

Review of Environmental Factors (REF) - Dog off-leash access

Cormorant Beach, Bawley Point



Assessment and approvals overview

Item	Details
Assessment Type	Division 5.1 <i>Environmental Planning and Assessment (EP&A) Act 1979</i> (NSW) - REF
Proponent	Shoalhaven City Council
Prepared by	Primary author – Shoalhaven City Council Secondary author - Lodge Environmental
Determining authority / authorities	Shoalhaven City Council
Required approvals (consents, licenses and permits)	Nil
Required publication	This REF is published on Shoalhaven City Council's website (as the determining authority), in accordance with Section 171(4) <i>Environmental Planning and Assessment Regulation 2021</i> (as a matter of public interest).

Document Review			
	Name	Signature	Date
Author	Primary author – Shoalhaven City Council Secondary author - Lodge Environmental	JC	25/11/2024
Reviewer	Shoalhaven City Council	PS	1/05/2025
Approver	Shoalhaven City Council	SP	4/06/2025

Table of Contents

1	Introduction	1
1.1	Background.....	1
1.2	Purpose of this Review of Environmental Factors	2
1.3	Proposed activity.....	2
1.4	Sources of information	3
2	Existing Environment.....	5
2.1	Location	5
2.2	Land ownership and management	5
2.3	Community values	6
2.4	Landscape features	6
2.5	Biodiversity	7
2.6	Cultural heritage.....	7
3	Permissibility	9
4	Assessment of environmental factors.....	19
5	Detailed assessment of key environmental factors	26
5.1	Habitat and vegetation assessment	26
5.2	Threatened species and ecological communities	29
5.2.1	Fauna.....	29
5.2.2	Threatened flora and ecological communities	30
5.3	Heritage	31
5.3.1	Indigenous	31
5.3.2	Non-Indigenous.....	32
6	Consultation	33
6.1	Department of Primary Industries and Regional Development (NSW Fisheries)	33
6.2	Department of Climate Change, Energy, the Environment and Water (DCCEEW).....	33

6.3 Council Departments	33
6.4 Community.....	33
7 Impact Assessment.....	35
7.1 Threatened and Migratory Fauna.....	35
7.2 Threatened Flora and Ecological Communities	36
7.3 Social Impact	37
8 Impact mitigation	38
8.1 Proposed definition of the dog off-leash area	38
9 Determination	43
10 References	44
Appendix 1 Photographs of the subject site	46
Appendix 2 Likelihood of occurrence assessment	50
Appendix 3 Test of Significance (BC Act).....	90
Appendix 4 Significant Impact Criteria assessment for EPBC Act listed threatened species	95
Appendix 5 Field survey - observed species list.....	108
Appendix 6 Birddata survey data for subject site and study area	110

List of Figures

Figure 1 Cormorant Beach, Bawley Point - subject site and study area.	2
Figure 2 Location of Cormorant Beach, in Bawley Point, on the south coast of NSW.....	5
Figure 3 Coastal wetlands mapping for Cormorant Beach (Resilience and Hazards SEPP 2021).	7
Figure 4 Mapped Plant Community Types and Threatened Ecological Communities recorded within and adjacent to the dog off-leash access area.	27
Figure 5 Validated Plant Community Types and Threatened Ecological Communities recorded within and adjacent to the dog off-leash access area.	28

Figure 6	Impact Mitigation Measures. Revised off-leash access area as required to avoid Coastal Wetland (Resilience and Hazards SEPP), Bangalay Sand Forest and to reflect existing usage of the beach area.	42
----------	--	----

List of Tables

Table 1	Summary of legislation and permissibility	9
Table 2	Assessment of Section 171 (EP&A Regulation) environmental factors.....	19
Table 3	Threatened and migratory fauna species that potentially occur at the subject site ...	29
Table 4	Threatened flora species that potentially occur at the subject site	31
Table 5	Environmental safeguard and mitigation measures for potential impacts on the community and the environment in response to the proposed activity	39
Table 6	Threatened species listed under BC Act and EPBC Act, recorded in the subject site, study area, or within the locality or predicted to occur within the locality (within ten kilometres)	52
Table 7	List of flora and fauna observed during the September 2023 field survey (Lodge Environmental).....	108
Table 8	Birddata survey data for the subject site and study area.	110

1 Introduction

1.1 Background

This document provides the environmental assessment for a dog off-leash access area and associated ancillary works at Cormorant Beach, Bawley Point, in line with requirements for such activities under Part 5 of the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act). It relates to the impact of the proposed activity on the community and the environment in accordance with Section 171 of the *Environmental Planning and Assessment Regulation 2021* (NSW) (EP&A Regulation).

The Shoalhaven City Council (SCC) revised Access Areas for Dogs Policy and Access Areas for Dogs Policy Implementation Plan were adopted in December 2023 (CL23.463). The Policy and Plan are consistent with section 13(6) of the Companion Animals Act 1998 (CA Act), which states:

‘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.’

The objectives of the Access Areas for Dogs Policy are to:

- Provide clear and accessible designations for ‘dog off-leash’ and ‘dog-prohibited’ areas within the Shoalhaven local government area (LGA) to ensure population health and wellbeing benefits associated with dog ownership are achieved in balance with the protection of biodiversity and maintenance of ecosystem health.
- Protect flora and fauna from the adverse impacts of dogs and, more generally, to limit the impact of dogs on biodiversity and the natural environment.
- Support a risk-based approach to the designation and management of dog control areas to balance social and environmental needs in accordance with legislation.
- Provide clarity to all users with respect to areas where dogs are restricted or prohibited and to ensure a range of public places remain dog-free, and therefore accessible, to a wide spectrum of users across the Shoalhaven.
- Outline expectations regarding the safe shared-use of public places in the Shoalhaven for dog owners and other users.
- Direct efforts to develop educational resources that promote responsible dog ownership and positive interactions with companion dogs within public places.
- Provide a framework for ongoing review and adaptive management (of the policy and dog-related matters in Shoalhaven).
- Promote compliance with all relevant legislation governing dog ownership in New South Wales.
- Enable effective enforcement (of the policy).

The policy recognises in accordance with the CA Act that ‘all dogs within designated off-leash areas must be under effective control at all times and be able to be recalled immediately and controlled by means other than a leash. Dogs must not rush at, or provide unwanted attention to, other people or dogs’.

1.2 Purpose of this Review of Environmental Factors

This Review of Environmental Factors (REF) is one of several REFs that assesses the suitability and permissibility of formal dog off-leash areas in the Shoalhaven LGA.

This REF assesses the potential environmental impacts of a dog off-leash access area and associated ancillary works at Cormorant Beach, Bawley Point. Boundaries to the dog off-leash area that minimise environmental and social impacts in response to the proposed activity are recommended.

This REF describes the proposed activity and legislative context, assesses potential environmental impacts and recommends mitigation measures based on existing measures to satisfy Council's due diligence and statutory responsibilities. Information obtained through stakeholder consultation, including with the NSW National Parks and Wildlife Service (NPWS), NSW Fisheries, and broader community, was considered in the preparation of this assessment.

1.3 Proposed activity

The proposed activity comprises a 24-hour dog off-leash area along Cormorant Beach and is referred to as the 'subject site' in this REF (Figure 1). The subject site is the entirety of Cormorant Beach including the foredune and includes the area of potential direct impacts on the community and the environment from the proposed activity. An area including a 50-metre buffer to the subject site, where direct and indirect impacts on the community and the environment may occur, has also been assessed, and is referred to in this REF as the 'study area'.



Figure 1 Cormorant Beach, Bawley Point - subject site and study area.

The subject site is designated as a dog off-leash access area under the Access Areas for Dogs Policy and has been used as a dog off-leash access area since 2005 (Council Ordinary Meeting 25 January 2005 MIN05.79; POL05/39) where dogs had timed (4 pm to 8 am) off-leash access to

Cormorant Beach and foreshore reserve between Tingira Drive and Terragong Avenue. In December 2010, Council adopted the recommendation that Cormorant Beach, Bawley Point become a 24-hour access area (MIN10.1445 POL09/163): 'Cormorant Beach – *off-leash 24 hours*'.

- Provision of a 24-hour dog off-leash access area on Cormorant Beach.
- Ancillary works such as the installation or replacement of Access Areas for Dogs Policy signage. Existing signposts will be utilised where possible (e.g., Appendix 1).

The subject site (Figure 1) assessed is in accordance with the mapping reported to Council in 2010, corresponding to the above policy change, and subsequently shown on on-site signage.

This REF assesses the direct and indirect community and environmental impacts associated with the proposed activity (inclusive of ancillary works) within the subject site and study area.

