreation grounds...*
>
> *XVI. The construction, maintenance, and management of public baths; the regulation of bathing and the observance of decency in connection therewith; the provision of life-saving appliances, danger notices, and life-saving attendants; and the construction, maintenance, and hiring by the Council or other persons to the public of bathing houses and bathing machines, and the regulation thereof*.[30]

During the 1920s Warringah Shire purchased and resumed beachfront land at Mona Vale (Warringah Shire Minutes, 19 October 1925, 21 June 1926). These resumptions formed the public reserves along Seaview Road at the northern end of the beach.[31]

In 1910 the Mona Vale golf course land was declared public reserve 45244 by the Department of Lands, an area of 25.63 hectares south of Golf Avenue running east to the high water mark of Mona Vale Beach and south to Elizabeth Jenkins' land.[32]

Elizabeth Jenkins was an ardent Salvationist and following her death in 1900 much of her land was bequeathed to the Salvation Army. During the 1950s the Army subdivided and sold some of the land behind the southern end of Mona Vale beach, creating Narrabeen Park Parade, Cook Terrace and Coronation Street.

In 1955 additional land was resumed as the site of Mona Vale Hospital while the 4.5 hectares between these developments and the beach high water mark was resumed by Warringah Shire as a public reserve and retitled as DP211456 (LRS Vol.6620 Folio 85, 1953). During 2020 this area was named Robert Dunn Reserve after a former Mayor of Pittwater. The proposed off-leash area occupies part of this land and the golf course reserve.

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[29] 'Local Government Act, 1906 and Amending Acts', *Government Gazette of the State of New South Wales*, 15 June 1917, 3016, http://nla.gov.au/nla.news-article226216449.
[30] 'Proclamation', 20 November 1907, 6308.
[31] 'Notification of Resumption of Land Under the Local Government Act, 1919', *Government Gazette of the State of New South Wales*, 3 February 1928, 614, http://nla.gov.au/nla.news-article223010576.
[32] 'Reserves from Sale', *Government Gazette of the State of New South Wales*, 18 May 1910, 2703, http://nla.gov.au/nla.news-article226905296.

Figure 15: Mona Vale Beach, 1890 (Source: Northern Beaches Council Library Local Studies, Record number 43730)

3.3.3 Recreational uses of Mona Vale Beach

Structures and amenities

Under a 1907 proclamation Warringah Shire gained powers to set standards for buildings under Section 109 of the Local Government Act including 'XLIII. The regulation of the erection of buildings as to height, design, structure, materials, building line, sanitation, the proportion of any lot which may he occupied by the building or buildings to be erected thereon' .[33]

Part XIII of the Local Government Act of 1919 dealing with public recreation gave municipalities and shires the power to construct buildings and other structures at reserves, baths and beaches, including 'grandstands, pavilions, seats, shelter sheds, picnic kiosks, privies, and other buildings for the convenience of the public'; these powers extended below the high water mark (Sections 353 to 356).

As a result, most of the structures erected at Mona Vale Beach during the 20th century –shelter and dressing sheds, benches, bins, signage etc. - were conceived, constructed and maintained by Warringah Shire. Decisions on building and maintenance in public reserves were primarily made by the Shire Engineer and approved by Council's Parks and Reserves Committee.

[33] 'Proclamation', 20 November 1907, 6308.

The exceptions were clubhouses and other structures erected on public reserves for private clubs or private businesses, primarily surf clubs, which were required to make applications to Council (For example, Warringah Shire minutes 29 August 1955, 28 June 1988). Before 1940 Council often ruled on building applications for surf clubhouses and similar structures (for example 9 September 1929, 5 May, 1930, 24 October 1932, 24 January 1939, 7 February 1939).

During 1940 Council wrote to the Department of Local Government requesting a proclamation applying Part XI of the *Local Government Act* of 1919 'to the whole of the Shire of Warringah' (Warringah Council Minutes, 19 March 1940). Under Section 305 of the *Local Government Act* Part X1 only applied to parts of Warringah Shire, primarily those areas proclaimed as residential districts.[34]

From June 1940 Part X1, which set out building approval procedures in detail, was applied to the entire Shire, apart from Kuringai Chase nature reserve.[35] Warringah Shire continued to build and maintain facilities at Mona Vale beach and nearby reserves. The rock pool was enlarged and improved at different times and during the 1980s extensive replanting other stabilisation measures were completed in the sand hill reserves behind the beach.

Sea Bathing

The former Rock Lily Hotel and Brock's Folly brought visitors and holiday makers to Mona Vale, but the beach was mostly ignored. The first press mention of activity there reported that 'a large contingent of the Salvation Army conducted religious services on the ocean beach' during a holiday weekend, presumably visitors from Elizabeth Jenkins' property.[36]

To protect 'public decency' bathing in public view at beaches and other waterways was illegal in NSW during daylight hours until 1903. A surf boom followed the permission of public bathing, speeding the popularity and population of the northern peninsula's beachside villages.

However Mona Vale lagged, partly because its beach was considered dangerous; reporting on a drowning at Mona Vale, the *Herald* observed 'Mona Vale beach is rarely used by visitors, and is considered at times to be treacherous at several places'.[37]

[34] 'Local Government Act, 1919', *Government Gazette of the State of New South Wales*, 8 October 1926, 4225, http://nla.gov.au/nla.news-article222993567.
[35] 'Local Government Act, 1919', 7 June 1940, 2448.
[36] 'Manly', *Sydney Morning Herald*, 4 October 1892, 6, http://nla.gov.au/nla.news-article13881283.
[37] 'Doctor Drowned', *Sydney Morning Herald*, 13 November 1911, 9, http://nla.gov.au/nla.news-article15288642.

The first dressing shed at Mona Vale beach was constructed by the Shire in 1908.[38] The Shire continued to construct and repair dressing and shelter sheds, surf warning signs and parking areas (Warringah Shire minutes, 30 October 1922, 23 April 1923, 26 November 1923, 19 October 1925, 15 February 1926, 2 April 1928, 23 July 1928, 6 August 1928 etc).

In 1918 the Local Government Department wrote to Warringah Council, 'submitting for comment amended Ordinance 52, regarding surf-bathing: Resolved, that the Council's approval to the amendments be conveyed to the Department' (Warringah Council Minutes, 18 November 1918).

Mona Vale beach became more popular during the 1920s, sufficiently so for Warringah Shire to appoint a permanent lifeguard and beach inspector (Warringah Shire minutes 16 December 1929). An ocean pool was excavated in the rock platform at the northern end of the beach in 1923, one of several constructed by the Shire.[39] The pool became home to the Mona Vale Ladies Amateur Swimming Club.

During the 1930s the NSW Government's Unemployment Relief Council supplied low interest loans for dressing sheds, clubhouses and other reserve and beach infrastructure (Warringah Shire Minutes 12 September 1932, 26 September 1932).

Mona Vale beach continued to be used for surfing, swimming, fishing and other forms of recreation as before 1940, with the exception of the Pacific War years when troops were stationed at Mona Vale and the beach lined with tank traps and barbed wire.

By the 1980s the relatively secluded southern end of Mona Vale Beach was occasionally popular with nude bathers.[40]

Mona Vale Surf Life Saving Club

After a few earlier attempts, Mona Vale surf life-saving club was finally formed in 1922, more than a decade after similar clubs at nearby beaches. Meanwhile the local population grew slowly; at the 1911 Census Mona Vale lacked the 50 residents required for locality status, however by 1933 the locality boasted 183 dwellings and 636 residents.[41] This population swelled on

[38] 'In the Shires', *Daily Telegraph*, 22 December 1908, 8, http://nla.gov.au/nla.news-article238191788.
[39] 'The Surfers Freezing', *Arrow*, 23 November 1923, 13, http://nla.gov.au/nla.news-article103542538.
[40] 'Pick a Beach to Suit Your Tastes', *Sydney Morning Herald*, 10 January 1985, 43.
[41] 'Bulletin No 25 - Population and Occupied Dwellings in Localities', Census of the Commonwealth of Australia (Canberra, ACT: Commonwealth of Australia, 30 June 1933), 56.

weekends, like those at other Northern Beaches coastal villages, most of Mona Vale's dwellings were simple structures used primarily at weekends and holidays.

The surf club's first club house was built on the sand hills at the northern end of the beach in 1924, partly financed by the Shire.[42]

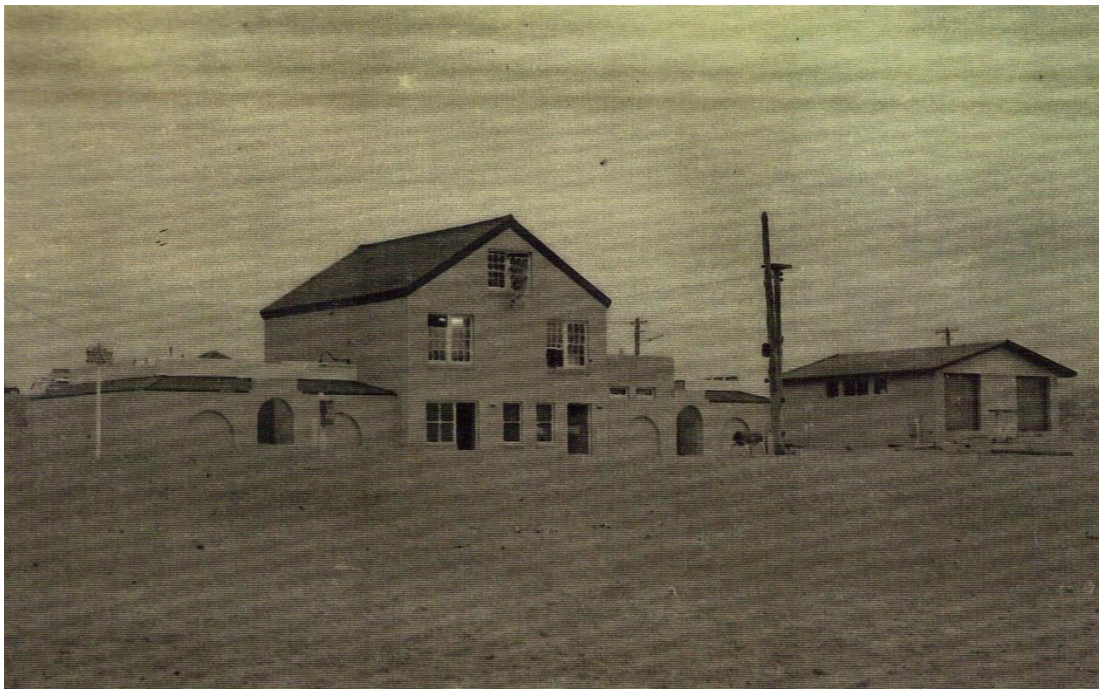

Figure 16: First Mona Vale Surf Life Saving Clubhouse, 1934-1969 (Source: Northern Beaches Council Library Local Studies, Record number MV-186)

In 1969 a new clubhouse and facilities for the Surf Club were constructed at the same site. This building has recently been demolished and a third club house incorporating a café, gym and other facilities was completed in June 2022.

3.3.4 Dogs and other animals at Mona Vale Beach

The Local Government Act of 1919 included the new version of Ordinance 52. From 1921 this ordinance applied to all municipalities and shires and set out regulations for bathing costumes, structures such as dressing sheds, the appointment and duties of beach inspectors and life guards. It also stipulated:

> *16(a) Any inspector may, when in his opinion inconvenience may be caused to the public by the bathing of dogs or horses, order any person in charge of any dog or horse not to send or drive*

[42] 'Mona Vale Surf Club', *Sydney Morning Herald*, 10 November 1924, 13, http://nla.gov.au/nla.news-article16160669.

such dog or horse into the water, or permit such dog or horse to enter the water, at any place where the public are bathing.

(b) Any inspector may order any person in charge of any dog or horse to remove such animal from a beach or bathing reserve if such animal's presence on the beach causes inconvenience or danger to the public.[43]

Warringah Shire acted on these powers, instructing beach inspectors of their powers and installing signs prohibiting dogs at several beaches. From 1930 Mona Vale beach featured such a sign after the Mona Vale & District Progress Association asked Council 'why proceedings have not been taken in regard to the offence of dogs on the beach at Mona Vale and requesting that a notice prohibiting dogs on the beach be erected near the baths. Resolved: That the erection of a notice in the parking area prohibiting dogs on the bathing area be expedited' (Warringah Shire minutes 24 March 1930). By 1935 this sign had been removed by persons unknown and had to be replaced (Warringah Shire Minutes 2 April 1935).

In 1930 the Shire proposed prosecution of people who allowed their dogs to swim in the Mona Vale although this process was seldom successful as dog owners frequently gave false names to beach inspectors. By 1940 the 'dog nuisance' remained an ongoing problem (Warringah Shire minutes 2 June 1930, 16 February 1943, 6 March 1943). That dogs remained a presence at Mona Vale beach is suggested by a 1940 news story: 'An "old man" kangaroo found fighting desperately for his life in the surf at Mona Vale yesterday afternoon was assisted ashore by bathers, only to be attacked immediately by dogs. The dogs were beaten off by surfers, and the kangaroo hopped unsteadily into the bush and disappeared'.[44]

Letters to Warringah Shire regarding the 'Dog menace on Mona Vale beach' remained a regular occurrence (Warringah Shire minutes 28 October 1963). When Mrs Bromley of Mona Vale asked Council to take action - 'There were seven dogs at the swimming pool alone' – Council resolved 'That Mrs Bromley be informed that a Bill is being framed to give Councils control of dogs' (Warringah Shire minutes, 15 November 1963).

The Bill referred to was presumably the *Dog Act* of 1966, which gave Councils increased powers to register dogs, to fine the owners of unregistered dogs and to impound their dogs. Council

[43] 'Local Government Act, 1919', *Government Gazette of the State of New South Wales*, 11 March 1921, 1615, http://nla.gov.au/nla.news-article220082847.
[44] 'Kangaroo's Swim for Life', *Sydney Morning Herald*, 8 October 1940, 7, http://nla.gov.au/nla.news-article17707829.

employed a dog catcher during 1967 (Warringah Shire Minutes 14 August 1967). In 1981 the *Dog Act* was amended, banning dogs from public places including beaches and public baths to be determined by local governments. The amended Act also gave local governments power for 'the setting aside of public places or parts of public places where dogs are permitted to run free' (Warringah Shire minutes 14 July 1981).

Warringah Shire created a Dog Advisory Sub-Committee to advise Council on these requirements (Warringah Shire minutes 14 December 1982). Among the dog exercise areas proposed was the reserve bordering the southern end of Mona Vale beach, the 'area east of Narrabeen Park Parade/Coronation Street junction' (Warringah Shire minutes 3 February 1983). This area was approved for use in February 1984. A 1988 review of the dog exercise areas found that the Mona Vale area had attracted complaints from residents but concluded that the area was well used and did not conflict with the reserve's main use for informal passive recreation (Warringah Shire minutes 9 August 1988).

In 1990 the Shire's superintending Inspector did 'not believe that there was a great problem with dog control on the beaches', suggesting that the new laws had improved the situation (Warringah Shire minutes 20 February 1990).

The *Companion Animals Act* of 1995 made registration of dogs compulsory, as well as their leashing in most public places. It also confirmed local government powers to ban dogs from beaches, baths and recreation areas as well as the power to create off-leash exercise areas for dogs.

In summary, Mona Vale Beach and adjoining public reserves have been used as a public recreation area since the first years of the twentieth century. The activities encompassed by public recreation have changed somewhat in this time but at Mona Vale Beach remain fundamentally surfing, swimming and other forms of exercise and passive recreation.

At least since the 1920s the presence of dogs on Mona Vale Beach has attracted complaint from residents while the control of dogs posed ongoing difficulties for Warringah Shire.

Figure 17: Aerial view of Mona Vale including Mona Vale Hospital (lower right), 11 June 1970 (Source: State Planning Authority of NSW via Northern Beaches Council Library Local Studies, Record number 46904)

Figure 18: Mona Vale Golf Course, Mona Vale Beach and Basin Beach, 1985 (Source: Northern Beaches Council Library Local Studies, Record number 44196)

Figure 19: Sand Dunes at Mona Vale Beach with Mona Vale District Hospital in the background, 1986 (Source: Northern Beaches Council Library Local Studies, Record number 44195)

3.4 PALM BEACH (NORTH)

3.4.1 European occupation and establishment of a Public Reserve

Palm Beach forms the eastern edge of the peninsular between the town of Palm Beach and Barrenjoey Headland. It originally formed part of a 400-acre grant to the surgeon James Napper (or Napier) in 1816 (Figure 20). European occupation commenced with the construction of a Customs House, wharf and cottages below Barrenjoey from 1842, followed by signal lights and Barrenjoey Lighthouse, completed in 1881. In September 1881 147 acres encompassing Palm Beach was conveyed to the NSW State Government for £1,250 (Figure 21).[45]

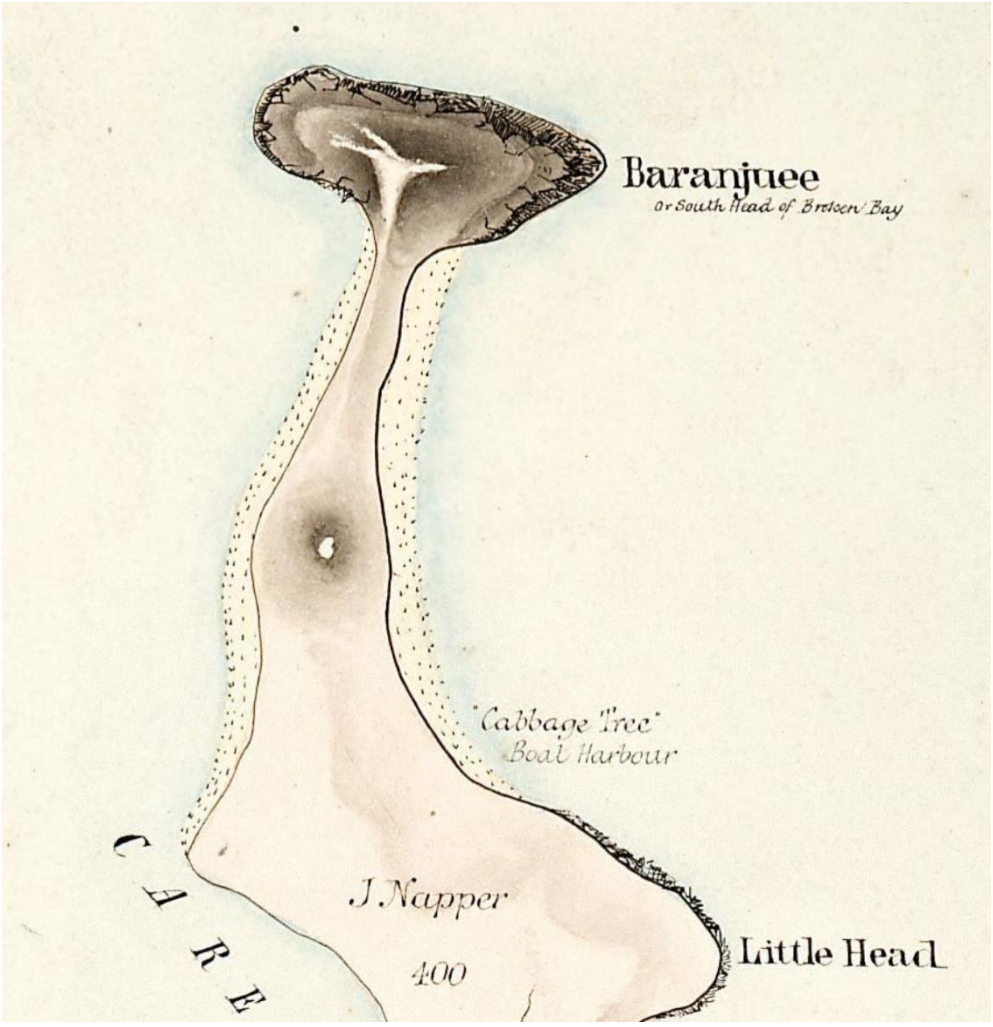

Figure 20: Detail from Map of Parish of Narrabeen showing Napper's 400-acre grant encompassing Palm Beach, c1860s (Source: NSW Land Registry Services, Parish maps)

[45] NSW Land Registry Services, General Register of Deeds, 1881, Book 234, Number 606.

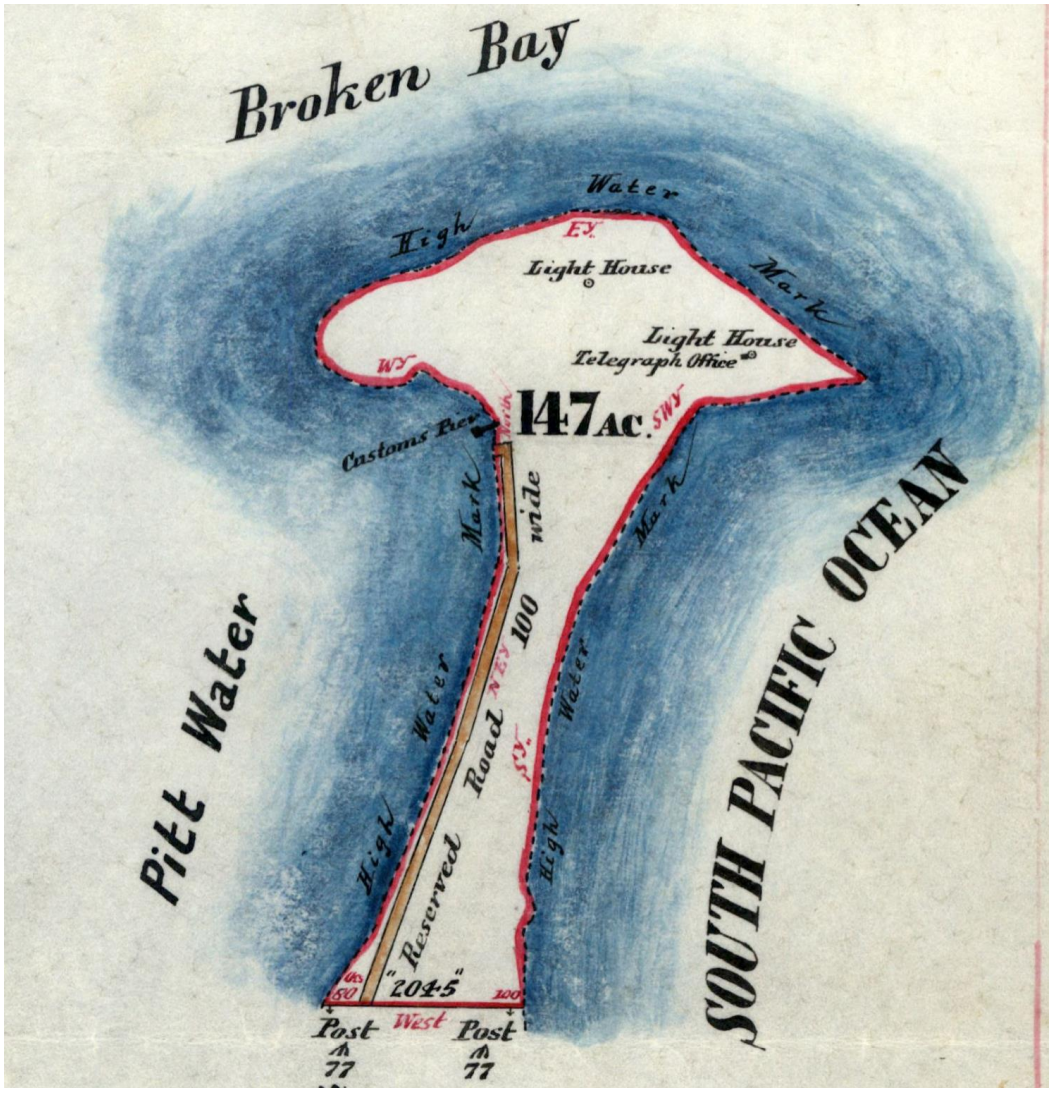

Figure 21: Block plan of 147 acres acquired by the NSW State Government encompassing Palm Beach showing a reserved road on the Pittwater side, 1881 (Source: NSW Land Registry Services, General Register of Deeds, Book 234, Number 606)

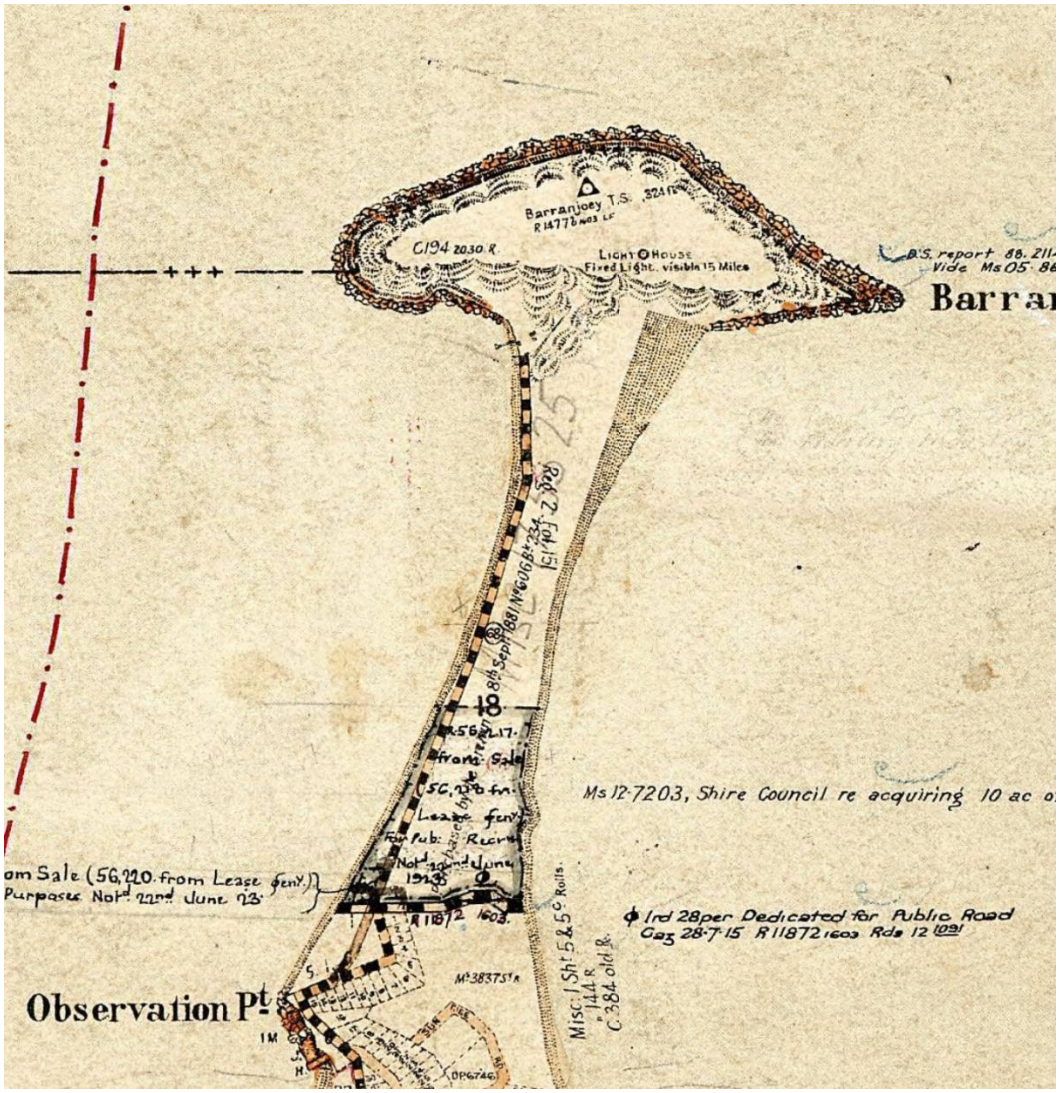

Figure 22: Detail from Map of Parish of Narrabeen, Warringah Shire, 1905 (Source: NSW Land Registry Services, Parish maps)

Barrenjoey Public School taught from 1872 to 1894 while Barrenjoey Post Office operated from 1871 to 1904. During this time a small community of Indigenous, European and Chinese fisherman, timber getters and market gardeners lived on the peninsular. Before and after 1923 significant activity and construction took place on the peninsular, primarily on the western (Station Beach) side.

During the first half of the twentieth century the isthmus became a public reserve under the *Local Government Act,* named Governor Phillip Park from 1925. In 1923 the southern area became Reserve 51217 administered by Warringah Shire. In May 1929 the remainder of the isthmus was gazetted as a recreation reserve (Reserve 61140) extending to the northern ends of the beaches

on both sides and east and west to their mean high water marks.[46] In 1934 most of Barrenjoey headland was added as Reserve 64483, and in 1952 Warringah Shire became trustee of the entire reserve.[47] In 1995 the administration of Barrenjoey headland passed to the NSW National Parks and Wildlife Service.[48]

Figure 23: Palm Beach (north) looking toward Barrenjoey Lighthouse, Broadhurst Post Card Publishers, 1900-27 (Source: State Library of NSW, PXA 635/709-710)

[46] 'Reserves From Sale and Lease Generally', *Government Gazette of the State of New South Wales*, 17 May 1929, 2115, http://nla.gov.au/nla.news-article223021441.
[47] 'Notice Vesting Lands in Trustee Under the Public Trusts Act, 1897', *Government Gazette of the State of New South Wales*, 28 March 1952, 1153, http://nla.gov.au/nla.news-article220004928.
[48] Chew et al., 'Barrenjoey Headland: Conservation Management Plan', 15.

Figure 24: View of Barrenjoey and Palm Beach (north), 1910 (Source: Northern Beaches Library Local Studies, Record number Pb-254)

3.4.2 Legislation regarding structures on Palm Beach

Palm Beach became a popular holiday address following the 1903 legalisation of daylight swimming and the construction of improved road access. New infrastructure was built for leisure rather than maritime and government purposes.

Under a 1907 proclamation Warringah Shire gained powers to regulate building construction under Section 109 of the *Local Government Act* including 'XLIII. The regulation of the erection of buildings as to height, design, structure, materials, building line, sanitation, the proportion of any lot which may he occupied by the building or buildings to be erected thereon'.[49]

Part XIII of the *Local Government Act 1919* dealing with public recreation gave municipalities and shires the power to construct buildings and other structures at reserves, baths and beaches. These powers extended below the high water mark. The legislation notes:

> *349. The council may improve and embellish public reserves which are under its care, control and management.*

[49] 'Proclamation', 20 November 1907, 6308.

350. In any public reserve under its care, control, or management, the council may provide, control and manage –

(a) musical entertainments;

(b) Chairs for hire to the public;

(c) public refreshment rooms;

(d) buildings for public entertainments conducted or authorised by the council;

(e) public entertainments;

(f) boat sheds for the hire of boats to the public;

(g) boats for hire to the public;

(h) grandstands, pavilions, seats, shelter sheds, picnic kiosks, privies, and other buildings for the convenience of the public….[50]

As a result most of the structures erected at Palm Beach during the 20th century – shelter and dressing sheds, benches, bins, signage etc. – were conceived, constructed and maintained by Warringah Shire. Decisions on building and maintenance in public reserves were primarily made by the Shire Engineer and approved by Council's Parks and Reserves Committee.

The exceptions were clubhouses and other structures erected on public reserves for private clubs or private businesses, primarily surf clubs, which were required to make applications to Council (For example, Warringah Shire minutes 29 August 1955, 28 June 1988). Before 1940 Council also ruled on building applications for surf clubhouses and similar structures (for example 9 September 1929, 5 May, 1930, 24 October 1932, 24 January 1939, 7 February 1939).

During 1940 Council wrote to the Department of Local Government requesting a proclamation applying Part XI of the *Local Government Act 1919* 'to the whole of the Shire of Warringah' (Warringah Council Minutes, 19 March 1940). Under Section 305 of the *Local Government Act* Part XI only applied to parts of Warringah Shire, primarily those areas proclaimed as residential districts).[51] From June 1940 Part XI, which set out building approval procedures in detail, was applied to the entire Shire, apart from Kuringai Chase nature reserve.[52]

[50] Local Government Act 1919 No 41, Part XIII, Section 349-350.
[51] 'Local Government Act, 1919', 8 October 1926, 4225.
[52] 'Local Government Act, 1919', 7 June 1940, 2448.

Figure 25: Three ladies sunning at Palm Beach with umbrellas, 1929 (Source: Northern Beaches Council Library Local Studies, Record number Pb-470)

Figure 26: People queuing for bus at Palm Beach, c1940 (Source: Northern Beaches Council Library Local Studies, Record number Pb-498)

3.4.3 Recreational structures and amenities on Palm Beach

Palm Beach Surf Club

Palm Beach Surf Club was founded at the southern end of the beach in 1921 following the drowning there of a senior military officer, Lieutenant-Colonel Douglas G Marks, who attempted to save Johanna Mary Rogers, aged 32 from Leichhardt, who also drowned. The club quickly developed into a socially exclusive enclave, representative of the increasingly affluent Palm Beach village, with membership by invitation only.[53]

Palm Beach Golf Club

In 1924 Palm Beach Golf Club was formed and a course laid out on the newly gazetted reserve. A clubhouse and camping area followed, initially administered by Golf Club members, before the Shire took over and constructed an amenities block and other facilities.[54]

Palm Beach Camping Ground

During the 1930s the NSW Government's Unemployment Relief Council supplied low interest loans for dressing sheds, clubhouses and other reserve and beach infrastructure (Warringah Shire Minutes 12 September 1932, 26 September 1932).

In 1930 the Beacon Store, a general store and canteen, was built near Station Beach, primarily serving the camping area. During the following decade many campers became permanent residents due to Sydney's housing shortage. The Shire discouraged permanent camps, presumably reflecting the wishes of the increasingly exclusive Palm Beach village: 'Because they own houses costing thousands of pounds, they object to people erecting tents'.[55]

Newspapers described the tent homes as containing: 'concrete paths, steel frames, fly screens, flooring, verandahs, refrigerators and carpets….'[56] Another newspaper report estimated 30 people living in the tents and 'temporary shacks' were ordered to leave by Warringah Council, and also claimed some residents had piped water to their dwellings.[57]

From 1958 the Shire began to reduce camper numbers; the camping area was completely closed in 1972, partly because it was contributing to erosion of the peninsular sand hills.

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[53] Pittwater Online News, 'Palm Beach Surf Life Saving Club Part I - The Sheds', *Pittwater Online News*, no. 76 (16 September 2012), https://www.pittwateronlinenews.com/pbslsc-history-part-i---the-sheds.php.
[54] 'Holiday Trips', *Maitland Daily Mercury*, 28 December 1935, 10, http://nla.gov.au/nla.news-article127100097.
[55] 'Palm Beach Campers Must Quit', *Tribune*, 12 July 1945, 7, http://nla.gov.au/nla.news-article208693955.
[56] 'Palm Beach Campers Must Quit', 7.
[57] 'Palm Beach Tents To Go', *Sun*, 6 June 1945, 2, http://nla.gov.au/nla.news-article230445128.

Figure 27: Christmas campers at Palm Beach, 21 December 1938, photograph by Ted Hood (Source: State Library of NSW, ON 388/Box 063/Item 073)

Figure 28: Christmas campers at Palm Beach, 21 December 1938, photograph by Ted Hood (Source: State Library of NSW, ON 388/Box 060/Item 258)

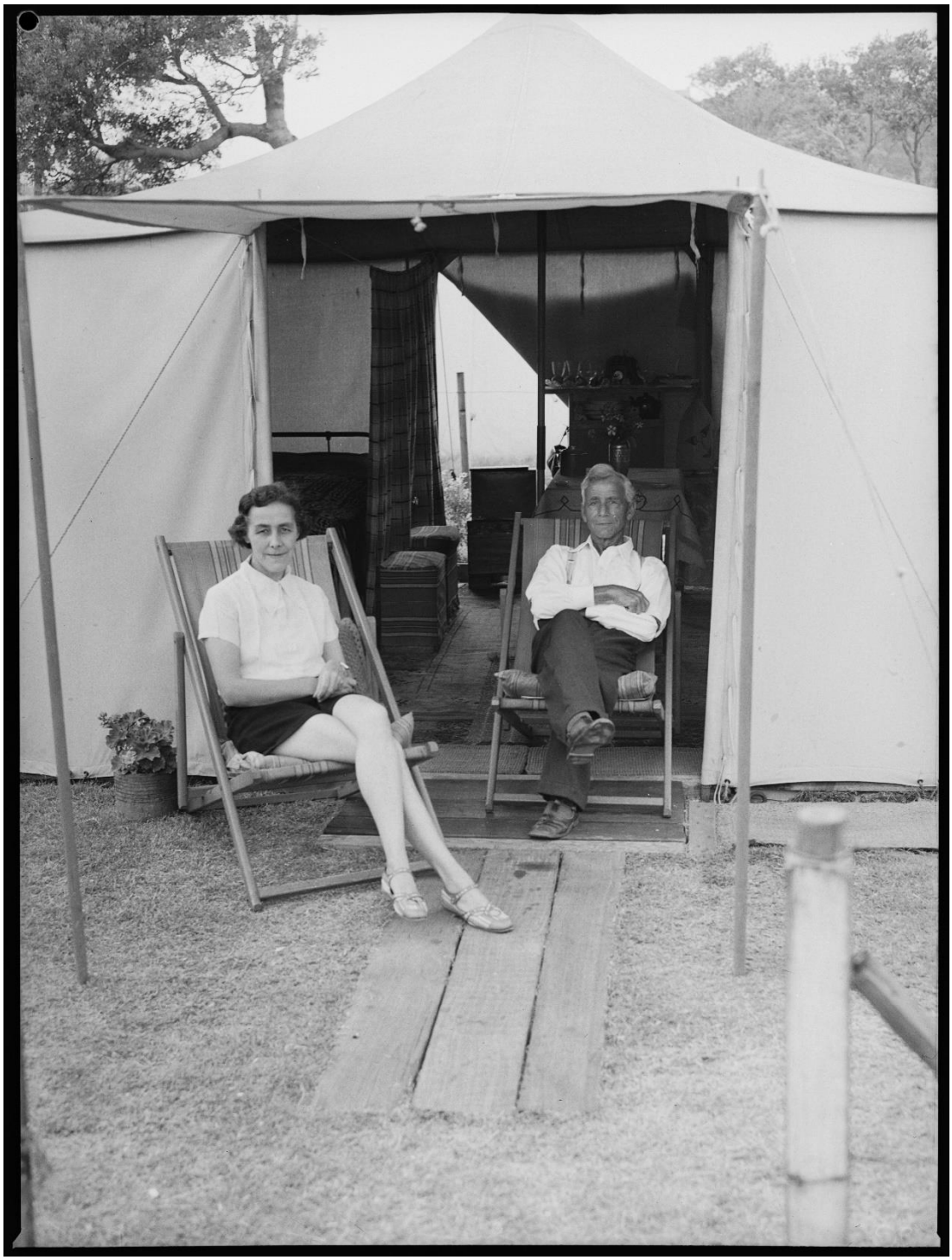

Figure 29: Christmas campers at Palm Beach, 21 December 1938, photograph by Ted Hood (Source: State Library of NSW, ON 388/Box 060/Item 258)

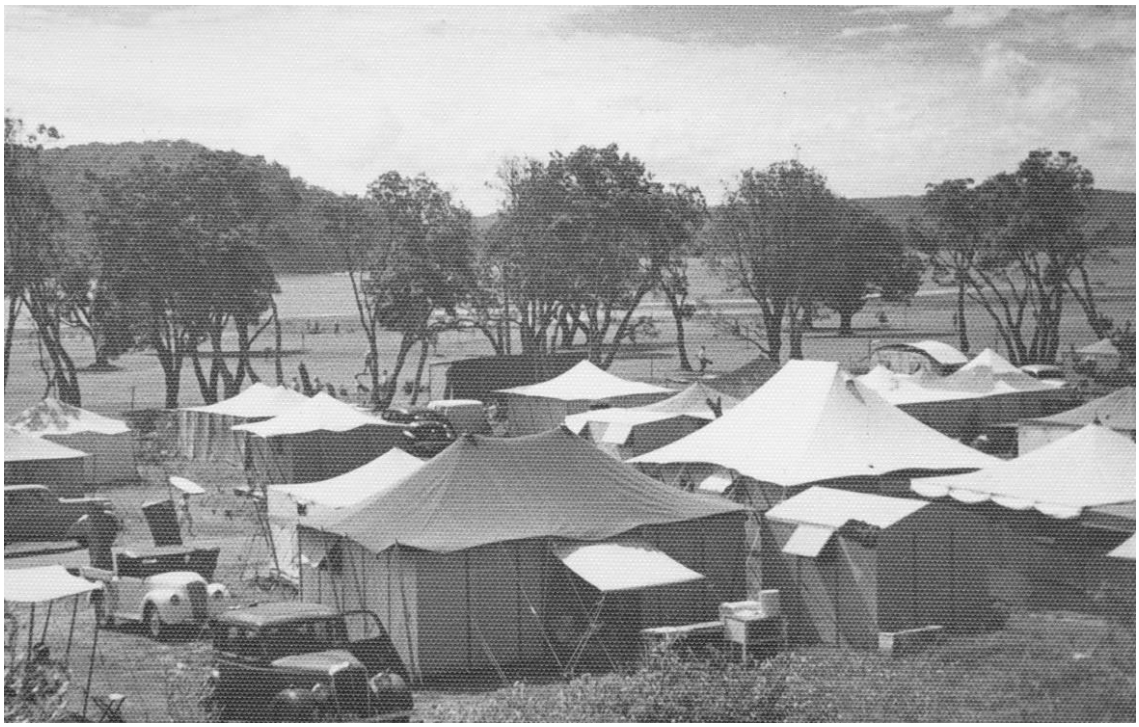

Figure 30: Camping area at Palm Beach, 26 January 1948 (Source: Northern Beaches Council Library Local Studies, Record number Pb-501)

North Palm Beach Surf Club

In everyday nomenclature and in public records, North Palm Beach refers primarily to the 1.4 kilometres of beach facing the Pacific Ocean between Barrenjoey headland and Beach Road, the southern extent of Governor Phillip Park.

The term was not mentioned in the press until 1927 when the North Palm Beach Surf Club was formed by campers at Governor Phillip Park. The influx of campers to the peninsular meant that the northern part of the ocean beach became a popular surfing spot. During the 1930s the Beacon Store was used as a club house.

In 1946 the North Palm Beach Surf Club began to build its own premises facing the ocean beach. Effectively barred from the Palm Beach club,

> *…the more-or-less regulars have formed their own surf club, a wooden shed well up on the beach, almost finished. They ran Housie-Housie games to finance their surf boat, reels, and so on. 'They do all the drills and take out the boat and lines just like any other surf club," said Mr. Michael Barker, camp super intendent and ex-naval man…"They don't hanker to join the club*

down the beach?" Smith's asked. Mr. Barker thought for a moment. "It's too far away," he said finally. "Besides, they feel they should look after the safety of their own women and children.[58]

The contrast in wealth and social cachet of the two surf clubs has continued.[59]

The closure of the camping ground reduced the membership of the North Palm Beach club, a situation made worse by a 1970 fire at the club's bunkhouse which destroyed much of its equipment. Although a new club house was completed in 1973 at the current location, the 'small, struggling' club was forced to borrow a surf boat.[60] The new club house was enlarged in 1980 to include a bunkhouse for women members, admitted the previous year; it was further renovated and enlarged in 2005.

During the 1980s the North Palm Beach club sought the Shire's permission to use a vehicle on the beach as the area it patrolled was greater than other northern beaches, extending far north from the flagged area. Council reluctantly gave limited permission in 1983, although disagreements continued for another decade (Warringah Council Minutes 10 March 1980, 17 November 1981, 19 July 1983, 20 August 1991).

Despite its difficulties and comparatively small membership, there is little doubt that the North Palm Beach Surf Club's activities and presence increased the use of the beach from the 1940s.

[58] 'Palm Beach Guide', *Smith's Weekly*, 3 January 1948, 9, http://nla.gov.au/nla.news-article234625645.
[59] Josephine Tovey and Jonathan Chancellor, 'Super Club Buys More Land for Home and a Wave', *Sydney Morning Herald*, 17 October 2009, 7.
[60] 'Column Eight', *Sydney Morning Herald*, 2 February 1971, 1; Wayne Munro, 'Public May Have to Pay for Beach Safety', *Sydney Morning Herald*, 14 March 1971, 7.

Figure 31: Early club rooms for the North Palm Beach Surf Life Saving Club, c1950 (Source: Northern Beaches Council Library Local Studies, Record number 40170)

Figure 32: North Palm Beach Surf Life Saving Club members and friends showing the early club premises behind, c1950 (Source: Northern Beaches Council Library Local Studies, Record number 40171)

Other uses for Palm Beach

In 1947 a wharf and boathouse was built on Station Beach, from 1948 offering a boat hire service. From 1975 the wharf has also functioned as a base for seaplane charter and scenic flights.

During 1988 the TV series Home and Away began production at North Palm Beach ('Summer Bay') using the surf clubhouse as a regular location. The ongoing success of the series has made North Palm Beach an international tourist destination. Feature films have also used North Palm Beach as a location, notably Tim (1979), Palm Beach (1980) and a 2019 feature of the same name.

Meanwhile the Barrenjoey end of North Palm Beach became a popular site for nude bathing and sunbaking (Sydney Morning Herald, 5 November 1991, p.52; 27 January 1985 p.17).

3.4.4 Dogs and other animals at Palm Beach

In 1918 the Local Government Department wrote to Warringah Council, 'submitting for comment amended Ordinance 52, regarding surf-bathing: Resolved, that the Council's approval to the amendments be conveyed to the Department' (Warringah Council Minutes, 18 November 1918).

The Local Government Act of 1919 included the new version of Ordinance 52. From 1921 this ordinance applied to all municipalities and shires and set out regulations for bathing costumes, structures such as dressing sheds, the appointment and duties of beach inspectors and life guards. It also stipulated:

> *16(a) Any inspector may, when in his opinion inconvenience may be caused to the public by the bathing of dogs or horses, order any person in charge of any dog or horse not to send or drive such dog or horse into the water, or permit such dog or horse to enter the water, at any place where the public are bathing.*
>
> *(b) Any inspector may order any person in charge of any dog or horse to remove such animal from a beach or bathing reserve if such animal's presence on the beach causes inconvenience or danger to the public*.[61]

In 1932 signs banning dogs were erected at Palm Beach 'following a complaint from the lifesaver at Palm Beach, of the nuisance caused by people taking dogs on to the beach and into the water

[61] 'Local Government Act, 1919', 11 March 1921, 1615.

among bathers'.[62] However there appears to have been resistance to these rules, with one Warringah councillor declaring: 'Palm Beach's pampered pets are a terrible nuisance'.[63]

Palm Beach was a magnet for Sydney's wealthy and despite the Shire's campaign, its dogs regularly featured on the social pages: 'Lovely Gwenda Ashcroft being dragged along by her Sealyham dog, who afterwards had a good 'go in' with Kitty Hay's boxer 'Horrie 'and all the beach watching. It took eight men to part them'.[64] Horrie was already a social page regular (Figure 34).[65]

Figure 33: Unidentified women Christmas holidaying at Palm Beach, photograph by Samuel J Hood Studio, 1929 (Source: State Library of NSW, Home and Away - 2976)

[62] 'Keep Dogs from Beaches', *Sun*, 9 December 1932, 8, http://nla.gov.au/nla.news-article230564656.
[63] 'Dogs in Pools', *Sun*, 13 March 1934, 11, http://nla.gov.au/nla.news-article230537345.
[64] 'Palm Beach Letter', *Truth*, 14 January 1940, 35, http://nla.gov.au/nla.news-article169116986.
[65] 'Colorful Scene at Palm Beach: Annual Dinner Held', *Sun*, 26 December 1937, 17, http://nla.gov.au/nla.news-article232008161.

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THE SUNDAY SUN Guardian
SUNDAY, DECEMBER 26, 1937—Page 1

Sunlight, Surf And Sand Proved The Main Ingredients For The Christmas Fare

The house party at "Farleigh" included Dr. Bruce Hittmann, Mrs. Lionel Dare, with daughter Robin, Miss Gwen Mark, Mr. Lionel Dare (host) and Mr. Leonard Dare.

Right: Mrs. Robert Broad, Mrs. Alan Copeland and Yvette Hall spend a leisure hour on Christmas morning at "Stray Leaves," the Alan Copeland's new Palm Beach home.

COLORFUL SCENE AT PALM BEACH; ANNUAL DINNER HELD

ENJOY Christmas Day? Are you feeling limp and tired . . . . sunburnt and tender . . . . or gloriously sun-tanned and full of joie de vivre? Yesterday, I vow, could not have been better. Perfect surfing, sunbaking and picnicking weather, with a cool breeze thrown in for the golfers.

All the beaches northward to Palm Beach were colorful and "holiday-ish" with gay striped umbrellas, gayer surf suits, and long stretches of golden sand and blue, blue sea, on and in which the positive flower of our youth (and middle age) lazed at ease.

At Palm Beach, house parties were in full swing . . . guests and hosts drowsed on verandahs overlooking the beach, or else hied themselves surf-wards in costumes and playsuits—laden with striped and spotted towels of all hues. The descent to the beach was made to the accompaniment of the shrillings of locusts—present in millions, I'm sure.

The Alan Copeland's lovely new house—"Stray Leaves"—just completed in time for the holidays—was filled with guests, and will house many more before Mrs. Copeland returns to town in four or five weeks' time. This week-end the Arthur Copelands, the Robert Broads, Mrs. Sidney Hall, and Mrs. Copeland's sister, Yvette Hall, were enjoying the sea breezes and glorious view to be had from the circular stone porch and the wide crisply curtained windows.

At the next house, two-year-old Robin Dare, had discovered the mysteries of Christmas trees and a present-laden stocking. The Lionel Dares have taken "Farleigh" for the summer, and Barbara is looking forward to lovely, long, lazy days by the sea. Think of that, everybody, when you are back in the city.

There were a few things, however, to mar this sunny paradise. John Ralston, Surf Club president, had the misfortune to encounter a stingray in the surf last Saturday, and is spending this week-end feeling very sorry for himself, and his very much swollen foot. Besides the discomfort, the incident will put an end to terpsichorean efforts to-morrow night, when the Pacific Club dance will be held. Christmas bush and bells will decorate the cream and green clubroom for the dance, which—let me remark—is by invitation only. The four hundred dancers will be members of the Pacific Club and the Surf Club and their friends. Should be a good affair.

Norman Wallace, who was bringing the Wanderer down for the week's festivities, was also in the wars. I heard that he met with an accident during the morning and maybe will spend a day or two in hospital, but I hope the rumor was not as bad as it sounded.

Last night the orphans of the storm—or rather those members of the Surf Club who had missed out on Christmas dinners at home—were entertained at a Christmas **feast at the Pacific Club, prepared by Kitty Dalrymple Hay, with the aid of Nora Ralston. Mrs. Hay's faithful hound, "Horrie" Hay, had his Christmas dinner early, so that he could return to the beach and finish his sunbaking.**

A contrast to this scene of outdoor life, was the midday dinner party given by Mr. and Mrs Jack Campbell senr., of "Goorianawa," Coonamble. This is about the sixth year in succession that those members of the Campbell clan in Sydney during Christmas have attended this party at the Australia. The Jack Campbells junior, of "Mayfeir," Blackall, Queensland, were there, also Mr. and Mrs. Malcolm Campbell and son, John Stewart, of "Urawilkie," Coonamble, Mr. and Mrs. Billy Reynell, of Shanghai (son-in-law and daughter of the Campbells, senior), and Mrs. Doll Milgrove and daughter, Camilla. In the afternoon Mrs. Norman Robertson had a Christmas tree party at the home of her mother, Mrs. Edmund Playfair (who is in America for this Christmas), and the day was continued even later still at a supper party at the home of Mrs. Strath Playfair (yet another daughter of the Campbells senior).

Great doings yesterday at the family Christmas party at the new home of Mr. and Mrs. C. R. Mitchell, at Wahroonga. A good roll up with heaps of cousins for young daughters, Jenny and Judy, to entertain. The house is beautiful—the air-conditioning plant is not working yet but soon will be. Walls are buff and cushion covers are changed to match flowers—and what flowers! All arranged in a special room (dubbed the holy of holies) fitted with sink and store cupboards for vases, and finally placed on mantels and in the many quaint niches, with lights throwing them into prominence.

I'm green with envy of Marie Larkin's Christmas gift from husband Ric. It's a super diamond set in a cluster of smaller stones. Marie and Ric are staying home this Christmas but will join the Paul Cohens as usual at Palm Beach at the end of January.

The Waverley Council is trying to make Bondi Beach brighter—worthy effort—and is boosting the Sunday night band concerts. The Mayor himself put in an appearance last Sunday and braved the footlights. But what a pity Bondi has so many nuisances. Mostly very young and very uncouth. There's a full time man's job waiting for the beach inspector for h a n d - b a l l games (supposedly forbidden), wrestling bouts, and other inconsiderate antics, quite spoil the bliss of sunbaking. Another thing: A little dog on a surfo-plane is a very pretty sight on a picture postcard, but it gave me the horrors when I saw it in the children's rock pool.

One of the jolliest of the week's festive parties was the Eric Kennedy's "do" at Elizabeth Bay House on Thursday. The flowers and decorations were super . . . recognised five of the Trocadero band supplying music for the dancing in the ballroom. Of the 250 guests, at least two men were brave (and I think sensible), enough to favor white suits as an acknowledgement of the weather, which was, believe me—and as you probably remember—just a trifle warm.

Pixie O'Harris . . . artist . . . mother of two . . . and harbor heroine (she once jumped from a ferry and rescued a man from drowning, and has never since been able to live it down). Her friends don't think she is practical, but the other day a stall vendor sold her a pup in the way of rotten fruit. Pixie got right down to the Quay before the bag burst. She made the distance back in half the time to find the man closing for the night, and counting his money. Grabbing a shilling she dumped the offensive fruit on his cart. "'Ere, missus, you can't do that," he expostulated. "Can't I," said Pixie. And she did.

Pat Gurnett, of Neutral Bay, who recently announced her engagement to Jack Tee, of Devon, plans a February wedding, a fortnight's honeymoon in Melbourne, and then to England to make her home there.

This business of stipulating the duration of a cocktail party seems to be a little unnecessary. Sometimes people remember the commencing time but few take heed of the stated time of departure. Gwen Meredith evidently had something of this sort in mind when she worded her invitations to a club party at the Chelsea last Wednesday: "six till you drop."

Gwen had another party on Thursday at her cliff-side home at Coogee, and the entire crowd abandoned indoors and sat singing on the lawn in the cool. Someone living on the cliffs at Clovelly told me that she wondered what it was all about, when she saw a mass of tiny lights over the water. It was the glowing tips of cigarettes.

Despite the number of Australians who have visited England, particularly the droves of them who have made the voyage in the last few years, some English people still remain ignorant of this Continent. Miss Evyline Gillett, of Mosman—who has been abroad for the past 12 years—was amazed when one English girl on learning that she was speaking to an Australian asked her if we had electric light in Australia. Miss Gillett's retort that we made light by rubbing two sticks together, was, however, not entirely credited.

—*Yvonne.*

The annual Christmas Day family dinner party at the Australia given by Mr. and Mrs. Jack Campbell, of "Goorianawa," Coonamble.

Juanita Lee Brown, in a snappy red and white printed costume, steps from the surf at Palm Beach, with "Blue" Russell.

"Horrie" Hay partakes of Christmas fare on a specially constructed table for one.

Mrs. John Ralston, in a navy play suit, spotted in white, shelters beneath a beach umbrella.

Figure 34: Horrie the boxer (lower right) featured in The Sun *newspaper at Palm Beach, 26 December 1937 (Source: National Library of Australia, Trove, http://nla.gov.au/nla.news-article232008161)*

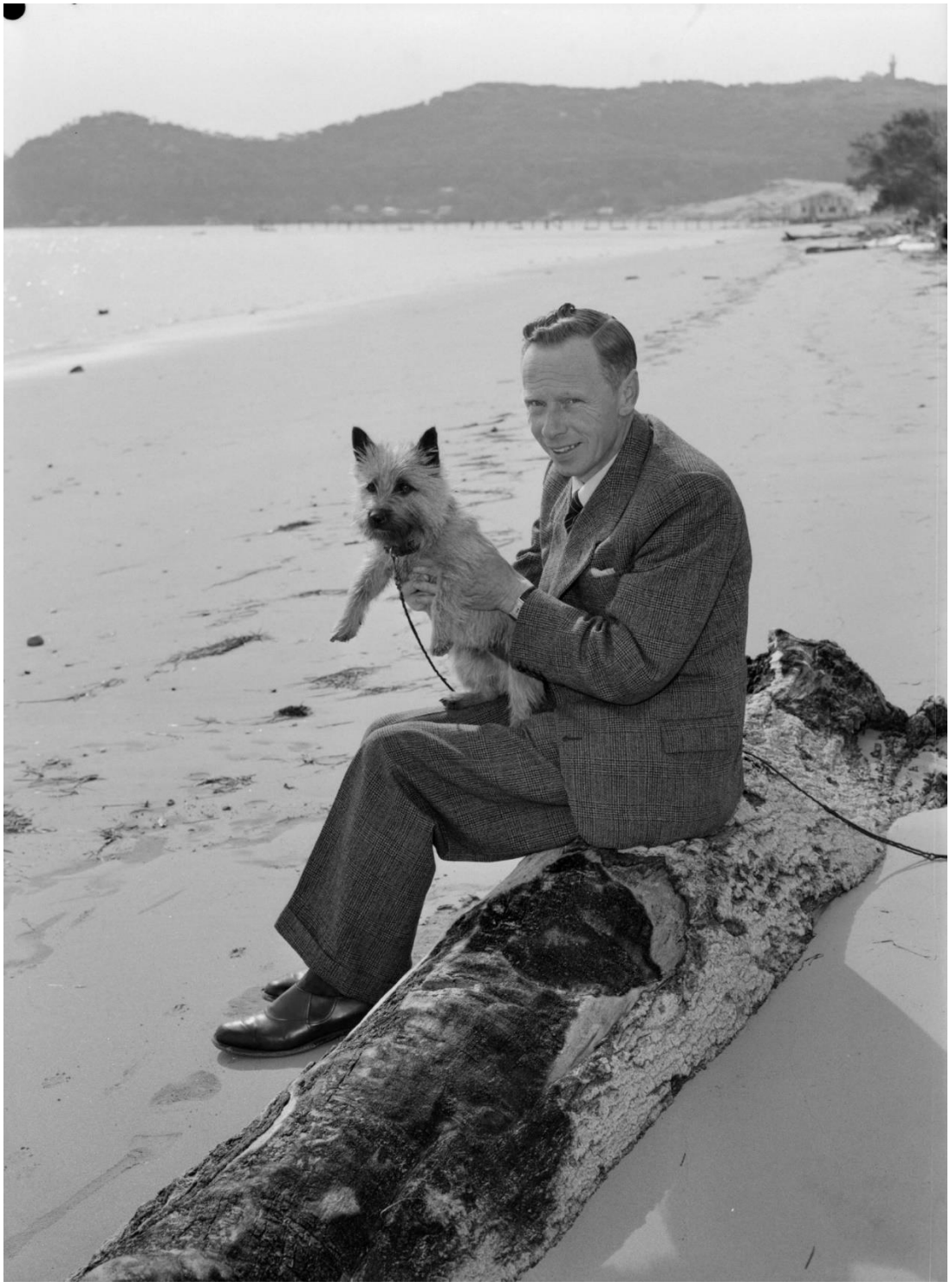

Figure 35: Professor Orr, Palm Beach, 30 May 1957, photograph by Cec Lynch (Source: State Library of NSW, ON 388/Box 046/Item 082)

Figure 36: Swimmers at Palm Beach on Christmas Eve, 24 December 1957, photograph by Wal Easton (Source: State Library of NSW, ON 388/Box 047/Item 099)

Palm Beach seems to have been the beach most resistant to the Shire's attempts to control dogs:

> *Twice a No-Dogs-on-the-Beach sign has been put up: twice it has been torn down. "Time was," said an old resident in knee-length shorts and a topee, "when there was room on this beach for all of us and our dogs. Now they kick my dog off the beach and let in hordes of trippers. They call that enforcing the regulations!"*[66]

During 1962 the Palm Beach Citizens Association complained to Council regarding dogs on the ocean beach, receiving the reply 'Council finds it impossible to police the question of dogs on beaches as it does not employ anyone in the capacity of dog-catcher' (Warringah Shire minutes 25 June 1962).

The Shire gained additional powers from the Dog Act of 1966, yet a 1971 *Women's Weekly* spread, 'People and Fashion' at Palm Beach included a beach photo of 'Mrs Bill Webster, wearing a halter-neck bikini, and pet dog Lulu'.[67] Throughout, complaints regarding dogs focused on the often crowded southern end of the beach, rather than the extensive sands of North Palm Beach.

[66] 'Palm Beach Guide', 9.
[67] 'At Palm Beach', *Australian Women's Weekly*, 27 January 1971, 6, http://nla.gov.au/nla.news-article51273469.

The increased powers granted by the 1981 revision of the *Dog Act* seem to have had an effect. During the 1980s the *Sydney Morning Herald* reported that dogs 'were ruthlessly chased off the beach' at Palm Beach. [68]

Surfing, swimming and sunbathing remain popular activities at North Palm Beach. As the beach has been zoned a recreation reserve for most of the past century most forms of recreation are permitted there. Exercising or swimming dogs are now an exception.

Figure 37: Mrs John Taylor (left) with Mrs Bill Webster (right) with her pet dog Lulu, at Palm Beach, 27 January 1971 (Source: National Library of Australia, Trove, http://nla.gov.au/nla.news-article51273469)

3.4.5 Palm Beach sand dune re-development 1980s

During the 1980s Council commenced a large-scale revegetation program on the northern half of the peninsular, sand hills were reshaped and enlarged (Warringah Shire minutes, 15 March 1983). Aspects of this project attracted criticism on environmental and heritage grounds.[69]

[68] Meg Stewart, '...And among the Bougainvilleas', *Sydney Morning Herald*, 18 December 1982, 25; 'On the Beaches', *Sydney Morning Herald*, 26 December 1989, 20.
[69] Joseph Glascott, 'Council Suspends Palm Beach Erosion Work', *Sydney Morning Herald*, 25 July 1984, 3.

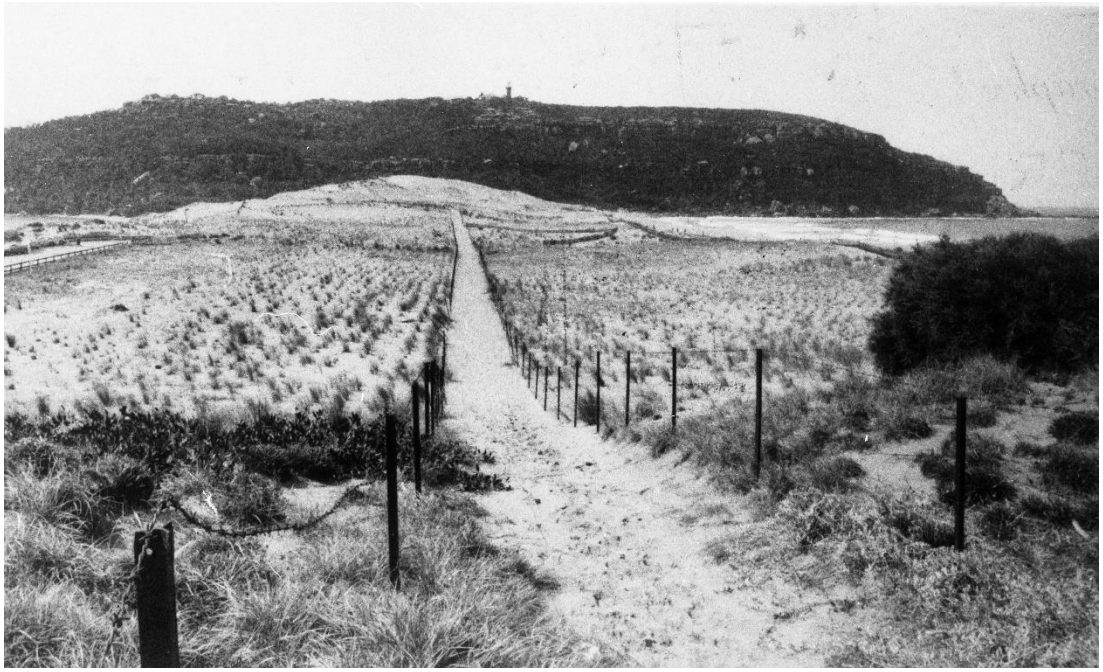

Figure 38: Path leading to Barrenjoey Lighthouse, Governor Phillip Park, Palm Beach, c1980 (Source: Northern Beaches Council Library Local Studies, Record number 42210)

Figure 39: Governor Phillip Park before development, showing sand dunes and Barrenjoey lighthouse in background, 1984 (Source: Northern Beaches Council Library Local Studies, Record number 40719)

Figure 40: Palm Beach North New Planting on Sand Dunes, looking towards Barrenjoey Lighthouse, 1984 (Source: Northern Beaches Council Library Local Studies, Record number 40702)

Figure 41: View of Palm Beach (north) and Pittwater from Barrenjoey Headland, 1988 (Source: Northern Beaches Council Library Local Studies, Record number Pb-114)

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5. APPENDICES

5.1 AERIAL STUDY OF MONA VALE BEACH (SOUTH)

The following aerial photographs illustrate the subject site and surrounds as captured between 1930 and 2018.

Figure 42: Aerial photograph featuring Mona Vale Beach (south), 1 January 1930 (Source: NSW Spatial Services, frame 1135)

Figure 43: Aerial photograph featuring Mona Vale Beach (north) showing encroaching residential development along today's Cook Terrace and Narrabeen Park Parade (lower left), 1 May 1951 (Source: NSW Spatial Services, frame 61)

Figure 44: Aerial photograph featuring Mona Vale Beach (south) showing the Mona Vale golf course (top left) and further residential development on Coronation Street, 1 January 1961 (Source: NSW Spatial Services, frame 5167)

Figure 45: Aerial photograph featuring Mona Vale Beach (south) and Mona Vale Hospital (left), 23 September 1965 (Source: NSW Spatial Services, frame 5132)

Figure 46: Aerial photograph featuring Mona Vale Beach (south), 6 October 1971 (Source: NSW Spatial Services, frame 5090)

Figure 47: Aerial photograph featuring Mona Vale Beach (south), 29 March 1978 (Source: NSW Spatial Services, frame 354)

Figure 48: Aerial photograph featuring Mona Vale Beach (south), 3 August 1986 (Source: NSW Spatial Services, frame 153)

Figure 49: Aerial photograph featuring Mona Vale Beach (south), 14 August 1991 (Source: NSW Spatial Services, frame 34)

Figure 50: Aerial photograph featuring Mona Vale Beach (south), 10 October 1994 (Source: NSW Spatial Services, frame 138)

Figure 51: Aerial photograph featuring Mona Vale Beach (south), 29 September 1998 (Source: NSW Spatial Services, frame 101)

Figure 52: Aerial photograph featuring Palm Beach (north), 18 March 2002 (Source: NSW Spatial Services, frame 119)

Figure 53: Aerial photograph featuring Mona Vale Beach (south), 20 December 2005 (Source: NSW Spatial Services, frame 157)

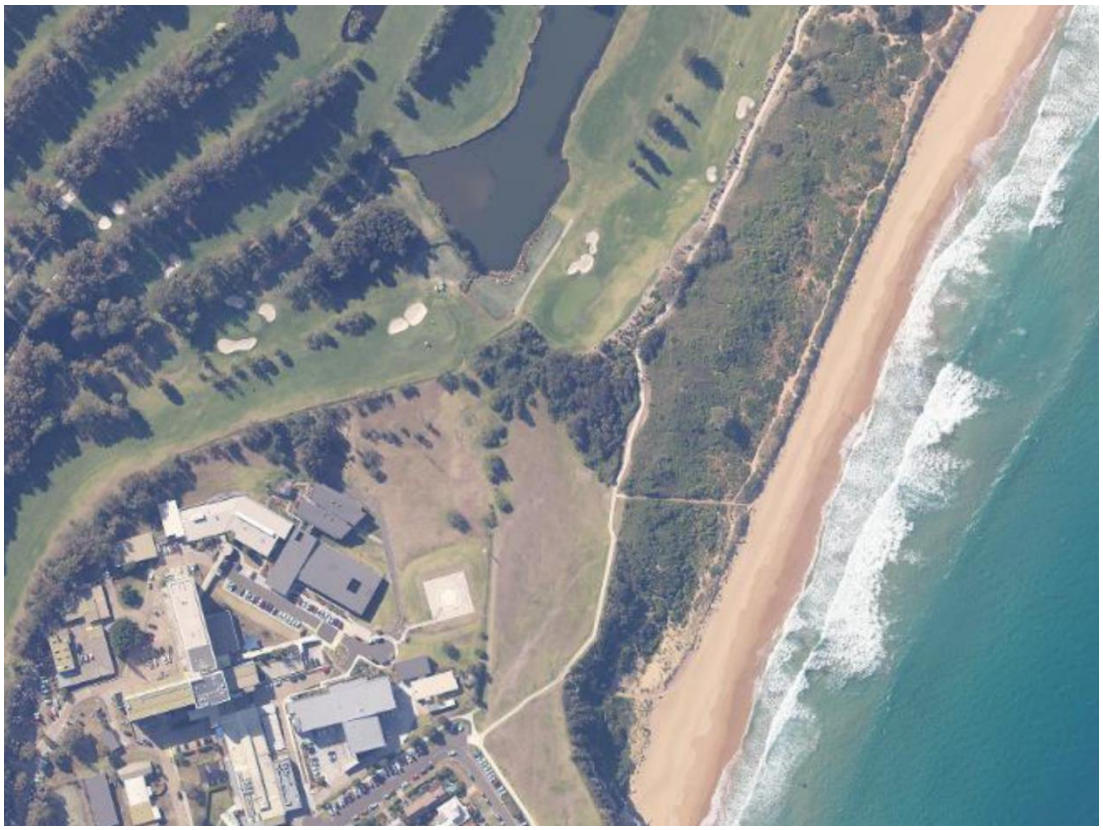

Figure 54: Aerial photograph featuring Mona Vale Beach (south), 17 August 2018 (Source: NSW Spatial Services, frame 157)

5.2 PHOTOGRAPHIC STUDY OF PALM BEACH (NORTH)

Figure 55: Detail from Panorama of Palm Beach showing the northern side, EB Studios, 1917-46 (Source: National Library of Australia, PIC P865/6/1 LOC Nitrate store)

Figure 56: Detail from Panorama of Palm Beach showing the northern side (middleground) and Barrenjoey Lighthouse and Headland (background), EB Studios, 1917-46 (Source: National Library of Australia, PIC P865/207/11 LOC Nitrate store)

Figure 57: View of the dunes of Palm Beach (north) looking from Barrenjoey Isthmus, c1920 (Source: Northern Beaches Library Local Studies, Record number Pb-296)

Figure 58: Palm Beach (north) looking toward Barrenjoey Lighthouse, 1929 (Source: Northern Beaches Council Library Local Studies, Record number Pb-467)

Figure 59: Detail from aerial photograph featuring Palm Beach (north) and the northern edge of Palm Beach Golf Course in the foreground, photograph by Hall and Co, 1930s (Source: State Library of NSW, PXE 889/46)

Figure 60: Views of Palm Beach (north) from Barrenjoey Lighthouse, c1940 (Source: Northern Beaches Council Library Local Studies, Record number Pb-493)

Figure 61: Detail from Palm Beach (north) viewed from Barrenjoey Head, photograph by Frank Hurley, 1940s (Source: National Library of Australia, PIC FH/80 LOC Cold store PIC HURL 7/5)

Figure 62: Spitfire crash landing at Palm Beach (north), 14 December 1942 (Source: Northern Beaches Council Library Local Studies, Record number Pb-355)

Figure 63: View south from Barrenjoey to Palm Beach (north) and Bangalley Headland, tourist brochure, c1960 (Source: Northern Beaches Council Library Local Studies, Record number Pb-390)

Figure 64: View from Barrenjoey Lighthouse assistant keeper's cottage showing Palm Beach (north), 1995 (Source: Northern Beaches Council Library Local Studies, Record number Pb-274)

5.3 AERIAL STUDY OF PALM BEACH (NORTH)

The following aerial photographs illustrate the subject site and surrounds as captured between 1947 and 2018.

Figure 65: Aerial photograph featuring Palm Beach (north), 1 January 1947 (Source: NSW Spatial Services, frame 69)

Figure 66: Aerial photograph featuring the Palm Beach (north), May 1951 (Source: NSW Spatial Services, frame 3)

Figure 67: Aerial photograph featuring Palm Beach (north), 1 January 1961 (Source: NSW Spatial Services, frame 5146)

Figure 68: Aerial photograph featuring Palm Beach (north), 23 March 1965 (Source: NSW Spatial Services, frame 5108)

Figure 69: Aerial photograph featuring Palm Beach (north), 29 March 1978 (Source: NSW Spatial Services, frame 158)

Figure 70: Aerial photograph featuring Palm Beach (north), 19 August 1986 (Source: NSW Spatial Services, frame 206)

Figure 71: Aerial photograph featuring Palm Beach (north), 12 August 1991 (Source: NSW Spatial Services, frame 111)

Figure 72: Aerial photograph featuring Palm Beach (north), 10 October 1994 (Source: NSW Spatial Services, frame 88)

Figure 73: Aerial photograph featuring Palm Beach (north), 29 September 1998 (Source: NSW Spatial Services, frame 262)

Figure 74: Aerial photograph featuring Palm Beach (north), 18 March 2002 (Source: NSW Spatial Services, frame 119)

Figure 75: Aerial photograph featuring Palm Beach (north), 20 December 2005 (Source: NSW Spatial Services, frame 77)

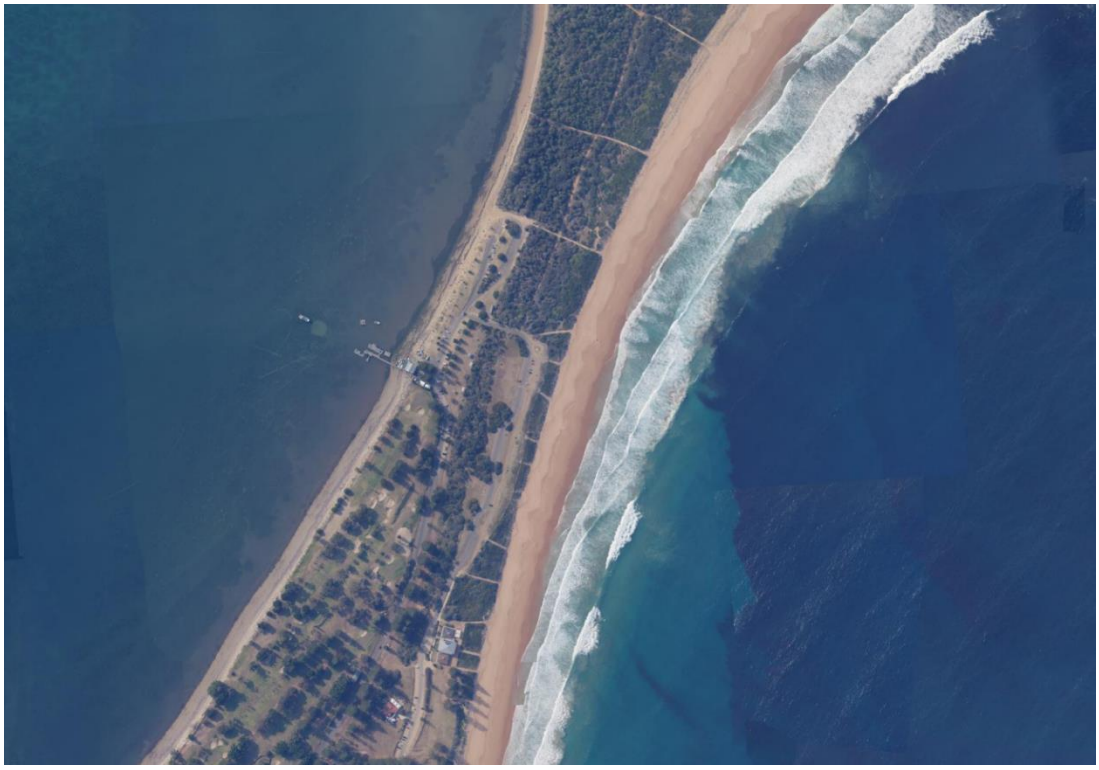

Figure 76: Aerial photograph featuring the subject site, 30 August 2018 (Source: NSW Spatial Services, SIX Maps)

Annex 2 Clause 171 Checklist

Section 171 of the EP&A Regulation sets out the factors to consider when assessing impacts on the environment from activities (for the purposes of Part 5 of the EP&A Act). An assessment of the impacts of the Activity against each of these is provided in Table 28.

Table 28. Compliance with EP&A Regulation 2021

Environmental factors	Impacts
(a) The environmental impact on the community. The Activity will provide additional dog off-leash recreational areas that will contribute to improving the social, physical, psychological and economical aspects of the local and wider community without the need for substantial Council investment (establishment or ongoing). Minor negative impacts may occur between different users of the Activity Areas and general locality. However, these impacts have been minimised through the mitigation and management safeguards as collated in Table 27.	Positive
(b) The transformation of the locality. The Activity involves dogs accessing the beach areas and updating and supplementing the existing of signage and maintenance of bins to support this use. Neither of these aspects are considered to result in a major transformation of the locality and can be readily reversed with nil to negligible environmental impact.	Nil
(c) The environmental impact on the ecosystems of the locality. The Activity has the potential to negatively impact on biodiversity. However, these impacts have been minimised through the mitigation and management safeguards as collated in Table 27.	Negligible
(d) Reduction of the aesthetic, recreational, scientific or other environmental quality or values of the locality. The Activity will provide additional recreational facilities within the LGA. The assessment of the Activity has not identified any reduction in the environmental qualities or values of the locality. The mitigation and management safeguards as collated in Table 21 will eliminate, ameliorate or further minimise these expected impacts and also provide benefits to other users of these locations.	Positive
(e) The effect on any locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations. The Activity is not likely to significantly impact the locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations.	Nil
(f) The impact on the habitat of protected fauna, within the meaning of the Biodiversity Conservation Act 2016.	Negligible

Environmental factors	Impacts
An assessment of potential impact to threatened species, populations and ecological communities and their habitats listed under the NSW Biodiversity Conservation Act 2016 was undertaken. Results of these assessments are covered in Section 6.2. Threatened biodiversity will not likely be significantly impacted by the Activity.	
(g) The endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air. The Activity will not endanger any species of animal, plant or other form of life, whether living on land, in water or in the air.	Nil
(h) Long-term effects on the environment. The Activity will not lead to any detrimental long-term impacts on the environment.	Nil
(i) Degradation of the quality of the environment. The Activity will not lead to the long-term degradation of the environment.	Nil
(j) Risk to the safety of the environment. The Activity will not alter the safety of the environment from its existing state.	Nil
(k) Reduction in the range of beneficial uses of the environment. The Activity will not lead to any reduction in the range of beneficial uses of the environment.	Nil
(l) Pollution of the environment. The Activity has the potential to contribute to pollution of the environment. These impacts have been minimised through the mitigation and management safeguards as collated in Table 21.	Negligible
(m) Environmental problems associated with the disposal of waste. The Activity will generate waste streams which are routinely managed by Council and will not result in any environmental problems form disposal.	Nil
(n) Increased demands on natural or other resources that are, or are likely to become, in short supply. The Activity will not result in any increased demand on resources that are, or are likely to become, in short supply.	Nil
(o) The cumulative environmental effect with other existing or likely future activities. The Activity is not expected to have cumulative effects on existing or future activities of the Activity areas or their surroundings.	Nil

Environmental factors	Impacts
(p) The impact on coastal processes and coastal hazards, including those under projected climate change conditions. The Activity will not impact any coastal processes or coastal hazards.	Nil
(q) Applicable local strategic planning statements, regional strategic plans or district strategic plans made under the ACT, Division 3.1 This Activity will contribute to meeting various goals stipulate with in the strategic plans for the region.	Positive
(r) other relevant environmental factors. This REF has taken into account all relevant environmental factors.	Positive

Annex 3 Aboriginal Objects Due Diligence Assessment

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Aboriginal Objects Due Diligence Assessment
Palm Beach (North) Dog Off-Leash Trial

Northern Beaches Council Local Government Area

Prepared for Northern Beaches Council

Prepared by Niche Environment and Heritage | 5 June 2023

A leading independent specialist environmental and heritage consultancy

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PO Box 2443 North Parramatta NSW 1750
T 02 9630 5658 F 02 4017 0071
E info@niche-eh.com ABN 191 37 111 721
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5 June 2023

Mr Robert Blackall
Senior Biodiversity Officer
Northern Beaches Council
Manly NSW 2095
Via email: robert.blackall@northernbeaches.nsw.gov.au

Dear Mr Blackall,

Re: Palm Beach (North) Dog Off-Leash Trial Aboriginal Objects Due Diligence Assessment (Niche Ref #7029)

Based on this Aboriginal Objects Due Diligence Assessment (DD), it has been determined that there is a low potential that Aboriginal objects have survived within the Subject Area.

An extensive search of the Aboriginal Heritage Information Management System (AHIMS) identified that no Aboriginal cultural heritage sites are recorded to be located within the Subject Area. The nearest Aboriginal cultural heritage site to the Subject Area is 'Palm Beach Sand Dunes' (AHIMS ID# 45-6-1433) situated approximately 130 m north-west of the Subject Area.

The results of a site inspection confirmed that the nearby Midden site 'Palm Beach Sand Dunes' (AHIMS ID# 45-6-1433) does not extend into the current Subject Area and will therefore not be affected by the proposed activity. Furthermore, the Subject Area has been heavily impacted by modification to the ground surface relating to past dune stabilisation works, revegetation programs, public recreational use of the area and ongoing natural erosion and modification of the beach and dune systems. The ground surface and subsurface has been disrupted to such an extent that the possibility of in-situ deposits is low. No Additional Aboriginal cultural heritage constraints were identified.

Where the below recommendations and measures are implemented, the proposed activity will avoid known Aboriginal objects and areas where Aboriginal objects are likely and the proposed activity may therefore proceed with caution without a further Aboriginal Cultural Heritage Assessment (ACHA) or Aboriginal Heritage Impact Permit (AHIP). It is recommended that:

- Should earthworks be undertaken outside the Subject Area footprint assessed in this document, further impact assessment should be undertaken prior to work in those areas.
- All workers should be inducted into the Subject Area, so they are made aware of their obligations under the *National Parks and Wildlife Act 1974.*
- Works associated with the proposed installation of signage identifying the dog off-leash area can proceed with caution within the Subject Area as assessed in this DD. Where possible, existing poles should be utilised for the new signage. Where this is not possible, signage should be placed in an area of existing ground disturbance within the Subject Area. During the installation of the signposts, access to the area/s should be restricted to the use of existing access tracks.
- In the event that previously unknown Aboriginal object(s) and/or sites are discovered during the proposed activity, work must stop, and an appropriately qualified archaeologist be contacted to access the nature, extent and significance of the identified sites.

Niche Environment and Heritage
PO Box 2443 North Parramatta NSW 1750
T 02 9630 5658 F 02 4017 0071
E info@niche-eh.com ABN 191 37 111 721
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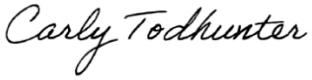
- In the unlikely event that human remains are discovered, all activities must stop, the affected area must be cordoned-off and NSW Police and the Heritage NSW (formerly the Department of Planning, Industry and Environment [DPIE] which replaced the Office of Environment and Heritage [OEH]) Environment Line must be contacted on 13 15 55 or (02) 9995 5555.

Please do not hesitate to contact me should you have any questions or would like to clarify details of this assessment.

Yours sincerely,



Carly Todhunter
Heritage Consultant
Niche Environment and Heritage

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1 Introduction

1.1 The proponent

Niche Environment and Heritage Pty Ltd (Niche) was commissioned by Northern Beaches Council (Council'; 'the Proponent') to undertake an Aboriginal Objects Due Diligence Assessment (DD) to assess Aboriginal cultural heritage constraints for a proposed off-leash dog area trial at Palm Beach, New South Wales (Figure 1) (hereafter referred to as the 'Subject Area').

1.2 The Subject Area

1.2.1 Location

The Subject Area is situated on the seaward side of an isthmus connecting Barrenjoey Head to the mainland (Plate 2) within the Northern Beaches Council Local Government Area (LGA) and within the boundaries of the Metropolitan Local Aboriginal Land Council (LALC). The Subject Area is located at the northern end of North Palm Beach and is situated in an area of sand dunes including an eastward portion below the mean high water mark (Figure 1 and Figure 2). The Subject Area is approximately 400 metres long, covering an area of approximately 5 hectares (ha) and includes the following two lots (Figure 3):

- Lot 7004 / DP 1117444
- Lot 7006 / DP 1117451

The northern boundary of the Subject Area is situated approximately 280 metres south of the Ku-ring-gai Chase National Park boundary. The southern boundary of the Subject Area is situated approximately 300 m north of the North Palm Beach Surf Lifesaving Club. Within Governor Philip Park there are approximately 490 off-street parking spaces. Of which 135 are located at the northern end of Governor Philip Park and provide public access to the beach (Figure 2). The Subject Area is zoned as RE1 (Public Recreation). The Subject Area is situated within Crown Land to the east of Governor Philip Park. A mixture of recreational facilities and food outlets are present within the area surrounding the Subject Area including Governor Philip Park, Palm Beach Golf Club, North Palm Beach Surf Lifesaving Club, the Boathouse Palm Beach Café, the dunes restaurant, and parking and pedestrian access to Ku-Ring Gai Chase National Park and the heritage listed Barrenjoey Lighthouse.

The extent of the proposed off-leash dog area at Palm Beach is depicted in Figure 2 and in the project's concept plan as supplied by Council (Appendix A).

1.3 The proposed activity

Council is intending to stage a trial of two off-leash dog areas in the Northern Beaches Council LGA for a period of 12 months, one at Mona Beach (in the south) and the other at Palm Beach (in the north). Only the off-leash area at Palm Beach is being assessed as part of this due diligence assessment due to its proximity to a large number of local heritage items situated to the north at Barrenjoey Head and due to the sensitive nature of the landforms present in the Subject Area.

During the trial period, dog owners will be permitted to have their dog off-leash within the Subject Area (Figure 2). The Subject Area will be marked by signage which to be placed on the northern and southern boundary of the dog off-leash area. The poles for signage will either be affixed to existing infrastructure and or a new pole installed within the Subject Area. This will involve some ground disturbance comprising a hole nominally 150 mm in diameter and 1000 mm deep.

The objectives of the trial are to:

- Provide an additional off-leash dog area within the LGA with access to the foreshore and swimming areas;
- Provide Northern Beaches Council with an opportunity to monitor the impacts on the environment, other users, residents and businesses;
- Collect information during the trial period to identify potential impacts associated with establishing permanent off-leash dog areas; and
- Assess the suitability of establishing permanent off-leash dog area at Mona Beach and Palm Beach.

1.4 Statutory controls

The *National Parks and Wildlife Act 1974* (NPW Act), administered by Heritage NSW, is the primary legislation for the protection of some aspects of Aboriginal cultural heritage in NSW[1]. Part 6 of the NPW Act provides specific protection for Aboriginal objects and declared Aboriginal places by establishing offences of harm.

The NPW Act provides that a person who exercises due diligence in determining that their actions will not harm Aboriginal objects has a defence against prosecution if they later unknowingly harm an Aboriginal object without an Aboriginal Heritage Impact Permit (AHIP).

The *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (DECCW 2010a) sets out a process for individuals and organisations to follow to determine whether an Aboriginal object will be harmed by an activity, whether further investigation is needed, and whether that harm requires an AHIP.