1.4 Sources of information

This REF has been informed by:

- Database searches:
 - NSW BioNet Atlas (accessed on 4 October 2023 and 20 August 2024)
 - Atlas of Living Australia inclusive of iNaturalist Australia data (accessed on 20 August 2024)
 - Protected Matters Search Tool (accessed on 4 October 2023 and 20 August 2024)
 - Birddata (including Birdlife Australia's shorebird monitoring program survey data) (accessed on 4 October 2023 and 20 August 2024)
 - Council's GIS Enquiry (various data layers from September 2022 to August 2024). This contains GIS layers with data sourced under licence, including sensitive data locations and records of threatened species.
 - Aboriginal Heritage Information Management System (AHIMS) (accessed on 24 July 2023 and 29 August 2024).
 - Council records and archives (January 2023).
- Consultation with NPWS, including consultation with the NPWS Shorebird Ranger and records from the NSW Shorebird Recovery Program.
- Consultation with NSW Department of Primary Industries and Regional Development (NSW Fisheries) regarding threatened species and key fish habitats.
- Consultation with Council's Rangers to ascertain the appropriateness of existing controls and the enhancement of mitigation measures to ensure a nil to negligible impact on the community and the environment.
- Consultation with the community during the update to the Access Areas for Dog Policy in 2021.
- On-site surveys for the presence of Aboriginal objects on 5 October 2023 (Lodge Environmental) and 10 September 2024 (SCC staff).
- A site inspection by qualified ecologists from Lodge Environmental on 5 October 2023 to validate plant community types, fauna habitat values and inform likelihood of occurrence for threatened and migratory species to occur at the subject site.
- A site inspection by SCC staff on 10 September 2024 to assess a range of environmental and social factors required to be considered.

Likelihood of occurrence was assessed for threatened flora and fauna listed under the *Biodiversity Conservation Act 2016* (NSW) (BC Act), *Fisheries Management Act 1994* (NSW) and *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) that have been recorded within 10 kilometres of the subject site (hereafter referred to as the 'locality').

Based on the nature of the subject site and proposed activity, it was considered that the above listed habitat assessment, literature review and database searches were appropriate means for assessing the potential impact on environmental factors in accordance with section 171 of the EP&A Regulation.

2 Existing Environment

2.1 Location

Cormorant Beach is an open coast sand beach located in the township of Bawley Point. The beach is approximately 300 metres long, and is situated between the Juwin Head and Bawley Point headlands (Figure 2 and Plates 1-8, Appendix 1).

Cormorant Beach is relatively straight and faces due east between the rocky platforms that wrap around the associated headlands. Houses occur north and south of the beach and a 12-hectare wetland (Bawley Point Wetland) occurs centrally, outflowing via a small estuary against the northern rocks. The beach is accessed from a small park beside the creek in the north, and via a public walkway between houses in the south.

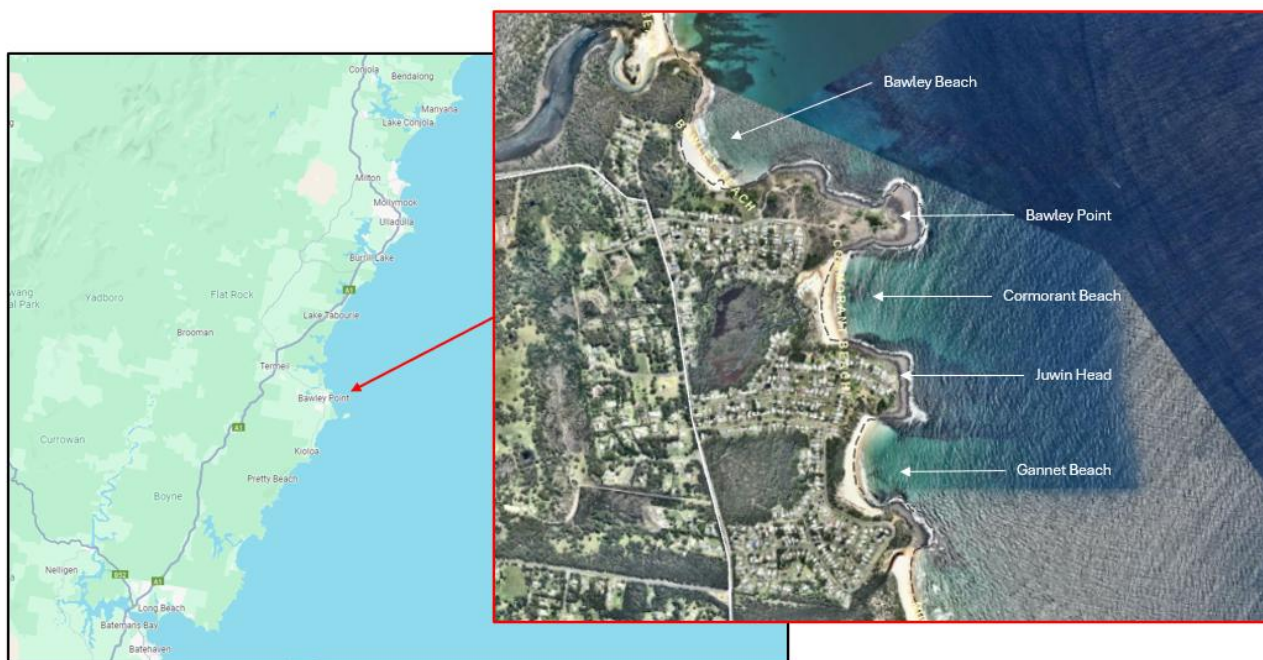


Figure 2 Location of Cormorant Beach, in Bawley Point, on the south coast of NSW.

2.2 Land ownership and management

The Cormorant Beach foreshore (Lot 7002 DP 1057513, Lot 7012 DP 1023834) is Crown land, with Council acting as the land manager under the *Crown Land Management Act 2016* (NSW) (CLM Act). Lot 7012 is associated with Crown Land Reserve No. 77679 which was deemed for 'public recreation' as published in the NSW Government Gazette on 10 June 1955. However, this changed on 7 July 1976, with part of this land reserved as Murramarang Aboriginal Area under the *National Parks and Wildlife Act 1974* (this land is to the south of Gannet Beach, which is immediately south of Cormorant Beach). Therefore, the contemporary area covering Crown Land Reserve No. 77679 (Lot 7012) is deemed for 'public recreation'. Lot 7002 – Crown Land Reserve No. 70768 was deemed for 'public recreation' in 1942 as published in the NSW Government Gazette.

Under the CLM Act, dedicated or reserved Crown Land managed by Council is assigned categories in accordance with Section 3.23 of the CLM Act, whereby the land is managed as if it were community land under the Local Government Act 1993 (NSW) (LG Act). Lot 7012 – Crown Land Reserve No. 77679, incorporating the southern part of Cormorant Beach foreshore, was categorised as

Community Land - Natural Area in 2020. Lot 7002 – Crown Land Reserve No. 70768, incorporating the northern part of the Cormorant Beach foreshore is currently ‘uncategorised’ land under the LG Act. The subject site is zoned as RE1 – Public Recreation under the Shoalhaven Environmental Plan 2014 (SLEP).

2.3 Community values

Many people have a strong affinity to the coast. Cormorant Beach is a shared-use area used by the community for social and recreational purposes and valued for many reasons, including:

- Aesthetics — passive recreation undertaken to appreciate the aesthetic appeal.
- Cultural and spiritual values — water is particularly important for indigenous peoples.
- Aquatic ecosystems — respect for the health or integrity of ecosystems.
- Exercise and active recreation – activities include walking, swimming, fishing, kayaking, birdwatching, and dog walking.
- Preservation of the local environment – activities include collecting rubbish, engaging in Bushcare activities or citizen science activities such as recording bird sightings or coastal dune changes.

Bawley Point is a popular holiday destination for visitors to the Shoalhaven. There is a carpark and public amenities block located to the north of Cormorant Beach on Tingira Drive that service both visitors to the beach and the adjacent wetlands.

The public (including community members and visitors) currently use Cormorant Beach as a 24-hour dog off-leash access area throughout the year and there are access tracks leading to the beach from Tingira Drive in the north, and Harrington Crescent in the south.

2.4 Landscape features

Bawley Point is located within the Interim Biogeographic Regionalisation for Australia (IBRA) Sydney Basin bioregion and subregion of Jervis (SYB14). Cormorant Beach is an open-coast beach located in Bawley Point and is approximately 300 metres in length. The beach is flanked by an intertidal rock platform at both beach ends, which wrap around the headlands that contain the beach (Bawley Point and Juwin Head). Residential housing backs the northern and southern extents of the foredune, with a 12-hectare wetland immediately west of the beach’s central foredune. The wetland is mapped under the *State Environmental Planning Policy (Resilience and Hazard SEPP) 2021* as ‘Coastal Wetland’ (Figure 3).