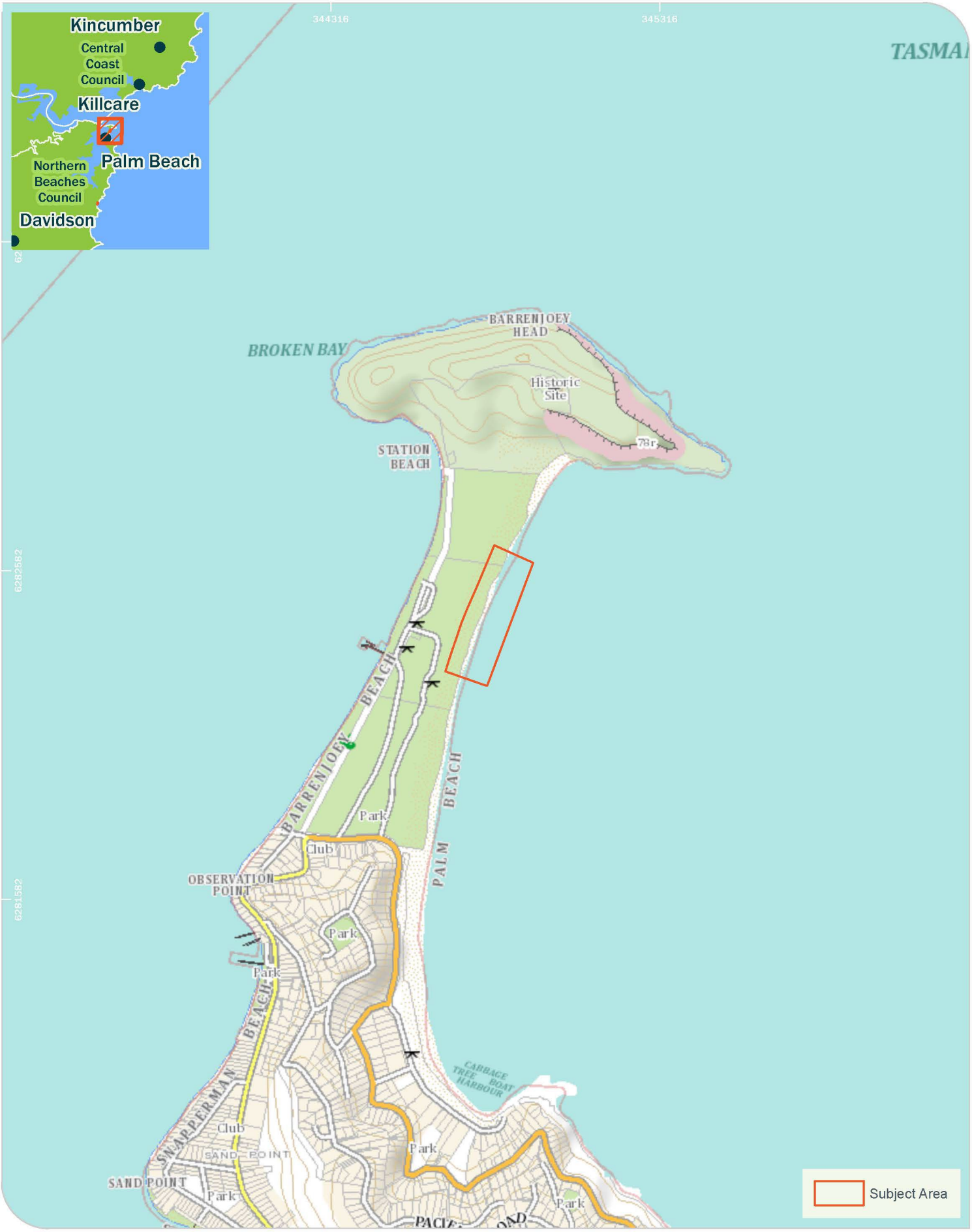
1.5 Objectives

The aim of the assessment was to assess whether Aboriginal objects and/or places are present, or are likely to occur within, or near the Subject Area, if those Aboriginal objects and/or places may be harmed by the proposed activity, and if further investigation is required.

1.6 Assessment methodology

This DD follows the process outlined in Plate 1.

[1] For further information visit: https://www.environment.nsw.gov.au/licences/achregulation.htm



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Niche PM: Justin Merdith
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Client: Northern Beaches Council

Location Map

Northern Beaches Dog Off-leash Trial

Figure 1

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Site Map

Northern Beaches Dog Off-leash Trial

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Figure 2

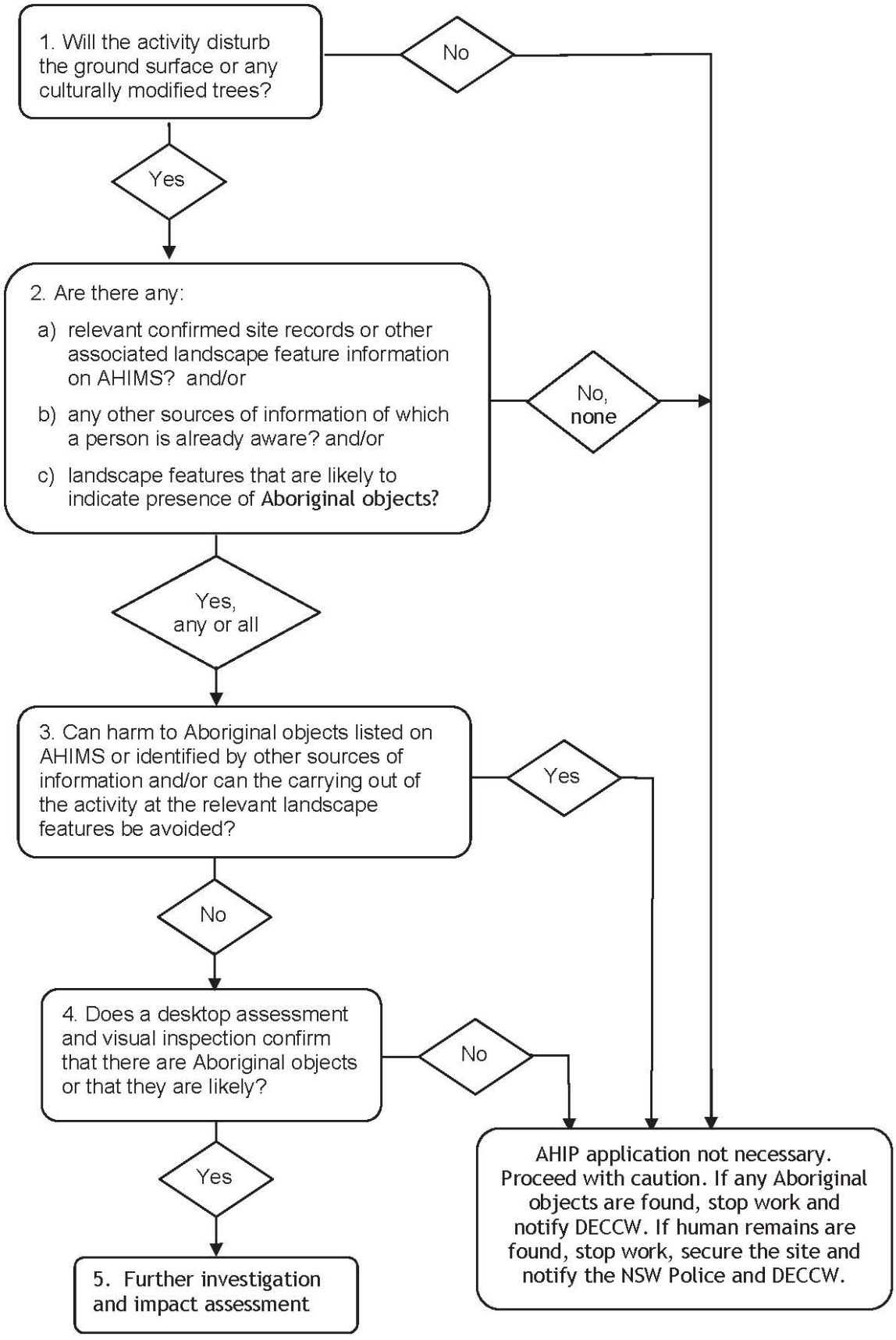

Plate 1: The due diligence assessment process

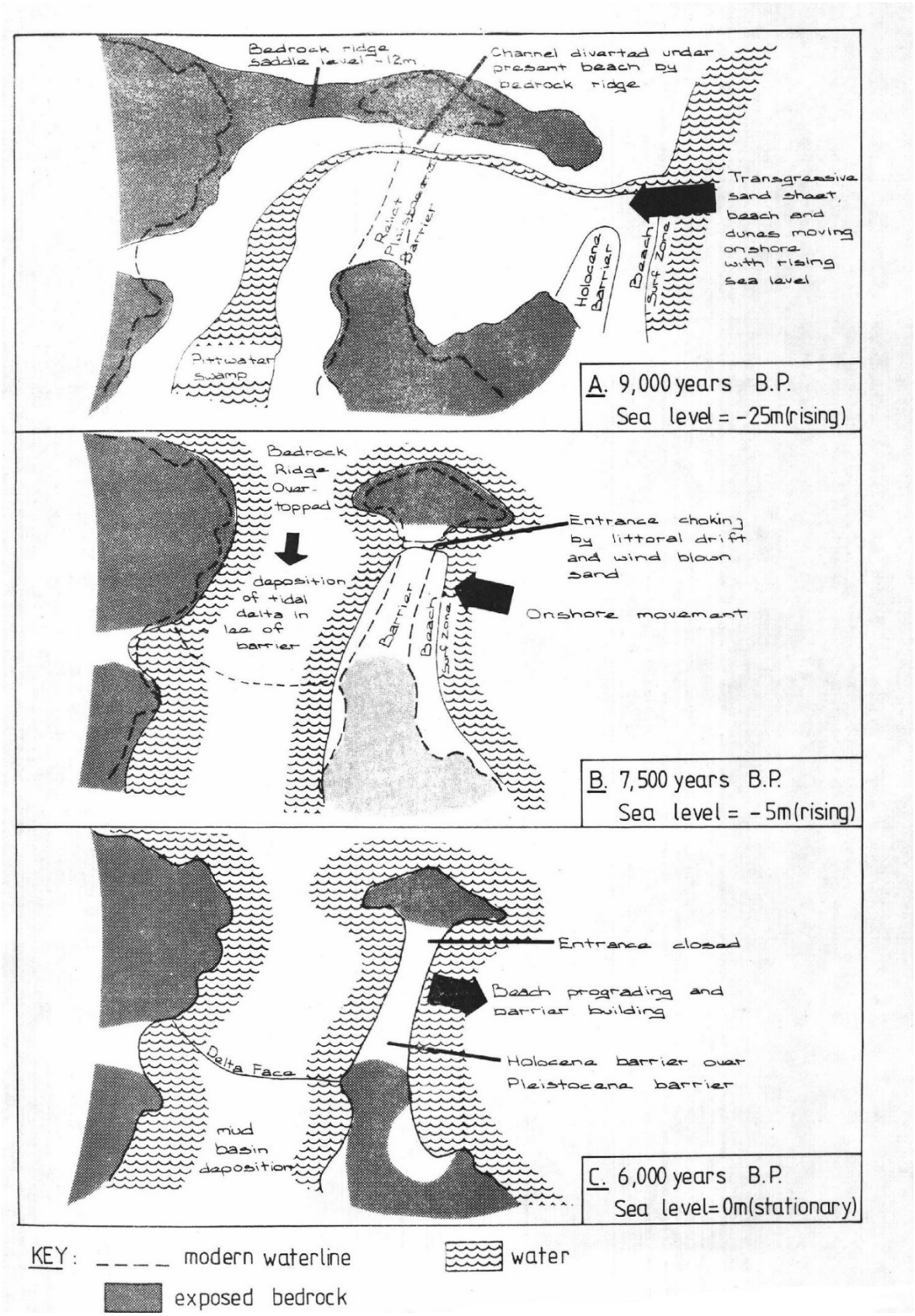

Plate 2: Excerpt from Palm Beach: beach erosion and management study, produced by the Public Works Department, Vol. 2, page 105. Showing the historical development of the Palm Beach Isthmus in the early Holocene.

2 Environmental Context

2.1 Topography, Landforms and Hydrology

The Subject Area is located in at the northern end of a peninsula within the suburb of Palm Beach, NSW and is situated in the region of the Northern Beaches of Sydney. The Subject Area is comprised primarily of calcareous sand deposits and low dunes and is fringed on the western boundary by beach dune vegetation. Numerous walking tracks cut through the vegetation area leading northwards to Barrenjoey Head. South-west of the Subject Area is the Governor Philip Park with extensive recreation areas. The northern portion of the peninsula is largely used for recreation connected to the beach, numerous walking tracks and the North Palm Beach Surf Lifesaving Club.

Barrenjoey Heads, situated north of the Subject Area, is a headland comprised primarily of sandstones of the Newport Formation including Hawkesbury sandstone. The headland was cut off from the mainland due to rising sea levels approximately 10,000 years ago. Subsequent to this, a gradual accumulation of a sand spit or tombolo reconnected the island to the mainland to form the current peninsula (Plate 2). Barrenjoey Head and West Head (situated north of Pittwater) are outcrops resulting from a volcanic dyke and are connected by a low-slung saddle ridge, resulting in the shallow waters of the entrance to Pittwater. Pittwater is a semi-mature tide-dominated drowned, valley estuary that occurs west of the Subject Area.

At the peak of the last ice age around 20,000 years ago, the sea level would have been approximately 120 to 140 m lower than present levels and the coastline would have been situated 15 to 20 km to the east. At this time, the continental shelf was exposed and deep river valleys such as Broken Bay would have drained out to sea. As the ice melted, the sea level rose until it stabilised at its current level about 6,000 years ago and the low saddle that connected Barrenjoey and West Heads was submerged. Driven by currents, waves and wind, the sand accumulated over extended periods until the sand spit was formed. A visual representation of the formation of the barrier sand dune at Palm Beach is provided in Plate 2.

Within the Subject Area itself, the topography is fairly constant and is typically level to very gently inclined. The dune area between North Palm Beach and Barrenjoey Beach is in continual shift northwards in spite of dune stabilization measures due to wind and tidal movements pushing up from the ocean. A large dune present at the southern side of Barrenjoey headland has accumulated over extended periods and has been modified by local revegetation efforts, in particular during the 1984 dune stabilisation program undertaken by Warringah Council which is detailed in Section 2.4. Aeolian erosion is a constant threat to the surrounding landscape and has been worsened over time due to the loss of dune vegetation that would have previously stabilised the surrounding landscape.

A cross-section of the sand dunes at Palm Beach is provided in Plate 3 commencing on the west at WP 689 (Figure 5) and continuing 140 m in an easterly direction towards the Pacific Ocean. The graph demonstrates that, since the first period of measurement (commencing in 1951), there have been significant alterations to the dune both due of natural and human-induced origins. The dune profile in 1951 suggested the dunes dropped off gradually in an easterly direction over approximately 105 m from an elevation of approximately 7.2 m to 0.9 m. The eastern transition from the foredune leading into the beach environment (at approximately 60 m along the recorded area) has been steadily increasing over time from approximately 6 m in 1951 to 10 m in 2021. In 1965, a sharp drop was observed at approximately 20 m along the profile before rising at approximately 60 m and slowly dropping off again. In 1974 heavy storms occurred and large areas of the barrier system were inundated by the rising waters from both Pittwater and

the Pacific Ocean (for further detail see Section 2.4). Dune stabilisation works undertaken by Warringah Council in 1984 resulted in further disturbance to the dune system and is also detailed in Section 2.4.

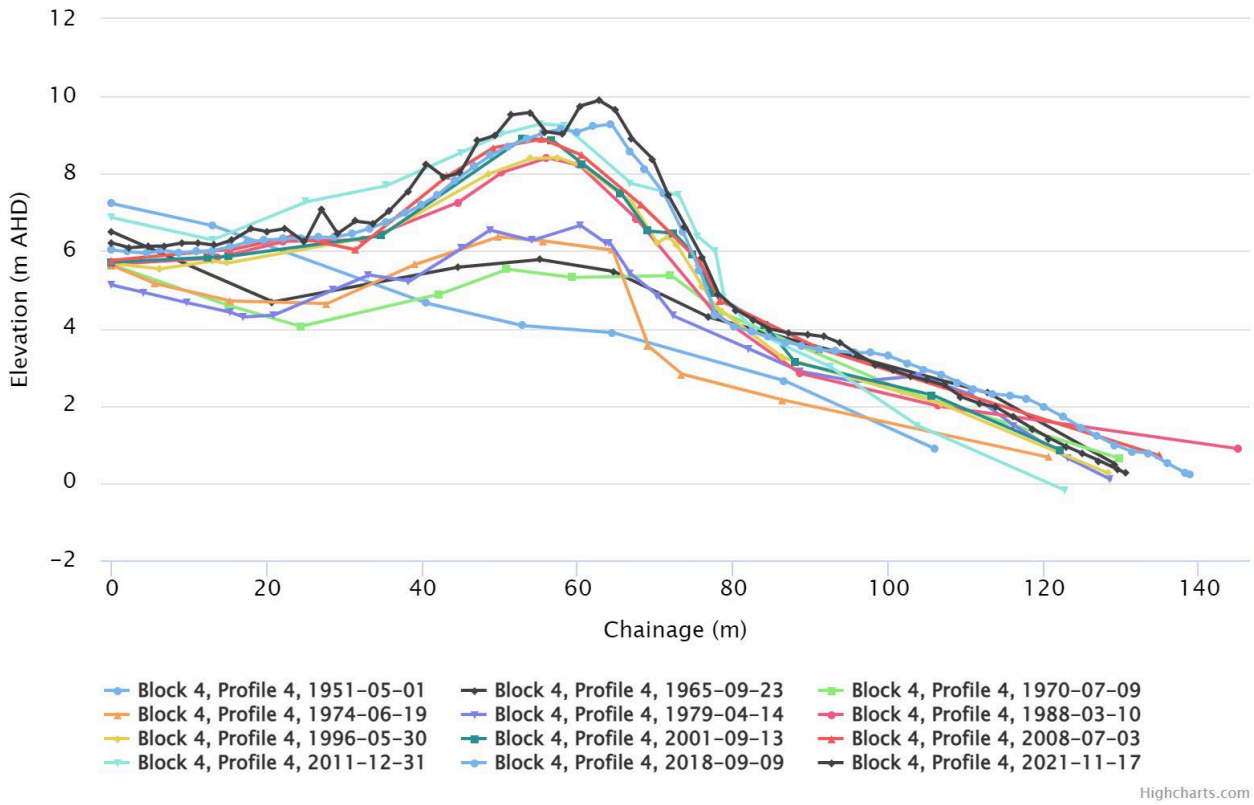

Plate 3: Cross-section of Palm Beach sand dune (Block 4, Profile 4), generated from the NSW Beach Profile Database, DPIE, 17/02/2022, http://www.nswbpd.wrl.unsw.edu.au/photogrammetry/plot. The cross-section commences at WP 689 (Figure 5) on the left-hand side and continues 140 m in an easterly direction towards the Pacific Ocean.

2.2 Geology and soils

The soil of the Subject Area is fairly constant, comprising the Narrabeen soil landscape (DPIE 2020). This soil landscape typically comprises deep (>200 cm) calcareous sands (UC1.11, Uc1.12) on beaches and siliceous sands (Uc1.21 and Uc1.22) and occasional calcareous compressed sands on foredunes. The dominant soil present at the beach is a loose orange shelly beach sand (na1) with apedal single-grained structure and comprising a mix of quartz sand and tiny shell fragments. Laminations of well-graded marine sands can also occur. Within the tidal zone, accumulations of driftwood, seaweed and rubbish are present. The second dominant soil material is a loose, yellowish-brown quartz sand (na2) with apedal single-grained structure and ranging in colour from brown to bright yellow.

Over 200 cm of loose yellowish brown quartz sand is typically present in the foredune environment. In some sheltered areas where vegetation has not been disturbed, surface soil texture may approach that of loamy sand and have a slight accumulation of organic matter.

The geology of the Subject Area is typified by a combination of Holocene- era sands (Qhbb) along a narrow section of the eastern fringe of the peninsula adjacent to Palm Beach and Holocene dune containing marine sand (Qhbd) for the remainder of the peninsula. The sand at Palm Beach has formed from a combination of marine sand, shell and gravel. Barrenjoey Head is comprised of Triassic sedimentary rocks typical of the

Sydney Basin, the Narrabeen Group (Tna) and Hawkesbury Sandstone (Tuth) which overlies it. Both geological units are associated with raw materials suitable for stone tool production including mudstone, siltstone, quartz, sandstone and conglomerate materials.

2.3 Vegetation

The beach at Palm Beach is virtually free of any vegetation and this is typical of the Narrabeen soil landscape (DPIE 2020). Formerly, the beach would have contained herbland/grassland within the foredune environment. Efforts have been made to revegetate the foredunes of the Narrabeen group with community plantings of marram grass (*Ammophila arenaria*), hairy spinifex (*Spinifex hirsutus*) and native dune shrubs.

In sheltered areas west of the Subject Area within the barrier dune setting open or closed-scrub species such as Sydney golden wattle (*Acacia longifolia*), guinea flower (*Hibbertia scandens*) and coastal banksia (*Banksia integrifolia*) occur. In disturbed areas, the noxious weed bitou bush (*Chrysanthemoides monilifera*) predominates.

2.4 Past land use and disturbance

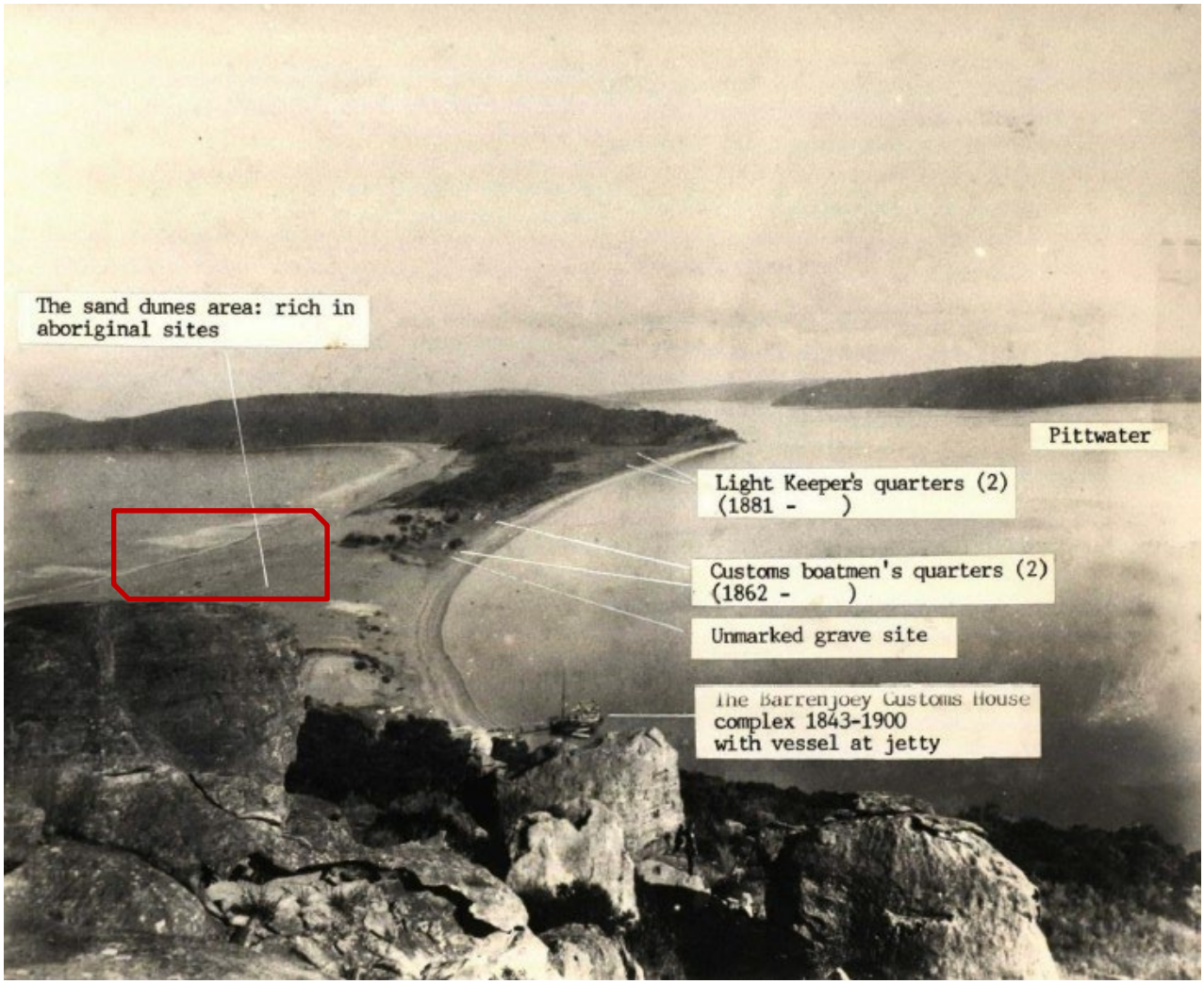

Plate 4: Photograph from Barrenjoey Head looking south towards Palm Beach in 1881 and annotated in a formal submission to the National Estate Committee by Frank Johnston on 18 November 1985. The sparsely vegetated northern sand dunes are identified as being rich in aboriginal sites. The approximate location of the Subject Area is outlined in red

The Subject Area is situated in the traditional lands of the Garigal or Caregal people (Northern Beaches Council n.d.). The Garigal or Caregal lived in small groups and moved around the area, with occupation sites known to exist throughout the region. Fish was a staple of the local diet and various shellfish including cockle, oysters, whelks, periwinkles and mussels were available from the surrounding environment. Bark canoes provided a means to access waters beyond the coastline and allowed local people to traverse the protected waters beyond Broken Bay. Wooden spears, lines with shell and bone hooks and nets were all used from the canoes and from shoreline. Mammalian and avian skeletal remains have previously been identified in midden deposits nearby the Subject Area and reflect the wide range of food sources that were available. Amongst the midden remains identified in the barrier dune system were numerous stone artefacts produced from quartz, grey chert, silcrete and conglomerate stone.

Numerous Aboriginal cultural heritage sites occur near the Subject Area including shelters, middens, rock engravings and artefact scatters. The high concentration of sites within the Barrenjoey Headland (Figure 3) highlights its cultural importance. The northern dunes situated close to the Barrenjoey Headlands would have been more sheltered than the open beach situated within the Subject Area, though all areas were likely traversed and utilised at least intermittently. Swales which formed naturally throughout the barrier dune system appear in early photographs (Plate 6 and Plate 7) and may have also been preferred for temporary campsites due to the windbreak that they offered.

Plate 5: Barrenjoey Cottages, Customs House and Officers' Residences North Palm Beach, looking north-east towards the lighthouse. 7 February 1906. Note the presence of scattered shell in foreground (present on the Pittwater side at Station Beach

An encounter between Governor Phillip and the Aboriginal groups in the Broken Bay and Pittwater area between 2 to 9 March 1788 provides a glimpse into the lives of those who frequented the area at the time of European colonisation. The Governor and his party came into contact with groups in canoes, including a group comprising of one man and five women travelling in two canoes who were encountered early one morning. On 3 March, the party travelled through North Harbour where they encountered several huts constructed from branches and covered with bark. Nearby to the huts lay crayfish. This encounter provides an early example of contact between Aboriginal groups and colonists at the time of early settlement.

North Palm Beach is situated on a peninsula which has experienced significant northward sand migration over extended periods, resulting in a highly dynamic dune environment. Due to the drowned nature of the coast, the sand spit extending south of Barrenjoey Head is accumulative and is highly exposed to tide surges. In 1974 large storms inundated large portions of the sandy dunes at North Palm Beach. The lack of vegetation within the dune environment left it further exposed to the effects of strong wind. At the end of the 19th and for most of the 20th centuries, the Subject Area and the surrounding dunes were thinly covered by highly dispersed dune grasses. The lack of large trees and thick vegetation to shield the dunes contributed to a gradual northward shift of the dunes and its gradual accumulation south of the Barrenjoey headland. Historical photographs covering the Subject Area and surrounds demonstrate that the thick vegetation present in the southern portion of Palm Beach was entirely absent from the Subject Area during these periods (Plate 6 and Plate 7).

Plate 6: Palm Beach and Station Beach showing the minimal vegetation covering the Subject Area and associated disturbance, 1890, image courtesy of Northern Beaches Council Library Local Studies Collection

Plate 7: View of sand dunes at North Palm and Station Beaches from Barrenjoey Isthmus, c 1920, image courtesy of Northern Beaches Council Library Local Studies Collection

The isthmus connecting Barrenjoey Head to the mainland is a dynamic and fragile system and the impact of humans on the ecology of the area has been significant over the past two centuries. The demand to provide building materials and fuel to early European settlers in the area resulted in extensive clearing of vegetation throughout the isthmus. Cattle grazing was known to occur and numerous photographs indicate that these cattle also grazed areas within Governor Phillip Park. The local environment was also exploited for extracting salt, to provide shells for producing lime and as an area for recreational and commercial fishing.

North Palm Beach was a popular recreation area for Sydney at the beginning of the 20th century. The area was known for its breathtaking beauty and was a popular destination not only for bathers but also for golfing enthusiasts with an informal golf links established at Palm Beach from at least 1911. Official approval from the Warringah Shire Council to establish a golf links at Governor Phillip Park came in 1926.

> *The Warringah Shire Council gave approval on Monday night to a formal agreement -drawn up by the Palm Beach Recreation Club for the formation of a golf links on Governor Phillip Park. The agreement provides for the closing of the present road through the park and the construction of a new road in its place. Parking, camping and areas for tennis, bowls, and croquet are included in the specifications, and in order that the club's financial, obligations will be liquidated within a definite period, 10 per cent, of the capital outlay is to be paid into a sinking fund each year.*
>
> *The Sun,* 26 Mary 1926, page 5

Later, a camping ground was established at Governor Phillip Park in an area north of the golf links and immediately west of the present Subject Area. As depicted in Plate 8 and Plate 9, this camping ground was situated just metres from the beach and appears to have been well frequented. During this time the Subject Area was virtually free from dune vegetation with the exception of small grasses and the northerly dunes appear to rise with significant accumulations of northwards shifting sand deposits. The close

proximity of the camping and recreation areas within Governor Phillip Park to the Subject Area can be seen in a 1955 aerial photograph (Plate 8). The camping grounds were later closed in the 1970s.

Plate 8: Outlook from Barrenjoey Lighthouse southwards towards North Palm Beach showing the absence of dune vegetation in the 1950s, camping ground present in background immediately south-west of the beach area, image courtesy of Northern Beaches Council Library Local Studies Collection

Plate 9: Camping ground at Palm Beach, c.1950, situated south-west of the Subject Area, image courtesy of Northern Beaches Council Library Local Studies Collection

Plate 10: Aerial of North Palm Beach from 4000 feet, taken on 9 November 1955 (for Maritime Services Board), showing the location of the camping grounds and recreation areas within Governor Phillip Park. Image courtesy of Northern Beaches Council Library Local Studies Collection

The environmental threats that exposed the barrier dune system to erosion was recognised at least as early as the 1980s by Warringah Shire Council (Shire Council). A photograph taken in early 1984 (Plate 9) identifies that the sand dunes within the present Subject Area were covered only by isolated patches of dune grasses and aeolian erosion was a continuing threat. In early 1984, the Shire Council commenced a large-scale program to stabilise the northern sand dunes that acted as a buffer between the Barrenjoey headlands and Governor Phillip Park. The works included the levelling of natural undulations in the sand dunes and the planting of grasses, bushes and some trees. The grasses were planted in parallel rows over large expanses as depicted in Plate 12. Bulldozers were used to level and shape the areas to be revegetated. Plate 10 and Plate 11 show the effects of the dune stabilisation program on the dunes during the course of the earthworks. The bulldozer tracks appear to cut through the large dunes on the northern side close to Barrenjoey Head and plantings of dune grasses are also apparent.

A photo taken in 1988 (Plate 13) shows the areas that were revegetated either side of the main track leading northwards to Barrenjoey Head. Some years later in 1995 (Plate 14) the plantings have matured somewhat and the dunes appear to be much more stabilised having now a thick vegetation cover. In a 1985 submission to the Heritage Council of New South Wales, Frank H. Johnston identified that the dune stabilisation project had impacted on the midden deposits present. The submission (Johnston 1985) highlighted that:

> *Aboriginal sites exist on the headland and the sand dunes which are recorded but those on the dunes were mainly destroyed when the Warringah Shire Council worked there during a large scale 'stabilisation' program in 1984.*

The submission identifies that there had been public outcry at the time due to failures in the environmental assessment process. In the account given by Jackson (1985), the intention by Shire Council to undertake the work occurred only 29 days before the proposal went to public exhibition. The total cost of the works amounted to $470,000. Many local residents were alarmed at the impact of the dune stabilisation works on the ecology of the area and a number of individuals were also concerned about the impacts of the works on the midden features known to be present.

Plate 11: Governor Phillip Park before current redevelopment and dune stabilisation efforts, 1984, image courtesy of Northern Beaches Council Library Local Studies Collection

On 25 June 1984, the Shire Council announced the intention by public exhibit to implement a Management Plan for Palm Beach. The plan comprised five areas, namely the Barrenjoey Headland, the northern dunes, Barrenjoey Beach, Governor Phillip Park and South Palm Beach. The plan integrated the findings from a report by the NSW Department of Public Works in September 1982 that detailed the erosion and management issues present in the region. By 18 August 1984 the Minister for Planning and Environment publicly reprimanded the Shire Council for the work undertaken in the sand dunes, finding that they hadn't considered the effects on Aboriginal heritage present (Jackson 1985).

Plate 12: Sand dunes at North Palm Beach, showing modification to the sand dunes at North Palm Beach with Barrenjoey lighthouse in background, 1984, image courtesy of Northern Beaches Council Library Local Studies Collection. The plantings of dune stabilising grasses can be seen on the right.

Plate 13: North Palm Beach showing modification to the sand dunes undertaken in 1984 to stabilise the dunes, c. 1984, image courtesy of Northern Beaches Council Local Studies Collection

Plate 14: Revegetation efforts to stabilise the dunes at North Palm Beach, 1984, image courtesy of Northern Beaches Council Library Local Studies Collection

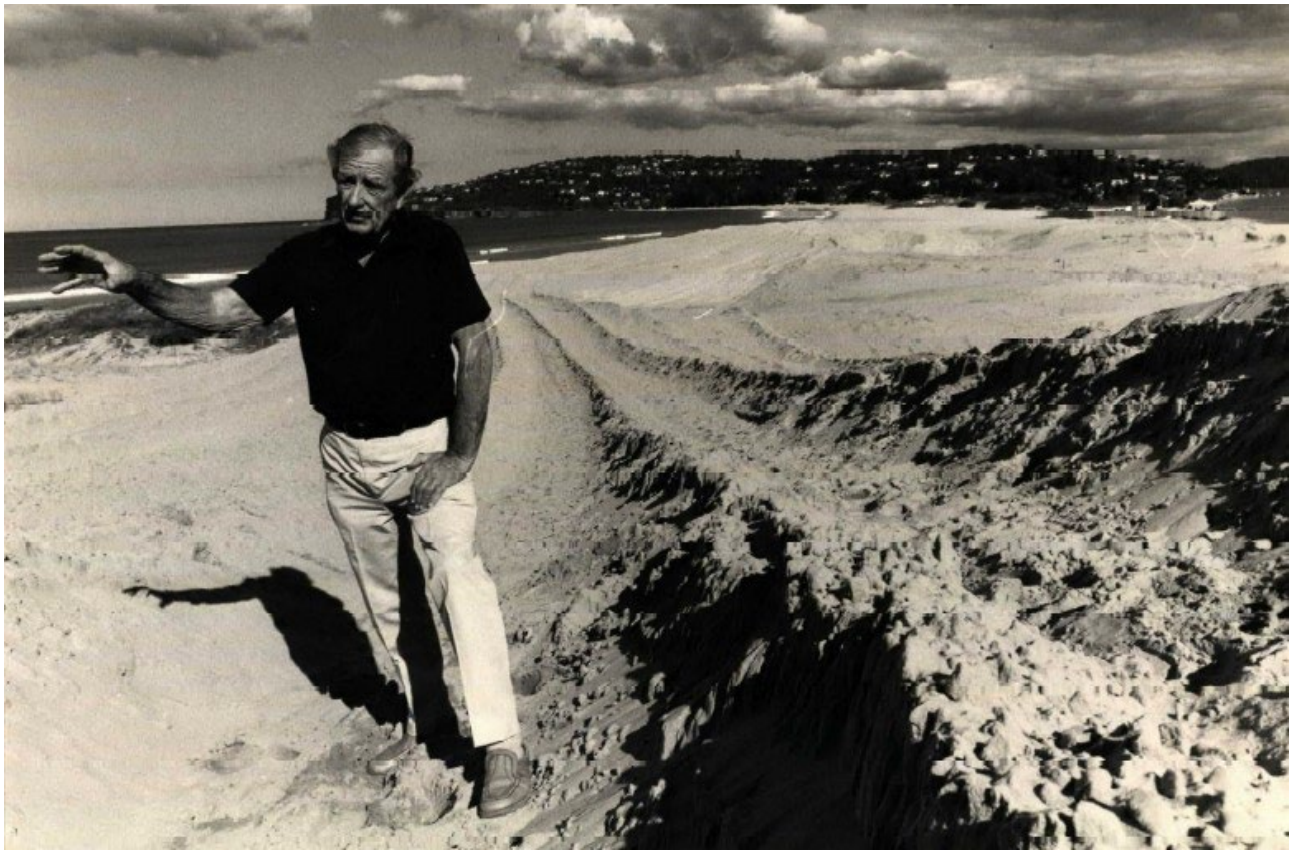

Plate 15: Friends' of Palm Beach draw public attention to the impact to the northern dunes of Palm Beach by the dune stabilisation program being undertaken by Warringah Shire Council, Sydney Morning Herald, 7 August 1984

In response to the plan, the Friends of Palm Beach (Friends') was formed between July and August 1984 by a group of local residents concerned with the announced plan. The group lodged a formal submission

opposing the dune stabilisation program and other changes to Barrenjoey Beach and Governor Phillip Park. The group were also in discussions with the Department of Administrative Services regarding the transfer of land on the headland to the NSW State Government. Concerningly, the Department at the time appear to have not been made aware of the work being undertaken by the Warringah Shire Council that involved taking sand from federal land in the north-western extremity of the northern dunes (Jackson 1985). On 8 August 1984, the disturbance of the middens in the northern dunes was reported in the *Sydney Morning Herald*. The account detailed that Michael Byrne had undertaken an archaeological assessment of the middens on behalf of the Warringah Shire Council finding that some middens were significant, and others could be covered by sand. It is not clear whether these areas were covered by sand. In the article, the local MP for Pittwater argued that storms in 1974 had almost inundated the sand spit between Pittwater and the Pacific Ocean. He stated that the works were being undertaken to raise the central portion of the isthmus and restore vegetation to protect against further erosion.

The Friends' wrote to the National Parks and Wildlife Service (NPWS) on 29 October 1984 and soon after they expressed interest in the future management of the headland and Palm Beach area. By September 1985, the NPWS had expressed interest in acquiring the northern sand dunes to integrate them into the Ku-ring-gai Chase National Park. This area comprised the totality of the northernmost portion of Governor Philip Park comprising Reserve 64483 (Lot 7004 DP 1117444) as depicted in Figure 3. On 2 September 1985, the Minister for Planning and Environment (Minister) sent a letter to the Friends to confirm that they were considering issues of staffing, funding and management in order to incorporate the Barrenjoey Headland. The NPWS envisaged the northern dunes could act as a buffer between the headland and the recreation areas of Governor Phillip Park. They expressed interest in protecting the Aboriginal archaeological sites known to occur there including the northern dunes. They too sought to regenerate the area with native vegetation.

The National Trust of Australia in a formal submission to the Minister on 10 April 1985 expressed their support to incorporate the Barrenjoey Headland (Jackson 1985). The Trust also recommended that the proposed boundary include an area incorporating part of the undisturbed dune area adjacent to the headland and including up to the low water mark with a possible marine extension. They suggested that the remainder of the dunes be managed by Shire Council. At the time, the Trust also highlighted the issue of the proliferation of lantana and asparagus ferns in some drainage lines.

Plate 16: View of Palm Beach and Pittwater from Barrenjoey Headland after dune stabilisation efforts, 1988, image courtesy of Northern Beaches Council Library Local Studies Collection

Continuing efforts to stabilise the dunes have resulted in greater protection to the dune environment, however the unique setting of Palm Beach continues to be exposed to the effects of waves, swell and aeolian erosion. The presence of noxious weeds and vegetation loss within the revegetated zones west of the Subject Area confirm that ongoing intervention has been required to maintain the dunes. North Palm Beach continues to be a popular destination for residents and for visitors to the region.

Plate 17: Photograph of the Palm Beach Peninsula, showing the matured revegetated zone west of the current Subject Area, 1995, image courtesy of Northern Beaches Council Library Local Studies Collection

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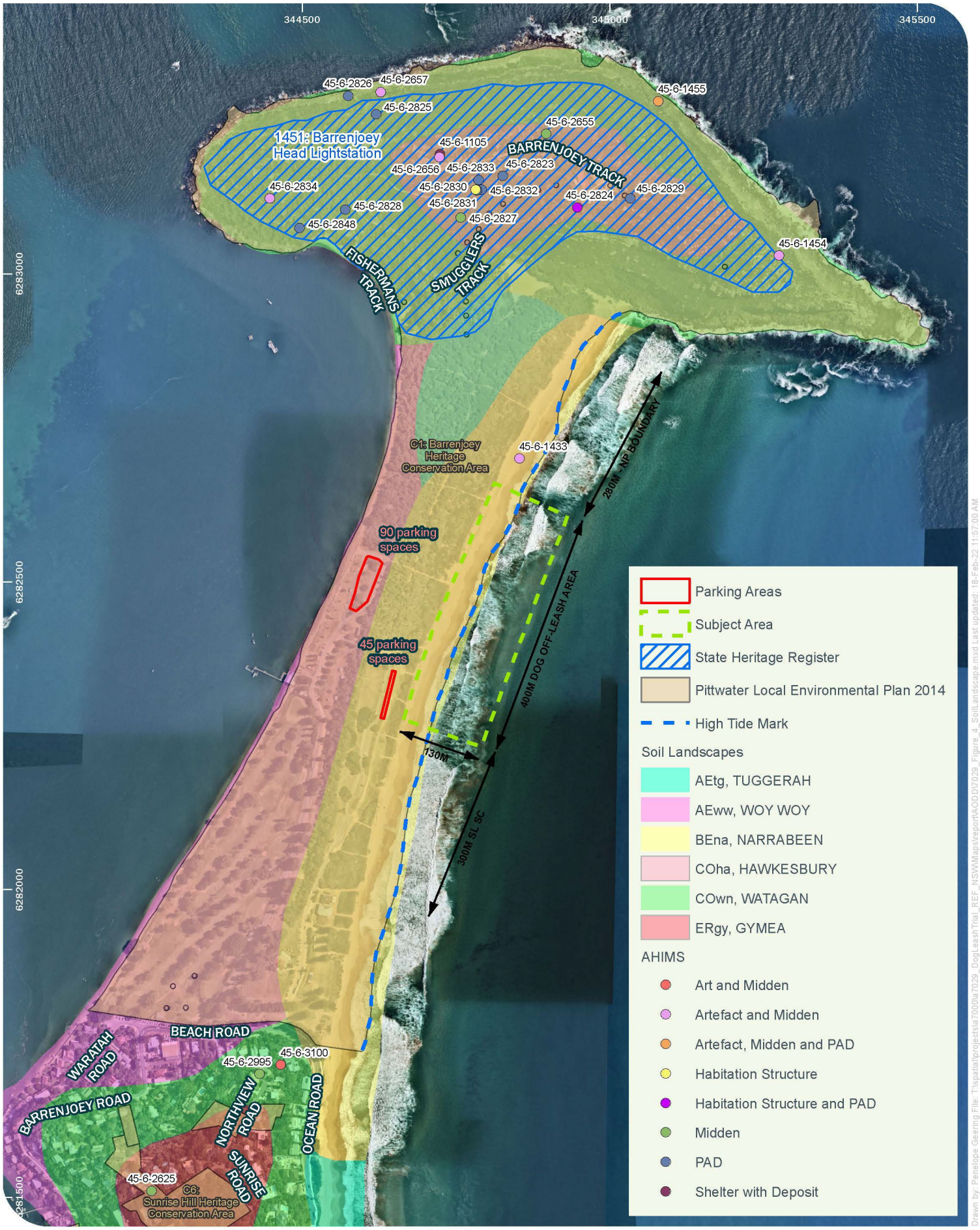
GDA 1994 MGA Zone 56

Location of AHIMS Sites and Heritage Items

Northern Beaches Dog Off-leash Trial

Niche PM: Justin Merdith
Niche Proj. #: 7029
Client: Northern Beaches Council

Figure 3



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GDA 1994 MGA Zone 56

Soil landscapes and hydrology in the local area

Northern Beaches Dog Off-leash Trial

Niche PM: Justin Merdith
Niche Proj. #: 7029
Client: Northern Beaches Council

Figure 4

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Site inspection results and the site extent of Palm Beach Sand Dunes (45-6-1433)
Northern Beaches Dog Off-leash Trial

Niche PM: Justin Merdith
Niche Proj. #: 7029
Client: Northern Beaches Council

Figure 5

3 Aboriginal Objects Due Diligence Assessment

Is the proposed activity a low impact activity as defined by the Regulation?

No.

The activity is not considered a low impact activity as defined under Part 5 Division 2 section 58 of the National Parks and Wildlife Regulation 2019 ('the Regulation') because:

- It involves earthworks associated with the installation/construction of signage within the Subject Area.

Step 1 – Will the activity disturb the ground surface or any culturally modified trees?

Yes.

The proposed activity will involve erecting signage to identify the area in which dogs can be walked off-leash. If signage is placed on existing infrastructure such as fences and existing posts then this harm can be avoided. If new posts are erected for the purpose of signage, then this will disturb the ground surface.

No midden deposits could be identified during the site inspection within the Subject Area, nor in adjoining areas that were surveyed (see Step 4 for further details).

Within the Subject Area there are no culturally modified trees.