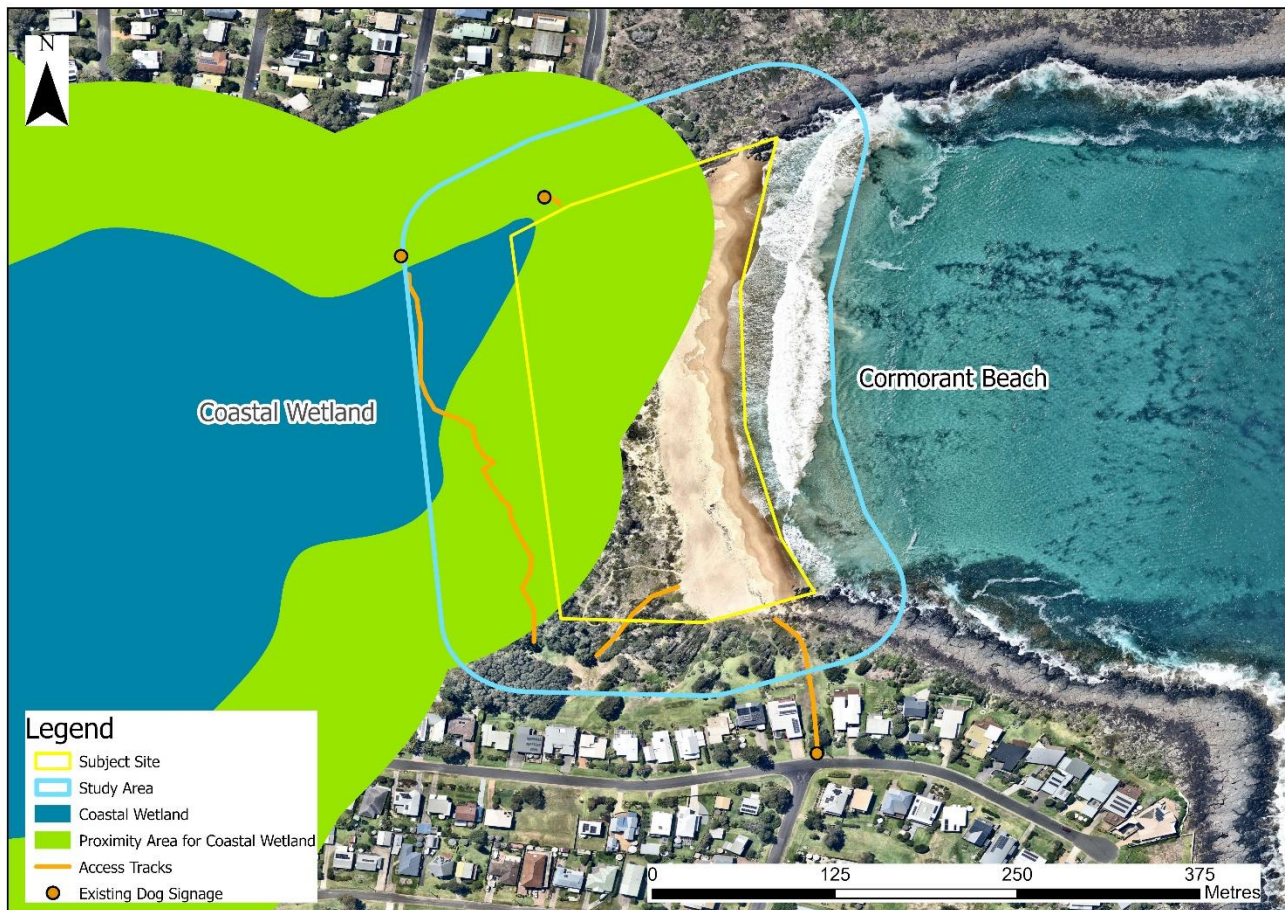


Figure 3 Coastal wetlands mapping for Cormorant Beach (Resilience and Hazards SEPP 2021).

2.5 Biodiversity

In the context of this REF, the subject site:

- is known to have hosted threatened species listed under the BC Act and the EPBC Act.
- contains vegetation that has been validated as a threatened ecological community listed under the BC Act.
- is not mapped on the Biodiversity Value Map (BV Map), which identifies land with high biodiversity value as defined by the *Biodiversity Conservation Regulation 2017* (NSW) (BC Regulation). Bawley Point Wetland Reserve, immediately adjacent to Cormorant Beach, is mapped on the BV Map and is known as a habitat corridor.
- Sandy beaches, such as Cormorant Beach, are key foraging and roosting sites for shorebirds and seabirds.

2.6 Cultural heritage

An AHIMS search was conducted on 24 July 2023, repeated and confirmed on 29 August 2024 and indicated that there are two recorded Aboriginal heritage sites within the study area. One Aboriginal heritage site has been recorded on Cormorant Beach and a second Aboriginal heritage site has been recorded on the northwest foreshore dune approximately 30 metres from the beach. However, after further investigation into the site identification cards for each heritage item, it was determined that

these sites were located outside of the subject site and potential impact of the proposed activity is considered negligible.

One item of local non-indigenous heritage significance listed in the SLEP is located within proximity to the subject site.

Further assessment of indigenous and non-indigenous heritage is provided in Section 5.3.

3 Permissibility

The proposed activity is permissible under all relevant legislation (Table 11) subject to the implementation of spatial limitations and recommended mitigation measures (Section 8).

Table 1 Summary of legislation and permissibility

NSW State Legislation	
Environmental Planning and Assessment Act 1979 (EP&A Act)	
Permissible ☒	Not permissible ☐
Section 4.1 (Development that does not need consent) of the EP&A Act states that: <i>'If an environmental planning instrument provides that specified development may be carried out without the need for development consent, a person may carry the development out, in accordance with the instrument, on land to which the provision applies.'</i> Designating a dog off-leash access area constitutes as an 'activity' (given activity also applies to 'use of the land'). Section 2.73(3) of the <i>State Environmental Planning Policy (Transport and Infrastructure) 2021</i> (Transport & Infrastructure SEPP) provides that: <i>'Any of the following development may be carried out by or on behalf of a council without consent on a public reserve under the control of or vested in the council—</i> <i>(a) development for any of the following purposes—</i> <i>(ii) recreation areas and recreation facilities (outdoor), but not including grandstands'</i> Section 4.68(1) (Continuance of and limitations on other lawful uses) of the EP&A Act further states: <i>'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.'</i> The use of the land at Cormorant Beach for a dog off-leash access area constitutes 'continuing use' under Section 4.68(1). The use of the beach and foreshore reserve at Cormorant Beach for the purpose of recreation commenced prior to the introduction of the requirement to obtain development consent for that use under relevant environmental planning instruments. The use of the land at Cormorant Beach for a dog off-leash access area does not involve the enlargement, expansion or intensification for the purpose of a recreation area. Dog access on Cormorant Beach constitutes an 'activity' as defined under Part 5 of the EP&A Act. Section 5.5 of the Act <i>Duty to consider environmental impact</i> requires Council to <i>examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the activity</i>. This REF assesses all potential impacts of the proposed activity. All aspects of the proposed activity are documented in Section 1.3. Section 5 includes an assessment against factors a) – p) in Section 171 of the <i>Environmental Planning and Assessment Regulation (2021)</i>. Potential impacts of the proposed activity are detailed in Section 7 and the spatial limitations of the proposed activity and other mitigation measures are provided in Section 8.	

NSW State Legislation

Section 5.7 of the EP&A Act requires Council to examine and consider an Environmental Impact Statement (EIS) in respect of the activity. Specific assessments for threatened species listed under the *Biodiversity Conservation Act 2016* (BC Act) *Fisheries Management Act 1994* (NSW) and *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) and migratory species listed under the EPBC Act are conducted in Appendix 3 and Appendix 4. These assessments conclude mitigation measures, listed in Section 8, are adequate to ensure the proposed activity does not constitute a significant impact to listed threatened or migratory species. As such, an EIS is not required for the proposed activity.

Companion Animals Act 1998 (CA Act)

Permissible ☒ Not permissible ☐

The principal object of this Act is to provide for the effective and responsible care and management of companion animals.

Section 13(6) of the CA Act states that '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.'

Section 14 of the CA Act states that 'dogs are prohibited in the following places (whether or not they are leashed or otherwise controlled) -

- (a) Children's play areas (meaning any public place, or part of a public place, that is within 10 metres of any playing apparatus provided in that public place or part for the use of children).
- (b) Food preparation/consumption areas (meaning any public place, or part of a public place, that is within 10 metres of any apparatus provided in that public place or part for the preparation of food for human consumption or for the consumption of food by humans).
- (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).
- (e) School grounds (meaning any property occupied or used for a purpose connected with the conduct of a government school or non- government school under the Education Act 1990, other than any property used for a residence or the curtilage of a residence).
- (f) Childcare centres (meaning any property occupied or used for a purpose connected with the conduct of an approved education and care service within the meaning of the Children (Education and Care Services) National Law (NSW) or the Children (Education and Care Services) Supplementary Provisions Act 2011, other than any property used for a residence or the curtilage of a residence).