Step 2a – Are there any relevant confirmed site records or other associated landscape feature information on AHIMS (or other heritage registers)?

No. There are no confirmed AHIMS site records which occur within the Subject Area.

Heritage Registers

AHIMS

An extensive search of the Aboriginal Heritage Information Management System (AHIMS) was conducted on 9 December 2021 (AHIMS Client Service ID #646340) for the following area at Lat, long from: -33.605, 151.31 - Lat, Long To: -33.5s74, 151.34 centred on the Subject Area. See Appendix B for details of the search and Aboriginal cultural heritage sites within the search area.

In total, 28 Aboriginal cultural heritage sites are located within the AHIMS search area, but none are located within the Subject Area (Figure 3). No Aboriginal Places were identified within the AHIMS search area.

The closest Aboriginal cultural heritage site to the Subjects Area is Palm Beach Sand Dunes (AHIMS ID# 45-6-1433), which is identified as a midden and comprises 11 unique locations or occurrences. The nearest midden occurrence is number 5 which is situated approximately 130 m north-west of the Subject Area. This site is described in further details below and in Table 3. This Aboriginal cultural heritage site will not be impacted by the proposed activities.

Within the wider search area, Potential Archaeological Deposit (PAD) (n = 9) were the most common Aboriginal site feature documented on the AHIMS register (Table 1). The next most common was Artefact and Midden (n=6), Midden (n=4) and Art (Pigment or Engraving) (n=2) sites. The remainder of the site types were represented by only single examples. It must be noted however, that care should be taken when using the AHIMS database to reach conclusions about site prevalence or distribution. The distribution of

registered sites does not reflect patterns of occupation, but rather is often indicative of survey coverage and conditions.

Table 1: Summary of AHIMS site features within the AHIMS Search Area

Site features	Total
Art (Pigment or Engraved)	2
Art and Midden	1
Artefact and Midden	6
Artefact, Burial and Midden	1
Artefact, Midden and PAD	1
Burial	1
Habitation Structure	1
Habitation Structure and PAD	1
Midden	4
PAD	9
Shelter with Deposit	1
Total	**28**

A search was conducted of the Department of Planning, Industry and Environment (DPIE) Aboriginal Heritage Impact Permit public register on 17 February 2022, covering the 2010-2022 period. It was determined that no AHIPs have been registered over the current Subject Area or immediate surrounds.

Palm Beach Sand Dunes (AHIMS ID# 45-6-1433)

A total of 11 midden occurrences were identified as part of this site. The locations of these 11 occurrences are depicted in Figure 5. They include:

1. A thin midden scatter on the Pittwater slope of the barrier dune system extending approximately 3 x 1.5 m. The midden was situated adjacent to (and possibly obscured by) a bulldozed ridge of sand overburden. Bone fragments were also present.

2. A thin midden scatter on the Pittwater slope of the barrier dune system adjacent to a bulldozed ridge of sand overburden. The midden extended approximately 3 x 1.5 m. A quartz flake was also present.

3. A thin midden scatter on the Pittwater slope of the barrier dune system adjacent to a bulldozed ridge of sand overburden. The midden extended approximately 2 x 1.5 m. Bone, 2 quartz flakes and a grey chert flaked piece were also present.

4. A small, high-density midden deposit forming a slight mount (approximately 5 cm in depth) above a surrounding dune. The midden appeared to have been exposed by local erosion and was situated on a relatively level section of the barrier on the Pittwater side. The midden extended more than 2 x 2 m. Bone fragments, a quartz flake, a green chert flake, a quartz flaked piece and 2 quartz pebbles were also identified.

5. A thin midden deposit towards the middle of the barrier system situated at the base of an east-west swale. The shell was thinly scattered but was found to be more concentrated in an area

extending 2 x 6 m. The midden didn't appear to be located in its original context and Byrne (1984) suggested that it may have been dispersed horizontally as the swale was forming. Three green chert flakes were also present.

6. A discreet, medium- density midden situated in a shallow shale on the top of the Pittwater side of the barrier system. The deposit appears to have been dispersed in a similar manner to occurrence 5. The midden extended approximately 5 x 15 m. A single quartz flake, 4 chert flakes and 2 silcrete flakes were also present.

7. A medium-density midden deposit with two discreet patches extending 5 x 3 m and 3 x 3 m situated 3 m apart. The occurrence was located at the base of a slight east-west swale and was surrounded by a thin scatter of shells. The deposit appears to have also been dispersed. Bone, three silcrete flakes, 2 chert flakes and four additional flakes from a conglomerate stone material were also identified.

8. A thin midden scatter with recent shell fragments also present. The occurrence appears to have been dispersed due to dune erosion and movement and extended more than 2 x 2 m. A flaked chert piece and bone fragment were present.

9. A small, high-density midden that appeared to extend to a significant depth. The midden was located on an east-west swale near the Pittwater slope of the barrier system. The occurrence was predicted to extent approximately 3 x 6 m. A flaked piece of black chert and bone fragments were present.

10. Very thin scatter of shell in an area east of occurrence 9.

11. Very thin scatter of shell in an east-west swale near the ocean side of the barrier.

Other heritage registers

Searches of the Australian World Heritage Database, the Commonwealth Heritage List, National Heritage List, State Heritage Register, Heritage NSW Library, the Pittwater Local Environment Plan (LEP) (2014) and the Pittwater 21 Development Control Plan (DCP) were conducted on 17 and 18 February 2022.

The Barrenjoey Heritage Conservation Area (C1), which is a locally listed heritage item on the Pittwater LEP (2014) was the only listing which fell within the Subject Area (Figure 3). The Barrenjoey Headland is the location of the Barrenjoey Head Lightstation (SHR #00979) that has been recognised as having state heritage significance. This item is associated with several local items also located on the Barrenjoey Headland and outside of the Subject Area. These items have views towards the Subject Area. Towards the south of Governor Phillip Park, which is adjacent to the Subject Area, there are four picnic shelters recognised as having local heritage significance.

The Barrenjoey Heritage Conservation Area consists of the headland, and the majority of the peninsula, corresponding with Governor Phillip Park. While the beaches are not considered part of this heritage curtilage, other aspects of the Subject Area are within this heritage conservation area.

The local heritage items listed in Table 2 are within the former Pittwater Local Government Area (LGA) which now forms part of the Northern Beaches Council. As the LEPs for the merged council have not yet been updated, the local heritage items and the conservation areas listed on the *Pittwater LEP 2014* remain in force. The Development Control Plan (DCP) that applies to the Subject Area is the Pittwater 21 DCP. This

document does not mention this conservation area and therefore has no direction for management controls.

There is a Conservation Management Plan (CMP) in force for the Barrenjoey Headland (NPWS 2012) which covers an area outside of but in proximity to the Subject Area. This document is focused on the state and local heritage listed sites on the headland but also includes the old customs house precinct, numerous tracks, cottages and other elements identified in and its management practises. Plate 18 depicts those heritage sites in red and archaeologically sensitive areas in blue.

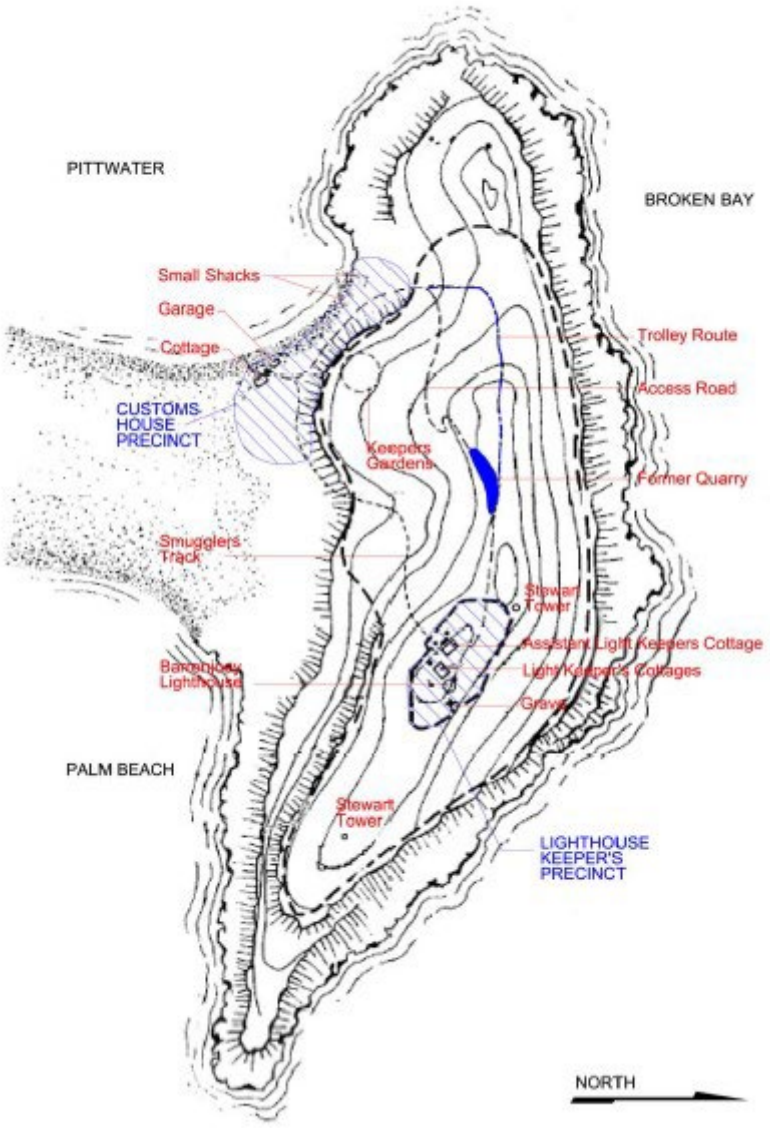

Plate 18: Study area for the Barrenjoey Headland Conservation Management Plan, prepared by NPWS, 2012, page 5. Heritage sites are identified in red and archaeologically sensitive areas are depicted in blue.

Several state and local heritage listings were identified within proximity to the Subject Area and are outlined in Table 2 below.

Other than the completion of searches of the historical heritage registers undertaken as part of this review, an assessment of Historical heritage constraints is beyond the scope of this DD.

Table 2: Results of the background searches of heritage registers showing listings in vicinity to the Subject Area

Item Name	Item Listing Type	Level of Significance	Item number	Relationship to Subject Area
Barrenjoey Heritage Conservation Area	Pittwater LEP 2014	Local	LEP: C1	The Subject Area is located on beaches within this item.
Barrenjoey Head Lightstation	State Heritage Register (also located on the NPWS s.170 heritage asset register)	State	SHR: 00979	The Subject Area is within 300 m but not inside this item's curtilage.
Barrenjoey Lighthouse and Two Cottages	Pittwater LEP 2014	State	LEP: 2270104	The Subject Area is within 600 m but not inside these items' curtilage. Item located within Lots 1-4, DP 849249.
Memorial Cairn (Near Lighthouse)	Pittwater LEP 2014	Local	LEP: 2270093	The Subject Area is within 600 m but not inside these items' curtilage. Item located within Lot 1, DP 849249.
Grave	Pittwater LEP 2014	Local	LEP: 2270095	The Subject Area is within 600 m but not inside these items' curtilage. The listing is identified as an Archaeological Site in the Pittwater LEP (2014). Item located within Lot 5, DP 849249
Memorial Cairn	Pittwater LEP 2014	Local	LEP: 2270450	The Subject Area is within 600 m but not inside these items' curtilage. Item located within Lot 2, DP 540435
Site of Former Customs House	Pittwater LEP 2014	Local	LEP: 2270102	The Subject Area is within 400 m but not inside these items' curtilage. The listing is identified as an Archaeological Site in the Pittwater LEP (2014).

Item Name	Item Listing Type	Level of Significance	Item number	Relationship to Subject Area
				Item located within Lot 5, DP 849249
Stone Path x13 (former access road)	Pittwater LEP 2014	Local	LEP: 2270127	The Subject Area is within 400 m but not inside these items' curtilage. The listing is identified as an Archaeological Site in the Pittwater LEP (2014). Item located within Lot 5, DP 849249.
Picnic Shelter Sheds x4	Pittwater LEP 2014	Local	LEP: 2270097	The Subject Area is within 600 m but not inside these items' curtilage. Item located within Lot 7006, DP 1117454
Palm Beach Wharf	Pittwater LEP 2014	Local	LEP: 2270496	The Subject Area is approximately 1 km within but not inside these items' curtilage. The listing is identified as an Archaeological Site in the Pittwater LEP (2014). Item located within Lot 1 DP 1114133 and Lot 7304 DP 1126564
Sandy Beach Jetty	Pittwater LEP 2014	Local	LEP: 2270344	The Subject Area is approximately 2 km within but not inside these items' curtilage. The listing is identified as an Archaeological Site in the Pittwater LEP (2014). Item located within Lot 7010 DP 93683

Step 2b – Are there any other sources of information of which a person is already aware?

Yes.

A number of previous archaeological assessments have been undertaken within the Subject Area and are documented in Table 3.

Table 3: Previous heritage assessments within proximity of the Subject Area

Author	Year	Title	Relevance to Subject Area
Byrne, D.	1984	**Aboriginal sites on the Palm Beach Barrier: an archaeological survey of the northern section of the Palm Beach Sand Barrier**	The report investigated a number of middens occurring within the northern portion of the Palm Beach Barrier system. For the purposes of the survey, Byrne confined himself to areas that were undisturbed by bulldozers connected to the Council's dune stabilisation program that was taking place at the time. Eleven occurrences were identified and these areas were consolidated into a single registered site known as Palm Beach Sand Dunes (AHIMS ID# 45-6-1433). During the survey, Byrne identified that dispersed shell fragments could be found throughout the study area and were likely dispersed by erosion. Only those clusters containing more than 20 shells were identified as a midden occurrence. In order to identify the relative concentration of shell species in the assemblage, Byrne documented species frequency represented over a maximum area of 2 x 2 m. Byrne identified that Anadara Trapezia was the most frequent species represented across all but one occurrence. Shellfish obtained from rock platforms were also well represented. Based on the relative frequency of estuarine and rock platform species, Byrne suggested that both environments appeared to be exploited. He suggested Pittwater Beach and the platforms on the east of Barrenjoey Headland were likely gathering areas. Bone was found to be poorly represented in the assemblage, however some specimens from bird and fish specifies were present. The relative preservation of hard shellfish fragments as compared to brittle bone fragments should be considered in this instance. No Aboriginal burials or human skeletal remains were encountered during the survey. Byrne emphasised the significance of the midden deposits due to their context situated on a barrier system with few other instances in the region surviving. In the period following the survey and prior to 26th July 1984, Byrne identified that one of the midden occurrences (no. 5) had been substantially disturbed by a bulldozer. The Council's project engineer informed Byrne that the bulldozer driver had acted against his instruction.
Corkhill, T.	1982	**Site Card for Palm Beach Beach Sand Dunes**	Five middens in the northern dunes at Palm Beach were documented by Tessa Corkhill, a prehistory student at the University of Sydney. The middens were identified as occurring in discrete areas ranging in size from about 6 x 10 m to the largest midden that extended approximately 40 x 40 m. Amongst the assemblage, cockle shell appeared to have been the most common. Some stone artefacts were also identified in the middens including those produced from silcrete, white chert and some sandstone which was suggested to have displayed grinding marks. Corkhill suggested that one midden displayed evidence of contact, with a possible ceramic pipe fragment (with lettering 'OFGLASGOLS' and 'BURNS C') and a metal button (with lettering 'NE PLUS ULTRA') present. In her site card recording, Corkhill identifies that Eugene Stockton and Judy Birmingham were presently investigating the possible contact site. It is unclear which of the

			midden occurrences had been identified, however it was noted for being approximately 350 m north of the carpark. These middens are identified by Byrne (1984) as highly likely to coincide with the midden occurrences that he documented.
Dillon, S.	1983	**Site Card for Palm Beach Beach Sand Dunes** *(Referred to as Barrenjoey Beach)*	Four middens recorded by Steve Dillon, a ranger for the Ku-ring gai Chase National Park. These middens are identified by Byrne (1984) as likely to coincide with the midden occurrences that he documented though due to the limited locational detail provided by Dillon this is not entirely clear. The four middens (from the southernmost to the northernmost) were described as below: Midden extending 3 m x 1.5 m x 0.25 m on a large shallow swale. Shell is in highly dense quantities comprising 80% shell and 20% sand. Anadara trapezia comprised 100% of the visible species. The site had not been scattered or weathered and was relatively intact at the time of recording. Severely weathered and scattered midden extending approximately 3 m2 with concentrations of 10-20% of shell. Described in the same manner as midden 2. Midden in swale approximately 3 – 4 m deep on a steep western bank of dune ridge. The midden extended approximately over an area of 2 m2 and was suggested to extend 20-30 cm deep. The site had not been scattered or weathered and was relatively intact at the time of recording.
Johnston, F.	1985	**Submission to the Heritage Council of New South Wales: The Barrenjoey Headland and its Isthmus, Governor Phillip Park, Palm Beach, N.S.W.**	Johnston detailed the historical and Aboriginal heritage of the isthmus and called for the area to be offered heritage protection. The submission included some background on the historical setting of the peninsula from the earliest contact between Governor Phillip and local aboriginal groups. In March 1788, the Governor came into contact with a local group at Pittwater and was offered shelter. He camped the night at Palm Beach and further exploration of the area occurred until his return to Port Jackson on 9 March 1788. The submission identified the impact that dune stabilisation efforts were having on the delicate environment at North Palm Beach. Numerous excerpts from newspaper articles were present where Johnston discusses the public outcry and calls on the Council to prevent any further disturbance of the middens.

Step 2c - Are there landscape features that are likely to indicate the presence of Aboriginal Objects?

Yes

Based on the findings of the desktop assessment above (Section 2, Steps 2a and 2b) and the observations made during a site inspection (Step 4), the Subject Area contains the following landscape features that are likely to indicate the presence of Aboriginal objects, as identified by the *Due Diligence Code of Practice*:

- Within 200 m of waters (the Pacific Ocean and Pittwater) (Figure 4)
- Located within a sand dune system
- Located within 200 m below or above a cliff face

Various sources of disturbance, however, are evident throughout the Subject Area including natural processes as well as significant interventions to stabilise the dunes. The Subject Area has been highly altered due to dune stabilisation work and is therefore unlikely to retain intact subsurface deposits.

Step 3 - Can the harm or the activity be avoided?

Yes.

The signage proposed to be installed within the Subject Area will involve both the use of existing poles as well as a new post. The new post will be installed in an area of existing extensive disturbance relating to past dune-stabilisation work that has occurred in this area which has been assessed as being unlikely to retain intact subsurface deposits.

Based on the proposed works, the impact of the dog-leash trial on the Subject Area can be contained by placing signage in areas of existing disturbance, including near the access tracks. During the site inspection, no evidence of midden deposits was located within or in proximity to the beach access tracks which provides access to the dog-leash area. The results of the site inspection confirmed that the nearby Midden site 'Palm Beach Sand Dunes' (AHIMS ID# 45-6-1433) does not extend into the current Subject Area and will therefore not be affected by the proposed activity (see Step 4 for further details).

Step 4 - Does a desktop assessment and visual inspection confirm that there are Aboriginal Objects or that they are likely?

No.

The desktop assessment suggested that there may be areas of archaeological potential within the Subject Area due to the existence of a sensitive landform and the existence of a previously recorded Aboriginal cultural heritage site 'Palm Beach Sand Dunes' (AHIMS ID# 45-6-1433) located approximately 130 m north-west of the Subject Area. A site inspection was thus warranted.

A site inspection was conducted by Niche heritage consultant, Chelsea Freeman, on 22 February 2021. In addition to the Subject Area, an area within the vegetated areas further to the north-west near AHIMS site Palm Beach Sand Dunes (ID# 45-6-1433) was visited however due to poor ground surface visibility the site could not be relocated nor an assessment of its condition determined. The 11 midden occurrences identified as comprising this site occur north-west of the Subject Area, with the closest recorded occurrence situated 130 m from the north-western extremity of the Subject Area.

Survey coverage across the Subject Area is depicted in Figure 5.

Ground surface visibility (GSV) was high (100%) on the sandy beaches within the Subject Area. Adjoining areas within the vegetated areas of scrub north and west of the Subject Area in the northern dune system had low GSV (0-10%). Areas of exposure included walking tracks, areas at the base of trees and in areas of dune / track erosion. No mature trees are present within this dune system due to the recentness of their planting.

Throughout the Subject Area, disturbance was evident as a result of heavy storms the previous night. Further, the level of exposure of the beach to heavy swell and wind was noted. The revegetation efforts undertaken in the northern dunes area north of the Subject Area has reduced visibility to 0% beyond the established tracks.

Central portion of the Subject Area (Waypoint 689)

Within the central portion of the Subject Area leading from the beach access track eastwards towards the Pacific Ocean only recently deposited shell fragments were evident on the ground surface (Plate 19). No evidence of a midden deposit could be identified.

Southern portion of the Subject Area (Waypoint 690)

Within the southern boundary of the Subject Area leading from the beach access track eastwards towards the Pacific Ocean only recently deposited shell fragments were evident on the ground surface of the sand (Plate 20 to Plate 21). No evidence of a midden deposit could be identified on the surface.

Northern portion of the Subject Area (Waypoint 691)

Within the northern portion of the Subject Area leading from a northerly beach access track eastwards towards the Pacific Ocean only recently deposited shells, cuttlefish bones, seaweed, wood and refuse could be identified (Plate 23 to Plate 26). A heavy storm the previous night may have affected this area.

North of the Subject Area (Waypoint 692)

This area situated to the north of the Subject Area and identified in AHIMS as the location of Palm Beach Sand Dunes (AHIMS ID# 45-6-1433) was found to be highly wind swept. Seaweed and wood were present on the surface (Plate 27 to Plate 29). Some shell fragments were also identified on the surface however these appear to have a natural origin and may have been deposited on the surface during significant tidal events. This can be identified in the sharp boundary that separates this deposit from further upslope.

Further north of the Subject Area (Waypoint 693)

This area is situated further north of Waypoint 692 and outside of the Subject Area. No shell fragments were visible on the surface (Plate 30 to Plate 32).

Beach access tracks adjoining the Subject Area running east-west (Waypoint 694)

The beach access tracks appear to be well used. The scrub situated on either side of the access tracks is dense and GSV was 0% (Plate 33).

Main beach access track adjoining the Subject Area running north-east to Barrenjoey Head (Waypoint 695)

The main beach access track has an exposed ground surface however 0% GSV is present between this exposure and the sandy beach due to dense vegetation. The scrub situated on either side of the access tracks is dense and GSV is 0% (Plate 34 to Plate 35).

Beach access track situated in the north-west portion of the Subject Area (Waypoint 696)

Erosion of the sand dune towards the east was observed (Plate 36). No shell fragments were identified in this area of disturbance.

Summary of results

Overall, based on the desktop assessment above, the results of the visual site inspection and the disturbance identified, the Subject Area is unlikely to contain any sub-surface deposits.

The visual inspection identified no heritage constraints within the Subject Area. Only recently deposited shell fragments were visible within the beach and visible portions of the dune system. In the area of

vegetation situated north of the Subject Area (within the revegetated dunes of the Governor Phillip Park) the midden deposits previously identified in 1984 and registered as site Palm Beach Sand Dunes (AHIMS ID# 45-6-1433) were not inspected. The archaeological potential of this site is low due to the high degree of disturbance associated with the dune stabilisation program implemented in 1984, however some remains may be still occur.

Plate 19: Palm beach with Subject Area in foreground. Photo taken at WP 689 facing east. GSV is 100%, and the low slope of the dune area can be observed.

Plate 20: Southern boundary of Study Area taken at WP 690 facing south. GSV is 100% and the absence of dune vegetation can be observed. Recent shell deposits present on ground surface.

Plate 21: Southern boundary of Study Area taken at WP 690 facing west towards Governor Philip Park. The area surrounding the beach access track is thickly vegetated and no midden deposits were identified.

Plate 22: Southern boundary of Study Area taken at WP 690 facing north towards Barrenjoey Lighthouse. Showing the gentle hill slope connecting Governor Phillip Park to the Pacific Ocean.

Plate 23: Northern portion of Study Area at WP 691 facing east. Recent shell deposits, cuttle fish bones, seaweed, wood and modern refuse present on the surface.

Plate 24: Northern portion of Study Area at WP 691 facing south. Vehicle tracks likely connected to beach surveillance by Palm Beach Surf Lifesaving Club were present.

Plate 25: Northern portion of Study Area at WP 691 facing south. Scattered shell fragments present on surface.

Plate 26: Northern portion of Study Area at WP 691 facing north towards Barrenjoey Lighthouse. Scattered shell fragments present on surface.

Plate 27: Small shell fragments present at WP 692 (outside of the Subject Area)

Plate 28: Small shell fragments present at WP 692 (outside of the Subject Area), facing west.

Plate 29: Scattered shell fragments identified at WP 692 (outside of the Subject Area), facing west.

Plate 30: Sandy dunes with some grasses present at WP 693 (outside of the Subject Area), facing south. No shell fragments were identified in this area.

Plate 31: Sandy dunes with some grasses present at WP 693 (outside of the Subject Area), facing south. No shell fragments were identified in this area.

Plate 32: Sandy dunes with some grasses present at WP 693 (outside of the Subject Area), facing west. No shell fragments were identified in this area.

Plate 33: Surface of beach access track at WP 694 showing the extent of foot traffic through the area, facing south.

Plate 34: Revegetated area within Governor Phillip Park showing the level of GSV (0%) in areas adjoining the access tracks. This photograph was taken at WP 695 in the centre of the main access track leading to Barrenjoey Lighthouse, facing east.

Plate 35: Thick dune vegetation occurring in areas adjoining the beach access tracks. Photo taken at WP 695 facing north-west.

Plate 36: Thick dune vegetation occurring in areas adjoining the beach access tracks. Photo taken at WP 697 facing north.

Plate 37: Thick dune vegetation occurring in areas adjoining the beach access tracks. Photo taken at WP 694 facing south.

Plate 38: Eroded section of the dune at WP 696 on the north-west boundary of the Subject Area, facing north-west.

Step 5 - Further investigations and impact assessment

No.

The results of a site inspection confirmed that the nearby Midden site 'Palm Beach Sand Dunes' (AHIMS ID# 45-6-1433) does not extend into the current Subject Area and will therefore not be affected by the proposed activity.

Based on the desktop and visual inspection, the proposed activity will not harm the nearby site Palm Beach Sand Dunes (AHIMS ID# 45-6-1433), nor any areas likely to contain Aboriginal archaeological deposits. The proposed works will result in minimal ground disturbance within areas of existing ground disturbance assessed as being of low archaeological potential.

Should earthworks be undertaken outside the Subject Area footprint assessed in this document, further impact assessment should be undertaken prior to work in those areas. Any future interventions that might entail earthworks within the archaeologically sensitive landforms identified in this assessment, but located outside of the current Subject Area, has the potential to impact Aboriginal objects and as such, further assessment, consultation and investigation of the Aboriginal heritage constraints would be required prior to any development works in accordance with the *National Parks and Wildlife Act 1974* and *National Parks and Wildlife Regulation 2019*.

4 Conclusions and Recommendations

Niche was commissioned by Northern Beaches Council to undertake an Aboriginal Objects Due Diligence Assessment (DD) to assess heritage constraints for a proposed off-leash dog area trial at North Palm Beach in Palm Beach, New South Wales.

Based on this Aboriginal Objects Due Diligence Assessment (DD), it has been determined that there is a low potential that Aboriginal objects have survived within the Subject Area.

An extensive search of the Aboriginal Heritage Information Management System (AHIMS) identified that no Aboriginal cultural heritage sites are recorded to be located within the Subject Area. The nearest Aboriginal cultural heritage site to the Subject Area is 'Palm Beach Sand Dunes' (AHIMS ID# 45-6-1433) situated approximately 130 m north-west of the Subject Area.

The results of a site inspection confirmed that the nearby Midden site 'Palm Beach Sand Dunes' (AHIMS ID# 45-6-1433) does not extend into the current Subject Area and will therefore not be affected by the proposed activity. Furthermore, the Subject Area has been heavily impacted by modification to the ground surface relating to past dune stabilisation works, revegetation programs, public recreational use of the area and ongoing natural erosion and modification of the beach and dune systems. The ground surface and subsurface has been disrupted to such an extent that the possibility of in-situ deposits is low. No Additional Aboriginal cultural heritage constraints were identified.

Where the below recommendations and measures are implemented, the proposed activity will avoid known Aboriginal objects and areas where Aboriginal objects are likely and the proposed activity may therefore proceed with caution without a further Aboriginal Cultural Heritage Assessment (ACHA) or Aboriginal Heritage Impact Permit (AHIP). It is recommended that:

- Should earthworks be undertaken outside the Subject Area footprint assessed in this document, further impact assessment should be undertaken prior to work in those areas.
- All workers should be inducted into the Subject Area, so they are made aware of their obligations under the *National Parks and Wildlife Act 1974.*
- Works associated with the proposed installation of signage identifying the dog off-leash area can proceed with caution within the Subject Area as assessed in this DD. Where possible, existing poles should be utilised for the new signage. Where this is not possible, signage should be placed in an area of existing ground disturbance within the Subject Area. During the installation of the signposts, access to the area/s should be restricted to the use of existing access tracks.
- In the event that previously unknown Aboriginal object(s) and/or sites are discovered during the proposed activity, work must stop, and an appropriately qualified archaeologist be contacted to access the nature, extent and significance of the identified sites.
- In the unlikely event that human remains are discovered, all activities must stop, the affected area must be cordoned-off and NSW Police and the Heritage NSW (formerly the Department of Planning, Industry and Environment [DPIE] which replaced the Office of Environment and Heritage [OEH]) Environment Line must be contacted on 13 15 55 or (02) 9995 5555.

5 References

Byrne, D. 1984. Aboriginal Sites on the Palm Beach Barrier: an archaeological survey of the northern section of the Palm Beach Sand Barrier. Unpublished report to Warringah Shire Council.

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Appendix A – Project Concept Plan


KU-RING-GAI CHASE NATIONAL PARK BOUNDARY
280M FROM NATIONAL PARK BOUNDARY
130M
STATION BEACH
400M DOG OFF-LEASH AREA
130M
300M FROM SLSC
PALM BEACH NORTH
PALM BEACH GOLF COURSE
SLSC
GOVERNOR PHILLIP PARK
Key
dog off-leash area
line of high tide
reserve boundaries
indicative location of swim flags
Signage
dogs off-leash
dogs on-leash
dogs prohibited
northern beaches council
PALM BEACH (NORTH) DOG OFF-LEASH AREA PROPOSAL
Concept Plan
21 April 2021
0 10 30 100m
1:4000 @ A3

Appendix B – AHIMS Extensive Search

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 7029 AHIMS Palm Beach

Client Service ID : 646340

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-6-1105	Barrenjoey/Barrenjoey Cave/Barrenjoey 2	AGD	56	344619	6283005	Closed site	Valid	Artefact : -, Shell : -	Shelter with Deposit	
	Contact	**Recorders**	ASRSYS,Doctor.Susan (left ahms) Mcintyre-Tamwoy					**Permits**		
45-6-2823	Barrenjoey PAD5	AGD	56	344721	6282970	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		
	Contact S Scanlon	**Recorders**	Doctor.Susan (left ahms) Mcintyre-Tamwoy					**Permits**		
45-6-2829	Barrenjoey PAD11	AGD	56	344928	6282933	Open site	Not a Site	Potential Archaeological Deposit (PAD) : 1		
	Contact	**Recorders**	Doctor.Susan (left ahms) Mcintyre-Tamwoy					**Permits**	2657	
45-6-0164	Barrenjoey Road;Palm Beach;	AGD	56	343767	6281211	Open site	Valid	Shell : -, Artefact : -, Burial : -	Burial/s,Midden	
	Contact	**Recorders**	Alexandra Kelly					**Permits**		
45-6-2832	Barrenjoey PAD 3	AGD	56	344687	6282947	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Doctor.Susan (left ahms) Mcintyre-Tamwoy					**Permits**		
45-6-1454	Barrenjoey Head;	AGD	56	345170	6282840	Open site	Valid	Shell : -, Artefact : -	Midden	
	Contact	**Recorders**	ASRSYS					**Permits**		
45-6-3100	NORTHVIEW SHELTER 2 PITT 203	GDA	56	344465	6281715	Open site	Valid	Art (Pigment or Engraved) : 1, Shell : 1		
	Contact	**Recorders**	Mr.Phil Hunt,Aboriginal Heritage Office					**Permits**		
45-6-2824	Barranjoey PAD6	AGD	56	344842	6282918	Open site	Valid	Habitation Structure : 1, Potential Archaeological Deposit (PAD) : 1		
	Contact	**Recorders**	Doctor.Susan (left ahms) Mcintyre-Tamwoy					**Permits**		
45-6-2995	Northview Shelter 1 - PITT 009	GDA	56	344430	6281700	Closed site	Valid	Shell : -		
	Contact	**Recorders**	Aboriginal Heritage Office					**Permits**		
45-6-2825	Barrenjoey PAD7	AGD	56	344515	6283070	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		
	Contact	**Recorders**	Doctor.Susan (left ahms) Mcintyre-Tamwoy					**Permits**		
45-6-2656	Barrenjoey 3	AGD	56	344618	6283000	Closed site	Valid	Shell : -, Artefact : -		
	Contact	**Recorders**	Doctor.Susan (left ahms) Mcintyre-Tamwoy					**Permits**		
45-6-2831	Barrenjoey PAD 2	AGD	56	344679	6282946	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Doctor.Susan (left ahms) Mcintyre-Tamwoy					**Permits**		

Report generated by AHIMS Web Service on 09/12/2021 for Riley Finnerty for the following area at Lat, Long From : -33.605, 151.31 - Lat, Long To : -33.574, 151.34. Number of Aboriginal sites and Aboriginal objects found is 28

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 7029 AHIMS Palm Beach

Client Service ID : 646340

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-6-2833	Barrenjoey Pad 4	AGD	56	344682	6282963	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Susan (left ahms) Mcintyre-Tamwoy					Permits		
45-6-2623	Iluka Road Burial	AGD	56	343650	6280700	Open site	Valid	Burial : -	Burial/s	
	Contact	Recorders	Anthony English					Permits		
45-6-2994	Mckay Reserve Shelter 3 - PITT 007	GDA	56	344154	6280940	Closed site	Valid	Art (Pigment or Engraved) : 2		
	Contact	Recorders	Aboriginal Heritage Office					Permits		
45-6-2826	Barrenjoey PAD8	AGD	56	344470	6283100	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		
	Contact	Recorders	Doctor.Susan (left ahms) Mcintyre-Tamwoy					Permits		
45-6-2657	Barrenjoey 4	AGD	56	344523	6283106	Closed site	Valid	Artefact : -, Shell : -		
	Contact	Recorders	Doctor.Susan (left ahms) Mcintyre-Tamwoy					Permits		
45-6-2827	Barrenjoey 6	AGD	56	344653	6282902	Open site	Valid	Shell : 1		
	Contact	Recorders	Doctor.Susan (left ahms) Mcintyre-Tamwoy					Permits	2657	
45-6-2655	Barrenjoey 1	AGD	56	344792	6283038	Open site	Valid	Shell : -		
	Contact	Recorders	Doctor.Susan (left ahms) Mcintyre-Tamwoy					Permits	2657	
45-6-2834	barrenjoey 5	GDA	56	344447	6283123	Open site	Valid	Potential Archaeological Deposit (PAD) : -, Artefact : 1, Shell : -		
	Contact Searle	Recorders	Doctor.Susan (left ahms) Mcintyre-Tamwoy					Permits		
45-6-2848	Barrenjoey PAD9	GDA	56	344495	6283075	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact M Sharp	Recorders	Doctor.Susan (left ahms) Mcintyre-Tamwoy					Permits		
45-6-2828	Barrenjoey PAD10	AGD	56	344465	6282915	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		
	Contact	Recorders	Doctor.Susan (left ahms) Mcintyre-Tamwoy					Permits	2657	
45-6-1455	Barrenjoey Lighthouse;	AGD	56	344973	6283091	Open site	Valid	Shell : -, Artefact : -	Midden	
	Contact	Recorders	Alan Heath					Permits		
45-6-2625	Sunrise Rd/Palm Bch	AGD	56	344150	6281320	Closed site	Valid	Shell : 100		
	Contact Brad Welsh	Recorders	Brad Welsh					Permits		
45-6-0166	Palm Beach;Pacific Rd;	AGD	56	344393	6280618	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	Contact	Recorders	C.S Vale					Permits		

Report generated by AHIMS Web Service on 09/12/2021 for Riley Finnerty for the following area at Lat, Long From : -33.605, 151.31 - Lat, Long To : -33.574, 151.34. Number of Aboriginal sites and Aboriginal objects found is 28

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 7029 AHIMS Palm Beach

Client Service ID : 646340

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-6-2830	Barrebjoey PAD1	AGD	56	344677	6282947	Open site	Valid	Habitation Structure : 1		
	Contact	**Recorders**	Doctor.Susan (left ahms) Mcintyre-Tamwoy					**Permits**		
45-6-1433	Palm Beach Palm Beach Sand Dunes	AGD	56	344748	6282510	Open site	Valid	Shell : -, Artefact : -	Midden	772
	Contact	**Recorders**	ASRSYS					**Permits**		
45-6-1453	Cabbage Tree Boat Harbour;	AGD	56	344784	6280780	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	
	Contact	**Recorders**	ASRSYS					**Permits**		

**** Site Status**

Valid - The site has been recorded and accepted onto the system as valid

Destroyed - The site has been completely impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There is nothing left of the site on the ground but proponents should proceed with caution.

Partially Destroyed - The site has been only partially impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There might be parts or sections of the original site still present on the ground

Not a site - The site has been originally entered and accepted onto AHIMS as a valid site but after further investigations it was decided it is NOT an aboriginal site. Impact of this type of site does not require permit but Heritage NSW should be notified

Report generated by AHIMS Web Service on 09/12/2021 for Riley Finnerty for the following area at Lat, Long From : -33.605, 151.31 - Lat, Long To : -33.574, 151.34. Number of Aboriginal sites and Aboriginal objects found is 28

Annex 4 Fauna species list

Table 29. List of fauna species detected in or within 100 m of the Activity Area

Scientific name	Common name	BC Act	EPBC Act	Niche		Council	
				Mona Vale	Palm Beach	Mona Vale	Palm Beach
Birds							
*Acridotheres tristis**	Common Myna*	-	-	Y		Y	
Anthochaera carunculata	Red Wattlebird	-	-			Y	Y
Anthochaera chrysoptera	Little wattlebird	-	-	Y			Y
Cactua sp.	Corella					Y	
Chroicocephalus novaehollandiae	Silver Gull	-	-	Y	Y	Y	Y
Corvus coronoides	Australian Raven	-	-		Y		
Cracticus torquatus	Grey Butcherbird	-	-			Y	
Dacelo novaeguineae	Laughing Kookaburra	-	-				Y
Egretta novaehollandiae	White-faced Heron	-	-	Y		Y	
Eolophus roseicapilla	Galah	-	-			Y	
Grallina cyanoleuca	Magpie Lark	-	-	Y			
Gymnorhina tibicen	Australian Magpie	-	-		Y		Y
Hirundo neoxena	Welcome Swallow	-	-	Y		Y	Y
Hydroprogne caspia	Caspian Tern	-	MA,M(J)		Y		
Laridae sp. possibly Sternula sp.	Tern sp.	E^	V, MA,M(B,C,J,K)^	Y			
Malurus cyaneus	Superb Fairy-wren	-	-	Y	Y	Y	Y
Malurus lamberti	Variegated Fairy-wren	-	-				Y
Manorina melanocephala	Noisy Miner	-	-	Y	Y	Y	Y
Microcarbo melanoleucos	Little Pied Cormorant	-	-				Y
Ocyphaps lophotes	Crested Pigeon	-	-	Y			
Pandion cristatus	Eastern Osprey	V	(haliaetus) MA,M(B)			Y	

Scientific name	Common name	BC Act	EPBC Act	Niche		Council	
				Mona Vale	Palm Beach	Mona Vale	Palm Beach
Pelecanus conspicillatus	Australian Pelican	-	-	Y	Y		
Phalacrocorax sulcirostris	Little Black Cormorant	-	-	Y			
Phalacrocorax varius	Pied Cormorant	-	-		Y	Y	
*Pycnonotus jocosus**	Red-whiskered Bulbul*	-	-	Y		Y	
Rhipidura leucophrys	Willie Wagtail	-	-	Y		Y	
*Sturnus vulgaris**	Common Starling*	-	-	Y			
Threskiornis molucca	Australian White Ibis	-	-			Y	
Trichoglossus haematodus	Rainbow lorikeet	-	-	Y			Y
Zosterops lateralis	Silvereye	-	-				Y
Mammals							
Rattus sp.	Rat species	-	-		Y		
Reptiles							
Scincidae sp.	Skink species				Y		

Conservation status: V = Vulnerable, MA = Marine, M = Migratory
Migratory agreements: B = Convention on the Conservation of Migratory Species of Wild Animals Appendices I and II (Bonn Convention), C = China-Australia Migratory Bird Agreement (CAMBA), J = Japan-Australia Migratory Bird Agreement (JAMBA), K = Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA)

Annex 5 Likelihood of occurrence table

Table 30. Likelihood of occurrence at the Activity Areas

** V = Vulnerable, E = Endangered, CE = Critically Endangered, CD = Conservation Dependent, X = Extinct, MA = Marine, M = Migratory, EP = Endangered Population,* ***BOLD*** *= Migratory Shorebird, highlighted orange = moderate or higher likelihood*