NSW State Legislation

- (g) Shopping areas where dogs are prohibited (meaning a shopping arcade or shopping complex, including any part of it that is used by the public for parking or access to shops, in which or part of 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 there). This paragraph does not apply to any shop or part of a shop.
- (h) Wildlife protection areas (meaning any public place or any part of a public place set apart by the local authority for the protection of wildlife and in which the local authority has ordered that dogs are prohibited for the purposes of the protection of wildlife 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).'

There is a picnic area to the southeast of the subject site which holds a dog prohibition under this Act (being a children's play area). All other areas in the vicinity of the subject site remain dog on-leash areas.

Crown Land Management Act 2016 (CLM Act)

Permissible ☒ Not permissible ☐

Council is the appointed Crown Land Manager (CLM) of Cormorant Beach (Crown Land Reserve R77679, Lot 7012 DP 1023834, Crown Land Reserve 70768, Lot 7002 DP 1057513)

Where a Plan of Management (PoM) exists for Crown Land it may identify and authorise certain works that can be undertaken by a public authority and the pre-conditions (if any) for implementing those works.

For Lot 7012 DP 1023834, which is classified as Community Land – Natural Areas, the PoM pertaining to the land is the Generic Community Plan of Management – Natural Areas <https://doc.shoalhaven.nsw.gov.au/displaydoc.aspx?record=D16/208141>.

This plan states:

Foreshore Natural Areas are highly valued for their accumulative benefit as social, cultural, economic and environmental assets. Foreshore reserves have a high degree of environmental sensitivity due to being the transition zone between the aquatic and terrestrial ecosystems.

For Lot 7002 DP 1057513, which is not yet classified under the LG Act, a PoM does not apply under this Act. However, the CLM Act provides that Crown land managed by council as public land must be managed as if it were community land. As such, this lot can be considered managed in alignment with the PoM for Community Land – Natural Areas.

The Core Objectives for management of community land categorised as Natural Area that are set out in the Act include:

1. to conserve biodiversity and maintain ecosystem function in respect of the land, or the feature or habitat in respect of which the land is categorised as a natural area, and
2. to maintain the land, or that feature or habitat, in its natural state and setting, and
3. to provide for the restoration and regeneration of the land, and
4. to provide for community use of and access to the land in such a manner as will minimise and mitigate any disturbance caused by human intrusion.

NSW State Legislation

The proposed activity is in line with these objectives. The proposed activity will not impact on the natural area foreshore's role as a transition area between the aquatic and terrestrial environment. The PoM, as well as Council's Foreshore Reserves Policy (POL19/76), does not preclude the activity.

Coastal Management Act 2016 (CM Act)

Permissible ☒ Not permissible ☐

The CM Act establishes the framework and overarching objectives for coastal management in New South Wales. The purpose of the CM Act is to manage the use and development of the coastal environment in an ecologically sustainable way. The CM Act achieves this by designating 'coastal management areas' for the NSW coastal zone and assigning specific objectives for the management of these areas.

Cormorant Beach is designated as both Coastal Environment Area and Coastal Use Area. Under the CM Act, the management objectives for these areas includes the protection and enhancement of the coastal environment (including but not limited to ecosystem integrity, water quality, coastal and estuarine processes), as well as the protection and enhancement of the social and cultural values of the coast (including but not limited to access to public open space for recreational activities).

The Coastal Management Program (CMP) for the Shoalhaven Open Coast and Jervis Bay, https://doc.shoalhaven.nsw.gov.au/LinkGeneratorAPI/record/9201668/preview_latest_final_version_pdf, covers the subject site and is a long-term strategy for managing the coastline and estuary at this location. The key actions identified in the CMP for this location are to:

- Develop an entrance management policy for the Cormorant Beach Lagoon
- Install a water level gauge in the Cormorant Beach Lagoon
- Cormorant beach pedestrian access management

The proposed activity (with the implementation of mitigation measures in Section 8) is considered consistent with these actions as improvements to the beach access will enhance and stabilise the foredune allowing better maintained access for pedestrians with dogs onto the beach.

State Environmental Planning Policy (Resilience and Hazards SEPP) 2021

Permissible ☒ Not permissible ☐

Section 2.10 of Division 3 of the Resilience and Hazards SEPP Coastal environment area states that development consent must not be granted to development on land that is within the coastal environment area unless the consent authority has considered whether the proposed development is likely to cause an adverse impact on the following:

- (a) The integrity and resilience of the biophysical, hydrological (surface and groundwater) and ecological environment,
- (b) Coastal environmental values and natural coastal processes,

NSW State Legislation

- (c) the water quality of the marine estate (within the meaning of the *Marine Estate Management Act 2014*), in particular, the cumulative impacts of the proposed development on any of the sensitive coastal lakes identified in Schedule 1,
- (d) Marine vegetation, native vegetation and fauna and their habitats, undeveloped headlands and rock platforms,
- (e) Existing public open space and safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability,
- (f) Aboriginal cultural heritage, practices and places,
- (g) The use of the surf zone.

(2) Development consent must not be granted to development on land to which this section applies unless the consent authority is satisfied that—

- (a) The development is designed, sited and will be managed to avoid an adverse impact referred to in subsection (1), or
- (b) If that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or
- (c) If that impact cannot be minimised—the development will be managed to mitigate that impact.

The subject site is mapped under Division 3 Coastal Environment Area and Division 4 Coastal Use Area for the purpose of the SEPP. The development controls relevant to these mapped areas do not apply to development that can be carried out without consent.

There are no areas within the subject site mapped by this SEPP as Coastal Vulnerability Areas or and Littoral Rainforests. A small area of Coastal Wetlands was included in the proposed off-leash area (Figure 3). A reduction of the off-leash area is required as a mitigation measure as shown in Figure 6.

The subject site includes an area mapped as ‘Proximity Area for Coastal Wetlands’ under this SEPP. (Figure 3). Section 2.8(1) states:

(1) Development consent must not be granted to development on land identified as ‘proximity area for coastal wetlands’ or ‘proximity area for littoral rainforest’ on the Coastal Wetlands and Littoral Rainforests Area Map unless the consent authority is satisfied that the proposed development will not significantly impact on—

- (a) the biophysical, hydrological or ecological integrity of the adjacent coastal wetland or littoral rainforest, or*
- (b) the quantity and quality of surface and ground water flows to and from the adjacent coastal wetland or littoral rainforest.*

As the proposed activity constitutes development in this case, consent must not be granted unless the above is satisfied. In accordance with Section 2.8(1) of the Resilience and Hazard SEPP, the activity can be carried out by (or on behalf of) a public authority as development without consent, as long as Council undertakes the appropriate environmental due diligence and is satisfied that the proposed development, comprising of dog off-leash access, does not significantly impact on both 2.8(1)(a) and 2.8(1)(b).

This document provides the mandatory environmental due diligence to satisfy the legislative requirements under the Resilience and Hazard SEPP. The proposed activity is considered not to

NSW State Legislation

have an adverse effect on the above and is therefore permissible under Resilience and Hazards SEPP.

Shoalhaven Local Environmental Plan 2014 (SLEP)

Permissible ☒ Not permissible ☐

In circumstances where development consent is not required, the SLEP does not apply. However, all relevant factors of consideration as outlined in Part 5 of the EP&A Act are required to be complied with. This REF, including Section 4 (Assessment of Environmental Factors under Section 171 of the EP&A Regulation), fulfils this requirement.

Protection of the Environment Operations Act 1997 (POEO Act)

Permissible ☒ Not permissible ☐

The POEO Act regulates and controls pollution of land, air, water, and the emission of noise and provides for environment protection licenses, notices and offences.

The objectives of the POEO Act are as follows:

- (a) to protect, restore and enhance the quality of the environment in NSW, having regard to the need to maintain ecologically sustainable development,
- (b) to provide increased opportunities for public involvement and participation in environment protection,
- (c) to ensure that the community has access to relevant and meaningful information about pollution,
- (d) to reduce risks to human health and prevent the degradation of the environment by the use of mechanisms that promote the following—
 - (i). pollution prevention and cleaner production,
 - (ii). the reduction to harmless levels of the discharge of substances likely to cause harm to the environment,
 - (iii). the elimination of harmful wastes,
 - (iv). the reduction in the use of materials and the re-use, recovery or recycling of materials,
 - (v). the making of progressive environmental improvements, including the reduction of pollution at source,
 - (vi). the monitoring and reporting of environmental quality on a regular basis,
 - (vii). the proper environmental management of chemicals throughout their whole lifecycle,
- (e) to rationalise, simplify and strengthen the regulatory framework for environment protection,
- (f) to improve the efficiency of administration of the environment protection legislation,
- (g) to assist in the achievement of the objectives of the *Waste Avoidance and Resource Recovery Act 2001*.

NSW State Legislation

The proposed activity (with the implementation of mitigation measures in Section 8) is considered to align with the objects of the POEO Act as impacts associated with pollution or waste management are considered unlikely to occur.

Furthermore, the proposed activity does not constitute a scheduled activity as listed in Schedule 1 of the POEO Act and does not require an environmental protection licence.

National Parks and Wildlife Act 1974 (NPW Act)

Permissible ☒ Not permissible ☐

The NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) administers the NPW Act, which manages:

- 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 NPW Act binds all activities and responsibilities of the Crown. DCCEEW must consider the objectives listed above, the public interest and appropriate management of the subject site and study area. The NPW Act controls activities carried out in designated Parks, Reserves and Aboriginal areas. The NPW Act also requires consideration of impacts on all native birds, reptiles, amphibians and mammals protected under this Act.

The proposed activity does not take place on any designated Parks, Reserves and Aboriginal areas. Additional consideration is required for potential impacts to Aboriginal cultural heritage. Such impacts are adequately addressed in Section 5.3 to ensure that the proposed activity aligns with the NPW Act.

Biodiversity Conservation Act 2016 (BC Act)

Permissible ☒ Not permissible ☐

The purpose of the 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, and in particular—

- (a) to conserve biodiversity at bioregional and state scales, and
- (b) to maintain the diversity and quality of ecosystems and enhance their capacity to adapt to change and provide for the needs of future generations, and
- (c) to improve, share and use knowledge, including local and traditional Aboriginal ecological knowledge, about biodiversity conservation, and
- (d) to support biodiversity conservation in the context of a changing climate, and
- (e) to support collating and sharing data, and monitoring and reporting on the status of biodiversity and the effectiveness of conservation actions, and
- (f) to assess the extinction risk of species and ecological communities, and identify key threatening processes, through an independent and rigorous scientific process, and
- (g) to regulate human interactions with wildlife by applying a risk-based approach, and

NSW State Legislation

- (h) to support conservation and threat abatement action to slow the rate of biodiversity loss and conserve threatened species and ecological communities in nature, and
- (i) to support and guide prioritised and strategic investment in biodiversity conservation, and
- (j) to encourage and enable landholders to enter into voluntary agreements over land for the conservation of biodiversity, and
- (k) to establish a framework to avoid, minimise and offset the impacts of proposed development and land use change on biodiversity, and
- (l) to establish a scientific method for assessing the likely impacts on biodiversity values of proposed development and land use change, for calculating measures to offset those impacts and for assessing improvements in biodiversity values, and
- (m) to establish market-based conservation mechanisms through which the biodiversity impacts of development and land use change can be offset at landscape and site scales, and
- (n) to support public consultation and participation in biodiversity conservation and decision-making about biodiversity conservation, and
- (o) to make expert advice and knowledge available to assist the Minister in the administration of this Act

A species is considered threatened if:

- there is a reduction in its population size
- it has a restricted geographical distribution, or
- there are few mature individuals.

A species may be listed under the BC Act as:

- vulnerable
- endangered
- critically endangered, or
- presumed extinct.

How threatened a species is in NSW depends on:

- the extent of its population reduction across NSW and over time
- the size of its geographical distribution, or
- the number of mature individuals.

Populations of species and ecological communities can also be listed as threatened.

Processes that threaten species may be listed as key threatening processes.

Habitat essential to the survival of endangered or critically endangered species, as well as populations of species or ecological communities can be declared as critical habitat.

The proposed activity is:

- Unlikely to have a significant impact on species and communities listed in the schedules of this Act (refer to Appendices 2 and 3).
- Not within an area declared to be of 'outstanding biodiversity value' as defined in this Act.
- Not considered to have a *serious and irreversible impacts on biodiversity values*.
- Not likely to increase the role of any listed key threatening processes.

NSW State Legislation

The proposed activity (with the implementation of mitigation measures in Section 8) is not deemed to be *likely to significantly affect threatened species* and a Biodiversity Development Assessment Report (BDAR) and entry into the Biodiversity Offset Scheme (BOS) is not required.

Fisheries Management Act 1994 (FM Act)

Permissible ☒ Not permissible ☐

If a planned development or activity is likely to have any impact on a threatened species, populations or ecological communities, or their habitats listed under the Fisheries Management Act 1994 (FM Act), a preliminary assessment of the potential impacts must be made (under Division 6, Subdivision 1, section 220ZZ), which is known as the 'Assessment of Significance' or '7 Part Test'.

The assessment of significance is applied to species, populations and ecological communities listed on Schedules 4, 4A and 5 of the FM Act. A species does not have to be considered as part of the assessment of significance if adequate surveys or studies have been carried out that clearly show that the species:

- does not occur in the study area, or
- will not use on-site habitats on occasion, or
- will not be influenced by off-site impacts of the proposal.

Otherwise all species likely to occur in the study area (based on general species distribution information), and known to use that type of habitat, should be considered in the rationale that determines the list of threatened species, populations and ecological communities for the assessment of significance.

The proposed activity is unlikely to have a significant impact on species, populations or ecological communities listed in the schedules of this Act (refer to Appendices 2 and 5).

Heritage Act 1977 (Heritage Act)

Permissible ☒ Not permissible ☐

The Heritage Act is concerned with all aspects of the conservation of heritage places and items. Heritage items of state significance are listed on the State Heritage Register. The Heritage Act provides protection for non-Aboriginal historic artefacts and/or sites (older than 50 years). A review of potential impacts on non-Aboriginal heritage is detailed in Section 5.3.

Local Land Services Act 2013

Permissible ☒ Not permissible ☐

No clearing of vegetation is proposed. No separate authorisation under the Act is required.

Water Management Act 2000

Permissible ☒ Not permissible ☐

Local councils are exempt from s.91E(1) of the Act in relation to all controlled activities that they carry out in, on or under waterfront land (by virtue of section 41 of the *Water Management (General) Regulation 2018*).

NSW State Legislation

The proposed activity will not interfere with an aquifer and therefore an interference licence is not required (s.91F).

Aboriginal Land Rights Act 1993

Permissible ☒ Not permissible ☐

There are unresolved land claims on the subject site. However, the Act does not preclude the activity taking place on the subject site and study area. The Crown reserve has lawfully been used as a recreational area prior to the lodgement of the land claim.

The activity would not affect or complicate the assessment of the land claim as it does not permanently impact the land as the activity is ongoing and intermittent and would not diminish the size or nature of the land.

Therefore, the land would remain as 'claimable land' as defined in the Act.

Commonwealth legislation

Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

Permissible ☒ Not permissible ☐

Matters of National Environmental Significance (MNES) are defined in Part 3 of the EPBC Act and include a range of environmental matters including world and national heritage, internationally important wetlands, nationally threatened species and communities, and migratory species, along with other matters.

The proposed activity is not likely to significantly impact on any MNES (Appendices 2 and 4).

Native Title Act 1993

Permissible ☒ Not permissible ☐

The *Native Title Act 1993* recognises traditional interests in land of Aboriginal and Torres Strait Islander people and provides an avenue for land title claims against Crown land.

The proposed activity can be undertaken as a valid act under Subdivision 24LA *Low Impact Future Acts* as the act does not consist of, authorise, or otherwise involve:

- (a) the grant of a freehold estate
- (b) the grant of a lease
- (c) the conferral of a right of exclusive possession
- (d) the excavation or clearing of any of the land or waters
- (e) mining
- (f) the construction of placing on the land, or in the waters, of any building, structure, or other thing (other than fencing or a gate), that is a fixture, or
- (g) the disposal or storing, on the land or in the waters, of any garbage or any poisonous, toxic or hazardous substance.

The non-extinguishment principle applies to the act and no referral or request for comment to NTSCORP is required.

4 Assessment of environmental factors

Section 171 of the EP&A Regulation lists the factors to be investigated when consideration is being given to the likely impact of an activity on the environment under Part 5 of the EP&A Act. An assessment of the proposed activity against these environmental factors has been undertaken (Table 2).