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
Amphibians								
Heleioporus australiacus	Giant Burrowing Frog	BioNet, PMST	V	V	-	The Giant Burrowing Frog has been recorded breeding in a range of water bodies associated with more sandy environments of the coast and adjacent ranges from the Sydney Basin south to eastern Victoria. It breeds in hanging swamps, perennial non-flooding creeks and occasionally permanent pools, but permanent water must be present to allow its large tadpoles time to reach metamorphosis.	None: No suitable habitat present.	None: No suitable habitat present.
Litoria aurea	Green and Golden Bell Frog	BioNet, PMST	E	V	-	Inhabits a very wide range of water bodies including marshes, dams and streams, particularly those containing emergent vegetation such as bullrushes or spike rushes. It also inhabits numerous types of man-made water bodies including quarries and sand extraction sites. Optimum habitat includes water-bodies that are un-shaded, free of predatory fish such as Plague Minnow, have a grassy area nearby and diurnal sheltering sites available.	None: No suitable habitat present.	None: No suitable habitat present.
Mixophyes balbus	Stuttering Frog, Southern Barred Frog (in Victoria)	PMST	E	V	-	Associated with streams in dry sclerophyll and wet sclerophyll forests and rainforests of more upland areas of the Great Dividing Range of NSW and down into Victoria. Breeding occurs along forest streams with permanent water where eggs are deposited within nests excavated in riffle zones by the females and the tadpoles swim free into the stream when large enough to do so. Outside of breeding, individuals range widely across the forest floor and can be found hundreds of metres from water.	None: No suitable habitat present.	None: No suitable habitat present.
Mixophyes iteratus	Giant Barred Frog, Southern Barred Frog	BioNet, PMST	E	V	-	This species is found along larger streams of the coast and adjacent ranges of NSW and SE QLD. It inhabits rainforest and wet sclerophyll forest, but is also found within cleared farmland where fringing vegetation is retained, including Lantana beds. Many sites where the Giant Barred Frog is known to occur are the lower reaches of streams which have been affected by major disturbances such as	None: No suitable habitat present.	None: No suitable habitat present.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
						clearing, timber harvesting and urban development in their headwaters.		
Pseudophryne australis	Red-crowned Toadlet	BioNet	V	-	-	Occurs on wetter ridge tops and upper slopes of sandstone formations on which the predominant vegetation is dry open forests and heaths. This species typically breeds within small ephemeral creeks that feed into larger semi-perennial streams. After rain these creeks are characterised by a series of shallow pools lined by dense grasses, ferns and low shrubs and usually contain leaf litter for shelter. Eggs are terrestrial and laid under litter, vegetation or rocks where the tadpoles inside will reach a relatively late stage of development before waiting for flooding waters before hatching will occur.	None: No suitable habitat present.	None: No suitable habitat present.
Birds								
Actitis hypoleucos	**Common Sandpiper**	**PMST**	**-**	**MA, M**	**-**	**Utilises a wide range of coastal wetlands and some inland wetlands, mostly found around muddy margins or rocky shores. Forages in shallow water and on soft mud, roosts on rocks or vegetation such as mangroves. Northern hemisphere breeding.**	**Low: Limited suitable habitat present however not detected during targeted surveys.**	**Low: Limited suitable habitat present however not detected during targeted surveys.**
Anous stolidus	Common Noddy	BioNet, PMST	-	MA, M	-	Occurs mainly in ocean off the Queensland coast, but the species also occurs off the north-west and central Western Australia coast. Breeds on islands. During the non-breeding period, the species occurs in groups throughout the pelagic zone.	Low: This species is predominantly pelagic, coming ashore to breed. There are no records of breeding colonies or aggregations within the 100 m buffer.	Low: This species is predominantly pelagic, coming ashore to breed. There are no records of breeding colonies or aggregations within the 100 m buffer.
Anthochaera phrygia	Regent Honeyeater	BioNet, PMST	CE	CE	-	The Regent Honeyeater mainly inhabits temperate woodlands and open forests of the inland slopes of south-east Australia. Birds are also found in drier coastal woodlands and forests in some years. The distribution of the species has contracted dramatically in the last 30 years to between north-eastern Victoria and south-eastern Queensland. There are only three known key breeding regions remaining: north-east Victoria (Chiltern-Albury), and in NSW at Capertee Valley and the Bundarra-Barraba region. In NSW the distribution is very patchy and mainly confined to the two main breeding areas and surrounding fragmented woodlands. In some years flocks converge on flowering coastal woodlands and forests.	Low: Suitable woodland habitat is absent. If present would likely be a transient visitor.	Low: Suitable woodland habitat is absent. If present would likely be a transient visitor.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
Apus pacificus	Fork-tailed Swift	BioNet, PMST	-	MA, M	-	The Fork-tailed Swift is a non-breeding visitor to all states and territories of Australia. In NSW, the Fork-tailed Swift is recorded in all regions. The Fork-tailed Swift is almost exclusively aerial. They mostly occur over dry or open habitats, including riparian woodland and tea-tree swamps, low scrub, heathland or saltmarsh. They are also found at treeless grassland and sandplains covered with spinifex, open farmland and inland and coastal sand-dunes.	Low: No associated PCTs in Activity Area. Any occurrences are likely to be exclusively aerial.	Low: No associated PCTs in Activity Area. Any occurrences are likely to be exclusively aerial.
Ardenna carneipes	Flesh-footed Shearwater	BioNet, PMST	V	MA, M	-	Ranges throughout the Pacific and Indian Oceans. There are two main breeding areas in the world: one in the South West Pacific includes Lord Howe Island and New Zealand; the other along the coast of Western Australia.	Low – species is migratory and marine.	Low – species is migratory and marine.
Ardenna grisea	Sooty Shearwater	BioNet, PMST	-	MA, M	-	Forages in pelagic sub-tropical, sub-Antarctic and Antarctic waters. The species migrates and forages in the North Pacific and Atlantic Oceans during the non-breeding season. Sooty Shearwaters may forage inshore occasionally, especially during rough weather. Breeding pairs on many NSW offshore Islands.	Low – species is migratory and marine.	Low – species is migratory and marine.
Ardenna pacifica	Wedge-tailed Shearwater	BioNet, PMST	-	MA, M	-	This migratory marine species can nearly always be found over pelagic waters except when at colonies. It breeds on the east and west coasts of Australia, nesting in burrows on off-shore islands or atolls.	Low – species is migratory and marine.	Low – species is migratory and marine.
Ardenna tenuirostris	Short-tailed Shearwater	BioNet, PMST	-	MA, M	-	Migratory marine bird that breeds mainly on small coastal islands, typically in areas of grassland or other vegetation, but sometimes cliffs or bare ground. They breed in these areas around Bass Strait and Tasmania and migrate to the Northern Hemisphere for the boreal summer.	Low – species is migratory and marine.	Low – species is migratory and marine.
Artamus cyanopterus cyanopterus	Dusky Woodswallow	BioNet	V	-	-	Dusky woodswallows are widespread in eastern, southern and south western Australia. The species occurs throughout most of NSW, but is sparsely scattered in, or largely absent from, much of the upper western region. Most breeding activity occurs on the western slopes of the Great Dividing Range. Primarily inhabit dry, open eucalypt forests and woodlands, including mallee associations, with an open or sparse understorey of eucalypt saplings, acacias and other shrubs, and ground-cover of grasses or sedges and fallen woody debris.	Low: Suitable woodland habitat is absent. If present, would likely be a transient visitor.	Low: Suitable woodland habitat is absent. If present, would likely be a transient visitor.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
Botaurus poiciloptilus	Australasian Bittern	BioNet, PMST	E	E	-	The Australasian Bitterns is widespread but uncommon over south-eastern Australia. In NSW they may be found over most of the state except for the far north-west. Favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes and spike rushes.	Low: Suitable wetland habitat is absent. If present, would likely be a transient visitor.	Low: Suitable wetland habitat is absent. If present, would likely be a transient visitor.
Burhinus grallarius	Bush Stone-curlew	BioNet	E	-	-	The Bush Stone-curlew is found throughout Australia except for the central southern coast and inland, the far south-east corner, and Tasmania. Only in northern Australia is it still common. However, in the south-east it is either rare or extinct throughout its former range. Inhabits open forests and woodlands with a sparse grassy groundlayer and fallen timber. Largely nocturnal, being especially active on moonlit nights.	Low: Suitable woodland habitat is absent.	Low: Suitable woodland habitat is absent.
Calidris acuminata	**Sharp-tailed Sandpiper**	**BioNet, PMST**	**-**	**MA, M**	**-**	**Prefers muddy edges of shallow or brackish wetlands, with inundated or emergent sedges, saltmarsh or other low vegetation. Also found foraging in sewage ponds and flooded paddocks. Northern hemisphere breeding.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**
Calidris alba	**Sanderling**	**BioNet**	**V**	**MA, M**	**-**	**Often found in coastal areas on low beaches of firm sand, near reefs and inlets, along tidal mudflats and bare open coastal lagoons; individuals are rarely recorded in near-coastal wetlands. Individuals run behind receding waves, darting after insects, larvae and other small invertebrates in the sand, then dart back up the beach as each wave breaks. Roosts on bare sand, behind clumps of beach-cast kelp or in coastal dunes. Breeding occurs in the Northern Hemisphere.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**
Calidris canutus	**Red Knot, Knot**	**PMST**	**-**	**E, MA, M**	**-**	**The Red Knot is a non-breeding migratory visitor from Arctic regions of Siberia. In NSW it is recorded in small numbers replenishing fat stores along some of the major river estuaries and sheltered embayments of the coastline, in particular the Hunter River estuary, after which the birds proceed to Victoria by October.**	**Low: Suitable habitat is present in the Activity Area, however this species was not detected during targeted surveys.**	**Low: Suitable habitat is present in the Activity Area however, this species was not detected during targeted surveys.**
Calidris ferruginea	**Curlew Sandpiper**	**BioNet, PMST**	**E**	**CE, MA, M**	**-**	**The Curlew Sandpiper is distributed around most of the coastline of Australia. It occurs along the entire coast of NSW, particularly in the Hunter Estuary, and sometimes in freshwater wetlands in the Murray-Darling Basin. It generally occupies littoral and estuarine habitats, and in NSW is mainly found in intertidal mudflats of**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
						sheltered coasts. It also occurs in non-tidal swamps, lakes and lagoons on the coast and sometimes the inland		
Calidris melanotos	**Pectoral Sandpiper**	**PMST**	**-**	**MA, M**	**-**	**Prefers shallow fresh to saline wetlands, found at coastal lagoons, estuaries, bays, swamps, inundated grasslands, saltmarshes and artificial wetlands. Northern hemisphere breeding.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**
Calidris ruficollis	**Red-necked Stint**	**BioNet**	**-**	**-**	**-**	**In Australasia, the Red-necked Stint is mostly found in coastal areas, including in sheltered inlets, bays, lagoons and estuaries with intertidal mudflats, often near spits, islets and banks and, sometimes, on protected sandy or coralline shores. Occasionally they have been recorded on exposed or ocean beaches, and sometimes on stony or rocky shores, reefs or shoals. They also occur in saltworks and sewage farms, saltmarsh, ephemeral or permanent shallow wetlands near the coast or inland, including lagoons, lakes, swamps, riverbanks, waterholes, bore drains, dams, soaks and pools in saltflats. They sometimes use flooded paddocks or damp grasslands. They have occasionally been recorded on dry gibber plains, with little or no perennial vegetation. During the non-breeding season, over 80% (260 000) of the global population resides in Australia.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**
Calidris tenuirostris	**Great Knot**	**BioNet**	**V**	**CE, MA, M**	**-**	**Occurs within sheltered, coastal habitats containing large, intertidal mudflats or sandflats, including inlets, bays, harbours, estuaries and lagoons. Often recorded on sandy beaches with mudflats nearby, sandy spits and islets and sometimes on exposed reefs or rock platforms. Migrates to Australia from late August to early September, although juveniles may not arrive until October-November. Most birds return north in March and April, however some individuals may stay over winter in Australia. Forages for food by methodically thrusting its bill deep into the mud to search for invertebrates, such as bivalve molluscs, gastropods, polychaete worms and crustaceans.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**
Callocephalon fimbriatum	Gang-gang Cockatoo	BioNet	V	-	-	In summer, occupies tall montane forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. Also occur in subalpine snow gum woodland and occasionally in temperate or regenerating forest. In winter, occurs at lower altitudes in drier, more open eucalypt forests and woodlands,	Low: Suitable woodland habitat is absent.	Low: Suitable woodland habitat is absent.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
						particularly in box-ironbark assemblages, or in dry forest in coastal areas. It requires tree hollows in which to breed.		
Calonectris leucomelas	Streaked Shearwater	PMST	-	MA, M	-	This migratory marine bird can be found over both pelagic and inshore waters. It will follow fishing boats. Breeding begins in March in colonies on offshore islands, occupying burrows on forested hills. It undergoes transequatorial migration.	Low: Typically, an oceanic species and any occurrences are likely to be exclusively aerial.	Low: Typically, an oceanic species and any occurrences are likely to be exclusively aerial.
Calyptorhynchus lathami	Glossy Black-Cockatoo	BioNet	V	-	-	Inhabits forest with low nutrients, characteristically with key Allocasuarina spp. Tends to prefer drier forest types with a middle stratum of Allocasuarina below Eucalyptus or Angophora. Often confined to remnant patches in hills and gullies. Breed in hollows stumps or limbs, either living or dead. Endangered population in the Riverina.	Low: No suitable food trees or breeding habitat in Activity Area. If present, would likely be a transient visitor.	Low: No suitable food trees or breeding habitat in Activity Area. If present, would likely be a transient visitor.
Charadrius bicinctus	**Double-banded Plover**	**PMST**	**-**	**MA, M**	**-**	**In Australia, the Double-banded Plover is found mainly on the east coast and Tasmania and is a regular visitor to Norfolk and Lord Howe Islands. It has been recorded occasionally in Western Australia. It is widespread throughout New Zealand. The Double-banded Plover is found on coastal beaches, mudflats, sewage farms, river banks, fields, dunes, upland tussock grasses and shingle.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**
Charadrius leschenaultii	**Greater Sand Plover, Large Sand Plover**	**BioNet, PMST**	**V**	**V, MA, M**	**-**	**Occurs on sheltered sandy, shelly or muddy beaches with large intertidal mudflats or sandbanks, as well as sandy estuarine lagoons. Non-breeding in Australia.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**
Charadrius mongolus	**Lesser Sand-plover**	**BioNet**	**V**	**E, MA, M**	**-**	**The Lesser Sand-plover breeds in central and north eastern Asia, migrating further south for winter. Almost entirely coastal in NSW, favouring the beaches of sheltered bays, harbours and estuaries with large intertidal sandflats or mudflats; occasionally occurs on sandy beaches, coral reefs and rock platforms. Roosts during high tide on sandy beaches, spits and rocky shores; forage individually or in scattered flocks on wet ground at low tide, usually away from the water's edge. Diet includes insects, crustaceans, molluscs and marine worms.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**
Cuculus optatus	Oriental Cuckoo	BioNet, PMST	-	M	-	Mainly inhabits coniferous, deciduous and mixed forests. Breeds in northern hemisphere. Brood parasite, laying eggs in nests of other birds.	Low: Suitable forest habitat absent.	Low: Suitable forest habitat absent.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
Daphoenositta chrysoptera	Varied Sittella	BioNet	V	-	-	Inhabits wide variety of dry eucalypt forests and woodlands, usually with either shrubby under storey or grassy ground cover or both, in all climatic zones of Australia. Usually in areas with rough-barked trees, such as stringybarks or ironbarks, but also in paperbarks or mature Eucalypts with hollows.	Low: Suitable woodland habitat is absent. If present, would likely be a transient visitor.	Low: Suitable woodland habitat is absent. If present, would likely be a transient visitor.
Dasyornis brachypterus	Eastern Bristlebird	BioNet, PMST	E	E	-	The distribution of the Eastern Bristlebird has contracted to three disjunct areas of south-eastern Australia. There are three main populations: Northern - southern Queensland/northern NSW; Central - Barren Ground Nature Reserve, Budderoo Nature Reserve, Woronora Plateau, Jervis Bay National Park, Booderee National Park and Beecroft Peninsula; and Southern - Nadgee Nature Reserve and Croajingalong National Park in the vicinity of the NSW/Victorian border. The population closest to the Activity Areas is the Central population which has been recorded as far north as Woronora Plateau (approximately 47 km south of the Mona Vale (South) Activity Area). However, a BioNet record of this species Near Currawong Beach (approximately 2.7 km from the Palm Beach (North) Activity Area indicates that some individuals do occur in the locality. Habitat for central populations is characterised by dense, low vegetation including heath and open woodland with a heathy understorey. Nests are elliptical domes constructed on or near the ground amongst dense vegetation.	Moderate: Suitable foraging habitat present. No records within 10 km. Associated PCT 772 is present in the Activity Area. Associated PCT 771 occurs within 100 m of the Activity Area.	Moderate: Suitable foraging habitat present. Only one record within 10 km, no recent records (within past 5 years). Associated PCT 772 is present in the Activity Area. Associated PCT 771 occurs within 50 m of the Activity Area.
Diomedea antipodensis	Antipodean Albatross	PMST	-	V, MA, M	-	The species ranges across the southern Pacific Ocean, east to the coast of Chile and west to eastern Australia. Breeds biennially in colonies on ridges, slopes and plateaus of isolated subantarctic islands, usually in vegetation such as grass tussocks. This species regularly occurs in small numbers off the NSW south coast from Green Cape to Newcastle during winter where they feed on cuttlefish.	Low – this species feeds pelagically.	Low – this species feeds pelagically.
Diomedea antipodensis gibsoni	Gibson's Albatross	PMST	V	V, MA	-	Marine, pelagic and aerial, however breed in New Zealand. In Australian territory, this species has been recorded foraging between Coffs Harbour, NSW, and Wilson's Promontory, Victoria.	Low – this species feeds pelagically.	Low – this species feeds pelagically.
Diomedea epomophora	Southern Royal Albatross	PMST	-	V, MA, M	-	Marine and pelagic. It occurs in subantarctic, subtropical and occasionally Antarctic waters where the water surface temperature is 6 to 20°C. Nests on flat or gently sloping ground on slopes, ridges, gullies and plateaux of large islands, and on the summits of islets.	Low – this species feeds pelagically.	Low – this species feeds pelagically.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
Diomedea exulans	Wandering Albatross	BioNet, PMST	E	V, MA, M	-	The Wandering Albatross is marine, pelagic and aerial.	Low – this species feeds pelagically.	Low – this species feeds pelagically.
Diomedea gibsoni	Gibson's Albatross	BioNet	V	-	-	Has been recorded foraging between Coffs Harbour, NSW, and Wilson's Promontory, Victoria. Rarely observed in the Pacific Ocean or Indian Ocean. The only Australian record of this species is from a recapture off Wollongong, NSW. Breeds on Breeding Islands in New Zealand.	Low – this species feeds pelagically.	Low – this species feeds pelagically.
Diomedea sanfordi	Northern Royal Albatross	PMST	-	CE, MA, M	-	Migratory marine species that ranges widely over the Southern Ocean, with individuals seen in Australian waters off south-eastern Australia. Nesting on the flat summits of tiny islands with herb fields and grasses.	Low – this species feeds pelagically.	Low – this species feeds pelagically.
Esacus magnirostris	Beach Stone-curlew	BioNet	CE	-	-	In NSW, the species occurs regularly on the north coast to about the Manning River and known breeding pairs were previously restricted to the north coast. Recent records show a breeding pair from the Port Stephens area (Dowadee Island and Soldiers Point [mid-north coast]) and more recently the species has been recorded in Twofold Bay near Eden. These new records extend the known limit of the normal range of the species in Australia to the far south coast of NSW. Beach Stone-curlews are found exclusively along the coast, on a wide range of beaches, islands, reefs and in estuaries, and may often be seen at the edges of or near mangroves. They forage in the intertidal zone of beaches and estuaries, on islands, flats, banks and spits of sand, mud, gravel or rock, and among mangroves. Beach Stone-curlews breed above the littoral zone nesting in a shallow scrape in the sand or gravel at the backs of beaches, or on sandbanks and islands, among low vegetation of grass, scattered shrubs or low trees; also among open mangroves.	Low: While suitable common foraging habitat this species has not been recorded within the 10 km locality.	Moderate: Suitable common foraging habitat is present.
Falco hypoleucos	Grey Falcon	PMST	E	V	-	Usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast. Also occurs near wetlands where surface water attracts prey.	Low: Suitable watercourse and woodland habitat absent.	Low: Suitable watercourse and woodland habitat absent.
Fregata ariel	Lesser Frigatebird	BioNet, PMST	-	MA, M	-	Breeds on small, remote tropical and sub-tropical islands, in mangroves or bushes, and even on bare ground. It feeds mainly on	Low: Typically, an oceanic species and any occurrences	Low: Typically, an oceanic species and any occurrences

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
						fish (especially flying-fish) and squid, but also on seabird eggs and chicks, carrion and fish scraps.	are likely to be exclusively aerial.	are likely to be exclusively aerial.
Fregata minor	Great Frigatebird, Greater Frigatebird	PMST	-	MA, M	-	Found over open, tropical ocean waters and near offshore, oceanic nesting islands. Nesting colonies are known from offshore islands throughout the tropical Pacific.	Low: Typically, an oceanic species and any occurrences are likely to be exclusively aerial.	Low: Typically, an oceanic species and any occurrences are likely to be exclusively aerial.
Fregetta grallaria grallaria	White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian)	PMST	-	V	-	The White-bellied Storm-Petrel (Tasman Sea) breeds on small offshore islets and rocks in the Lord Howe Island group, including Roach Island and Balls Pyramid.	Low: Typically, an oceanic species and any occurrences are likely to be exclusively aerial.	Low: Typically, an oceanic species and any occurrences are likely to be exclusively aerial.
Gallinago hardwickii	**Latham's Snipe**	**BioNet, PMST**	**-**	**MA, M**	**-**	**Latham's Snipe is a non-breeding migrant to the south east of Australia including Tasmania, passing through the north and New Guinea on passage. Latham's Snipe breed in Japan and on the east Asian mainland. Seen in small groups or singly in freshwater wetlands on or near the coast, generally among dense cover. They are found in any vegetation around wetlands, in sedges, grasses, lignum, reeds and rushes and also in saltmarsh and creek edges on migration.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**
Gallinago megala	**Swinhoe's Snipe**	**PMST**	**-**	**MA, M**	**-**	**Few definite records exist for Swinhoe's Snipe in Australia. The species has been recorded in the north between the Kimberley Divide and Cape York Peninsula. In Western Australia the species has been recorded in Pilbara, the Kimberley region, Mount Goldsworthy, Mount Blaize and in the north-west regions around the Mitchell Plateau. In the Northern Territory the species is believed to be common and widespread in the Top End. Definite records exist from Darwin, Melville Island, Cannon Hill, Red Lilly Lagoon and Mount Brockman. In Queensland specimens have been taken at Normanton.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**
Gallinago stenura	**Pin-tailed Snipe**	**PMST**	**-**	**MA, M**	**-**	**The species occurs in Australia from late September to the end of March, however the distribution in Australia is not well understood. There are confirmed records from NSW, south-west Western Australia, Pilbara and the Top End. In NSW a single banded bird was reported near West Wyalong. During non-**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
						breeding period the Pin-tailed Snipe occurs most often in or at the edges of shallow freshwater swamps, ponds and lakes with emergent, sparse to dense cover of grass/sedge or other vegetation. The species is also found in drier, more open wetlands such as claypans in more arid parts of the species' range. It is also commonly seen at sewage ponds, not normally in saline or inter-tidal wetlands.		
Glossopsitta pusilla	Little Lorikeet	BioNet	V	-	-	Distributed in forests and woodlands from the coast to the western slopes of the Great Dividing Range in NSW, extending westwards to the vicinity of Albury, Parkes, Dubbo and Narrabri. Mostly occur in dry, open eucalypt forests and woodlands. They feed primarily on nectar and pollen in the tree canopy. Nest hollows are located at heights of between 2 m and 15 m, mostly in living, smooth-barked eucalypts. Most breeding records come from the western slopes.	Low: Suitable woodland and forest habitat absent. If present, would likely be transient visitor.	Low: Suitable woodland and forest habitat absent. If present, would likely be transient visitor.
Grantiella picta	Painted Honeyeater	PMST	V	V	-	Inhabits Boree/ Weeping Myall (*Acacia pendula*), Brigalow (*A. harpophylla*) and Box-Gum Woodlands and Box-Ironbark Forests. A specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Prefers mistletoes of the genus Amyema.	Low: Suitable woodland and forest habitat absent. If present, would likely be transient visitor.	Low: Suitable woodland and forest habitat absent. If present, would likely be transient visitor.
Haematopus fuliginosus	Sooty Oystercatcher	BioNet	V	-	-	In NSW the Sooty Oystercatcher is strictly coastal, usually within 50 m of the ocean. It prefers rocky shores, but will be seen on coral reefs or sandy beaches near mudflats. It breeds on offshore islands and isolated rocky headlands. The Sooty Oystercatcher feeds on molluscs, crabs and other crustaceans, marine worms, starfish and sea urchins, and small fish. It uses its long bill to stab at prey or to lever, prise or hammer open food items. It breeds in colonies, with both members of a breeding pair incubating eggs and caring for the young. They nest in a scrape on the ground among pebbles or shells on rocky shores or cliffs.	Moderate: Rocky habitat within the 100 m buffer does not represent suitable intertidal foraging habitat for this species. If present, would likely be exclusively aerial. The rocky headland adjacent to the Activity Area is not sufficiently isolated to represent suitable breeding habitat as it is in close proximity to the existing dog off-leash area at Robert Dunn Reserve. The precautionary principle has been applied given that the species has been observed in the locality and is known to forage on the	Moderate: Suitable rocky headland habitat occurs outside the 100 m buffer. If present, would likely be exclusively aerial. The precautionary principle has been applied given that the species has been observed in the locality.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
							rock platform at North Narrabeen.	
Haematopus longirostris	Pied Oystercatcher	BioNet	E	-	-	The Pied Oystercatcher inhabits marine littoral habitats, including islands. It occupies muddy, sandy, stony or rocky estuaries, inlets and beaches, particularly intertidal mudflats and sandbanks in large marine bays.	Low: No records within 10 km.	Low: While suitable habitat is present in the Activity Area there is only 1 record within 10 km, and no records in over 20 years and therefore the species is likely vagrant.
Haliaeetus leucogaster	White-bellied Sea-Eagle	BioNet	V	MA	-	The White-bellied Sea-eagle is distributed around the Australian coastline. This species occurs at sites near the sea or sea-shore and terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, and forest (including rainforest). Breeding occurs in tall mature open forest/woodland building large stick nests in large old eucalypts. The species prefers to feed on fish but will also hunt waterbirds, reptiles and mammals. Habitat constraints include living or dead mature trees within suitable vegetation within 1 km of rivers, lakes, large dams or creeks, wetlands and coastlines.	Moderate: Suitable foraging habitat. Breeding habitat absent.	Moderate: Suitable foraging habitat. Breeding habitat absent.
Halobaena caerulea	Blue Petrel	BioNet	-	V	-	Individuals are rarely encountered inshore and offshore over the continental shelf and in pelagic waters off the shelf break. It forages in Antarctic and subantarctic waters mainly on pelagic crustaceans, fish, cephalopods and insects.	Low: Typically, an oceanic species and any occurrences are likely to be exclusively aerial.	Low: Typically, an oceanic species and any occurrences are likely to be exclusively aerial.
Hieraaetus morphnoides	Little Eagle	BioNet	V	-	-	The Little Eagle is widespread in mainland Australia, central and eastern New Guinea. Most abundant in lightly timbered areas with open areas nearby. Often recorded foraging in grasslands, crops, treeless dune fields and recently logged areas. May nest in farmland, woodland and forest in tall trees.	Moderate: Suitable foraging habitat. Breeding habitat absent.	Moderate: Suitable foraging habitat. Breeding habitat absent.
Hirundapus caudacutus	White-throated Needletail	BioNet, PMST	-	V, MA, M	-	An aerial species found in feeding concentrations over cities, hilltops and timbered ranges.	Low: Limited suitable foraging habitat and any occurrences are likely to be exclusively aerial.	Low: Limited suitable foraging habitat and any occurrences are likely to be exclusively aerial.
Hydroprogne caspia	Caspian Tern	BioNet	-	MA, M	-	Within NSW, the Caspian Tern has a widespread occurrence and can be found east of the Great Divide, mainly in coastal regions, and also in the Riverina and Lower and Upper Western Regions, with occasional records elsewhere. Breeding is recorded from the Menindee Lakes. The Caspian Tern is mostly found in sheltered	Low: Typically, an oceanic species and any occurrences are likely to be exclusively aerial.	Known: One Caspian Tern was observed flying 100 m offshore from the Palm Beach Activity Area. It did not stop within the Activity Area or

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
						coastal embayments and those with sandy or muddy margins are preferred. They also occur on near-coastal or inland terrestrial wetlands that are either fresh or saline, especially lakes (including ephemeral lakes), waterholes, reservoirs, rivers and creeks, and also use artificial wetlands. This species usually forages in open wetlands, including lakes, rivers and tidal channels or submerged mudbanks of coastal inlets. They prefer sheltered shallow water near the margins but can also be found in open coastal waters. The Caspian Tern breeds on variable types of sites including low islands, cays, spits, banks, ridges, beaches of sand or shell, terrestrial wetlands and stony or rocky islets or banks. Nests may be in the open, or among low or sparse vegetation, near bushes or other shelter such as large sticks, driftwood, piles of beachcast seagrass and occasionally at artificial sites. Generally roosting occurs on bare exposed sand or shell spits, banks or shores of coasts, lakes, estuaries, coastal lagoons and inlets.		100 m buffer and was not observed to utilise the resources of the Activity Area. Is likely a transient visitor.
Ixobrychus flavicollis	Black Bittern	BioNet	V	-	-	Usually found on coastal plains below 200 m. Often found along timbered watercourses, in wetlands with fringing trees and shrub vegetation. The sites where they occur are characterized by dense waterside vegetation.	Low: Watercourse and wetland habitat absent.	Low: Watercourse and wetland habitat absent.
Lathamus discolor	Swift Parrot	BioNet, PMST	E	CE, MA	-	The Swift Parrot occurs in woodlands and forests of NSW from May to August, where it feeds on eucalypt nectar, pollen and associated insects. The Swift Parrot is dependent on flowering resources across a wide range of habitats in its wintering grounds in NSW. This species is migratory, breeding in Tasmania and also nomadic, moving about in response to changing food availability.	Low: Suitable woodland and forest habitat absent. If present, would likely be a transient visitor.	Low: Suitable woodland and forest habitat absent. If present, would likely be a transient visitor.
Limosa lapponica	**Bar-tailed Godwit**	**BioNet, PMST**	**-**	**MA, M**	**-**	**The Bar-tailed Godwit has been recorded in the coastal areas of all Australian states. There are a few inland records from NSW and Victoria.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**
Limosa lapponica baueri	Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit	PMST	-	V	-	The bar-tailed godwit (western Alaskan) occurs mainly in coastal habitats such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays. It has also been recorded in coastal sewage farms and saltworks, saltlakes and brackish wetlands near coasts, sandy ocean beaches, rock platforms, and coral reef-flats.	Low: Preferred coastal habitat absent.	Low: Preferred coastal habitat absent.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
Limosa limosa	**Black-tailed Godwit**	**BioNet**	**V**	**MA, M**	**-**	**The Black-tailed Godwit is a migratory wading bird that breeds in Mongolia and Eastern Siberia and flies to Australia for the southern summer, arriving in August and leaving in March. In NSW, it is most frequently recorded at Kooragang Island (Hunter River estuary), with occasional records elsewhere along the coast, and inland. Usually found in sheltered bays, estuaries and lagoons with large intertidal mudflats and/or sandflats. Further inland, it can also be found on mudflats and in water less than 10 cm deep, around muddy lakes and swamps. Individuals have been recorded in wet fields and sewerage treatment works. Frequently recorded in mixed flocks with Bar-tailed Godwits.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**
Lophoictinia isura	Square-tailed Kite	BioNet	V	-	-	Typically inhabits coastal forested and wooded lands of tropical and temperate Australia. In NSW it is often associated with ridge and gully forests dominated by *Eucalyptus longifolia, Corymbia maculata, E. elata or E. smithii*. Individuals appear to occupy large hunting ranges of more than 100 km2. They require large living trees for breeding, particularly near water with surrounding woodland forest close by for foraging habitat. Nest sites are generally located along or near watercourses, in a tree fork or on large horizontal limbs.	Low: Suitable woodland habitat absent.	Low: Suitable woodland habitat absent.
Macronectes giganteus	Southern Giant Petrel	BioNet, PMST	E	E, MA, M	-	The Southern Giant Petrel has a circumpolar pelagic range from Antarctica to approximately 20 S and is a common visitor off the coast of NSW. Over summer, the species nests in small colonies amongst open vegetation on antarctic and subantarctic islands, including Macquarie and Heard Islands and in Australian Antarctic territory.	Low: Typically, an oceanic species and any occurrences are likely to be exclusively aerial.	Low: Typically, an oceanic species and any occurrences are likely to be exclusively aerial.
Macronectes halli	Northern Giant Petrel	BioNet, PMST	V	V, MA, M	-	Breeding in Australian territory is limited to Macquarie Island and occurs during spring and summer.	Low: Typically, an oceanic species and any occurrences are likely to be exclusively aerial.	Low: Typically, an oceanic species and any occurrences are likely to be exclusively aerial.
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	BioNet	V	-	-	In NSW it is widespread, with records from the tablelands and western slopes of the Great Dividing Range to the north-west and central-west plains and the Riverina. It is rarely recorded east of the Great Dividing Range, although regularly observed from the Richmond and Clarence River areas. It has also been recorded at a few scattered sites in the Hunter, Central Coast and Illawarra	Low: Suitable woodland habitat absent.	Low: Suitable woodland habitat absent.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
						regions, though it is very rare in the latter. Occupies mostly upper levels of drier open forests or woodlands dominated by box and ironbark eucalypts, especially Mugga Ironbark (*Eucalyptus sideroxylon*), White Box (*E. albens*), Inland Grey Box (*E. microcarpa*), Yellow Box (*E. melliodora*), Blakely's Red Gum (*E. blakelyi*) and Forest Red Gum (*E. tereticornis*). Also inhabits open forests of smooth-barked gums, stringybarks, ironbarks, river sheoaks (nesting habitat) and tea-tree		
Monarcha melanopsis	Black-faced Monarch	PMST	-	MA, M	-	Found along the coast of eastern Australia, becoming less common further south. Inhabits rainforests, eucalypt woodlands, coastal scrub and damp gullies. It may be found in more open woodland when migrating.	Low: Suitable woodland habitat absent.	Low: Suitable woodland habitat absent.
Motacilla flava	Yellow Wagtail	PMST	-	MA, M	-	Northern hemisphere breeding. This species occupies a range of damp or wet habitats with low vegetation, from damp meadows, marshes, waterside pastures, sewage farms and bogs to damp steppe and grassy tundra.	Low: Suitable damp/wet habitat absent.	Low: Suitable damp/wet habitat absent.
Myiagra cyanoleuca	Satin Flycatcher	PMST	-	MA, M	-	The Satin Flycatcher is found along the east coast of Australia from far northern Queensland to Tasmania, including south-eastern South Australia. Found in tall forests, preferring wetter habitats such as heavily forested gullies, but not rainforests.	Low: Suitable forest habitat absent.	Low: Suitable forest habitat absent.
Neophema pulchella	Turquoise Parrot	BioNet	V	-	-	The Turquoise Parrot's range extends from southern Queensland through to northern Victoria, from the coastal plains to the western slopes of the Great Dividing Range. Lives on the edges of eucalypt woodland adjoining clearings, timbered ridges and creeks in farmland. Nests in tree hollows, logs or posts, from August to December. It lays four or five white, rounded eggs on a nest of decayed wood dust.	Low: Suitable woodland habitat absent.	Low: Suitable woodland habitat absent.
Ninox connivens	Barking Owl	BioNet	V	-	-	Generally found in open forests, woodlands, swamp woodlands and dense scrub. Can also be found in the foothills and timber along watercourses in otherwise open country.	Low: Suitable woodland habitat absent.	Low: Suitable woodland habitat absent.
Ninox strenua	Powerful Owl	BioNet	V	-	-	Occupies wet and dry eucalypt forests and rainforests. Can occupy both un-logged and lightly logged forests as well as undisturbed forests where it usually roosts on the limbs of dense trees in gully areas. It is most commonly recorded within red turpentine in tall open forests and black she-oak within open forests. Large mature	Low: Suitable woodland habitat absent.	Low: Suitable woodland habitat absent.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
						trees with hollows at least 0.5 m deep are required for nesting. Tree hollows are particularly important for the Powerful Owl because a large proportion of the diet is made up of hollow-dependent arboreal marsupials. Nest trees for this species are usually emergent with a diameter at breast height of at least 100 cm.		
Numenius madagascariensis	**Eastern Curlew**	**BioNet, PMST**	**-**	**CE, MA, M**	**-**	**A primarily coastal distribution. Found in all states, particularly the north, east, and south-east regions including Tasmania. Rarely recorded inland. Mainly forages on soft sheltered intertidal sand flats or mudflats, open and without vegetation or cover. Breeds in the northern hemisphere.**	**Low: Suitable habitat is present in the Activity Area however, this species was not detected during targeted surveys.**	**Low: Suitable habitat is present in the Activity Area however, this species was not detected during targeted surveys.**
Numenius minutus	**Little Curlew, Little Whimbrel**	**PMST**	**-**	**MA, M**	**-**	**Little Curlews generally spend the non-breeding season (September to April) in northern Australia from Port Hedland in Western Australia to the Queensland coast. There are records of the species from inland Australia and widespread but scattered records on the east coast. The Little Curlew is most often found feeding in short, dry grassland and sedgeland, including dry floodplains and blacksoil plains, which have scattered, shallow freshwater pools or areas seasonally inundated. Open woodlands with a grassy or burnt understorey, dry saltmarshes, coastal swamps, mudflats or sandflats of estuaries or beaches on sheltered coasts, mown lawns, gardens, recreational areas, ovals, racecourses and verges of roads and airstrips are also used.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**
Numenius phaeopus	**Whimbrel**	**BioNet, PMST**	**-**	**MA, M**	**-**	**The Whimbrel is a regular migrant to Australia and New Zealand, with a primarily coastal distribution. There are also scattered inland records of Whimbrels in all regions. It is found in all states but is more common in the north. This species does not breed in Australia. The Whimbrel is often found on the intertidal mudflats of sheltered coasts. It is also found in harbours, lagoons, estuaries and river deltas, sandy or rocky beaches, coral or rocky islets, or on intertidal reefs and platforms. There are a small number of inland records from saline lakes and canegrass swamps. The Whimbrel generally forages on intertidal mudflats, along the muddy banks of estuaries and in coastal lagoons, either in open unvegetated areas or among mangroves, and sometimes on sandy beaches or among rocks. They regularly roost in mangroves and other structures flooded at high tide, and occasionally in tall coastal trees. They**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
						have also been observed to roost on the ground under mangroves or in shallow water, on muddy, sandy or rocky beaches, rocky islets and coral cays.		
Onychoprion fuscata	Sooty Tern	BioNet	V	-	-	The Sooty Tern is found over tropical and sub-tropical seas and on associated islands and cays around Northern Australia. Large flocks can be seen soaring, skimming and dipping but seldom plunging in off shore waters. Occasionally seen along coastal NSW, especially after cyclones. Breeds in large colonies in sand or coral scrapes on offshore islands and cays. In NSW only known to breed at Lord Howe Island.	Low: Typically, an offshore species and any occurrences are likely to be exclusively aerial.	Low: Typically, an offshore species and any occurrences are likely to be exclusively aerial.
Pachyptila turtur subantarctica	Fairy Prion (southern)	PMST	-	V	-	The fairy prion (southern) breeds on Macquarie Island and a number of other subantarctic islands outside of Australia. The subspecies digs burrows among rocks or low vegetation in which to nest. Burrows may be dug below mat forming herbs.	Low: Typically, an oceanic species and any occurrences are likely to be exclusively aerial.	Low: Typically, an oceanic species and any occurrences are likely to be exclusively aerial.
Pandion haliaetus cristatus	Eastern Osprey	BioNet, PMST	V	MA, M	-	Found right around the Australian coastline, except for Victoria and Tasmania. They are common around the northern coast, especially on rocky shorelines, islands and reefs. The species is uncommon to rare or absent from closely settled parts of south-eastern Australia. Favour coastal areas, especially the mouths of large rivers, lagoons and lakes. They feed on fish over clear, open water, and nest high up in dead trees or in dead crowns of live trees, usually within one kilometre of the sea.	Known: Suitable foraging habitat. Breeding habitat absent. Pair observed flying over cliffs and dunes at Mona Vale Activity Area.	Moderate: Suitable foraging habitat. Breeding habitat absent.
Petroica boodang	Scarlet Robin	BioNet	V	-	-	The Scarlet Robin is found from South East Queensland to South East South Australia and also in Tasmania and South West Western Australia. In NSW, it occurs from the coast to the inland slopes. The Scarlet Robin lives in dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs.	Low: Suitable woodland habitat absent.	Low: Suitable woodland habitat absent.
Petroica phoenicea	Flame Robin	BioNet	V	-	-	Flame Robins are found in a broad coastal band from southern Queensland to just west of the South Australian border. The species is also found in Tasmania. The preferred habitat in summer includes eucalyptus forests and woodland, whilst in winter prefers open woodlands and farmlands. It is considered migratory. The Flame Robin breeds from about August to January.	Low: Suitable woodland habitat absent.	Low: Suitable woodland habitat absent.
Phoebetria fusca	Sooty Albatross	PMST	V	V, MA, M	-	In Australian waters, this species is generally recorded in winter off the south coast from Tasmania to Western Australia, while there are	Low – this species feeds pelagically.	Low – this species feeds pelagically.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
						occasional sightings off the NSW coast, north of Grafton. This pelagic or ocean-going species inhabits subantarctic and subtropical marine waters, spending the majority of its time at sea, and rarely occurs in continental shelf waters.		
Pluvialis fulva	**Pacific Golden Plover**	**PMST**	**-**	**MA, M**	**-**	**The Pacific Golden Plover is widespread in coastal regions of Australia. The species does not breed in Australia. In non-breeding grounds in Australia this species usually occurs on beaches, mudflats and sandflats in sheltered areas including harbours, estuaries and lagoons, and also in evaporation ponds in saltworks. The species is also sometimes recorded on islands, sand and coral cays and exposed reefs and rocks, and occasionally occur around inland wetlands, usually along major river systems. This species usually forages on sandy or muddy shores (including mudflats and sandflats) or margins of sheltered areas such as estuaries and lagoons. They usually roost near foraging areas, on sandy beaches and spits or rocky points, islets or exposed reefs.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**
Pluvialis squatarola	**Grey Plover**	**BioNet**	**-**	**MA, M**	**-**	**The Grey Plover has been recorded in all states of Australia and is especially abundant on the western and southern coastlines. The species does not breed in Australia. In non-breeding grounds in Australia Grey Plovers occur almost entirely in coastal areas, where they usually inhabit sheltered embayments, estuaries and lagoons with mudflats and sandflats, and occasionally on rocky coasts with wave-cut platforms or reef-flats, or on reefs within muddy lagoons. They also occur around terrestrial wetlands such as near-coastal lakes and swamps, or salt-lakes. Grey Plovers usually forage on large areas of exposed mudflats and beaches of sheltered coastal shores such as inlets, estuaries and lagoons. They also occasionally feed in pasture and at the muddy margins of inland wetlands such as lakes, swamps and bores. They usually roost in sandy areas, such as on unvegetated sandbanks or sand-spits on sheltered beaches or other sheltered environments such as estuaries or lagoons.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**
Pterodroma leucoptera leucoptera	Gould's Petrel	BioNet, PMST	V	E	-	Pelagic marine species, spending much of its time foraging at sea and coming ashore only to breed. The Australian subspecies breeds and roosts on two islands off NSW, Cabbage Tree and Boondelbah Islands. They nest predominantly in natural rock crevices among the	Low: Typically, an oceanic species and any occurrences are likely to be exclusively aerial.	Low: Typically, an oceanic species and any occurrences are likely to be exclusively aerial.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
						rock scree and also in hollow fallen palm trunks, under mats of fallen palm fronds and in cavities among the buttresses of fig trees.		
Pterodroma neglecta neglecta	Kermadec Petrel (western)	PMST	V	V	-	Breeds on Balls Pyramid, near Lord Howe Island, and on Phillip Island. Its pelagic distribution is poorly known. It generally occurs in subtropical and tropical waters from about 20° S to 35° S, although it may disperse north of the equator. It occasionally reaches the eastern coast of mainland Australia.	Low: Typically, an oceanic species and any occurrences are likely to be exclusively aerial.	Low: Typically, an oceanic species and any occurrences are likely to be exclusively aerial.
Ptilinopus magnificus	Wompoo Fruit-Dove	BioNet	V	-	-	Distributed north of the Hunter River in NSW on the coast and coastal ranges. Inhabits rainforest, monsoon forest, adjacent eucalypt forest and brush box forest.	Low: Suitable rainforest habitat absent.	Low: Suitable rainforest habitat absent.
Ptilinopus regina	Rose-crowned Fruit-Dove	BioNet	V	-	-	Coast and ranges of eastern NSW and Queensland, from Newcastle to Cape York. Vagrants are occasionally found further south to Victoria. Rose-crowned Fruit-doves occur mainly in sub-tropical and dry rainforest and occasionally in moist eucalypt forest and swamp forest, where fruit is plentiful.	Low: Suitable rainforest habitat absent.	Low: Suitable rainforest habitat absent.
Ptilinopus superbus	Superb Fruit-Dove	BioNet	V	-	-	The Superb Fruit-dove occurs principally from North-Eastern in Queensland to North-Eastern NSW. It is much less common further south, where it is largely confined to pockets of suitable habitat as far south as Moruya. There are records of vagrants as far south as eastern Victoria and Tasmania. Inhabits rainforest and similar closed forests where it forages high in the canopy, eating the fruits of many tree species such as figs and palms. It may also forage in eucalypt or acacia woodland where there are fruit-bearing trees.	Low: Suitable rainforest habitat absent.	Low: Suitable rainforest habitat absent.
Rhipidura rufifrons	Rufous Fantail	PMST	-	MA, M	-	Found along the east coast of Australia from far northern Queensland to Tasmania, including south-eastern South Australia. Inhabits tall forests, preferring wetter habitats such as heavily forested gullies, but not rainforests.	Low: Suitable forested habitat absent.	Low: Suitable forested habitat absent.
Rostratula australis	Australian Painted Snipe	BioNet, PMST	E	E, MA	-	In NSW, this species has been recorded at the Paroo wetlands, Lake Cowell, Macquarie Marshes and Hexham Swamp. Most common in the Murray-Darling Basin. Prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber. Nests on the ground amongst tall vegetation, such as grasses, tussocks or reeds.	Low: Suitable wet habitat absent.	Low: Suitable wet habitat absent.
Sterna hirundo	Common Tern	BioNet	-	MA, M	-	Common Terns are marine, pelagic and coastal. In Australia, they are recorded in all marine zones, but are commonly observed in near-	Moderate: Suitable habitat present.	Low: No records within 10 km