Table 2 Assessment of Section 171 (EP&A Regulation) environmental factors

In accordance with Section 171(2) of the EP&A Regulation, Council has considered the following environmental factors:	Assessment of impact	Reason
a) the environmental impact on the community	Negligible/ Positive	The subject site is located within Community Land and is frequently used as a public reserve for social and recreational activities. The proposed activity would not impact on the community's access to, and amenity of Cormorant Beach. The proposed activity would not impact on views, community services and infrastructure such as water, waste management, educational, medical or social services (refer to impact assessment at Section 7.3).
b) the transformation of the locality	Negligible	The subject site and study area is located on the Shoalhaven open coast and is an environment comprising a beach and coastal foreshore reserve. The subject site is zoned RE1 Public Recreation under the Shoalhaven LEP. The objectives of this zone are: • 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. The proposed activity is compatible with these objectives.
c) the environmental impact on the ecosystems of the locality	Negligible	The ecosystems in the locality range from aquatic, intertidal and terrestrial. The proposed activity is relevant because the presence of dogs can impact on wildlife occupying these environs. An amendment of the off-leash area is required to avoid the mapped area of Coastal Wetlands, in accordance with the Resilience and Hazards SEPP (see Figure 6, Section 8). The Threatened Ecological Community <i>Bangalay Sand Forest in the Sydney Basin and</i>

In accordance with Section 171(2) of the EP&A Regulation, Council has considered the following environmental factors:	Assessment of impact	Reason
		<i>South East Corner Bioregions</i> is located within the study area. However, impact on this ecosystem will be also avoided with the amended area and implementation of mitigative controls (Section 8). Refer to Section 5.2 and 7.2 for further information on this analysis.
d) reduction of the aesthetic, recreational, scientific or other environmental quality or value of the locality	Negligible/ Positive	There would be minimal impact on the aesthetic, recreational, scientific or other environmental qualities or value of the locality. The subject site will remain a public reserve and recreation opportunities would not be diminished. The proposed activity would enhance the recreational values of the subject site by providing a controlled dog off-leash access area that allows shared and balanced use for the public. Dog disturbance will be minimal while they are off-leash at the subject site as dogs are required, under the <i>Companion Animals Act 1998</i> (NSW) (CA Act), to remain under control of their owner/walker. The person in control of the dog(s) is also responsible for waste disposal (including dog faeces). Compliance inspections will be carried out regularly to enforce these legal obligations and to help build a culture of appropriate public pet supervision. This will be reinforced with appropriate communications such as signage and website information. The proposed activity would not involve any direct impact on the natural attributes of the subject site. The beach and coastal foreshore reserve is regularly monitored for erosion and appropriate land management is implemented at the subject site, if required. The proposed activity would result in an increased noise source (i.e., dogs barking). The subject site is adjacent to existing public and recreational facilities, such as children's playgrounds and picnic areas, where noise is also generated. The subject site is heavily used by the public for a diversity of activities. Therefore, noise levels from the proposed activity are considered to be within a normal range conducive to the existing public use of

In accordance with Section 171(2) of the EP&A Regulation, Council has considered the following environmental factors:	Assessment of impact	Reason
		the subject site. As a result, noise would not be considered a disruptive level. Reports or complaints made to Council regarding noise will be monitored.
e) the effects on any locality, place or building that has – (i) aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance, or (ii) other special value for present or future generations	Negligible	The subject site has no significant aesthetic, architectural, cultural, historical, scientific or social values likely to be impacted on by this activity. No items in the vicinity of the subject site listed on the State Heritage Register and the SLEP would be impacted on by the proposed activity. The subject site is not within an Aboriginal Place declared under the NPW Act. In accordance with the NSW DCCEE's Due Diligence Code of Practice, the proposed activity does not require an Aboriginal Heritage Impact Permit as the proposed activity is unlikely to harm an Aboriginal artefact or harm Aboriginal heritage sites. Refer to Section 5.3 for details.
f) the impact on the habitat of protected animals, within the meaning of the Biodiversity Conservation Act 2016	Negligible	The impact on protected animals listed under the BC Act, that have been recorded within the locality, have been considered in association with the proposed activity. No habitat will be removed or otherwise impacted on by the proposed activity. The Test of Significance (BC Act) detailed in Appendix 3 concludes that the proposed activity would not have a significant impact on threatened fauna and flora. Protected animals listed under the BC Act that occur in the Shoalhaven LGA, including all native birds, reptiles, amphibians and mammals will not be significantly impacted on by the proposed activity and no further assessment is required. Refer to Section 5.2 for details.
g) the endangering of a species of animal, plant or other form of life, whether living on land, in water or in the air	Negligible	The subject site is a public beach and coastal foreshore reserve that contains limited animal, plant, or other form of life habitat. There are no protected species likely to rely on the subject site of the proposed activity to the

In accordance with Section 171(2) of the EP&A Regulation, Council has considered the following environmental factors:	Assessment of impact	Reason
		extent that modification would put them further in danger. The Tests of Significance (BC Act) provided in Appendix 3 concludes that the proposed activity would not have a significant impact upon threatened flora and fauna. The Significant Impact Criteria Assessment (EPBC Act) provided in Appendix 4 concludes that the proposed activity would not have a significant impact upon threatened flora and fauna, or migratory fauna listed under this Act. If a planned development or activity is likely to have any impact on a threatened species, populations or ecological communities, or their habitats listed under the <i>Fisheries Management Act 1994</i> (FM Act), a preliminary assessment of the potential impacts must be made (under Division 6, Subdivision 1, section 220ZZ), which is known as the 'Assessment of Significance' or '7 Part Test'. As the proposed activity is unlikely to have an impact on threatened species, populations or ecological communities, or their habitats listed under the FM Act, a 7 Part Test is not required. Refer to Section 5.2 and Section 7 for details.
h) long-term effects on the environment	Negligible/ Positive	The use of the subject site for 24-hour dog off-leash access will result in intermittent and ongoing use of the beach and foreshore reserve by the public. The sign installation will improve understanding and awareness of dog access rules and inform the public on the threat from dog disturbance on threatened species. Furthermore, the continued analytical responses to monitoring information from complaints, observations and data will lead to the implementation of adaptive management to confirm that the proposed activity will not have a long-term effect on the environment into perpetuity. Refer to Section 8 for details.
i) degradation of the quality of the environment	Negligible	The proposed activity involves ongoing and intermittent use of the beach and foreshore reserve by the public for the use of dog off-leash access. The mitigation measures (Section 8) to be implemented will minimise

In accordance with Section 171(2) of the EP&A Regulation, Council has considered the following environmental factors:	Assessment of impact	Reason
		impacts on, and risks to the quality of, the environment. Dune stability will be managed in accordance with the NSW Coastal Dune Management Manual and the Open Coast and Jervis Bay Coastal Management Program (CMP). Access tracks are established, and condition monitored to minimise impacts to surrounding dune vegetation. No additional access tracks are proposed. The proposed activity is unlikely to introduce priority weeds, vermin, or feral animals into the area or contaminate the soil. Long-term or long-lasting impact to aquatic ecosystems through the input of sediment or nutrient into the ecosystem is unlikely. The proposed activity is unlikely to disturb the soil surface within the subject site beyond that which occurs in response to natural events and other recreational uses. The mitigation measures (Section 8) to be implemented will minimise impacts on, and risks to the quality of, the environment.
j) risk to the safety of the environment	Negligible / Positive	The subject site is a sensitive natural environment located on the shores of the Shoalhaven open coast. However, the proposed activity will not increase the risk of safety hazards above and beyond past and present recreational activities that occur within the subject site and study area. The proposed activity would not involve hazardous wastes to the extent that the existing environment would be impacted on. The proposed activity would not increase the levels of risks that may occur in response to hazardous wastes, bushfire, flood, landslip or coastal hazard.
k) reduction in the range of beneficial uses of the environment	Negligible/ Positive	The subject site is used for social and beach related recreation opportunities, as well as access to them. The proposed activity would have no impact on this beneficial use. The spatial limitation and prescribed mitigation measures (Section 8) provides for shared and balanced use of the beach, and thus the proposed activity will not lead to a reduction in the range of beneficial uses of the local

In accordance with Section 171(2) of the EP&A Regulation, Council has considered the following environmental factors:	Assessment of impact	Reason
		environment within the subject site and study area. The proposed activity would not prevent the use of other recreational activities, as it is currently used as a passive recreation area, and the local picnic area is located outside of the dog off-leash access area in accordance with the CA Act.
l) pollution of the environment	Negligible	The proposed activity is not expected to result in pollution of the environment. It is unlikely that the activity (including mitigation measures) would result in water, noise (see item d above), or air pollution, spillages, dust, odours, vibration or radiation. There is no Acid Sulfate Soils located within the subject site. Any required signage installation may involve minor excavation that will not result in the oxidation of acid sulphate soils. With the requirement that dog owners clean up faeces, waste pollution from dogs is unlikely to have an impact on the natural environment. A garbage bin is located at the nearby toilets to promote compliance and this is regularly serviced to prevent overburden. This will be monitored and enforced as a component of the implementation of mitigation measures (refer Section 8).
m) environmental problems associated with the disposal of waste	Negligible	The proposed activity involves 24-hour dog off-leash access within the subject site. There would be no trackable waste, hazardous waste, liquid waste, or restricted solid waste as described in the POEO Act. Under the requirement that dog owners clean up faeces, waste pollution from dogs is unlikely to have an impact on the natural environment. A garbage bin is located at the nearby toilets to promote compliance and this is regularly serviced to prevent overburden. This will be monitored and enforced as a component of the implementation of mitigation measures (Section 8).
n) increased demands on natural or other resources that are, or are likely to become, in short supply	Negligible	No natural or other resources that are, or are likely to become, in short supply will have increasing demands in response to the proposed activity.