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
						coastal waters, both on ocean beaches, platforms and headlands and in sheltered waters, such as bays, harbours and estuaries with muddy, sandy or rocky shores. In Australia, Common Terns are mainly found along the eastern coast, where they are widespread and common from south-eastern Queensland to eastern Victoria (extending south-west to Port Albert), though less often recorded south of Port Hacking in NSW. Common Terns forage in marine environments, often close to the shore, including sheltered embayments and in the surf-zone, but also well out to sea. They also forage in near-coastal terrestrial wetlands, including estuaries, rivers and swamps. Common Terns roost on unvegetated, intertidal sandy ocean beaches, sandy islands, shores of estuaries or lagoons, and sandbars, as well as on rocky shores, rock platforms or rocks protruding above the surface of the water. Common Terns nest on the ground in the open, usually on bare substrates, occasionally near vegetation or in it, or on a floating mat of vegetation. They usually nest on islands, either marine or in lakes, only sometimes on mainland beaches or promontories or salt or freshwater marshes.		
Sternula albifrons	Little Tern	BioNet, PMST	E	MA, M	-	The Little Tern is found on the north, east and south-east Australian coasts, from Shark Bay in Western Australia to the Gulf of St Vincent in South Australia. In NSW, it arrives from September to November, occurring mainly north of Sydney, with smaller numbers found south to Victoria. It breeds in spring and summer along the entire east coast from Tasmania to northern Queensland, and is seen until May, with only occasional birds seen in winter months. The species is almost exclusively coastal, preferring sheltered environments; however, may occur several kilometres from the sea in harbours, inlets and rivers. Little Terns nest on sand-spits, banks, ridges or islets in sheltered coastal environments, such as coastal lakes, estuaries and inlets, and also on wide and flat or gently sloping sandy ocean beaches, and also, occasionally, in sand-dunes.	Moderate: Suitable habitat present. One unidentified seabird species which may be this species was observed flying over the Activity Area and momentarily stopping in the water of the buffer area. It was not observed to utilise the resources of the Activity Area so is likely a transient visitor.	Moderate: Suitable habitat present.
Sternula nereis nereis	Australian Fairy Tern	PMST	-	V	-	Distribution of the Australian Fairy Tern includes the southern half of NSW coast, with the species or species habitat likely to occur as far north as Morisset. Fairy Terns utilise a variety of habitats including offshore, islands in estuaries or lakes, wetlands, beaches and spits. The Australian Fairy Tern nests on sheltered sandy	Moderate: Suitable habitat present. One unidentified seabird species which may be this species was observed flying	Low: No records within 10 km

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
						beaches, spits and banks above the high tide line and below vegetation. The subspecies has been found in embayments of a variety of habitats including offshore, estuarine or lacustrine (lake) islands, wetlands and mainland coastline.	over the Activity Area and momentarily stopping in the water of the buffer area. It was not observed to utilise the resources of the Activity Area so is likely a transient visitor.	
Symposiachrus trivirgatus	Spectacled Monarch	PMST	-	MA, M	-	Coastal north-eastern and eastern Australia, including coastal islands, from Cape York, Queensland to Port Stephens, NSW. Prefers thick understorey in rainforests, wet gullies and waterside vegetation, as well as mangroves.	Low: Suitable rainforest and wet habitat absent.	Low: Suitable rainforest and wet habitat absent.
Thalassarche bulleri	Buller's Albatross, Pacific Albatross	PMST	-	V, MA, M	-	In Australia, Buller's Albatross are seen over inshore, offshore and pelagic waters. Nesting occurs on subtropical and subantarctic islands and rock stacks in the New Zealand region.	Low – Typically, an oceanic species and any occurrences are likely to be exclusively aerial.	Low – Typically, an oceanic species and any occurrences are likely to be exclusively aerial.
Thalassarche bulleri platei	Northern Buller's Albatross, Pacific Albatross	PMST	-	V, MA	-	Non-breeding visitor to Australian waters. Foraging birds are mostly limited to the Pacific Ocean and the Tasman Sea, although birds do reach the east coast of the Australian mainland.	Low – Typically, an oceanic species and any occurrences are likely to be exclusively aerial.	Low – Typically, an oceanic species and any occurrences are likely to be exclusively aerial.
Thalassarche carteri	Indian Yellow-nosed Albatross	PMST	-	V, MA, M	-	The Indian Yellow-nosed Albatross is a marine bird, located in subtropical and warmer subantarctic waters. In the Australasian region, the species occupies inshore and offshore waters, particularly where there are calm seas and light winds. The birds fly low or at medium heights over the sea, using air currents rising off swells for lift. The species nests on tussock-covered coastal cliffs and slopes, often in rocky situations. On Ile Amsterdam, the birds are confined to steeper slopes, nesting up to 800 m above sea level, on bare ground or among Poa or Scirpus.	Low – Typically, an oceanic species and any occurrences are likely to be exclusively aerial.	Low – Typically, an oceanic species and any occurrences are likely to be exclusively aerial.
Thalassarche cauta	Shy Albatross	BioNet, PMST	V	E, MA, M	-	Marine species occurring in subantarctic and subtropical waters. Birds have been noted in shelf-waters around breeding islands and over adjacent rises. Nests on rocky islands.	Low – Typically, an oceanic species and any occurrences are likely to be exclusively aerial.	Low – Typically, an oceanic species and any occurrences are likely to be exclusively aerial.
Thalassarche chrysostoma	Grey-headed Albatross	BioNet	-	E, MA, M	-	The Grey-headed Albatross has been observed over waters of surface-temperature 10° to 23°C, but is most abundant over the	Low – Typically, an oceanic species and any occurrences	Low – Typically, an oceanic species and any occurrences

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
						warmer parts of the subtropical zone (Biermann & Voous 1950; Brown *et al*. 1975; Cooke & Mills 1972). In breeding and non-breeding seasons, the species concentrates over the productive waters of continental shelves, often at coastal upwellings and the boundaries of currents (Brown *et al*. 1975; Cooke & Mills 1972; Weimerskirch *et al*. 1985). Birds breeding south of the Subtropical Convergence may be pelagic and travel far to subtropical feeding grounds (Weimerskirch *et al*. 1986).	are likely to be exclusively aerial.	are likely to be exclusively aerial.
Thalassarche eremita	Chatham Albatross	PMST	-	E, MA, M	-	Marine species that occurs in subantarctic and subtropical waters reaching the tropics. It appears to be largely pelagic and has been noted in shelf-waters around breeding islands, over continental shelves during the non-breeding season, and occurs inshore and offshore. It usually nests on rocky ledges and steep slopes.	Low – Typically, an oceanic species and any occurrences are likely to be exclusively aerial.	Low – Typically, an oceanic species and any occurrences are likely to be exclusively aerial.
Thalassarche impavida	Campbell Albatross, Campbell Black-browed Albatross	PMST	-	V, MA, M	-	In the Australasian region, the species occupies inshore and offshore waters (Latham 1980; Storr 1964; Swanson 1983), particularly where there are calm seas and light winds (Cox 1973; Storr 1964). The birds fly low or at medium heights over the sea, using air currents rising off swells for lift (Marchant & Higgins 1990).	Low – Typically, an oceanic species and any occurrences are likely to be exclusively aerial.	Low – Typically, an oceanic species and any occurrences are likely to be exclusively aerial.
Thalassarche melanophris	Black-browed Albatross	BioNet, PMST	V	V, MA, M	-	The Black-browed Albatross has a circumpolar range over the southern oceans and are seen off the southern Australian coast mainly during winter. Inhabits Antarctic, Sub-Antarctic, subtropical marine and coastal waters over upwellings and boundaries of currents.	Low – Typically, an oceanic species and any occurrences are likely to be exclusively aerial.	Low – Typically, an oceanic species and any occurrences are likely to be exclusively aerial.
Thalassarche salvini	Salvin's Albatross	PMST	-	V, MA, M	-	The Salvin's Albatross breeds on islands of the southern Indian Ocean. The southern limit of breeding may be determined by the distance to subtropical waters used for feeding (Weimerskirch *et al*. 1986).	Low – Typically, an oceanic species and any occurrences are likely to be exclusively aerial.	Low – Typically, an oceanic species and any occurrences are likely to be exclusively aerial.
Thalassarche steadi	White-capped Albatross	PMST	-	V, MA, M	-	Common off the coast of South-East Australia throughout the year. It has been observed that juveniles are rare in New Zealand waters, being more common off South-East Australia and South Africa. Breeding colonies occur on islands south of New Zealand.	Low – Typically, an oceanic species and any occurrences are likely to be exclusively aerial.	Low – Typically, an oceanic species and any occurrences are likely to be exclusively aerial.
Thalasseus bergii	Crested Tern	BioNet	-	MA, M	-	The species nests on tussock-covered coastal cliffs and slopes, often in rocky situations (Grindley 1981; Weimerskirch *et al*. 1986). On Ile Amsterdam, the birds are confined to steeper slopes, nesting up to 800 m above sea level, on bare ground or among Poa or Scirpus.	Low: while there are vegetated cliffs in the 100 m buffer, the vegetation is not suitable nesting habitat.	Low: Suitable habitat absent.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
Thinornis cucullatus cucullatus	Eastern Hooded Plover, Eastern Hooded Plover	BioNet, PMST	E	V, MA	-	In south-eastern Australia Hooded Plovers prefer sandy ocean beaches, especially those that are broad and flat, with a wide wave-wash zone for feeding, much beachcast seaweed, and backed by sparsely vegetated sand-dunes for shelter and nesting. Occasionally Hooded Plovers are found on tidal bays and estuaries, rock platforms and rocky or sand-covered reefs near sandy beaches, and small beaches in lines of cliffs. They regularly use near-coastal saline and freshwater lakes and lagoons, often with saltmarsh. At night they favour the upper zones of beaches for roosting. Hooded Plovers forage in sand at all levels of the zone of wave-wash during low and mid-tide or among seaweed at high-tide, and in rock crevices in the wave-wash or spray zone, avoiding elevated rocky areas and boulder fields. In coastal lagoons they forage in damp or dry substrates and in shallow water. Their diet consists mainly of marine worms, molluscs, crustaceans, insects, water plants and seeds. As the hooded plover occurs on beaches, it is easily disturbed by human activities, particularly off-leash domestic dog	Low: Suitable undisturbed and dune habitat absent.	Low: Suitable undisturbed and dune habitat absent.
Tringa brevipes	**Grey-tailed Tattler**	**BioNet, PMST**	**-**	**MA, M**	**-**	**Found on sheltered coasts with reefs and rock platforms, intertidal mudflats, estuaries and coastal lagoons, especially fringed with mangroves. Northern hemisphere breeding.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**
Tringa nebularia	**Common Greenshank**	**BioNet, PMST**	**-**	**MA, M**	**-**	**Occurs in a variety of inland wetlands and sheltered coastal habitats of varying salinity. Found on mudflats, saltmarsh, mangroves in embayments, harbours, deltas and lagoons. Breeds in northern hemisphere.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**	**Low: Limited suitable habitat present, however not detected during targeted surveys.**
Tyto novaehollandiae	Masked Owl	BioNet	V	-	-	Inhabits a diverse range of wooded habitat that provide tall or dense mature trees with hollows suitable for nesting and roosting. Mostly recorded in open forest and woodlands adjacent to cleared lands. Nest in hollows, in trunks and in near vertical spouts or large trees, usually living but sometimes dead. Nest hollows are usually located within dense forests or woodlands. Masked owls prey upon hollow-dependent arboreal marsupials, but terrestrial mammals make up the largest proportion of the diet.	Low: Suitable woodland habitat absent.	Low: Suitable woodland habitat absent.
Xenus cinereus	**Terek Sandpiper**	**BioNet**	**V**	**-**	**-**	**Forages in the open, on soft wet intertidal mudflats or in sheltered estuaries, embayment's, harbours or lagoons. The species has also been recorded on islets, mud banks, sandbanks and spits and near**	**Low: Suitable habitat is present in the Activity Area however, this species was**	**Low: Suitable habitat is present in the Activity Area however, this species was**

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
						mangroves and occasionally in samphire. Northern hemisphere breeding.	**not detected during targeted surveys.**	**not detected during targeted surveys.**
Fish								
Carcharhinus longimanus	Oceanic Whitetip Shark	PMST	-	M	-	The oceanic whitetip shark is a tropical, epipelagic species occurring from the surface to at least 152 m depth. It has a clear preference for open ocean waters and its abundance increases away from continental and insular shelves. Although it can be found in waters between 15ºC and 28ºC, it is most commonly found in waters with temperatures above 20ºC. Oceanic whitetip sharks are one of the main apex predators in tropical open waters, and feed mostly on oceanic teleosts and cephalopods.	None – offshore species.	None – offshore species.
Carcharias taurus (east coast population)	Grey Nurse Shark (east coast population)	PMST	-	CE	CE	The Australian east coast population of Grey Nurse Sharks congregate at and migrate between a number of key sites along the coast of NSW and southern Queensland from Montague Island in the south to Fraser Island in the north.	Low: Subtidal species that would not be impacted by the Activity.	Low: Subtidal species that would not be impacted by the Activity.
Carcharodon carcharias	White Shark, Great White Shark	PMST	-	V, M	V	Great White Sharks can be found from close inshore around rocky reefs, surf beaches and shallow coastal bays to outer continental shelf and slope areas. They also make open ocean excursions and can cross ocean basins (for instance from South Africa to the western coast of Australia and from the eastern coast of Australia to New Zealand). Great White Sharks are often found in regions with high prey density, such as pinniped colonies.	Low: Subtidal species that would not be impacted by the Activity.	Low: Subtidal species that would not be impacted by the Activity.
Epinephelus daemelii	Black Rockcod, Black Cod, Saddled Rockcod	PMST	-	V	V	Inhabit coastal waters and estuaries, use caves and crevices around ledges and rock walls as refuge. Juveniles are found inshore, often in coastal rockpools and estuaries	Low: Subtidal species that would not be impacted by the Activity. Rockpool habitat is absent.	Low: Subtidal species that would not be impacted by the Activity. Rockpool habitat is absent.
Galeorhinus galeus	School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark	PMST	-	CD	-	The School Shark is most abundant in cold to temperate continental seas, from the surfline and very shallow water to well offshore. It is primarily a deep water demersal (bottom-dwelling) species, although individuals have been recorded undertaking daily vertical migrations, remaining at depths of around 500 m during the day and moving up to around 100 m at night. Females and juveniles utilise inshore coastal areas around Victoria, Tasmania and parts of South Australia for nursery areas	Low: Subtidal species that would not be impacted by the Activity.	Low: Subtidal species that would not be impacted by the Activity.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
Hippocampus whitei	White's Seahorse, Crowned Seahorse, Sydney Seahorse	PMST	-	E, MA	-	White's Seahorse is found only from Wallis Lake to Lake Illawarra in NSW, although potential distribution extends from VIC to QLD. It occurs in shallow weedy areas in estuaries, bays and harbours, usually attached to seagrass, sponges and kelp holdfasts and the netting of public harbour pools.	Low: Subtidal species that would not be impacted by the Activity.	Low: Subtidal species that would not be impacted by the Activity.
Lamna nasus	Porbeagle, Mackerel Shark	PMST	-	M	-	Oceanic species that in habitat continental shelf waters.	Low: Subtidal species that would not be impacted by the Activity.	Low: Subtidal species that would not be impacted by the Activity.
Macquaria australasica	Macquarie Perch	PMST	-	E	E	Recent research indicates that there may be at least two distinct forms of Macquarie Perch, one from the western rivers (Murray-Darling Basin form) and one from the eastern rivers (the Shoalhaven and Hawkesbury-Nepean systems) (the coastal form). The species has also been stocked or translocated into a number of reservoirs including Talbingo, Cataract and Khancoban reservoirs and translocated into streams including the Mongarlowe River. Macquarie Perch are found in both river and lake habitats; especially the upper reaches of rivers and their tributaries	None: No suitable habitat present in Activity Area.	None: No suitable habitat present in Activity Area.
Mobula alfredi	Reef Manta Ray, Coastal Manta Ray	PMST	-	M	-	The Reef Manta Ray is known in Australian waters from about Perth, Western Australia, around the tropical north to the Solitary Islands, NSW; also Cocos (Keeling) Islands and Christmas Island in the eastern Indian Ocean. Elsewhere the species is circumglobal in tropical waters. Often seen inshore around coral and rocky reefs in tropical and subtropical waters. Manta rays also occur around offshore reefs and seamounts. Individuals undertake seasonal migrations and aggregate at certain sites, presumably during times of high seasonal plankton productivity.	Low: Subtidal species that would not be impacted by the Activity.	Low: Subtidal species that would not be impacted by the Activity.
Mobula birostris	Giant Manta Ray	PMST	-	M	-	The Giant Manta Ray is widespread, although relatively uncommon in Australian waters; also Cocos (Keeling) Islands and Christmas Island in the eastern Indian Ocean. Elsewhere the species is circumglobal, usually offshore, often around oceanic islands, sometimes coastal, and most common in tropical waters. Giant Manta Rays aggregate around Ningaloo Reef during autumn and winter.	Low: Subtidal species that would not be impacted by the Activity.	Low: Subtidal species that would not be impacted by the Activity.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
Prototroctes maraena	Australian Grayling	PMST	-	V	-	Historically, this species occurred in coastal streams from the Grose River Valley, southwards through NSW, Vic. And Tas. It also occasionally occurred high upstream in the Snowy River. A single juvenile specimen was collected from Lake Macquarie in 1974. This species spends only part of its lifecycle in freshwater. The Tambo River population inhabits a clear, gravel-bottomed stream with alternating pools and riffles and granite outcrops. It has also been associated with clear, gravel-bottomed habitats in the Mitchell and Wonnangatta Rivers but was present in a muddy-bottomed, heavily silted habitat in the Tarwin River.	None: No suitable habitat present in Activity Area.	None: No suitable habitat present in Activity Area.
Rexea solandri (eastern Australian population)	Eastern Gemfish	PMST	-	CD	-	Eastern Gemfish are mesopelagic and inhabit deeper continental shelf habitats and upper slope waters from 100 m to 700 m (down to 1254 m) but are generally found in waters about 250 to 500 m deep. This species is generally caught close to the sea floor, but the fish are likely to move into mid-water at times (Kailola *et al*. 1993; Pogonoski *et al*. 2002). Larvae occur in shallow to very shallow waters.	Low: Subtidal species that would not be impacted by the Activity.	Low: Subtidal species that would not be impacted by the Activity.
Rhincodon typus	Whale Shark	PMST	-	V, M	-	Oceanic species that in habitat continental shelf waters. At times seen in Coastal waters, rarely seen in NSW waters	Low: Subtidal species that would not be impacted by the Activity.	Low: Subtidal species that would not be impacted by the Activity.
Seriolella brama	Blue Warehou	PMST	-	CD	-	The blue warehou is an opportunistic predator of pelagic invertebrates. This species undertakes major seasonal migrations in order to feed and spawn, and in response to changes in water temperature. The species shows preference for relatively warmer waters of between 10 and 15°C when compared with other trevallas.	Low: Subtidal species that would not be impacted by the Activity.	Low: Subtidal species that would not be impacted by the Activity.
Sphyrna lewini	Scalloped Hammerhead	PMST	-	CD	E	Oceanic species that inhabitant continental shelf waters	Low: Subtidal species that would not be impacted by the Activity.	Low: Subtidal species that would not be impacted by the Activity.
Thunnus maccoyii	Southern Bluefin Tuna	PMST	-	CD	V	Marine species that prefers open seas. Rarely seen in estuaries.	Low: Subtidal species that would not be impacted by the Activity.	Low: Subtidal species that would not be impacted by the Activity.
Flora								

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
Acacia bynoeana	Bynoe's Wattle, Tiny Wattle	PMST	E	V	-	Grows mainly in heath and dry sclerophyll forest in sandy soils. Mainly south of Dora Creek Morisset area to Berrima and the Illawarra region, west to the Blue Mountains, also recorded from near Kurri Kurri in the Hunter Valley and from Morton National Park.	Low: No records within 10 km and no associated PCTs in Activity Area.	Low: no records within 10 km and no associated PCTs in Activity Area.
Acacia pubescens	Downy Wattle, Hairy Stemmed Wattle	PMST	V	V	-	Occurs in open woodland and forest, in a variety of plant communities, including Cooks River/Castlereagh Ironbark Forest, Shale/Gravel Transition Forest and Cumberland Plain Woodland.	Low: No records within 10 km and no associated PCTs in Activity Area.	Low: No records within 10 km and no associated PCTs in Activity Area.
Acacia terminalis subsp. *Terminalis*	Sunshine Wattle	PMST	E	E	-	Very limited distribution, mainly in near-coastal areas from the northern shores of Sydney Harbour South to Botany Bay, with most records from the Port Jackson area and the eastern suburbs of Sydney. Coastal scrub and dry sclerophyll woodland on sandy soils. Habitat is generally sparse and scattered.	Low: While suitable habitat present within vegetated areas of the 100 m buffer, the Activity Area is outside the known distribution of this species.	Low: While suitable habitat present within vegetated areas of the 100 m buffer, the Activity Area is outside the known distribution of this species.
Asterolasia elegans	null	PMST	E	E	-	Occurs North of Sydney in the Baulkham Hills, Hawkesbury and Hornsby local government areas. Also, likely to occur in the western part of Gosford local government area. Known from only seven population, only one of which is wholly within a conservation reserve. Occurs on Hawkesbury sandstone in sheltered forests on mid to lower slopes and valleys, e.g. in or adjacent to gullies which support sheltered forest.	Low: Suitable forested habitat absent.	Low: Suitable forested habitat absent.
Astrotricha crassifolia	Thick-leaf Star-hair	BioNet, PMST	V	V	-	Occurs near Patonga (Gosford LGA), and in Royal National Park and on the Woronora Plateau (Sutherland and Campbelltown LGAs). There is also a record from near Glen Davis (Lithgow LGA) and in Victoria. Occurs in dry sclerophyll woodland on sandstone.	Low: Suitable woodland habitat absent.	Low: Suitable woodland habitat absent.
Baloskion longipes	Dense Cord-rush	PMST	V	V	-	Drier rainforest, usually near streams.	Low: No records within 10 km and no associated PCTs in Activity Area.	Low: No records within 10 km and no associated PCTs in Activity Area.
Boronia umbellata	Orara Boronia	BioNet	V	-	-	Grows as an understorey shrub in and around gullies in wet open forest.	Low: No records within 10 km and no associated PCTs in Activity Area.	Low: Only 1 record within 10 km, no records in over 40 years and no associated PCTs in Activity Area.
Caladenia tessellata	Thick-lipped Spider-orchid,	PMST	E	V	-	The Tessellated Spider Orchid is found in grassy sclerophyll woodland on clay loam or sandy soils, though the population near Braidwood is in low woodland with stony soil. Known from the	Low: Limited suitable habitat present within vegetated areas however trampling	Low: Limited suitable habitat present within vegetated areas however trampling

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
	Daddy Long-legs					Sydney area (old records), Wyong, Ulladulla and Braidwood in NSW. Populations in Kiama and Queanbeyan are presumed extinct.	unlikely due to limited access to these areas (outside of tracks and beach).	unlikely due to limited access to these areas (outside of tracks and beach).
Callistemon linearifolius	Netted Bottle Brush	BioNet	V	-	-	Recorded from the Georges River to Hawkesbury River in the Sydney area and North to the Nelson Bay area of NSW. Recorded in 2000 at Coalcliff in the northern Illawarra. For the Sydney area recent records are limited to the Hornsby Plateau area near the Hawkesbury River. Grows in dry sclerophyll forest on the coast and adjacent ranges.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Chamaesyce psammogeton	Sand Spurge	BioNet	E	-	-	Found sparsely along the coast from south of Jervis Bay (at Currarong, Culburra and Seven Mile Beach National Park) to Queensland (and Lord Howe Island). Populations have been recorded in Wamberal Lagoon Nature Reserve, Myall Lakes National Park and Bundjalung National Park. Grows on fore-dunes and exposed headlands, often with *Spinifex sericeus*.	Low: Limited suitable habitat present, however, was not detected during habitat survey or targeted survey.	Low: Limited suitable habitat present, however, was not detected during habitat survey or targeted survey.
Cryptostylis hunteriana	Leafless Tongue-orchid	PMST	V	V	-	Does not appear to have well defined habitat preferences and is known from a range of communities, including swamp-heath and woodland. The larger populations typically occur in woodland dominated by Scribbly Gum (*Eucalyptus sclerophylla*), Silvertop Ash (*E. sieberi*), Red Bloodwood (*Corymbia gummifera*) and Black Sheoak (*Allocasuarina littoralis*), appears to prefer open areas in the understorey of this community and is often found in association with the Large Tongue Orchid (*C. subulata*) and the Tartan Tongue Orchid (*C. erecta*).	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Cynanchum elegans	White-flowered Wax Plant	PMST	E	E	-	Recorded from rainforest gullies scrub and scree slopes from the Gloucester district to the Wollongong area and inland to Mt Dangar.	None: No rainforest gullies present in Activity Area.	None: No rainforest gullies present in Activity Area.
Darwinia biflora	null	PMST	V	V	-	Recorded in Ku-ring-gai, Hornsby, Baulkham Hills and Ryde local government areas. The northern, southern, eastern and western limits of the range are at Maroota, North Ryde, Cowan and Kellyville, respectively. Occurs on the edges of weathered shale-capped ridges where these intergrade with Hawkesbury Sandstone. The vegetation structure is usually woodland, open forest or scrub-heath.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Epacris purpurascens		BioNet	V	-	-	Recorded from Gosford in the North, to Narrabeen in the East, Silverdale in the West and Avon Dam vicinity in the South. Found in	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
var. purpurascens						a range of habitat types most of which have a strong shale soil influence.		
Eucalyptus camfieldii	Camfield's Stringybark	BioNet, PMST	V	V	-	Restricted distribution in a narrow band with the most northerly records in the Raymond Terrace area South to Waterfall. Localised and scattered distribution includes sites at Norah Head (Tuggerah Lakes), Peats Ridge, Mt Colah, Elvina Bay Trail (West Head), Terrey Hills, Killara, North Head, Menai, Wattamolla and a few other sites in Royal National Park. Poor coastal country in shallow sandy soils overlying Hawkesbury sandstone. Coastal heath mostly on exposed sandy ridges. Occurs mostly in small scattered stands near the boundary of tall coastal heaths and low open woodland of the slightly more fertile inland areas.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Eucalyptus nicholii	Narrow-leaved Black Peppermint	BioNet	V	-	-	Typically grows in dry grassy woodland on shallow soils of slopes and ridges. Found primarily on infertile soils derived from granite or metasedimentary rock. Seedling recruitment is common, even in disturbed soils, if protected from grazing and fire.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Genoplesium baueri	Bauer's Midge Orchid	BioNet, PMST	E	E	-	Grows in dry sclerophyll forest and moss gardens over sandstone. Flowers February to March. Has been recorded between Ulladulla and Port Stephens. Currently the species is known from just over 200 plants across 13 sites. The species has been recorded in Berowra Valley Regional Park, Royal National Park and Lane Cove National Park and may also occur in the Woronora, Ohares, Metropolitan and Warragamba Catchments.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Grammitis stenophylla	Narrow-leaf Finger Fern	BioNet	E	-	-	Moist places, usually near streams, on rocks or in trees, in rainforest and moist eucalypt forest.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Grevillea caleyi	Caley's Grevillea	BioNet, PMST	CE	CE	-	Restricted to an 8 km square area around Terrey Hills, approximately 20 km north of Sydney. Occurs in three major areas of suitable habitat, namely Belrose, Ingleside and Terrey Hills-Duffys Forest within the Ku-ring-gai, Pittwater and Warringah Local Government areas. All sites occur on the ridgetop between elevations of 170 to 240m above sea level in association with laterite soils and a vegetation community of open forest, generally dominated by *Eucalyptus sieberi* and *Corymbia gummifera*. Commonly found in the endangered Duffys forest ecological community.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
Grevillea shiressii		BioNet, PMST	V	V	-	Grows along creek banks in wet sclerophyll forest with a moist understorey in alluvial sandy or loamy soils.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Haloragis exalata subsp. *Exalata*	Wingless Raspwort, Square Raspwort	PMST	V	V	-	Occurs in four widely scattered localities in eastern NSW. It is disjunctly distributed in the central coast, south coast and north-western slopes botanical subdivisions of NSW. The species appears to require protected and shaded damp situations in riparian habitats.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Haloragodendron lucasii	Hal	PMST	E	E	-	Occurs on Hawkesbury Sandstone in moist sandy loam soil. The species prefers sheltered aspects and inhabits gentle slopes below cliff lines near creeks in low open woodland or open forest. Its distribution is correlated with high soil moisture and phosphorus levels.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Isotoma fluviatilis subsp. *Fluviatilis*		BioNet	-	X	-	Currently known from only two adjacent sites on a single private property at Erskine Park in the Penrith LGA. Previous sightings are all from western Sydney at Homebush and at Agnes Banks. Known to grow in damp places on the Cumberland Plain, including freshwater wetland, grassland/alluvial woodland and an alluvial woodland/shale plains woodland (Cumberland Plain Woodland) ecotone.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Kunzea rupestris		BioNet, PMST	V	V	-	Grows in shallow depressions on large flat sandstone rock outcrops. Characteristically found in short to tall shrubland or heathland.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Lasiopetalum joyceae		BioNet, PMST	V	V	-	Grows in heath on sandstone.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Leptospermum deanei	Deane's Tea-tree	PMST	V	V	-	Grows in woodland on lower hill slopes or near creeks. Sandy alluvial soil or sand over sandstone. Occurs in riparian scrub, woodland and open forest.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Macadamia integrifolia	Macadamia Nut	BioNet	-	V	-	The Macadamia Nut occurs as a scattered rare to occasional tree, and populations sizes are difficult to estimate. It grows in remnant rainforest, preferring partially open areas such as rainforest edges. However, this habitat is not continuously fit for the species. This species has been recorded across a wide range of landforms including hill crests, hill slopes, scree slopes and foot slopes, gullies, benches and terrace plains. High nutrient alluvial and volcanic soils predominate often with considerable exposure of rock fragments or substrate, mostly basalt and diorite. The Macadamia Nut prefers to	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
						grow in mild frost-free areas with a reasonably high rainfall. There have been records of planted specimens bearing fruit as far south as Sydney. Vegetation communities in which the Macadamia Nut is found range from complex notophyll mixed forest, extremely tall, closed forest, simple notophyll mixed very tall closed forest to simple microphyll-notophyll mixed mid-high closed forest with Araucaria and Argyrodendron emergent.		
Maundia triglochinoides		BioNet	V	-	-	Grows in swamps, creeks or shallow freshwater 30 – 60 cm deep on heavy clay and low nutrients. Flowering occurs during warmer months. Diaspore is the seed and root tubers, which are probably dispersed by water.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Melaleuca biconvexa	Biconvex Paperbark	PMST	V	V	-	Grows in damp places, often near streams or low-lying areas on alluvial soils of low slopes or sheltered aspects. Scattered and dispersed populations found in the Jervis Bay area in the South and the Gosford-Wyong area in the North.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Melaleuca deanei	Deane's Melaleuca	PMST	V	V	-	Grows in wet heath on sandstone in coastal districts from Berowra to Nowra.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Micromyrtus blakelyi	null	PMST	V	V	-	Typically occurs within heathlands in shallow sandy soil in cracks and depressions of sandstone rock platforms.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Microtis angusii	Angus's Onion Orchid	BioNet, PMST	E	E	-	It is not easy to define the preferred natural habitat of this orchid as the Ingleside location is highly disturbed. The dominant species occurring on the site are introduced weeds Coolatai grass and *Acacia saligna*. The Ingleside population occurs on soils that have been modified but were originally those of the restricted ridgetop lateritic soils in the Duffys Forest – Terrey Hills – Ingleside and Belrose areas. These soils support a specific and distinct vegetation type, the Duffys forest Vegetation Community which is listed as an EEC under the TSC Act and ranges from open forest to low open forest and rarely woodland.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Persicaria elatior	Knotweed, Tall Knotweed	PMST	V	V	-	This species normally grows in damp places, especially beside streams and lakes. Occasionally in swamp forest or associated with disturbance.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Persoonia hirsuta	Hairy Geebung	BioNet, PMST	E	E	-	Distributed from Singleton in the North, along the east coast to Bargo in the South and the Blue Mountains to the West. A large area of occurrence, but occurs in small populations, increasing the	Low: Limited suitable habitat present within vegetated areas however trampling	Low: Limited suitable habitat present within vegetated areas however trampling

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
						species's fragmentation in the landscape. Found in sandy soils in dry sclerophyll open forest, woodland and heath on sandstone. Usually present as isolated individuals or very small populations. Probably killed by fire (as other *Persoonia* spp. are) but will regenerate from seed.	unlikely due to limited access to these areas (outside of tracks and beach).	unlikely due to limited access to these areas (outside of tracks and beach).
Pimelea curviflora var. *curviflora*		BioNet, PMST	V	V	-	Confined to the coastal area of Sydney between northern Sydney in the South and Maroota in the North-West. Former range extended South to the Parramatta River and Port Jackson region including Five Dock, Bellevue Hill and Manly. Occurs on shaley-lateritic soils over sandstone and shale-sandstone transition soils on ridgetops and upper slopes amongst woodlands.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Prostanthera askania	Tranquillity Mintbush, Tranquility Mintbush	PMST	E	E	-	Occurs adjacent to drainage lines on flat to moderately steep slopes formed on Narrabeen sandstone and in moist sclerophyll forest and warm temperate rainforest communities. These communities are generally tall forests with a mesic understorey. Appears in some locations to propagate vegetatively by stem-layering where prostrate branches take root where they remain in contact with the soil.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Prostanthera densa	Villous Mint-bush	BioNet, PMST	V	V	-	Villous Mint-bush generally grows in sclerophyll forest and shrubland on coastal headlands and near coastal ranges, chiefly on sandstone, and rocky slopes near the sea.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Prostanthera junonis	Somersby Mintbush	PMST	E	E	-	The species is restricted to the Somersby Plateau. It occurs on both the Somersby and Sydney Town soil landscapes on gently undulating country over weathered Hawkesbury sandstone within open forest-low woodland-open scrub. It occurs in both disturbed and undisturbed sites.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Prostanthera marifolia	Seaforth Mintbush	PMST	CE	CE	-	Occurs in localised patches in or in close proximity to the endangered Duffys forest ecological community. Located on deeply weathered clay-loam soils associated with ironstone and scattered shale lenses, a soil type which only occurs on ridge tops and has been extensively urbanised.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Rhizanthella slateri	Eastern Underground Orchid	PMST	V, EP (Gre at	E	-	Habitat requirements are poorly understood and no particular vegetation type has been associated with the species, although it is known to occur in sclerophyll forest. Highly cryptic given that it grows almost completely below the soil surface, with flowers being	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
			Lakes)			the only part of the plant that can occur above ground. Therefore, usually located only when the soil is disturbed. In NSW, currently known from fewer than 10 locations, including near Bulahdelah, the Watagan Mountains, the Blue Mountains, Wiseman's Ferry area, Agnes Banks and near Nowra.		
Rhodamnia rubescens	Scrub Turpentine	BioNet, PMST	CE	CE	-	Occurs in coastal districts north from Batemans Bay in NSW, approximately 280 km South of Sydney, to areas inland of Bundaberg in Queensland. Populations of *R. rubescens* typically occur in coastal regions and occasionally extend inland onto escarpments up to 600 m above sea level in areas with rainfall of 1,000-1,600 mm. Found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest usually on volcanic and sedimentary soils.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Rhodomyrtus psidioides	Native Guava	PMST	CE	CE	-	Occurs from Broken Bay, approximately 90 km North of Sydney, NSW, to Maryborough in Queensland. Populations are typically restricted to coastal and sub-coastal areas of low elevation however the species does occur up to c. 120 km inland in the Hunter and Clarence River catchments and along the Border Ranges in NSW. Pioneer species found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest often near creeks and drainage lines. This species is characterised being extremely susceptible to infection by Myrtle Rust. Myrtle Rust affects all plant parts.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Syzygium paniculatum	Magenta Lilly Pilly	BioNet, PMST	E	V	-	Found only in NSW, in a narrow, linear coastal strip from Bulahdelah to Conjola State forest. On the South Coast the species occurs on grey soils over sandstone, restricted mainly to remnant stands of littoral rainforest. On the Central Coast it occurs on gravels, sands, silts and clays in riverside gallery rainforests and remnant littoral rainforest communities	Low: Limited suitable habitat present within adjacent vegetated areas however trampling unlikely due to limited access to these areas (outside of tracks and beach).	Low: Limited suitable habitat present within adjacent vegetated areas however trampling unlikely due to limited access to these areas (outside of tracks and beach).
Tetratheca glandulosa		BioNet	V	-	-	Associated with shale-sandstone transition habitat where shale cappings occur over sandstone, with associated soil landscapes such as Lucas Heights, Gymea, Lambert and Faulconbridge. Topographically, the plant occupies ridgetops, upper-slopes and to a lesser extent mid-slope sandstone benches. Soils are generally shallow, consisting of a yellow, clayey-sandy loam. Stony lateritic fragments are also common in the soil profile on many of these	Low: A moderate number of records within 10 km, recent records (within past 5 years) and no associated PCTs in Activity Area.	Low: No records within 10 km and no associated PCTs in Activity Area.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
						ridgetops. Vegetation structure varies from heaths and scrub to woodlands-open woodlands, and open forest.		
Thesium australe	Austral Toadflax, Toadflax	PMST	V	V	-	Grows in very small populations scattered across eastern NSW, along the coast, and from the Northern to Southern Tablelands. It is also found in Tasmania and Queensland and in Eastern Asia. Occurs in grassland or grassy woodland. Grows on kangaroo grass tussocks but has also been recorded within the exotic coolatai grass.	Low: No associated PCTs in Activity Area.	Low: No associated PCTs in Activity Area.
Mammals								
Arctocephalus forsteri	New Zealand Fur-seal	BioNet	V	-	-	Prefers rocky parts of islands with jumbled terrain and boulders.	Low: Limited rocky habitat possibly suitable for haul outs, but not preferred habitat and likely too disturbed with human activity. More suitable habitats are located elsewhere in the locality. No records within 10 km.	Low: Suitable rocky habitat for haul outs is absent. Only 1 record within 10 km and no records in over 20 years.
Arctocephalus pusillus doriferus	Australian Fur-seal	BioNet	V	-	-	The Australian Fur Seal is reported to have bred at Seal Rocks near Port Stephens and Montague Island in Southern NSW. Haul outs are observed at isolated places along the NSW coast. The species prefers rocky parts of islands with flat, open terrain. They occupy flatter areas than do New Zealand Fur-seals where they occur together.	Low: Limited rocky habitat possibly suitable for haul outs, but not preferred habitat and likely too disturbed with human activity. More suitable habitats are located elsewhere in the locality. No records within 10 km.	Low: Suitable rocky habitat for haul outs is absent. A small number of records within 10 km and no records in over 10 years.
Balaenoptera borealis	Sei Whale	PMST	-	V, M	-	Rare species that may inhabit continental shelf waters (20-60km offshore) Australia wide, especially in areas where upwelling is present.	Low: Subtidal species that would not be impacted by the Activity.	Low: Subtidal species that would not be impacted by the Activity.
Balaenoptera edeni	Bryde's Whale	PMST	-	M	-	Bryde's Whale is found in temperate to tropical waters exceeding 16.3 °C, but generally those 20 °C or warmer.	Low: Subtidal species that would not be impacted by the Activity.	Low: Subtidal species that would not be impacted by the Activity.
Balaenoptera musculus	Blue Whale	PMST	E	E, M	-	Breeds in warm water at low latitudes, preferring open seas rather than coastal waters.	Low: Subtidal species that would not be impacted by the Activity.	Low: Subtidal species that would not be impacted by the Activity.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
Balaenoptera physalus	Fin Whale	PMST	-	V, M	-	The Australian Antarctic waters are important feeding grounds for fin whales. Sightings of fin whales feeding in the Bonney Upwelling area indicate that this area is also a potentially important feeding ground. There are no known mating or calving areas in Australian waters. The sighting of a cow and calf in the Bonney Upwelling in April 2000 and the stranding of two fin whale calves in South Australia suggest that this area may be important to the species' reproduction, perhaps as a provisioning area for mothers with calves.	Low: Subtidal species that would not be impacted by the Activity.	Low: Subtidal species that would not be impacted by the Activity.
Caperea marginata	Pygmy Right Whale	PMST	-	M	-	Pygmy Right Whales in Australian waters are distributed between 32° S and 47° S within temperate waters, while there are few to no records in NSW.	Low: Subtidal species that would not be impacted by the Activity.	Low: Subtidal species that would not be impacted by the Activity.
Cercartetus nanus	Eastern Pygmy-possum	BioNet	V	-	-	Eastern Pygmy-possum is found in south-eastern Australia, from southern Queensland to eastern South Australia and in Tasmania. In NSW it extends from the coast inland as far as the Pilliga, Dubbo, Parkes and Wagga Wagga on the western slopes. This species inhabits rainforest through to sclerophyll forest and tree heath. Banksias and myrtaceous shrubs and trees are a favoured food source. Will often nest in tree hollows but can also construct its own nest. Because of its small size it is able to utilise a range of hollow sizes including very small hollows. Individuals will use a number of different hollows and an individual has been recorded using up to nine nest sites within a 0.5 ha area over a 5-month period.	Moderate: Suitable habitat in buffer, no breeding habitat.	Moderate: Suitable habitat in buffer, no breeding habitat.
Chalinolobus dwyeri	Large-eared Pied Bat	BioNet, PMST	V	V	-	Located in a variety of drier habitats, including the dry sclerophyll forests and woodlands to the east and west of the Great Dividing Range. Can also be found on the edges of rainforests and in wet sclerophyll forests. This species roosts in caves and mines in groups of between 3 and 37 individuals. Maternity roosts are in roof domes in sandstone caves and overhangs.	Moderate: Limited suitable foraging habitat present and no suitable breeding or roosting habitat present. A moderate number of records within 10 km, recent records (within past 5 years).	Low: Limited suitable foraging habitat present and no suitable breeding or roosting habitat present. A small number of records within 10 km, recent records (within past 5 years).
Dasyurus maculatus	Spotted-tailed Quoll	BioNet, PMST	V	E	-	Spotted-tailed Quoll are found on the East Coast of NSW, Tasmania, Eastern Victoria and North-Eastern Queensland. Only in Tasmania is it still considered common. 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.	Low: Suitable habitat absent from Activity Area. Adjacent buffer vegetation is unlikely to support this species due to its urban nature.	Low: Suitable habitat absent from Activity Area. Adjacent buffer vegetation is unlikely to support this species due to its urban nature.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
Dugong dugon	Dugong	BioNet, PMST	E	MA, M	-	Range extends South from warmer coastal and island waters of the Indo-West Pacific to northern NSW where it's known from incidental records only. Major concentrations of Dugongs occur in wide shallow protected bays, wide shallow mangrove channels and in the lee of large inshore islands. Will also occupy deeper waters if their sea grass food is available.	Low: Subtidal species that would not be impacted by the Activity.	Low: Subtidal species that would not be impacted by the Activity.
Eubalaena australis	Southern Right Whale	BioNet, PMST	E	E, M	-	Seasonally present along the Australian coast between late April and early November.	Low: Subtidal species that would not be impacted by the Activity.	Low: Subtidal species that would not be impacted by the Activity.
Falsistrellus tasmaniensis	Eastern False Pipistrelle	BioNet	V	-	-	Inhabit sclerophyll forests, preferring wet habitats where trees are more than 20 m high. Two observations have been made of roosts in stem holes of living eucalypts. There is debate about whether or not this species moves to lower altitudes during winter or whether they remain sedentary but enter torpor. This species also appears to be highly mobile and records showing movements of up to 12 km between roosting and foraging sites.	Low: No suitable habitat is present	Low: No suitable habitat present, no records within 10 km
Isoodon obesulus obesulus	Southern Brown Bandicoot (eastern)	BioNet, PMST	E	E	-	The Southern Brown Bandicoot has a patchy distribution. It is found in south-eastern NSW, east of the Great Dividing Range south from the Hawkesbury River, southern coastal Victoria and the Grampian Ranges, south-eastern South Australia, south-west Western Australia and the northern tip of Queensland. This species prefers sandy soils with scrubby vegetation and /or areas with low ground cover that are burnt from time to time. A mosaic of post-fire vegetation is important for this species. They nest during the day in a shallow depression in the ground covered by leaf litter, grass or other plant material. Nests may be located under Grass trees (*Xanthorrhoea* spp.), blackberry bushes and other shrubs, or in rabbit burrows.	Moderate: While the suitability of the habitat is limited, the precautionary principle has been applied to include this species given its susceptibility to predation by dogs.	Moderate: While the suitability of the habitat is limited, the precautionary principle has been applied to include this species given its susceptibility to predation by dogs.
Lagenorhynchus obscurus	Dusky Dolphin	PMST	-	M	-	Coastal species that is rarely seen inside estuaries. They are primarily found from about 55° to 26°S, with extensions well northwards in association with cold currents.	Low: Subtidal species that would not be impacted by the Activity.	Low: Subtidal species that would not be impacted by the Activity.
Megaptera novaeangliae	Humpback Whale	BioNet, PMST	V	V, M	-	Migrates between Antarctica and the Great Barrier Reef between March and November. Widely distributed in coastal waters and may enter deep embayments at times.	Low: Subtidal species that would not be impacted by the Activity.	Low: Subtidal species that would not be impacted by the Activity.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	BioNet	V	-	-	The Eastern Coastal Free-tailed Bat is found along the east coast from south Queensland to southern NSW. Most records are from dry eucalypt forests and woodlands to the east of the Great Dividing Range. Appears to roost in trees, but little is known of this species' habits.	Moderate: Limited suitable foraging habitat and no suitable breeding or roosting habitat. A moderate number of records within 10 km, recent records (within past 5 years).	Low: Limited suitable foraging habitat and no suitable breeding or roosting habitat. A small number of records within 10 km, recent records (within past 5 years).
Miniopterus australis	Little Bent-winged Bat	BioNet	V	-	-	Little Bent-wing Bats are found in coastal north-eastern NSW and eastern Queensland. The Little Bent-wing Bat is an insectivorous bat that roosts in caves, in old mines, in tunnels, under bridges, or in similar structures. They breed in large aggregations in a small number of known caves and may travel 100s km from feeding home ranges to breeding sites. The Little Bent-wing Bat has a preference for moist eucalypt forest, rainforest or dense coastal banksia scrub where it forages below the canopy for insects.	Moderate: Limited suitable foraging habitat and no suitable breeding or roosting habitat. Numerous records within 10 km, recent records (within past 5 years).	Moderate: Limited suitable foraging habitat and no suitable breeding or roosting habitat. A moderate number of records within 10 km, recent records (within past 5 years).
Miniopterus orianae oceanensis	Large Bent-winged Bat	BioNet	V	-	-	Large Bent-winged Bats occur along the east and north-west coasts of Australia. Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings and other man-made structures. They form discrete populations centred on a maternity cave that is used annually in spring and summer for the birth and rearing of young.	Moderate: Limited suitable foraging habitat and no suitable breeding or roosting habitat. A high number of records within 10 km, recent records (within past 5 years).	Moderate: Limited suitable foraging habitat and no suitable breeding habitat. A moderate number of records within 10 km, recent records (within past 5 years).
Myotis macropus	Southern Myotis	BioNet	V	-	-	The Southern Myotis is found in the coastal band from the north-west of Australia, across the top-end and south to western Victoria. Generally, roost in groups of 10 - 15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage.	Moderate: Limited suitable foraging habitat and no suitable breeding or roosting habitat. Numerous records within 10 km, recent records (within past 5 years).	Low: Limited suitable foraging habitat and no suitable breeding or roosting habitat. A small number of records within 10 km, no recent records (within past 5 years).
Orcinus orca	Killer Whale, Orca	PMST	-	M	-	Killer Whales are recorded from all states, with concentrations reported around Tasmania and frequent sightings in South Australia and Victoria. The preferred habitat of Killer Whales includes oceanic, pelagic and neritic regions in both warm and cold waters.	Low: Subtidal species that would not be impacted by the Activity.	Low: Subtidal species that would not be impacted by the Activity.
Petauroides volans	Greater Glider	BioNet, PMST	-	V	-	This population of Greater Gliders on the south coast of NSW is bounded by the Moruya River to the north, Coila Lake to the south and the Princes Highway and cleared land exceeding 700 m in width	Low: Suitable forest habitat absent.	Low: Suitable forest habitat absent.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
						to the west. The Greater Glider occurs in eucalypt forests and woodlands.		
Petaurus australis	Yellow-bellied Glider	BioNet	V	V	-	Occur in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. Forest type preferences vary with latitude and elevation; mixed coastal forests to dry escarpment forests in the north; moist coastal gullies and creek flats to tall montane forests in the south. Feed primarily on plant and insect exudates, including nectar, sap, honeydew and manna with pollen and insects providing protein. Den, often in family groups, in hollows of large trees. Very mobile and occupy large home ranges between 20 to 85 ha to encompass dispersed and seasonally variable food resources.	Low: Suitable habitat absent from Activity Area.	Low: Suitable habitat absent from Activity Area.
Petaurus norfolcensis	Squirrel Glider	BioNet	V	-	-	Generally occurs in dry sclerophyll forests and woodlands but is absent from dense coastal ranges in the southern part of its range. Requires abundant hollow bearing trees and a mix of eucalypts, banksias and acacias. There is only limited information available on den tree use by squirrel gliders, but it has been observed using both living and dead trees as well as hollow stumps. Within a suitable vegetation community at least one species should flower heavily in winter and one species of eucalypt should be smooth barked. Endangered population in the Wagga Wagga LGA.	Low: Suitable woodland habitat absent.	Low: Suitable woodland habitat absent.
Petaurus norfolcensis (population)	Squirrel Glider on Barrenjoey Peninsula, north of Bushrangers Hill	BioNet	EP,V	-	-	The endangered population is within the Pittwater Local Government Area on the Barrenjoey Peninsula, north of Bushrangers Hill.	None: This endangered population occurs outside the Activity Area.	Low: While the Activity Area falls within the distribution of this endangered population, the vegetation within the Activity Area and 100 m buffer are unsuitable and unlikely to support this species.
Petrogale penicillata	Brush-tailed Rock-wallaby	PMST	E	V	-	Found in rocky areas in a wide variety of habitats including rainforest gullies, wet and dry sclerophyll forest, open woodland and rocky outcrops in semi-arid country. Commonly sites have a northerly aspect with numerous ledges, caves and crevices.	Low: Suitable rocky habitat absent.	Low: Suitable rocky habitat absent.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
Phascolarctos cinereus	Koala	BioNet	V	V	-	Inhabits eucalypt forests and woodlands. The suitability of these forests for habitation depends on the size and species of trees present, soil nutrients, climate and rainfall.	Low: No suitable habitat present in Activity Area.	Low: No suitable habitat present in Activity Area.
Phascolarctos cinereus (population)	Koala in the Pittwater LGA (BioNet), Koala (combined populations of Queensland, NSW and the Australian Capital Territory) (PMST)	BioNet, PMST	EP,V	V	-	Inhabits eucalypt forests and woodlands. The suitability of these forests for habitation depends on the size and species of trees present, soil nutrients, climate and rainfall.	Low: No suitable habitat present in Activity Area.	Low: No suitable habitat present in Activity Area.
Physeter macrocephalus	Sperm Whale	BioNet	V	-	-	Wide, but patchy distribution from the tropics to the edge of the polar pack-ice in both hemispheres. Concentrations of Sperm Whales tend to occur where the seabed rises steeply from a greater depth, beyond the continental shelf.	Low: Subtidal species that would not be impacted by the Activity.	Low: Subtidal species that would not be impacted by the Activity.
Potorous tridactylus tridactylus	Long-nosed Potoroo (SE Mainland)	PMST	V	V	-	Inhabits coastal heath and wet and dry sclerophyll forests. Generally found in areas with rainfall greater than 760 mm. Requires relatively thick ground cover where the soil is light and sandy.	Low: No coastal heath and wet and dry sclerophyll forest habitat present.	Low: No coastal heath and wet and dry sclerophyll forest habitat present
Pseudomys gracilicaudatus	Eastern Chestnut Mouse	BioNet	V	-	-	In NSW the Eastern Chestnut Mouse mainly occurs North from the Hawkesbury River area as scattered records along to coast and Eastern fall of the Great Dividing Range extending North into Queensland. There are however, isolated records in the Jervis Bay area. In NSW the Eastern Chestnut Mouse is mostly found, in low numbers, in heathland and is most common in dense, wet heath and swamps. In the tropics it is more an animal of grassy woodlands. Optimal habitat appears to be in vigorously regenerating heathland burnt from 18 months to four years previously. By the time the heath is mature, the larger Swamp Rat becomes dominant, and Eastern Chestnut Mouse numbers drop again.	Low: Suitable wet heath/swamp habitat absent.	Low: Suitable wet heath/swamp habitat absent.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
Pseudomys novaehollandiae	New Holland Mouse	BioNet, PMST	-	V	-	The New Holland Mouse currently has a disjunct, fragmented distribution across Tasmania, Victoria, NSW and Queensland. Across the species' range the New Holland Mouse is known to inhabit open heathlands, open woodlands with a heathland understorey, and vegetated sand dunes.	Low: No coastal heath habitat present.	Low: No coastal heath habitat present.
Pteropus poliocephalus	Grey-headed Flying-fox	BioNet, PMST	V	V	-	Grey-headed Flying-foxes are generally found within 200 km of the eastern coast of Australia, from Rockhampton in Queensland to Adelaide in South Australia. This species is a canopy feeding frugivore and nectarivore of rainforests, open forests, woodlands, melaleuca swamps and banksia woodlands. Bats commute daily to foraging areas, usually within 15 km of the day roost although some individuals may travel up to 70 km. Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy. Individual camps may have tens of thousands of animals and are used for mating, and for giving birth and rearing young.	Moderate: Limited suitable foraging habitat in buffer and no known camps in Activity Area. Nearest camp is approximately 1.7 km South-West of Activity Area at Warriewood.	Moderate: Limited suitable foraging habitat in buffer and no known camps in Activity Area. Nearest camp is approximately 4.2 km South of Activity Area at Avalon.
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	BioNet	V	-	-	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.	Low: Limited suitable foraging habitat is present, no suitable breeding or roosting habitat present.	Low: Limited suitable foraging habitat is present, no suitable breeding or roosting habitat present.
Scoteanax rueppellii	Greater Broad-nosed Bat	BioNet	V	-	-	Prefers moist gullies in mature coastal forests and rainforests between the Great Dividing Range and the coast. They are only found at low altitudes below 500 m. In dense environments they utilise natural and human-made opening in the forest for flight paths. Creeks and small rivers are favoured foraging habitat. This species roosts in hollow tree trunks and branches.	Low: Suitable gully and rainforest habitat is absent.	Low: Suitable gully and rainforest habitat is absent.
Sousa sahulensis	Australian Humpback Dolphin	PMST	-	M	-	Inhabit shallow coastal, estuarine, and occasionally riverine habitats, in tropical and subtropical regions. The species usually occurs close to the coast, generally in depths of less than 20 m.	Low: Subtidal species that would not be impacted by the Activity.	Low: Subtidal species that would not be impacted by the Activity.
Vespadelus troughtoni	Eastern Cave Bat	BioNet	V	-	-	The Eastern Cave Bat is found in a broad band on both sides of the Great Dividing Range from Cape York to Kempsey, with records from the New England Tablelands and the upper north coast of NSW. The western limit appears to be the Warrumbungle Range, and there is a	Low: Limited suitable foraging habitat is present, no suitable breeding or roosting habitat present.	Low: Limited suitable foraging habitat is present, no suitable breeding or roosting habitat present.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
						single record from Southern NSW, East of the ACT. A cave-roosting species that is usually found in dry open forest and woodland, near cliffs or rocky overhangs; has been recorded roosting in disused mine workings, occasionally in colonies of up to 500 individuals.		
Invertebrates								
Dendronephthya australis	Cauliflower Soft Coral	PMST	-	E	E	The species appears to be confined to estuarine environments in NSW where it occurs in depths of 1 to 18 m. The species is yet to be recorded outside estuaries or coastal embayments. It is generally found in sandy bottom areas in regions of high current flow, and it has been found to expand and contract in relation to tidal flow cycle	None: No estuarine habitat present.	None: No estuarine habitat present.
Meridolum maryae	Maroubra Woodland Snail, Maroubra Land Snail	PMST	E	E	-	The species is found in the leaf litter of coastal vegetation communities, most commonly in heathland on foredunes also from areas of podsolised dunes/sand plains that support taller heath communities including Eastern Suburbs Banksia Scrub. Can dig several centimetres into soil during dry conditions. The species is typically active at night but can also move about on overcast or rainy days. The ability for individuals to disperse is expected to be similar to closely related camaenids which can move around 3.5 m in a day and 350 m in a lifetime.	Low: No coastal heath habitat present. While no BioNet records occur near the Activity Area, specimen records reported in a research paper were from within 250 m of the Activity Area (Clark 2009); A single specimen was recorded high in the dune shrublands approximately 50 m west of the Activity Area in 1981. The next nearest specimen was recorded in 1950 from Mona Vale Golf Course, approximately 250 m west of the Activity Area. As this species can only move approximately 3.5 m per day they are unable to disperse over large distances. While there is a single record in close proximity to the Activity Area, it is from over 40 years ago. It is considered likely that the Activity Area was	Low: No coastal heath habitat present. While no BioNet records occur near the Activity Area, specimen records reported in a research paper were from within 250 m of the Activity Area (Clark 2009); A single specimen was recorded in the dune shrublands approximately 20 m west of the Activity Area in 1991. The next nearest specimens were recorded in the dune shrublands approximately 185 m north-west of the Activity Area in 1990. As this species can only move approximately 3.5 m per day they are unable to disperse over large distances. While there is a single record in close proximity to the Activity Area, it is from over 30 years ago. It is considered likely that the Activity Area was less