In accordance with Section 171(2) of the EP&A Regulation, Council has considered the following environmental factors:	Assessment of impact	Reason
o) the cumulative environmental effect with other existing or likely future activities	Negligible	The subject site is used for social and recreational activities all year round. The proposed activity would not create a cumulative environmental effect with other existing or likely future activities within the subject site. Adaptive management will be utilised through the analysis of information obtained from data, complaints and observations, as well as an assessment of any future activities, to ensure that the proposed activity does not have a cumulative effect.
p) the impact on coastal processes and coastal hazards, including those under projected climate change conditions	Negligible	The proposed activity is not likely to have any impact on coastal process and coastal hazards, including those projected under climate change conditions. The subject site and study area is regularly monitored for coastal and storm erosion. Dune stability will be managed in accordance with the NSW Coastal Dune Management Manual and the Open Coast and Jervis Bay Coastal Management Program. Access tracks are established, and condition monitored to minimise impacts to surrounding dune vegetation. No additional access tracks are proposed.
q) applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1	Negligible	The proposed activity is consistent with Shoalhaven 2040 - Our Strategic Land-use Planning Statement (Shoalhaven City Council, 2020) and the Illawarra Shoalhaven Regional Plan 2041 (NSW DPE, 2021)
r) other relevant environmental factors	Negligible	There are no other relevant environmental factors pertaining to the proposed activity.

Note – the 'locality' in this context is as per the EP&A Regulation and refers to the subject site and study area within this REF.

5 Detailed assessment of key environmental factors

The following sections present the detailed assessments of the key environmental factors relevant to the proposed activity. Threatened fauna and flora, heritage and community values are included. Potential impacts of the proposed activity on these are assessed in Section 7.

5.1 Habitat and vegetation assessment

The subject site was assessed by a Council Biodiversity Officer on 10 November 2022, ecologists from Lodge Environmental on 5 October 2023 and SCC staff again on 10 September 2024. All surveys involved a vegetation and habitat assessment of the subject site and study area. Flora and fauna species within the subject site and study area were documented as well as an investigation of habitat availability for threatened fauna species.

Plant Community Types (PCTs) mapped within the study area (NSW State Vegetation Type Map 2022; Figure 4) and their associated Threatened Ecological Communities (TECs) include the following:

- PCT 3410 Spinifex Strandline Grassland,
- PCT 3409 Southern Headland Grassland (TEC: Themeda grassland on seacliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner Bioregions)
- PCT 3805 Southern Sandplain Heath (TEC: Eastern Suburbs Banksia Scrub in the Sydney Basin Bioregion), and
- PCT 3546 Coastal Sands Littoral Scrub-Forest (TEC: Bangalay Sand Forest of the Sydney Basin and South East Corner bioregions).

During site inspection, ecologists confirmed that vegetation within the northern part of the subject site does not align with the TECs associated with PCT 3409 or PCT 3805. However, a patch of vegetation immediately to the west of the subject site, and within the southern boundary of the subject site and study area was confirmed as the BC Act listed TEC *Bangalay Sand Forest in the Sydney Basin and South East Corner Bioregions*. Field validated vegetation zones within the subject site (5) are:

- PCT 3410 – Spinifex Strandline Grassland,
- PCT 3546 – Coastal Sands Littoral Scrub-Forest,
- No PCT – Sand and Coastal Rock Shelf, and
- No PCT – Maintained Public Access.

Within the subject site, Cormorant Beach berm is largely devoid of living vegetation, although wrack (accumulation of seagrass) is common (Plate 1, Appendix 1 Photographs of the subject site). The vegetation within the subject site is largely limited to the foredune and hind dune and adjacent to the wetland to the west.

The canopy along the foredune is predominately vegetated by Bangalay (*Eucalyptus botryoides*) and Coast Banksia (*Banksia integrifolia*). Common understorey species include Coast Teatree (*Leptospermum laevigatum*), Coastal Beard-heath (*Leucopogon parviflorus*) and Coast Wattle (*Acacia sophorae*), with Black She-oak (*Allocasuarina littoralis*) and Australian Cheesewood (*Pittosporum undulatum*) scattered throughout (Plate 6, Appendix 1 Photographs of the subject site). Common ground layer species include Knobby Club-rush (*Ficinia nodosa*), Pigface (*Carpobrotus glaucescens*), Kangaroo Grass (*Themeda australis*), Spiny-headed Mat-rush (*Lomandra longifolia*) and Spinifex (*Spinifex sericeus*) (Plate 5, 7 and 8, Appendix 1 Photographs of the subject site).

No hollow-bearing trees were found to occur in close proximity to the subject site.

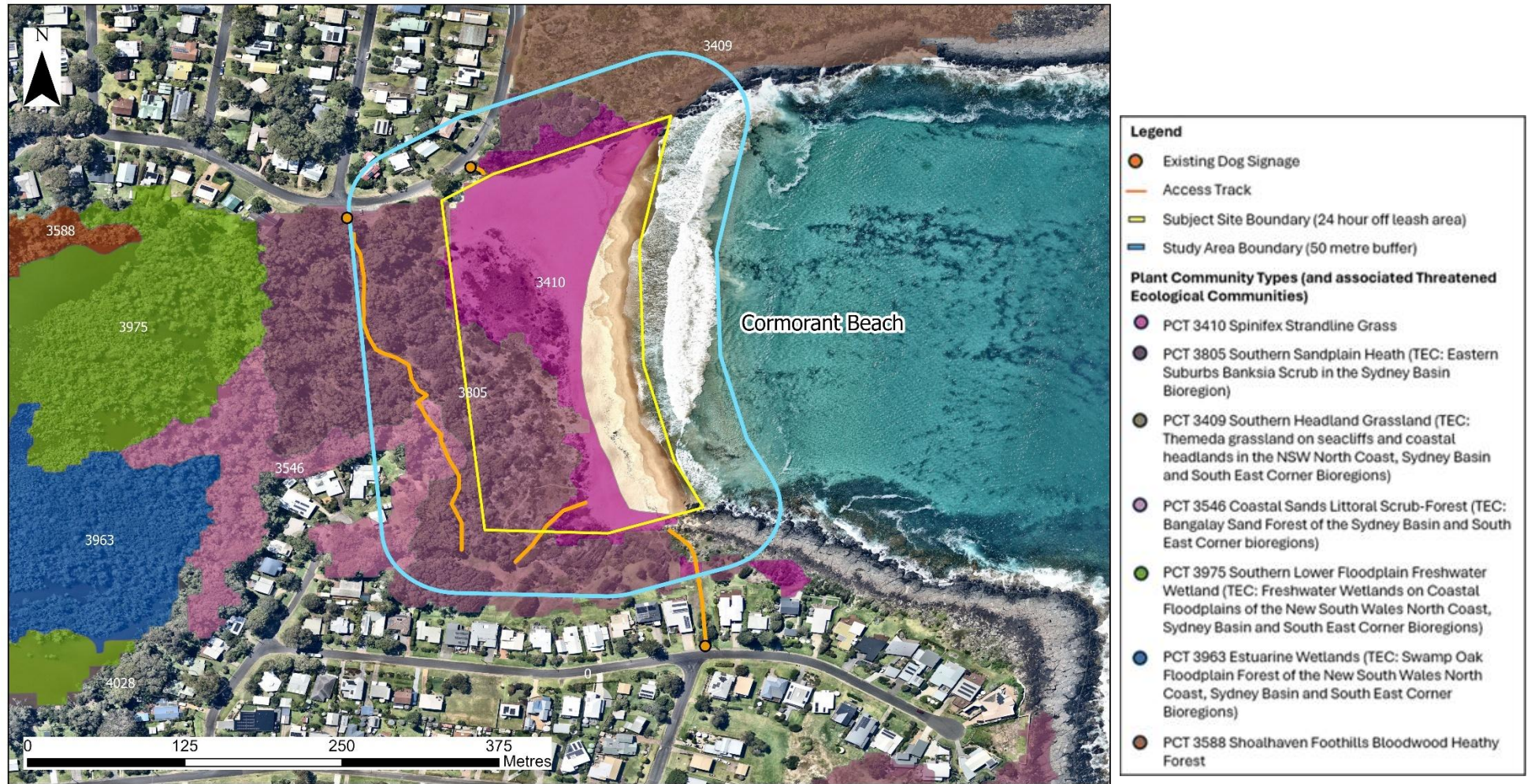


Figure 4 Mapped Plant Community Types and Threatened Ecological Communities recorded within and adjacent to the dog off-leash access area.