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
							less disturbed at this time. Furthermore, essential microhabitat features such as leaf litter are absent from the dune shrubland habitat in close proximity of the Activity Area. The Activity Area therefore does not provide suitable habitat for this species.	disturbed at this time. Furthermore, essential microhabitat features such as leaf litter are absent from the dune shrubland habitat in close proximity of the Activity Area. The Activity Area therefore does not provide suitable habitat for this species.
Reptiles								
Caretta caretta	Loggerhead Turtle	BioNet, PMST	E	E, MA, M	-	Loggerhead turtles have a worldwide tropical and subtropical distribution. In Australia they occur in coral reefs, bays and estuaries in tropical and warm temperate waters off the coast of Queensland, Northern Territory, Western Australia and NSW. The female comes ashore to lay her eggs in a hole dug on the beach in tropical regions during the warmer months. The eastern Australian population nests on the southern Great Barrier Reef and adjacent mainland coastal areas.	Moderate: While no known breeding sites occur in the area (DAWE 2021a) and the species is unlikely to use this beach for breeding, the precautionary principle has been applied given the species susceptibility to disturbance. A single record of a nesting event occurred at Bungan Beach to the north of the Activity Area in 2012, however this is outside the known breeding distribution of this species and is considered unlikely to be a regular occurrence.	Moderate: While no known breeding sites occur in the area (DAWE 2021a) and the species is unlikely to come ashore, the precautionary principle has been applied given the species susceptibility to disturbance.
Chelonia mydas	Green Turtle	BioNet, PMST	V	V, MA, M	-	Green turtles occur in seaweed rich coral reefs and inshore seagrass pastures in tropical and subtropical areas of the Indo-Pacific region. This species is widely distributed in tropical and sub-tropical seas. They are usually found in tropical waters around Australia but also occurs in coastal waters of NSW, where it is generally seen on the north or central coast, with occasional records from the south coast. Green Turtles lay eggs in holes dug in beaches throughout their range.	Moderate: While no known breeding sites occur in the area (DAWE 2021a) and the species is unlikely to come ashore, the precautionary principle has been applied given the species susceptibility to disturbance.	Moderate: While no known breeding sites occur in the area (DAWE 2021a) and the species is unlikely to come ashore, the precautionary principle has been applied given the species susceptibility to disturbance.

Scientific Name	Common Name	Source	BC Act	EPBC Act	FM Act	Habitat	Likelihood Mona Vale	Likelihood Palm Beach
Dermochelys coriacea	Leatherback Turtle, Leathery Turtle, Luth	BioNet, PMST	V	E, MA, M	-	Occurs in inshore and offshore marine waters. Leatherback turtles are most commonly reported feeding in coastal waters in central eastern Australia (from the Sunshine Coast in southern Queensland to central New South Wales); south-east Australia (from Tasmania, Victoria and eastern South Australia) and in south-western Western Australia. They are also regularly seen in southern Australian. Rarely breeds in Australia, with the nearest regular nesting sites being the Solomon Islands and Malayan Archipelago. Occasional breeding records from NSW coast, including between Ballina and Lennox Head in Northern NSW.	Low: While a number of records for this species occur within 10 km, these records are predominantly of entanglements at sea or, where observed ashore, of carcasses.	Low: While a number of records for this species occur within 10 km, these records are predominantly of entanglements at sea or, where observed ashore, of carcasses.
Eretmochelys imbricata	Hawksbill Turtle	BioNet, PMST	-	V, MA, M	-	Hawksbill Turtles are found in tropical, subtropical and temperate waters in all the oceans of the world. Nesting is mainly confined to tropical beaches. Along the Great Barrier Reef, Hawksbill Turtles nest in low numbers from just north of Princess Charlotte Bay to Torres Strait. Nesting also occurs in the Northern Territory and Western Australia. Eggs are buried in the sand on beaches.	Moderate: While no known breeding sites occur in the area (DAWE 2021a) and the species is unlikely to come ashore, the precautionary principle has been applied given the species susceptibility to disturbance.	Moderate: While no known breeding sites occur in the area (DAWE 2021a) and the species is unlikely to come ashore, the precautionary principle has been applied given the species susceptibility to disturbance.
Hoplocephalus bungaroides	Broad-headed Snake	PMST	E	V	-	Occurs almost exclusively in association with communities occurring on Triassic sandstone within the Sydney Basin. Typically found among exposed sandstone outcrops with vegetation types ranging from woodland to heath. Within these habitats they spend most of the year sheltering in and under rock crevices and exfoliating rock. However, some individuals will migrate to tree hollows within 500m of escarpment to find shelter during hotter parts of summer.	Low: Suitable rock crevices and exfoliating rock absent.	Low: Suitable rock crevices and exfoliating rock absent.
Natator depressus	Flatback Turtle	PMST	-	V, MA, M	-	Pelagic and coastal species that may occupy coastal waters including estuaries but more common in warmer tropical waters of Queensland. They feed in the northern coastal regions of Australia, extending as far south as the Tropic of Capricorn.	Low: No records within 10 km, Activity Area is outside species distribution	Low: No records within 10 km, Activity Area is outside species distribution
Varanus rosenbergi	Rosenberg's Goanna	BioNet	V	-	-	This species is a Hawkesbury-Narrabeen sandstone outcrop specialist. Occurs in coastal heaths, humid woodlands and both wet and dry sclerophyll forests.	Low: No suitable coastal heath habitat present.	Low: No suitable coastal heath habitat present.

Annex 6 Tests of Significance

A Test of Significance is provided for the following BC Act listed threatened species:

- Threatened Fauna:
  - Raptors (combined assessment of three species)
    - White-bellied Sea-Eagle (*Haliaeetus leucogaster*)
    - Eastern Osprey (*Pandion haliaetus cristatus*)
    - Little Eagle (*Hieraaetus morphnoides*)
  - Little Tern (*Sternula albifrons*)
  - Eastern Pygmy-possum (*Cercartetus nanus*)
  - Southern Brown Bandicoot (eastern - *Isoodon obesulus obesulus*)
  - Eastern Bristlebird (*Dasyornis brachypterus*)
  - Beach Stone-curlew (*Esacus magnirostris*)
  - Marine Turtles (combined assessment of two species)
    - Loggerhead Turtle (*Caretta caretta*)
    - Green Turtle (*Chelonia mydas*)

A Significant Impact Criteria assessment is provided for the following EPBC Act listed threatened and migratory species:

- Threatened Fauna:
  - Eastern Bristlebird (*Dasyornis brachypterus*)
  - Australian Fairy Tern (*Sternula nereis nereis*)
  - Southern Brown Bandicoot (eastern - *Isoodon obesulus obesulus*)
  - Marine Turtles (combined assessment of three species)
    - Loggerhead Turtle (*Caretta caretta*)
    - Green Turtle (*Chelonia mydas*)
    - Hawksbill Turtle (*Eretmochelys imbricata*)

- Migratory Fauna:
  - Migratory birds (combined assessment of four species)
    - Caspian Tern (*Hydroprogne caspia*)
    - Common Tern (*Sterna hirundo*)
    - Little Tern (*Sternula albifrons*)
    - Eastern Osprey (*Pandion haliaetus cristatus*)
  - Marine Turtles (combined assessment of three species)
    - Loggerhead Turtle (*Caretta caretta*)
    - Green Turtle (*Chelonia mydas*)
    - Hawksbill Turtle (*Eretmochelys imbricata*)

Threatened species listed under the BC Act

Raptors

Raptors listed under the BC Act		
White-bellied Sea-Eagle (*Haliaeetus leucogaster*): Vulnerable Distribution: The White-bellied Sea-eagle is distributed around the Australian coastline. Habitat requirements: The White-bellied Sea-eagle occurs at sites near the sea or sea-shore and terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, and forest (including rainforest). Breeding occurs in tall mature open forest/woodland building large stick nests in large old eucalypts. The species prefers to feed on fish but will also hunt waterbirds, reptiles and mammals. Habitat constraints include Living or dead mature trees within suitable vegetation within 1km of a rivers, lakes, large dams or creeks, wetlands and coastlines. Suitable habitat exists within PCTs 772 and 1204 within both Activity Areas, within PCT 771, which occurs within 100 m of the Mona Vale Beach (South) Activity Area and within 50 m of the Palm Beach (North) Activity Area, and within PCT 1817, which occurs within 150 m of the Mona Vale Beach (South) Activity Area. **Eastern Osprey (*Pandion haliaetus cristatus*):** Vulnerable Distribution: Eastern Ospreys are found around the Australian coastline, except for Victoria and Tasmania. Pair observed flying over cliffs and dunes at Mona Vale Activity Area. Habitat requirements: Eastern Ospreys favour coastal areas, especially the mouths of large rivers, lagoons and lakes. They feed on fish over clear, open water, and nest high up in dead trees or in dead crowns of live trees, usually within one kilometre of the sea. Limited suitable habitat exists in both Activity Areas. **Little Eagle (*Hieraaetus morphnoides*):** Vulnerable Distribution: The Little Eagle is widespread in mainland Australia, central and eastern New Guinea. Habitat requirements: Most abundant in lightly timbered areas with open areas nearby. Often recorded foraging in grasslands, crops, treeless dune fields and recently logged areas. May nest in farmland, woodland and forest in tall trees. Limited suitable habitat exists in both Activity Areas.		
Criteria		**Response**
An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:		
a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction		Limited suitable foraging habitat occurs in the intertidal habitat within both Activity Areas however, the Activity will not remove habitat suitable for these species, and more suitable foraging habitat is abundant in the surrounding area. No suitable breeding habitat for these species occurs within either Activity Area. Given that these species are highly mobile and more suitable habitat occurs nearby, it is considered unlikely that the Activity will have an adverse effect on these species. As no suitable breeding habitat occurs in either Activity Area, the Activity will not have an adverse effect on the life cycle of these species such that a viable local population of the species is likely to be placed at risk of extinction.
b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:	*i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or* *ii) is likely to substantially and adversely modify the composition of the ecological community such that its local*	N/A

Raptors listed under the BC Act		
	occurrence is likely to be placed at risk of extinction,	
c) in relation to the habitat of a threatened species or ecological community:	*i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and* *ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and* *iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,*	i) The Activity will not result in the removal of habitat. Habitat will be modified by the introduction of off-leash dogs within the Activity Area. ii) The Activity will not result in habitat becoming fragmented or isolated from other areas of habitat. iii) Suitable foraging and nesting habitat will not be removed or fragmented. The Activity Area supports limited suitable foraging habitat. No suitable breeding habitat for these species occurs within either Activity Area. The Activity Area it is considered unlikely to represent habitat important to the survival of these species.
d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (AOBV) (either directly or indirectly),		No AOBV are present within the areas potentially impacted by the Activity. However, to the south of Mona Vale is the *Little penguin population in Sydney's North Harbour – critical habitat declaration*, it is unlikely the AOBV will be impacted directly or indirectly by the Activity.
e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.		The Activity is not part of a key threatening process and is not likely to increase the impact of a key threatening process. The Activity has the potential to result in predation by domestic dogs which is similar to the key threatening process 'Predation and hybridisation by Feral Dogs, *Canis lupus familiaris*', however this is considered unlikely due to the large size and highly mobile nature of these species.
Conclusion: Given the that the Activity will not remove suitable habitat for these species and more suitable habitat occurs nearby, that these species are highly mobile and the absence of breeding habitat from the Activity Area, the Activity is unlikely to result in a significant impact on the White-bellied Sea-Eagle, Eastern Osprey or Little Eagle.		

Little Tern

Little Tern (*Sternula albifrons*):Endangered	
Distribution: The eastern Australian subpopulation is migratory, breeding in spring-summer and leaving colonies late summer-autumn and largely vacating southern Australia. The non-breeding range of this population is poorly known, but Australian birds have been recorded in Indonesia. Birds returned to their breeding sites in late winter-early spring. Habitat requirements: Little Terns usually roost or loaf on sand-spits, banks and bars within sheltered estuarine or coastal environments, or on the sandy shores of lakes and ocean beaches The species is not known to use refuge habitats. Little Terns nest on sand-spits, banks, ridges or islets in sheltered coastal environments, such as coastal lakes, estuaries and inlets, and also on wide and flat or gently sloping sandy ocean beaches, and also, occasionally, in sand-dunes. Breed during September to November. Generally nesting occurs from October through January-February (NSW NPWS, 2003). Little Terns are primarily diurnal, and feed by plunging in shallow water of channels and estuaries, or in surf on beaches, typically from 3–10 m above the surface though up to 13 m above water. Suitable habitat exists within PCT 1204 in the Activity Area, and within PCT 1913 which occurs within 200 m of the Activity Area.	
Criteria	**Response**
An action is likely to have a significant impact on an endangered species if there is a real chance or possibility that it will:	
a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction	No habitat suitable for this species will be removed as a result of this Activity. The increased presence of dogs within the Activity Area has the potential to disrupt breeding or resting behaviour of this species, however no evidence was observed of this species nesting or roosting within the Activity Area or 100 m buffers during targeted surveys. While the targeted surveys focussed on migratory shorebirds, it is considered likely that if any roosting or nesting seabirds had been present they would have been detected during these surveys. These species forage in shallow and open waters. It is possible that the increased presence of dogs may disrupt foraging activities of this species or deter these species from foraging in the water adjacent to the Activity Area, however this species is highly mobile. Given that no habitat suitable for this species will be removed, the highly mobile nature of this species, and the lack of evidence of this species nesting or roosting within the Activity Area, it is considered unlikely to have a significant impact on the lifecycle of these species.
b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity: *i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or* *i) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,*	N/A

Little Tern (*Sternula albifrons*):Endangered		
c) in relation to the habitat of a threatened species or ecological community:	*i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and* *ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and* *iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,*	i) The Activity will not result in the removal of habitat. Habitat will be modified by the introduction of off-leash dogs within the Activity Area. ii) The Activity will not result in habitat becoming fragmented or isolated from other areas of habitat as a result of the proposed activity. iii) Suitable foraging and nesting habitat will not be removed or fragmented. The Activity Areas occur within an urban area used for recreational activities and available habitat shows signs of disturbance as a result. It is therefore considered unlikely to represent habitat important to the survival of this species.
d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),		No AOBV are present within the areas potentially impacted by the Activity. However, to the south of Mona Vale is the Little penguin population in Sydney's North Harbour – critical habitat declaration, it is unlikely the AOBV will be impacted directly or indirectly by the Activity.
e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.		The Activity is not part of a key threatening process and is not likely to increase the impact of a key threatening process. The Activity has the potential to result in predation by domestic dogs which is similar to the key threatening process 'Predation and hybridisation by Feral Dogs, *Canis lupus familiaris*', however this is considered unlikely due to the highly mobile nature of this species.
Conclusion: Given that the Activity will not remove suitable habitat for this species, and no roosting or nesting activities have been observed within the Activity Area, the Activity is unlikely to result in a significant impact on the Little Tern.		

Eastern Pygmy-possum

Eastern Pygmy-possum (*Cercartetus nanus*):Vulnerable		
Distribution: Eastern Pygmy-possum is found in south-eastern Australia, from southern Queensland to eastern South Australia and in Tasmania. In NSW it extends from the coast inland as far as the Pilliga, Dubbo, Parkes and Wagga Wagga on the western slopes. Habitat: The species is found in a broad range of habitats from rainforest through sclerophyll (including Box-Ironbark) forest and woodland to heath, but in most areas woodlands and heath appear to be preferred, except in north-eastern NSW where they are most frequently encountered in rainforest. The species feeds largely on nectar and pollen collected from banksias, eucalypts and bottlebrushes; an important pollinator of heathland plants such as banksias; soft fruits are eaten when flowers are unavailable. Shelters in tree hollows, rotten stumps, holes in the ground, abandoned bird-nests, Ringtail Possum (*Pseudocheirus peregrinus*) dreys or thickets of vegetation (e.g. grass-tree skirts); nest-building appears to be restricted to breeding females; tree hollows are favoured but spherical nests have been found under the bark of eucalypts and in shredded bark in tree forks. Suitable habitat exists within PCTs 771, 772 and 1817 within both Activity Areas		
Criteria		**Response**
An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:		
a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction		Limited suitable foraging habitat is present in both Activity Areas however, no suitable breeding habitat is present and the Activity will not remove habitat suitable for this species. Suitable foraging habitat is located within the dune shrubland habitat, which will not be accessible to dogs, however, the increased presence of dogs adjacent to potential foraging habitat suitable for this species has the potential to deter foraging behaviour of this species in areas of the habitat that are close to the dog off-leash area. This impact would likely be limited to areas where scents are left by dogs on the fencing surrounding the dune shrubland habitat. Given that no suitable habitat will be removed, no suitable breeding habitat is present, the suitable foraging habitat will not be accessible to dogs, and there will only be a minor impact to the edges of the suitable foraging habitat, it is considered unlikely that the Activity would have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.
b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:	*i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or* *ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,*	N/A

Eastern Pygmy-possum (*Cercartetus nanus*):Vulnerable		
c) in relation to the habitat of a threatened species or ecological community:	*i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and* *ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and* *iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,*	i) The Activity will not result in the removal of habitat. Habitat will be modified by the introduction of off-leash dogs within the Activity Area. ii) The Activity will not result in habitat becoming fragmented or isolated from other areas of habitat as a result of the proposed activity. iii) Suitable foraging and nesting habitat will not be removed or fragmented. The Activity Areas occur within an urban area used for recreational activities and available habitat shows signs of disturbance as a result. It is therefore considered unlikely to represent habitat important to the survival of this species.
d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),		No AOBV are present within the areas potentially impacted by the Activity. However, to the south of Mona Vale is the *Little penguin population in Sydney's North Harbour – critical habitat declaration*, it is unlikely the AOBV will be impacted directly or indirectly by the Activity.
e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.		The Activity is not part of a key threatening process and is not likely to increase the impact of a key threatening process. The Activity has the potential to result in predation by domestic dogs which is similar to the key threatening process 'Predation and hybridisation by Feral Dogs, *Canis lupus familiaris*', however this is considered unlikely as the dune shrubland habitat will not be accessible to dogs. The likelihood of predation of this species by dogs will be further mitigated by the requirement for dog owners to keep dogs on their leash while entering and exiting the dog-off-leash area.
Conclusion: Given that no suitable habitat will be removed or become fragmented, no suitable breeding habitat is present, the suitable foraging habitat will not be accessible to dogs, and there will only be a minor impact to the edges of the suitable foraging habitat, the Activity is unlikely to result in a significant impact on the Eastern Pygmy-possum		

Southern Brown Bandicoot

Southern Brown Bandicoot (eastern - *Isoodon obesulus obesulus*):Endangered	
Distribution: The Southern Brown Bandicoot has a patchy distribution. It is found in south-eastern NSW, east of the Great Dividing Range south from the Hawkesbury River, southern coastal Victoria and the Grampian Ranges, south-eastern South Australia, south-west Western Australia and the northern tip of Queensland. Habitat Requirements: Southern Brown Bandicoots are largely crepuscular (active mainly after dusk and/or before dawn). They are generally only found in heath or open forest with a heathy understorey on sandy or friable soils. Nest during the day in a shallow depression in the ground covered by leaf litter, grass or other plant material. Nests may be located under Grass trees Xanthorrhoea spp., blackberry bushes and other shrubs, or in rabbit burrows. The upper surface of the nest may be mixed with earth to waterproof the inside of the nest. Habitat Constraints include Requires dense ground cover in a variety of habitats. Suitable habitat exists within PCTs 771 and 772 within both Activity Areas.	
Criteria	**Response**
An action is likely to have a significant impact on an endangered species if there is a real chance or possibility that it will:	
f) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction	Suitable foraging and nesting habitat occurs within the dune shrubland habitat in the 100 m buffer of both Activity Areas however, the Activity will not remove habitat suitable for this species. The dune shrubland habitat will not be accessible to dogs, however, the increased presence of dogs adjacent to potential foraging and nesting habitat suitable for this species has the potential to discourage foraging and nesting behaviour of this species in areas of the habitat that are close to the dog off-leash area. This impact on foraging behaviour would likely be limited to areas where scents are left by dogs on the fencing surrounding the dune shrubland habitat. Nesting behaviour of this species may be impacted by the increased presence of dogs. Given that no suitable habitat will be removed, and the suitable habitat present will not be accessible to dogs, it is considered unlikely that the Activity would have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.
g) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity: *ii) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or* *ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,*	N/A

Southern Brown Bandicoot (eastern - *Isoodon obesulus obesulus*):Endangered		
h) in relation to the habitat of a threatened species or ecological community:	*i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and* *ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and* *iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,*	i) The Activity will not result in the removal of habitat. Habitat will be modified by the introduction of off-leash dogs within the Activity Area. ii) The Activity will not result in habitat becoming fragmented or isolated from other areas of habitat as a result of the proposed activity. iii) Suitable foraging and nesting habitat will not be removed or fragmented. The Activity Areas occur within an urban area used for recreational activities and available habitat shows signs of disturbance as a result. It is therefore considered unlikely to represent habitat important to the survival of this species.
i) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),		No AOBV are present within the areas potentially impacted by the Activity.
j) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.		The Activity is not part of a key threatening process and is not likely to increase the impact of a key threatening process. The Activity has the potential to result in predation by domestic dogs which is similar to the key threatening process 'Predation and hybridisation by Feral Dogs, *Canis lupus familiaris*', however this is considered unlikely as the dune shrubland habitat will not be accessible to dogs. The likelihood of predation of this species by dogs will be further mitigated by the requirement for dog owners to keep dogs on their leash while entering and exiting the dog-off-leash area. It should be further noted that there is an existing threat of dog predation at the Mona Vale (South) Activity Area due to the presence of a dog off-leash area in Robert Dunn Reserve, and the current Activity is unlikely to significantly increase this risk.
Conclusion: Given that no suitable habitat will be removed, and the suitable habitat present will not be accessible to dogs, the Activity is unlikely to result in a significant impact on the Southern Brown Bandicoot.		

Eastern Bristlebird

Eastern Bristlebird (*Dasyornis brachypterus*):Endangered		
Distribution: The distribution of the Eastern Bristlebird has reduced to three disjunct areas within south-eastern Australia. The main populations include: Northern - southern Queensland/northern NSW; Central - Barren Ground NR, Budderoo NR, Woronora Plateau, Jervis Bay NP, Booderee NP and Beecroft Peninsula; and Southern - Nadgee NR and Croajingalong NP in the vicinity of the NSW/Victorian border. The population closest to the Activity Areas is the Central population which has been recorded as far north as Woronora Plateau (approximately 47 km south of the Mona Vale (South) Activity Area). However, a BioNet record of this species Near Currawong Beach (approximately 2.7 km from the Palm Beach (North) Activity Area indicates that some individuals do occur in the locality. Habitat requirements: Habitat for central populations is characterised by dense, low vegetation including heath and open woodland with a heathy understorey. In northern NSW the habitat occurs in open forest with dense tussocky grass understorey and sparse mid-storey near rainforest ecotone; all of these vegetation types are fire prone. Nests are elliptical domes constructed on or near the ground amongst dense vegetation. Suitable foraging and nesting habitat is present at Mona Vale, although no records within 10 km. The species has associated habitat within PCT 772 in the Activity Area. And is associated with PCT 771, which occurs within 100 m of the Activity Area. Suitable foraging and nesting habitat is also present at Palm Beach, with only one record within 10 km, and no recent records (within past 5 years). Associated PCT 772 is present in the Activity Area. Associated PCT 771 occurs within 50 m of the Activity Area.		
Criteria		**Response**
An action is likely to have a significant impact on an endangered species if there is a real chance or possibility that it will:		
f) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction		Suitable foraging and nesting habitat occurs in the dune shrubland habitat adjacent to and within both Activity Areas, however, the Activity will not remove habitat suitable for this species. The dune shrubland habitat will not be accessible to dogs, however, the increased presence of dogs adjacent to potential foraging and nesting habitat suitable for this species has the potential to discourage foraging and nesting behaviour of this species in areas of the habitat that are close to the dog off-leash area. Nesting behaviour of this species may be impacted by the increased presence of dogs. Given that no suitable habitat will be removed and the suitable habitat present will not be accessible to dogs, it is considered unlikely that the Activity will have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.
g) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:	*iii) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or* *iv) is likely to substantially and adversely modify the composition of the ecological community such that its local*	N/A

Eastern Bristlebird (*Dasyornis brachypterus*):Endangered		
	occurrence is likely to be placed at risk of extinction,	
h) in relation to the habitat of a threatened species or ecological community:	*i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and* *ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and* *iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,*	i) The Activity will not result the removal of habitat. Habitat will be modified by the introduction of off-leash dogs within the Activity Area. ii) The Activity will not result in habitat becoming fragmented or isolated from other areas of habitat. iii) Suitable foraging and nesting habitat will not be removed or fragmented. The likelihood of predation of this species by dogs will be mitigated by the requirement for dog owners to keep dogs on their leash while entering and exiting the dog-off-leash area. The Activity Areas occur within an urban area used for recreational activities and available habitat shows signs of disturbance as a result. The Activity Areas do not fall within priority management sites under the Saving our Species (SoS) program for this species. It is therefore considered unlikely to represent habitat important to the survival of this species.
i) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),		No AOBV are present within the areas potentially impacted by the Activity. However, to the south of Mona Vale is the *Little penguin population in Sydney's North Harbour – critical habitat declaration*, it is unlikely the AOBV will be impacted directly or indirectly by the Activity.
j) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.		The Activity is not part of a key threatening process and is not likely to increase the impact of a key threatening process. The Activity will not alter the fire regime or increase the presence of cats or foxes. The Activity has the potential to result in predation by domestic dogs which is similar to the key threatening process 'Predation and hybridisation by Feral Dogs, *Canis lupus familiaris*'. The likelihood of predation of this species by dogs will be further mitigated by the requirement for dog owners to keep dogs on their leash while entering and exiting the dog-off-leash area. As such, the proposed development is unlikely to result in an increase in a key threatened process such that will result in a significant impact to the threatened species. It should be further noted that there is an existing threat of dog predation at the Mona Vale (South) Activity Area due to the presence of a dog off-leash area in Robert Dunn Reserve, and the current Activity is unlikely to significantly increase this risk.

Eastern Bristlebird (*Dasyornis brachypterus*):Endangered
Conclusion: Given that the Activity will not remove suitable habitat for this species and the suitable habitat present will not be accessible to dogs, the Activity is unlikely to result in a significant impact on the Eastern Bristlebird.

Beach Stone-curlew

Beach Stone-curlew (*Esacus magnirostris*):Critically Endangered		
Distribution: In NSW, the species occurs regularly on the north coast to about the Manning River and known breeding pairs were previously restricted to the north coast. Recent records show a breeding pair from the Port Stephens area (Dowadee Island and Soldiers Point [mid-north coast]) and more recently the species has been recorded in Twofold Bay near Eden. These new records extend the known limit of the normal range of the species in Australia to the far south coast of NSW. Habitat requirements: Beach Stone-curlews are found exclusively along the coast, on a wide range of beaches, islands, reefs and in estuaries, and may often be seen at the edges of or near mangroves. They forage in the intertidal zone of beaches and estuaries, on islands, flats, banks and spits of sand, mud, gravel or rock, and among mangroves. Beach Stone-curlews breed above the littoral zone nesting in a shallow scrape in the sand or gravel at the backs of beaches, or on sandbanks and islands, among low vegetation of grass, scattered shrubs or low trees; also among open mangroves. Suitable foraging and some limited breeding habitat exists within the Activity Area.		
Criteria		**Response**
An action is likely to have a significant impact on a critically endangered species if there is a real chance or possibility that it will:		
a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction		Suitable foraging habitat occurs in the intertidal zone habitat within and adjacent to both Activity Areas however, the Activity will not remove habitat suitable for this species. It is possible that the increased presence of dogs may disrupt foraging activities of this species or deter these species from foraging in the water adjacent to the Activity Area, however this species is highly mobile, and suitable foraging habitat is abundant in the surrounding area. Suitable breeding habitat occurs on the sandy beaches at the Palm Beach (North) Activity Area, however the disturbance from existing human activity would likely deter this species from utilising the Activity Area for nesting and no nesting birds have been recorded in the locality. The increased presence of dogs within the Activity Area has the potential to disrupt breeding or resting behaviour of this species, however no evidence was observed of this species nesting or roosting within the Activity Area or 100 m buffer during targeted surveys. While the targeted surveys focussed on migratory shorebirds, it is considered likely that if any roosting or nesting wading birds had been present they would have been detected during these surveys. Given that no habitat suitable for this species will be removed, the highly mobile nature of this species and the absence of known breeding records, the Activity is unlikely to have an adverse impact on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.
b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:	*i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or* *ii) is likely to substantially and adversely modify the composition of the ecological community such that its local*	N/A

Beach Stone-curlew (*Esacus magnirostris*):Critically Endangered		
	occurrence is likely to be placed at risk of extinction,	
c) in relation to the habitat of a threatened species or ecological community:	*i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and* *ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and* *iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,*	i) The Activity will not result in the removal of habitat. Habitat will be modified by the introduction of off-leash dogs within the Activity Area. ii) The Activity will not result in habitat becoming fragmented or isolated from other areas of habitat. iii) Suitable foraging and nesting habitat will not be removed or fragmented. The foraging habitat available is commonly available. Breeding habitat is marginal and disturbed. There are no priority management sites noted under the SoS program for this species. As such, it is unlikely that the Activity would impact upon habitat important to the survival of this species.
d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),		No AOBV are present within the areas potentially impacted by the Activity.
e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.		The Activity is not part of a key threatening process and is not likely to increase the impact of a key threatening process. The Activity will not alter the fire regime or increase the presence of cats or foxes. The threats to the species include predation of eggs and chicks by foxes, disturbance of nesting shorebirds and direct mortality of eggs and chicks by trampling or removal by humans, disturbance of nesting shorebirds and direct predation of eggs and chicks by domestic dogs, inundation of nests by high tides, storms and other flooding, and predation of eggs and chicks by avian predators (mostly corvids and gulls). The Activity has the potential to result in a threat listed in the NSW Species profile - predation by domestic dogs, which is similar to the listed key threatening process 'Predation and hybridisation by Feral Dogs, *Canis lupus familiaris*'. The likelihood of predation of this species by domestic dogs rather than feral dogs is considered to be low as the disturbance from existing human activity would likely deter this species from utilising the Activity Area for nesting.

Beach Stone-curlew (*Esacus magnirostris*):Critically Endangered
Conclusion: Given the that the Activity will not remove suitable habitat for this species, this species is highly mobile and more suitable habitat occurs nearby, and the existing disturbance from human activity which would likely deter this species from breeding within the Activity Area, the Activity is unlikely to result in a significant impact on the Beach Stone-curlew.

Marine turtles

Marine turtles	
Loggerhead Turtle (*Caretta caretta*) (Endangered) Distribution: Loggerhead turtles are found in tropical and temperate waters off the Australian coast. The eastern Australian population nests on the southern Great Barrier Reef and adjacent mainland coastal areas. In NSW they are seen as far south as Jervis Bay and have been recorded nesting on the NSW north coast and feeding around Sydney. Habitat requirements: Loggerhead Turtles are ocean-dwellers, foraging in deeper water for fish, jellyfish and bottom-dwelling animals. The female comes ashore to lay her eggs in a hole dug on the beach in tropical regions during the warmer months. While no known breeding sites occur in the locality (DAWE 2021a) and the species is unlikely to come ashore, the precautionary principle has been applied given the species susceptibility to disturbance. A single record of a nesting event occurred at Bungan Beach to the north of the Mona Vale (South) Activity Area in 2012, however this is outside the known breeding distribution of this species and is considered unlikely to be a regular occurrence. **Green Turtle (*Chelonia mydas*)** (Vulnerable) Distribution: Green Turtles are widely distributed in tropical and sub-tropical seas. This species is usually found in tropical waters around Australia but also occurs in coastal waters of NSW, where it is generally seen on the north or central coast, with occasional records from the south coast. Habitat requirements: Green Turtles spend their first five to ten years drifting on ocean currents. Once Green Turtles reach 30 to 40 cm curved carapace length, they settle in shallow benthic foraging habitats such as tropical tidal and sub-tidal coral and rocky reef habitat or inshore seagrass beds. Eggs are laid in holes dug in beaches throughout their range. While no known breeding sites occur in the locality (DAWE 2021a) and the species is unlikely to come ashore, the precautionary principle has been applied given the species susceptibility to disturbance.	
Criteria	**Response**
An action is likely to have a significant impact on an endangered or vulnerable species if there is a real chance or possibility that it will:	
k) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction	No foraging habitat suitable for Loggerhead Turtles occurs within the Activity Areas. Limited rocky reef habitat which supports foraging habitat suitable for Green Turtles occurs at the Mona Vale (South) Activity Area, however the Activity will not remove foraging habitat suitable for these species. Nesting habitat suitable for both species occurs within the sandy beach habitat of both Activity Areas however, the Activity will not remove breeding habitat suitable for these species and no known breeding sites occur in the locality (DAWE 2021a). A single record of a Loggerhead Turtle nesting occurred at Bungan Beach to the north of the Mona Vale (South) Activity Area in 2012, however this is outside the known breeding distribution of this species and is considered unlikely to be a regular occurrence. The increased presence of dogs has the potential to disturb nesting behaviour of these species, however given that the Activity Areas occur outside the usual breeding distribution of Loggerhead Turtles, and no known Green Turtle breeding sites occur in the locality, it is considered unlikely that the Activity would have an adverse effect on the life cycle of these species such that a viable local population of the species is likely to be placed at risk of extinction.
l) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed *iii) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or* *iii) is likely to substantially and adversely modify the composition*	N/A

Marine turtles		
development or activity:	*of the ecological community such that its local occurrence is likely to be placed at risk of extinction,*	
m) in relation to the habitat of a threatened species or ecological community:	*i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and* *ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and* *iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,*	i) The Activity will not result in the removal of habitat. Habitat will be modified by the introduction of off-leash dogs within the Activity Area.. ii) The Activity will not result in habitat becoming fragmented or isolated from other areas of habitat. iii) Foraging and breeding habitat will not be removed or fragmented. The Activity Areas occur outside the usual breeding distribution of Loggerhead Turtles, no known Green Turtle breeding sites occur in the locality. The Activity Areas occur within an urban area used for recreational activities and available habitat shows signs of disturbance as a result. The Activity Areas do not fall within priority management sites under the SoS programs for these species. It is therefore considered unlikely to represent habitat important to the survival of these species.
n) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),		No AOBV are present within the areas potentially impacted by the Activity. However, to the south of Mona Vale is the *Little penguin population in Sydney's North Harbour – critical habitat declaration*, it is unlikely the AOBV will be impacted directly or indirectly by the Activity.
o) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.		The Activity is not part of a key threatening process and is not likely to increase the impact of a key threatening process. The Activity has the potential to result in predation by domestic dogs which is similar to the key threatening process 'Predation and hybridisation by Feral Dogs, *Canis lupus familiaris*', however this is considered unlikely as only a very limited area of foraging habitat suitable for Green Turtles occurs at the Mona Vale (South) Activity Area, no foraging habitat suitable for Loggerhead turtles occurs within either Activity Area, and no known breeding sites occur in the locality (DAWE 2021a). While there is a single record of a Loggerhead Turtle nesting occurred at Bungan Beach to the north of the Mona Vale (South) Activity Area, this is outside the known breeding distribution of this species and is considered unlikely to be a regular occurrence. As such, these species would most likely only utilise the waters adjacent to the Activity Areas and are considered unlikely to utilise areas that will be accessible to dogs. It should be further noted that there is an existing threat of dog predation at the Mona Vale (South) Activity Area due to the presence of a dog off-leash area in Robert Dunn Reserve, and the current Activity is unlikely to significantly increase this risk.

Marine turtles
Conclusion: Given that the Activity Areas occur outside the usual breeding distribution of these species and no suitable habitat will be removed, the Activity is unlikely to result in a significant impact on Loggerhead Turtles or Green Turtles.

Threatened species listed under the EPBC Act

Australian Fairy Tern

Australian Fairy Tern (*Sternula nereis*): Vulnerable		
Distribution: Within Australia, the Fairy Tern occurs along the coasts of Victoria, Tasmania, South Australia and Western Australia; occurring as far north as the Dampier Archipelago near Karratha. The subspecies has been known from NSW in the past, but it is unknown if it persists there. Habitat requirements: The Australian Fairy Tern nests on sheltered sandy beaches, spits and banks above the high tide line and below vegetation. The subspecies has been found in embayments of a variety of habitats including offshore, estuarine or lacustrine (lake) islands, wetlands and mainland coastline. The bird roosts on beaches at night. The Australian subspecies may migrate within Southern Western Australia and Tasmania, where are seen less frequently during the winter months. The bird is more sedentary in the North of Western Australia, South Australia and Victoria. In Australia, the subspecies breeds in October to February in colonies of various sizes (generally between 2–400 pairs) on coral shingle on continental islands or coral cays, on sandy islands and beaches inside estuaries, and on open sandy beaches. Fairy Terns hover and then dive into shallow waters in order to catch fish, however they may scavenge from shoals of feeding predatory fish. No PCTs associated with this species occur within or nearby the Activity Area.		
Significant Impact Criteria	**Address of Criteria**	**Likelihood**
An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:		
lead to a long-term decrease in the size of an important population of a species	An important population does not occur within the Activity Area. The habitat within the Activity Area is unlikely to represent habitat critical to the survival of these species and likely constitutes a small part of their overall range which they fly over on occasion. The Activity may result in a minor reduction in the frequency in which this species visits habitat within the Activity Area, however it is unlikely to impact the size of the population in the locality.	Unlikely
reduce the area of occupancy of an important population	An important population does not occur within the Activity Area. The Activity may result in a minor reduction in the frequency in which this species visits habitat within the Activity Area, however it is unlikely to significantly alter the broader area of occupancy of this species.	Unlikely
fragment an existing important population into two or more populations	An important population does not occur within the Activity Area. No habitat will be removed or become fragmented as a result of this Activity. As such, no important population of this species will become fragmented as a result of the Activity.	Unlikely
adversely affect habitat critical to the survival of a species	The habitat within the Activity Areas is unlikely to represent habitat critical to the survival of this species and likely constitutes a small part of their overall range which they fly over on occasion. In addition, this species is highly mobile.	Unlikely
disrupt the breeding cycle of an important population	An important population does not occur within the Activity Area. The increased presence of dogs within the Activity Areas has the potential to disrupt breeding or resting behaviour of this species, however no evidence was observed of this species nesting or roosting at or within 100 m of the Activity Area during targeted surveys. While the targeted surveys focussed on migratory shorebirds, it is considered likely that if any roosting or nesting Australian Fairy Terns had been present they would have been detected during these surveys.	Unlikely
modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The habitat within the Activity Areas is unlikely to represent habitat critical to the survival of these species and likely constitutes a small part of their overall range which they fly over on occasion. In addition, this species is highly mobile. No habitat will be removed or become fragmented as a result of this Activity.	Unlikely

Australian Fairy Tern (*Sternula nereis*): Vulnerable		
result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	The Activity is considered unlikely to facilitate an increase in feral animals (i.e., feral cats and foxes) that would disturb or predate these species. Predation by domestic dogs is possible however is considered unlikely due to the mobile nature of these species.	Unlikely
introduce disease that may cause the species to decline	The Activity will not involve the transportation of any soil or other substances that have the potential to disperse pathogens throughout the Activity Area. Dogs present within the Activity Area have the potential to disperse any pathogens they may carry, however domestic dogs that have received adequate veterinary care are less likely to carry dangerous pathogens than wild animals. Dog faeces within the Activity Area have the potential to disperse pathogens, however it should be noted that during field surveys dogs were observed within the Mona Vale Activity Area and therefore the Activity Areas is likely already subject to impacts from dog faeces. In addition, maintenance of waste bins and the supply of dog faeces disposal bags has been recommended and would effectively mitigate this impact. In addition, the salt water environment within the Activity Area has the potential to kill many pathogens, particularly bacteria. As such, it is considered unlikely that the Activity would introduce disease that may cause this species to decline.	Unlikely
interfere substantially with the recovery of the species.	There is no adopted or made recovery plan for this species (DAWE 2022b).	Unlikely
Conclusion: Given that no important populations of this species occur within the Activity Area, the Activity will not remove or fragment any suitable habitat for this species, and no roosting or nesting activities have been observed within the Activity Areas, the Activity is unlikely to result in a significant impact on the Australian Fairy Tern.		

Southern Brown Bandicoot

Southern Brown Bandicoot (eastern - *Isoodon obesulus obesulus*): Endangered		
Distribution: The Southern Brown Bandicoot has a patchy distribution. It is found in south-eastern NSW, east of the Great Dividing Range south from the Hawkesbury River, southern coastal Victoria and the Grampian Ranges, south-eastern South Australia, south-west Western Australia and the northern tip of Queensland. Habitat Requirements: Southern Brown Bandicoots are largely crepuscular (active mainly after dusk and/or before dawn). They are generally only found in heath or open forest with a heathy understorey on sandy or friable soils. Nest during the day in a shallow depression in the ground covered by leaf litter, grass or other plant material. Nests may be located under Grass trees Xanthorrhoea spp., blackberry bushes and other shrubs, or in rabbit burrows. The upper surface of the nest may be mixed with earth to waterproof the inside of the nest. Habitat Constraints include requires dense ground cover in a variety of habitats. Suitable habitat exists within PCTs 771 and 772 within both Activity Areas.		
Significant Impact Criteria	**Address of Criteria**	**Likelihood**
An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:		
lead to a long-term decrease in the size of a population	Suitable foraging and nesting habitat occurs within the dune shrubland habitat in the 100 m buffer of the Both Activity Areas however, the Activity will not remove habitat suitable for this species. The dune shrubland habitat will not be accessible to dogs, however, the increased presence of dogs adjacent to potential foraging and nesting habitat suitable for this species has the potential to discourage foraging and nesting behaviour of this species in areas of the habitat that are close to the dog off-leash area. As such, the Activity is unlikely to lead to a long-term decrease in the size of a population of this species.	Unlikely
reduce the area of occupancy of the species	Foraging and nesting behaviour may be impacted by the presence of dogs, however this impact would likely be limited to areas where scents are left by dogs on the fencing surrounding the dune shrubland habitat.	Unlikely
fragment an existing population into two or more populations	No habitat will be removed or become fragmented as a result of this Activity. As such, no population of this species will become fragmented as a result of the Activity.	Unlikely
adversely affect habitat critical to the survival of a species	Habitat suitable for this species will not be removed as a result of the Activity and will not be accessible to dogs. The habitat within the Activity Areas is unlikely to represent habitat critical to the survival of this species. As such it is unlikely that the Activity would adversely affect habitat critical to the survival of this species.	Unlikely
disrupt the breeding cycle of a population	The increased presence of dogs within the Activity Areas has the potential to disrupt nesting behaviour of this species, however this impact would likely be limited to areas where scents are left by dogs on the fencing surrounding the dune shrubland habitat.	Unlikely
modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Habitat suitable for this species will not be removed as a result of the Activity and will not be accessible to dogs. The habitat within the Activity Areas is unlikely to represent habitat critical to the survival of this species. As such it is unlikely that the increased presence of dogs would modify habitat to the extent that the species is likely to decline.	Unlikely
result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	The Activity is considered unlikely to facilitate an increase in feral animals (i.e., feral cats and foxes) that would disturb or predate these species. Predation by dogs has been considered below in relation to the species.	Unlikely

Southern Brown Bandicoot (eastern - *Isoodon obesulus obesulus*): Endangered		
introduce disease that may cause the species to decline	The Activity will not involve the transportation of any soil or other substances that have the potential to disperse pathogens throughout the Activity Area. Dogs present within the Activity Area have the potential to disperse any pathogens they may carry, however domestic dogs that have received adequate veterinary care are less likely to carry dangerous pathogens than wild animals. Dog faeces within the Activity Area have the potential to disperse pathogens, however it should be noted that during field surveys dogs were observed within the Mona Vale Beach (South) Activity Area and dog faeces were observed at the Palm Beach (North) Activity Area, therefore the Activity Area is likely already subject to impacts from dog faeces. In addition, maintenance of dog waste bins with waste disposal bags has been recommended and would effectively mitigate this impact. In addition, the salt water environment within the Activity Areas has the potential to kill many pathogens, particularly bacteria. As such, it is considered unlikely that the Activity would introduce disease that may cause this species to decline.	Unlikely
interfere with the recovery of the species.	There is a recovery plan made for this species, with priority management sites identified in the Northern Sydney metropolitan area. This recovery plan identifies dogs as one of the key factors thought to be responsible for the decline of this species. The likelihood of predation of this species by dogs will be mitigated by the fact that the dune shrubland habitat will not be accessible to dogs, and the requirement for dog owners to keep dogs on their leash while entering and exiting the dog-off-leash area. It should be further noted that there is an existing threat of dog predation at the Mona Vale (South) Activity Area due to the presence of a dog off-leash area in Robert Dunn Reserve, and the current Project is unlikely to significantly increase this risk.	Possible
Conclusion: Given that the area of occupancy of a local population of this species may be marginally reduced, the proximity of the dog off-leash area to suitable nesting habitat, and the fact that dogs are identified as one of the key factors thought to be responsible for the decline of this species, it is considered likely that the Activity has the potential to impact the Southern Brown Bandicoot. However, as no suitable habitat will be removed, and the suitable habitat present will not be accessible to dogs, it is considered unlikely that the impact would be significant.		

Eastern Bristlebird

Eastern Bristlebird (*Dasyornis brachypterus*) Endangered		
Distribution: The distribution of the Eastern Bristlebird has contracted to three disjunct areas of south-eastern Australia. The main populations include: Northern - southern Queensland/northern NSW; Central - Barren Ground NR, Budderoo NR, Woronora Plateau, Jervis Bay NP, Booderee NP and Beecroft Peninsula; and Southern - Nadgee NR and Croajingalong NP in the vicinity of the NSW/Victorian border. The population closest to the Activity Areas is the Central population which has been recorded as far north as Woronora Plateau (approximately 47 km south of the Mona Vale (South) Activity Area). However, a BioNet record of this species Near Currawong Beach (approximately 2.7 km from the Palm Beach (North) Activity Area indicates that some individuals do occur in the locality. Habitat requirements: Habitat for central and southern populations is characterised by dense, low vegetation including heath and open woodland with a heathy understorey. In northern NSW the habitat occurs in open forest with dense tussocky grass understorey and sparse mid-storey near rainforest ecotone. Populations have been recorded in a variety of vegetation communities with dense understorey, and all of the vegetation types are fire prone. Nests are elliptical domes constructed on or near the ground amongst dense vegetation. Suitable foraging habitat is present at Mona Vale, although no records within 10 km. The species has associated habitat within PCT 772 in the Activity Area. And is associated with PCT 771, which occurs within 100 m of the Activity Area. Suitable foraging and nesting habitat is also present at Palm Beach, with only one record within 10 km, and no recent records (within past 5 years). Associated PCT 772 is present in the Activity Area. Associated PCT 771 occurs within 50 m of the Activity Area.		
Significant Impact Criteria	**Address of Criteria**	**Likelihood**
An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:		
lead to a long-term decrease in the size of a population	Suitable foraging and nesting habitat occurs within the dune shrubland habitat in the 100 m buffer of the Activity Areas, however, the Activity will not remove habitat suitable for this species. The dune shrubland habitat will not be accessible to dogs, however, the increased presence of dogs adjacent to potential foraging and nesting habitat suitable for this species has the potential to discourage foraging and nesting behaviour of this species in areas of the habitat that are close to the dog off-leash area. As such, given that no suitable habitat will be removed and the suitable habitat present will not be accessible to dogs, it is considered unlikely that the Activity will lead to a long-term decrease in the size of a population.	Unlikely
reduce the area of occupancy of the species	No suitable habitat will be removed and the suitable habitat present will not be accessible to dogs. As such, it is considered unlikely that the Activity will significantly reduce the area of occupancy of this species.	Unlikely
fragment an existing population into two or more populations	No habitat will be removed or become fragmented as a result of this Activity. As such, no population of this species will become fragmented as a result of the Activity.	Unlikely
adversely affect habitat critical to the survival of a species	Habitat suitable for this species will not be removed as a result of the Activity and will not be accessible to dogs. The habitat within the Activity Areas is unlikely to represent habitat critical to the survival of this species.	Unlikely
disrupt the breeding cycle of a population	The increased presence of dogs within the Activity Areas has the potential to disrupt breeding or resting behaviour of this species.. The nest is generally constructed at 10 to 45 cm above the ground in low dense vegetation, in grass tussocks, sedges, ferns and shrubs. Habitat suitable for this species will not be accessible to dogs.	Unlikely
modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The habitat within the Activity Areas is unlikely to represent habitat critical to the survival of these species. . In addition no habitat will be removed or become fragmented as a result of this Activity. Suitable habitat within and adjacent to the Activity Area will not be accessible to dogs. As such it is unlikely that the increased presence of dogs would modify habitat to the extent that the species is likely to decline.	Unlikely

Eastern Bristlebird (*Dasyornis brachypterus*) Endangered		
result in invasive species that are harmful to a critically endangered or endangered species becoming established in the critically endangered or endangered species' habitat	The Activity is considered unlikely to facilitate an increase in feral animals (i.e., feral cats and foxes) that would disturb or predate these species. Predation by dogs has been considered below in relation to the species.	Unlikely
introduce disease that may cause the species to decline	The Activity will not involve the transportation of any soil or other substances that have the potential to disperse pathogens throughout the Activity Area. Dogs present within the Activity Area have the potential to disperse any pathogens they may carry, however domestic dogs that have received adequate veterinary care are less likely to carry dangerous pathogens than wild animals. Dog faeces within the Activity Area have the potential to disperse pathogens, however it should be noted that during field surveys dogs were observed within the Mona Vale Activity Area and therefore the Activity Areas is likely already subject to impacts from dog faeces. In addition, maintenance of waste bins and the supply of dog faeces disposal bags has been recommended and would effectively mitigate this impact. As such, it is considered unlikely that the Activity would introduce disease that may cause this species to decline.	Unlikely
interfere with the recovery of the species.	There is a draft National recovery plan for this species: Draft National Recovery Plan for *Dasyornis brachypterus* (Eastern Bristlebird) (DAWE 2021b). The recovery plan includes the following key objectives: Objective 1: Population viability is improved Objective 2: Priority threats are reduced Objective 3: Habitat condition is maintained Objective 4: Population assessments and research are enhanced Objective 5: Stakeholder engagement to assist with recovery Objective 6: Recovery objectives incorporated into relevant policy and management. The Activity would not impact upon known important populations, or significant impact upon potential habitat for the species. The Activity is unlikely to substantially increase threats to the species such that a significant impact is likely to occur. The Activity therefore does not deviate from the objectives listed in the DAWE (2021b) draft recovery plan.	Unlikely
Conclusion: Given that the Activity will not remove or fragment any suitable habitat for this species and the suitable habitat present will not be accessible to dogs, the Activity is unlikely to result in a significant impact on the Eastern Bristlebird.		

Marine turtles

Marine turtles		
Loggerhead Turtle (*Caretta caretta*) (Endangered) Distribution: Loggerhead turtles are found in tropical and temperate waters off the Australian coast. The eastern Australian population nests on the southern Great Barrier Reef and adjacent mainland coastal areas. In NSW they are seen as far south as Jervis Bay and have been recorded nesting on the NSW north coast and feeding around Sydney. Habitat requirements: Loggerhead Turtles are ocean-dwellers, foraging in deeper water for fish, jellyfish and bottom-dwelling animals. The female comes ashore to lay her eggs in a hole dug on the beach in tropical regions during the warmer months. While no known breeding sites occur in the locality (DAWE 2021a) and the species is unlikely to come ashore, the precautionary principle has been applied given the species susceptibility to disturbance. A single record of a nesting event occurred at Bungan Beach to the north of the Mona Vale (South) Activity Area in 2012, however this is outside the known breeding distribution of this species and is considered unlikely to be a regular occurrence. **Green Turtle (*Chelonia mydas*) (Vulnerable)** Distribution: Green Turtles are widely distributed in tropical and sub-tropical seas. This species is usually found in tropical waters around Australia but also occurs in coastal waters of NSW, where it is generally seen on the north or central coast, with occasional records from the south coast. Habitat requirements: Green Turtles spend their first five to ten years drifting on ocean currents. Once Green Turtles reach 30 to 40 cm curved carapace length, they settle in shallow benthic foraging habitats such as tropical tidal and sub-tidal coral and rocky reef habitat or inshore seagrass beds. Eggs are laid in holes dug in beaches throughout their range. While no known breeding sites occur in the locality (DAWE 2021a) and the species is unlikely to come ashore, the precautionary principle has been applied given the species susceptibility to disturbance. **Hawksbill Turtle (*Eretmochelys imbricata*) (Vulnerable)** Distribution: Hawksbill Turtles are found in tropical, subtropical and temperate waters in all the oceans of the world. Nesting is mainly confined to tropical beaches. Hawksbill Turtles have been seen in temperate regions as far south as northern NSW. Along the Great Barrier Reef, hawksbill turtles nest in low numbers from just north of Princess Charlotte Bay to Torres Strait. Nesting also occurs in the Northern Territory and Western Australia. In Australia the main feeding area extends along the east coast Habitat requirements: Hawksbill Turtles spend their first five to ten years drifting on ocean currents. Once Hawksbill Turtles reach 30 to 40 cm curved carapace length, they settle and forage in tropical tidal and sub-tidal coral and rocky reef habitat. They primarily feed on sponges and algae and have also been found, though less frequently, within seagrass habitats of coastal waters, as well as the deeper habitats of trawl fisheries. While no known breeding sites occur in the locality (DAWE 2021a) and the species is unlikely to come ashore, the precautionary principle has been applied given the species susceptibility to disturbance.		
Significant Impact Criteria	**Address of Criteria**	**Likelihood**
An action is likely to have a significant impact on a critically endangered, endangered or vulnerable species if there is a real chance or possibility that it will:		
Endangered criteria: lead to a long-term decrease in the size of a population Vulnerable criteria: lead to a long-term decrease in the size of an important population of a species	No foraging habitat suitable for Loggerhead Turtles occurs within the Activity Areas. Limited rocky reef habitat which supports foraging habitat suitable for Green Turtles and Hawksbill Turtles occurs at the Mona Vale (South) Activity Area, however the Activity will not remove foraging habitat suitable for these species. Nesting habitat suitable for all three species occurs within the sandy beach habitat of both Activity Areas however, the Activity will not remove breeding habitat suitable for these species and no known breeding sites occur in the locality (DAWE 2021a). A single record of a Loggerhead Turtle nesting occurred at Bungan Beach to the north of the Mona Vale (South) Activity Area, however this is outside the known breeding distribution of this species and is considered unlikely to be a regular occurrence. No important populations of Green Turtles or Hawksbill Turtles occur in the Activity Area. The increased presence of dogs has the potential to disturb nesting behaviour of these species, however given that the Activity Areas occur outside the usual breeding distribution of Loggerhead Turtles and Hawksbill Turtles, and	Unlikely

Marine turtles		
	no known Green Turtle breeding sites occur in the locality, it is considered unlikely that the Activity would lead to a long-term decrease in the size of a population of these species.	
Endangered criteria: reduce the area of occupancy of the species Vulnerable criteria: reduce the area of occupancy of an important population	The Activity will not remove habitat suitable for these species. The Activity Areas occur outside the usual breeding distribution of Loggerhead Turtles and Hawksbill Turtles, and no known Green Turtle breeding sites occur in the locality. A single record of a Loggerhead Turtle nesting occurred to the north of the Mona Vale (South) Activity Area, however this is outside the known breeding distribution of this species and is considered unlikely to be a regular occurrence. No important populations of these species occur in the Activity Area. The increased presence of dogs has the potential to disturb nesting behaviour of these species, however given that the Activity Areas occur outside the usual breeding distribution of Loggerhead Turtles and Hawksbill Turtles, and no known Green Turtle breeding sites occur in the locality, it is considered unlikely that the Activity would reduce the area of occupancy of these species	Unlikely
Endangered criteria: fragment an existing population into two or more populations Vulnerable criteria: fragment an existing important population into two or more populations	No habitat will be removed or become fragmented as a result of the Activity. As such, no population of these species will become fragmented as a result of the Activity.	Unlikely
Endangered and vulnerable criteria: adversely affect habitat critical to the survival of a species	Habitat suitable for these species will not be removed as a result of the Activity. The habitat within the Activity Areas is unlikely to represent habitat critical to the survival of these species. The Activity Areas occur outside the usual breeding distribution of Loggerhead Turtles and Hawksbill Turtles, and no known Green Turtle breeding sites occur in the locality. As such, it is unlikely that the Activity would adversely affect habitat critical to the survival of these species.	Unlikely
Endangered criteria: disrupt the breeding cycle of a population Vulnerable criteria: disrupt the breeding cycle of an important population	The increased presence of dogs within the Activity Areas has the potential to disrupt nesting behaviour of these species, however the Activity Areas occur outside the usual breeding distribution of Loggerhead Turtles and Hawksbill Turtles, and no known Green Turtle breeding sites occur in the locality. Furthermore, no important populations of these species occur in the Activity Area. As such, the Activity is unlikely to disrupt the breeding cycle of a population of these species.	Unlikely
Endangered and vulnerable criteria: modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Habitat suitable for these species will not be removed as a result of the Activity. The habitat within the Activity Areas is unlikely to represent habitat critical to the survival of these species. As such it is unlikely that the increased presence of dogs would modify habitat to the extent that the species is likely to decline.	Unlikely
Endangered criteria: result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	The Activity is considered unlikely to facilitate an increase in feral animals (i.e., feral cats and foxes) that would disturb or predate these species or their nests. Predation by dogs has been considered below in relation to the species.	Unlikely

Marine turtles		
Vulnerable criteria: result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat		
Endangered and vulnerable criteria: introduce disease that may cause the species to decline	The Activity will not involve the transportation of any soil or other substances that have the potential to disperse pathogens throughout the Activity Area. Dogs present within the Activity Area have the potential to disperse any pathogens they may carry, however domestic dogs that have received adequate veterinary care are less likely to carry dangerous pathogens than wild animals. Dog faeces within the Activity Area have the potential to disperse pathogens, however it should be noted that during field surveys dogs were observed within the Mona Vale Beach (South) Activity Area and dog faeces were observed at the Palm Beach (North) Activity Area, therefore the Activity Area is likely already subject to impacts from dog faeces. In addition, maintenance of dog waste bins with waste disposal bags has been recommended and would effectively mitigate this impact. In addition, the salt water environment within the Activity Areas has the potential to kill many pathogens, particularly bacteria. As such, it is considered unlikely that the Activity would introduce disease that may cause these species to decline.	Unlikely
Endangered criteria: interfere with the recovery of the species. Vulnerable criteria: interfere substantially with the recovery of the species.	The recovery plan for marine turtles identifies egg predation by dogs as a threat to marine turtles (DEE 2017b). However, the recovery plan also identifies habitat critical to the survival of these species, none which occur in the locality. As the Activity Areas occur outside the usual breeding distribution of Loggerhead Turtles and Hawksbill Turtles, and no known Green Turtle breeding sites occur in the locality, it is considered unlikely that the activity would interfere with the recovery of these species. It should be further noted that there is an existing threat of dog predation at the Mona Vale (South) Activity Area due to the presence of a dog off-leash area in Robert Dunn Reserve, and the current Project is unlikely to significantly increase this risk.	Unlikely
Conclusion: Given that no suitable habitat will be removed, the Activity Areas occur outside the usual breeding distribution of Loggerhead Turtles and Hawksbill Turtles, and no known Green Turtle breeding sites occur in the locality, the Activity is unlikely to result in a significant impact on Loggerhead Turtles, Green Turtles or Hawksbill Turtles.		

Migratory species listed under the EPBC Act

Migratory birds

Migratory seabirds listed under the EPBC Act

Caspian Tern (*Hydroprogne caspia*): Marine, Migratory

Distribution: In Australia, the Caspian Tern is a resident and present throughout the year at sites where breeding occurs year round and also at some sites where breeding is protracted. At some sites where breeding does not occur, seasonal patterns that are consistent with passage (migration) occur. For example, numbers at Tuggerah Lakes, NSW, are highest in spring and autumn and lowest during winter. Some dispersion occurs in response to rainfall. Within NSW, the Caspian Tern has a widespread occurrence and can be found East of the Great Divide, mainly in coastal regions, and also in the Riverina and Lower and Upper Western Regions, with occasional records elsewhere. Breeding is recorded from the Menindee Lakes.

Habitat requirements: The Caspian Tern is mostly found in sheltered coastal embayments (harbours, lagoons, inlets, bays, estuaries and river deltas) and those with sandy or muddy margins are preferred. They also occur on near-coastal or inland terrestrial wetlands that are either fresh or saline, especially lakes (including ephemeral lakes), waterholes, reservoirs, rivers and creeks. They also use artificial wetlands, including reservoirs, sewage ponds and saltworks. In offshore areas the species prefers sheltered situations, particularly near islands, and is rarely seen beyond reefs. Large numbers may shelter along the coast, behind coastal sand-dunes or coastal lakes during rough weather and have been recorded inland after storms. The Caspian Tern usually forages in open wetlands, including lakes and rivers. They often prefer sheltered shallow water near the margins but can also be found in open coastal waters. In coastal inlets they may prefer to forage in tidal channels, or over submerged mudbanks. The Caspian Tern breeds on variable types of sites including low islands, cays, spits, banks, ridges, beaches of sand or shell, terrestrial wetlands and stony or rocky islets or banks. Generally roosting occurs on bare exposed sand or shell spits, banks or shores of coasts, lakes, estuaries, coastal lagoons and inlets. Occasionally they nest among beachcast debris above the high-water mark or at artificial sites, including islands in reservoirs, or on dredge-spoil. No PCTs associated with this species occur within or nearby the Activity Area.

Common Tern (*Sterna hirundo*): Marine, Migratory

Distribution: The species is a non-breeding migrant to Australia, where it is widespread and common on the eastern coast south to eastern Victoria, and common on parts of the northern coast, mainly east of Darwin. In Australia, Common Terns are mainly found along the eastern coast, where they are widespread and common from south-eastern Queensland to eastern Victoria (extending south-west to Port Albert), though less often recorded south of Port Hacking in NSW. Elsewhere on the eastern coast, they occur in the eastern Torres Strait and more sparsely from there south to Rockhampton.

Habitat requirements: Common Terns are marine, pelagic and coastal. In Australia, they are recorded in all marine zones, but are commonly observed in near-coastal waters, both on ocean beaches, platforms and headlands and in sheltered waters, such as bays, harbours and estuaries with muddy, sandy or rocky shores. Common Terns forage in marine environments, often close to the shore, including sheltered embayments and in the surf-zone, but also well out to sea. They also forage in near-coastal terrestrial wetlands, including estuaries, rivers and swamps. Common Terns roost on unvegetated, intertidal sandy ocean beaches, sandy islands, shores of estuaries or lagoons, and sandbars, as well as on rocky shores, rock platforms or rocks protruding above the surface of the water. Common Terns nest on the ground in the open, usually on bare substrates, occasionally near vegetation or in it, or on a floating mat of vegetation. They usually nest on islands, either marine or in lakes, only sometimes on mainland beaches or promontories or salt or freshwater marshes. Limited suitable habitat exists in the Mona Vale Beach (South) Activity Area.

Little Tern (*Sterna albifrons*): Marine, Migratory

Distribution: The eastern Australian subpopulation is migratory, breeding in spring-summer and leaving colonies late summer-autumn and largely vacating Southern Australia. The non-breeding range of this population is poorly known, but Australian birds have been recorded in Indonesia. Birds return to their breeding sites in late winter-early spring.

Habitat requirements: Little Terns usually roost or loaf on sand-spits, banks and bars within sheltered estuarine or coastal environments, or on the sandy shores of lakes and ocean beaches. The species is not known to use refuge habitats. Little Terns nest on sand-spits, banks, ridges or islets in sheltered coastal environments, such as coastal lakes, estuaries and inlets and also on wide and flat or gently sloping sandy ocean beaches and also, occasionally in sand-dunes. Breed during September to November. Generally nesting occurs from October through January-February (NSW NPWS, 2003). Little Terns are primarily diurnal, and feed by plunging in shallow water of channels and estuaries, or in surf on beaches, typically from 3–10 m above the surface though up to 13 m above water. Suitable habitat exists within PCT 1204 in the Activity Area, and within PCT 1913 which occurs within 200 m of the Activity Area.

Migratory seabirds listed under the EPBC Act		
Eastern Osprey (*Pandion haliaetus cristatus*) (Vulnerable) **Distributio**n: Eastern Ospreys are found around the Australian coastline, except for Victoria and Tasmania. **Habitat requirements**: Eastern Ospreys favour coastal areas, especially the mouths of large rivers, lagoons and lakes. They feed on fish over clear, open water, and nest high up in dead trees or in dead crowns of live trees, usually within one kilometre of the sea. Limited suitable habitat exists in both Activity Areas.		
Significant Impact Criteria	**Address of Criteria**	**Likelihood**
An action is likely to have a significant impact on a migratory species if there is a real chance or possibility that it will:		
substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	No known important areas of habitat for migratory species occur within either Activity Area. The habitat within the Activity Areas is unlikely to represent habitat critical to the survival of these species and likely constitutes a small part of their overall range, which they fly over on occasion. No habitat will be removed or become fragmented as a result of this Activity. Fire regimes and hydrological cycles will not be altered as a result of this Activity. Nutrient cycles may be impacted through an increase in dog faeces within the Activity Area, however it should be noted that during field surveys dog faeces were observed within the Palm Beach (north) Activity Area and dogs were observed within the Mona Vale Beach (South) Activity Area. As such, it is likely that the nutrient cycle within the Activity Areas are already subject to impacts from dog faeces. In addition, maintenance of waste bins and the and the supply of dog faeces disposal bags has been recommended and would effectively mitigate this impact.	Unlikely - mitigated
result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species, or	The Activity is considered unlikely to facilitate an increase in feral animals (i.e., feral cats and foxes) that would disturb or predate these species. Predation by domestic dogs is possible, however is considered unlikely due to the mobile nature of these species.	Unlikely
seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.	The increased presence of dogs within the Activity Areas has the potential to disrupt breeding or resting behaviour of seabirds, however no evidence was observed of any seabirds nesting or roosting in or within 100 m of the Activity Areas during targeted surveys. While the targeted surveys focussed on migratory shorebirds, it is considered likely that if any roosting or nesting seabirds had been present, they would have been detected during these surveys. No suitable breeding habitat for Eastern Osprey is present in either Activity Area. These species forage in shallow and open waters. It is possible that the increased presence of dogs may disrupt foraging activities of these species or deter these species from foraging in the water adjacent to the Activity Areas, however given the existing level of disturbance from human activity it is considered unlikely to have a significant impact on the lifecycle of these species. The Activity is unlikely to impact the migration patterns of these species. In addition, it is considered unlikely that habitat within the Activity Areas is utilised by an ecologically significant proportion of populations of these species.	Unlikely
Conclusion: Given that the Activity will not remove suitable habitat for these species, similar impacts to the nutrient cycle currently occur and mitigation measures proposed , and no roosting or nesting activities have been observed within the Activity Areas, the Activity is unlikely to result in a significant impact on these migratory birds.		

Marine turtles

Migratory marine turtles listed under the EPBC Act		
Loggerhead Turtle (*Caretta caretta*): Marine, Migratory Distribution: Loggerhead turtles are found in tropical and temperate waters off the Australian coast. The eastern Australian population nests on the southern Great Barrier Reef and adjacent mainland coastal areas. In NSW they are seen as far south as Jervis Bay and have been recorded nesting on the NSW north coast and feeding around Sydney. Habitat requirements: Loggerhead Turtles are ocean-dwellers, foraging in deeper water for fish, jellyfish and bottom-dwelling animals. The female comes ashore to lay her eggs in a hole dug on the beach in tropical regions during the warmer months. While no known breeding sites occur in the locality (DAWE 2021a) and the species is unlikely to come ashore, the precautionary principle has been applied given the species susceptibility to disturbance. A single record of a nesting event occurred at Bungan Beach to the north of the Mona Vale (South) Activity Area in 2012, however this is outside the known breeding distribution of this species and is considered unlikely to be a regular occurrence. **Green Turtle (*Chelonia mydas*) (Vulnerable): Marine, Migratory** Distribution: Green Turtles are widely distributed in tropical and sub-tropical seas. This species is usually found in tropical waters around Australia but also occurs in coastal waters of NSW, where it is generally seen on the north or central coast, with occasional records from the south coast. Habitat requirements: Green Turtles spend their first five to ten years drifting on ocean currents. Once Green Turtles reach 30 to 40 cm curved carapace length, they settle in shallow benthic foraging habitats such as tropical tidal and sub-tidal coral and rocky reef habitat or inshore seagrass beds. Eggs are laid in holes dug in beaches throughout their range. While no known breeding sites occur in the locality (DAWE 2021a) and the species is unlikely to come ashore, the precautionary principle has been applied given the species susceptibility to disturbance. **Hawksbill Turtle (*Eretmochelys imbricata*): Marine, Migratory** Distribution: Hawksbill Turtles are found in tropical, subtropical and temperate waters in all the oceans of the world. Nesting is mainly confined to tropical beaches. Hawksbill Turtles have been seen in temperate regions as far south as northern NSW. Along the Great Barrier Reef, hawksbill turtles nest in low numbers from just north of Princess Charlotte Bay to Torres Strait. Nesting also occurs in the Northern Territory and Western Australia. In Australia the main feeding area extends along the east coast Habitat requirements: Hawksbill Turtles spend their first five to ten years drifting on ocean currents. Once Hawksbill Turtles reach 30 to 40 cm curved carapace length, they settle and forage in tropical tidal and sub-tidal coral and rocky reef habitat. They primarily feed on sponges and algae and have also been found, though less frequently, within seagrass habitats of coastal waters, as well as the deeper habitats of trawl fisheries. While no known breeding sites occur in the locality (DAWE 2021a) and the species is unlikely to come ashore, the precautionary principle has been applied given the species susceptibility to disturbance.		
Significant Impact Criteria	**Address of Criteria**	**Likelihood**
An action is likely to have a significant impact on a migratory species if there is a real chance or possibility that it will:		
substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	No known important areas of habitat for migratory species occur within either Activity Area. The habitat within the Activity Areas is unlikely to represent habitat critical to the survival of these species and likely constitutes a small part of their overall range. No habitat will be removed or become fragmented as a result of this Activity. Fire regimes and hydrological cycles will not be altered as a result of this Activity. Nutrient cycles may be impacted through an increase in dog faeces within the Activity Area, however it should be noted that during field surveys dog faeces were observed within the Palm Beach (north) Activity Area and dogs were observed within the Mona Vale Beach (South) Activity Area. As such, it is likely that the nutrient cycle within the Activity Areas are already subject to impacts from dog faeces. In addition, maintenance of waste bins and the and the supply of dog faeces disposal bags has been recommended and would effectively mitigate this impact.	Unlikely - mitigated
result in an invasive species that is harmful to the migratory species becoming established in	The Activity is considered unlikely to facilitate an increase in feral animals (i.e., feral cats and foxes) that would disturb or predate these species. Predation of nests by domestic dogs is possible however is considered unlikely as	Unlikely

Migratory marine turtles listed under the EPBC Act		
an area of important habitat for the migratory species, or	the Activity Areas occur outside the usual breeding distribution of Loggerhead Turtles, no known Green Turtle breeding sites occur in the locality.	
seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.	No foraging habitat suitable for Loggerhead Turtles occurs within the Activity Areas. Limited rocky reef habitat which supports foraging habitat suitable for Green Turtles occurs at the Mona Vale (South) Activity Area, however the Activity will not remove foraging habitat suitable for these species. Nesting habitat suitable for both species occurs within the sandy beach habitat of both Activity Areas however, the Activity will not remove breeding habitat suitable for these species and no known breeding sites occur in the locality (DAWE 2021a). A single record of a Loggerhead Turtle nesting occurred at Bungan Beach to the north of the Mona Vale (South) Activity Area in 2012, however this is outside the known breeding distribution of this species and is considered unlikely to be a regular occurrence. The increased presence of dogs has the potential to disturb nesting behaviour of these species, however given that the Activity Areas occur outside the usual breeding distribution of Loggerhead Turtles, and no known Green Turtle breeding sites occur in the locality, it is considered unlikely that the Activity have a significant impact on the lifecycle of these species. The Activity is unlikely to impact the migration patterns of these species. In addition, it is considered unlikely that habitat within the Activity Areas is utilised by an ecologically significant proportion of populations of these species.	Unlikely
Conclusion: Given that the Activity will not remove suitable habitat for these species, similar impacts to the nutrient cycle currently occur and mitigation measures proposed, the Activity Areas occur outside the usual breeding distribution of Loggerhead Turtle, and no known breeding sites occur in the locality, the Activity is unlikely to result in a significant impact on Loggerhead Turtles, Green Turtles or Hawksbill Turtles.		

Annex 7 Unexpected Finds Protocol

Introduction

The following provide a methodology to follow in the event of unexpected finds are encountered. These procedures have been prepared in accordance with best practice and are designed to minimise the heritage impact in the unlikely event that Human remains, or archaeological material is encountered on site.

Critical for the construction team to be aware of is that any suspected archaeological evidence must remain as it was found (in situ) until it is assessed as per the below steps. These objects, and where they are located and the material around them (referred to as the object's 'context') is critical for understanding their value to the site and determining what may be located near to the area of the find. The object and its context are legally protected under the NPW Act.

Discovery of Suspected Human Remains

It is not possible to predict the location, condition or nature of human skeletal remains that may be present within the approval areas. The following recommendations are therefore provided to give certainty that if human/possible human skeletal material is found, it will be managed in accordance with legal requirements, the wishes of the relevant Aboriginal stakeholders and OEH requirements.

In the unlikely event that a potential burial site or potential human skeletal material is exposed within the Activity Area, the following procedure should be followed in accordance with the Policy Directive – Exhumation of Human Remains (NSW Department of Health 2013), Skeletal Remains – Guidelines for the Management of Human Skeletal Remains under the Heritage Act 1977 (NSW Heritage Office 1998) and the Aboriginal Cultural Heritage Standards and Guidelines Kit (NPWS 1997):

- If the skeletal remains suspected to be human are exposed, work in the vicinity of the remains is to halt immediately to allow assessment and management
- Notify the local NSW police, NSW Heritage and Local Aboriginal Land Council immediately.
- The NSW Police will advise if the remains are forensic case (<100 years old) or an archaeological case (>100 years old).
- If NSW Police advise it is a forensic case:
    - The State Corner will be advised by NSW Police.
    - NSW Police will advise the course of action.
    - Works do not recommence until written approval received from NSW Police.
- If NSW Police advice it is an Archaeological case:
    - Are the remains Aboriginal or non - Aboriginal ancestry? (This may require further investigation such as Carbon 14 or DNA testing. In either case all stakeholders should be kept up to date)

- If of Aboriginal ancestry, NSW Heritage and Registered Aboriginal Parties will identify the appropriate course of action for Council to implement. Approval may be required to recommence.
- If of non-Aboriginal ancestry, NSW Heritage will identify the appropriate course of action for Council to implement. Approval may be required to recommence.

Discovery of Unexpected Suspected Archaeological Material

The following procedure would be followed in the event of the unexpected find 'Objects' under the National parks and Wildlife Act 1977.

- All work must stop work at in a 10 m area around the unexpected find and secure the area.
- Notify a qualified archaeologist and engage them to assess the suspected material to determine historical significance of the find.
- If assessed to be not culturally significant, works can proceed with caution.

If assessed to be of cultural value, works must cease in this portion of the site (within 100m of the find) and the NSW heritage council must be contacted. Any directions or responses from these organisations should be taken into account.

Addendum - 20 September 2024

This draft REF was reviewed by Northern Beaches Council staff in September 2024 to ensure ongoing currency and accuracy. Please note the following.

Page iii, 14 & 18: The Minister for Lands and Water was superseded by the Minister for Lands and Property in April 2023.

Page iv: The Department of Planning and Environment was superseded by the Department of Planning, Housing and Infrastructure (DPHI) on 1 January 2024.

Pages iii & 18: Categories
At its meeting of 30 April 2024 Council resolved (Resolution 107/24) to assign land categories to 35 Crown land reserves (at 33 locations) and to notify the Minister administering the CLM Act of the assigned categories. This included part Crown reserve 45244 (R45244) which falls within the boundary of the draft Mona Vale Beach (southern end) Plan of Management (draft PoM).

On 20 August 2024 the DPHI confirmed agreement with Council's assigned categories of Natural Area Foreshore and Bushland for R45244.

On 26 April 2024 Council was appointed Crown land manager for Crown reserve 1040912 (R1040912). This provides Council with the care, control and management of the additional Crown land along the foreshore/beach to effect progress of the draft PoM and the proposed off-leash dog trial at Mona Vale Beach (south) contemplated by Council.

The draft PoM proposes the category of Natural Area Foreshore for R1040912. In reviewing the draft PoM, DPHI did not raise any concerns with this proposed categorisation.

No change is proposed to the existing categories of the Council owned Community land, these being Natural Area Foreshore, Bushland and Escarpment.

Page 20: Added the year '1983' to the *Aboriginal Land Rights Act* heading

Page 21: Added the year '1999' to the *Environment Protection and Biodiversity Act* heading

Page 21: Added the year '1993' to the *Native Title Act* heading