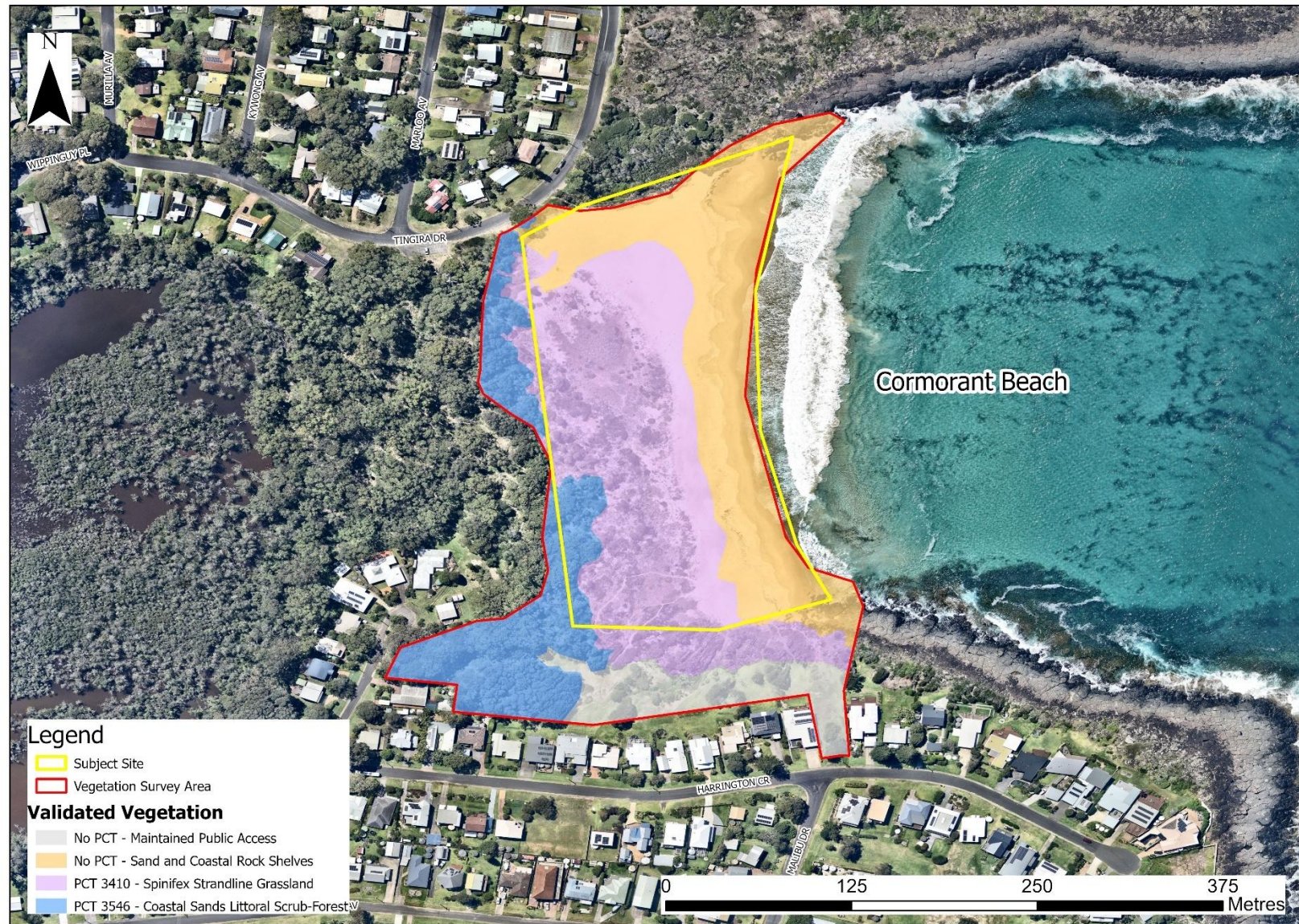


Figure 5 Validated Plant Community Types and Threatened Ecological Communities recorded within and adjacent to the dog off-leash access area.

5.2 Threatened species and ecological communities

This section has been informed by desktop analysis (including databases searches of NSW BioNet Atlas, Birdlife Australia's *Birddata*, Atlas of Living Australia, iNaturalist, the EPBC Protected Matters Search Tool and Council's GIS Enquiry), review of the FM Act listed species and key habitats, consultation with relevant agencies including NPWS (detailed in Section 7), site inspection conducted on 10 November 2022 by SCC staff and site inspection by ecologists from Lodge Environmental on 5 October 2023.

The likelihood of occurrence for threatened fauna and flora listed under the BC Act and/or FM Act and/or EPBC Act and migratory fauna listed under the EPBC Act recorded within the locality (10 kilometres of the subject site) were identified from the database searches and site visits. The likelihood of occurrence was assessed as high, medium or low based on species records and habitat features and presented in Appendix 2.

All BC Act listed entities determined likely to occur within the subject site and study area have been assessed according to the Test of Significance as required by section 7.3 of the BC Act. This is presented in Appendix 3.

All EPBC Act listed matters determined likely to occur within the subject site and study area have been assessed according to Significant Impact Criteria as detailed in the *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance*. This is presented in Appendix 4.

There are no FM Act listed entities determined likely to occur within the subject site and study area and so no Assessment of Significance is required.

5.2.1 Fauna

Based on the habitat present within the subject site and study area (including both the beach environment and the foreshore reserve), a total of 20 threatened and/or migratory fauna species that are listed in the BC Act and/or the FM Act and/or the EPBC Act were identified as having the potential to occur at the subject site and are summarised in Table 3.

Table 3 Threatened and migratory fauna species that potentially occur at the subject site

Common Name	Scientific Name	Legislation	
		BC Act	EPBC Act
Birds			
Caspian Tern	<i>Hydroprogne caspia</i>	-	M
Common Greenshank	<i>Tringa nebularia</i>	-	E, M
Common Tern	<i>Sterna hirundo</i>	-	M
Double Banded Plover	<i>Charadrius bicinctus</i>	-	M
Eastern Hooded-Dotterel	<i>Thinornis cucullatus cucullatus</i>	CE	V
Eastern Osprey	<i>Pandion cristatus</i>	V	M
Fork-tailed Swift	<i>Apus pacificus</i>	-	M
Greater Crested Tern	<i>Thalasseus bergii</i>	-	M
Grey-tailed Tattler	<i>Tringa brevipes</i>	-	M

Common Name	Scientific Name	Legislation	
		BC Act	EPBC Act
Pied Oystercatcher	<i>Haematopus longirostris</i>	E	-
Red-tailed Tropicbird	<i>Phaethon rubricauda</i>	V	M
Ruddy Turnstone	<i>Arenaria interpres</i>	-	M
Sooty Oystercatcher	<i>Haematopus fuliginosus</i>	V	-
Square-tailed Kite	<i>Lophoictinia isura</i>	V	-
White-bellied Sea Eagle	<i>Haliaeetus leucogaster</i>	V	-
White-throated Needletail	<i>Hirundapus caudacutus</i>	-	V, M
Frogs			
Green and Golden Bell Frog	<i>Litoria aurea</i>	E	V
Mammals			
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	V	V
Large Bent-winged Bat	<i>Miniopterus orianae oceanensis</i>	V	-
Yellow-bellied Glider	<i>Petaurus australis</i>	V	V

VP = Vulnerable Population, V = Vulnerable, E = Endangered, CE = Critically Endangered, M = Migratory

All fauna and flora species recorded during field survey by ecologists from Lodge Environmental are listed in Appendix 5.

All birds recorded at the subject site by Birddata surveys are listed in Appendix 6.

No other threatened or migratory fauna or signs of threatened or migratory fauna were detected during surveys. Targeted nocturnal surveys were not undertaken since no potential threatened species roosting / nesting habitat (e.g., hollows) would be removed or otherwise impacted on as part of the proposed activity.

An assessment of potential impact on threatened and migratory fauna based on the above findings is provided in Section 7.1.

5.2.2 Threatened flora and ecological communities

During the site inspection in preparation for this REF, no threatened flora was observed within the subject site or study area. Based on the habitat of the site, one species, the Leafless Tongue Orchid (*Cryptostylis hunteriana*) is considered to have the potential to occur at the subject site. This species is listed as Vulnerable under both the BC Act and EPBC Act (Table 4). Leafless Tongue Orchid is known to grow in a range of communities including swamp-heath and woodland. The species does not have well-defined habitat preferences. Thus, habitat may be present in the foreshore reserve part of the study area. An assessment of the potential impact of the proposed activity on Leafless Tongue Orchid is provided in Section 7.2.

Table 4 Threatened flora species that potentially occur at the subject site

Common Name	Scientific Name	Legislation	
		BC Act	EPBC Act
Leafless Tongue Orchid	<i>Cryptostylis hunteriana</i>	V	V

One (1) listed TEC was confirmed to occur in the subject site (Section 5.1):

- *Bangalay Sand Forest in the Sydney Basin and South East Corner Bioregions*

An assessment of the potential impact on this threatened ecological community is provided in Section 7.2.

5.3 Heritage

5.3.1 Indigenous

Under Section 86 of the NPW Act, it is an offence to disturb, damage, or destroy any Aboriginal heritage object without an Aboriginal Heritage Impact Permit (AHIP). The NPW Act provides that if 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 object without an AHIP (Section 87(2) of the NPW Act). To affect this, the NSW DPE have published the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (hereafter referred to as 'Due Diligence Code') to assist individuals and organisations to exercise due diligence when carrying out activities that may harm Aboriginal objects and to determine whether they should apply for an AHIP.

Step 1 of the Due Diligence Code does not apply to the proposed activity as disturbance to the ground surface is negligible.

In accordance with Step 2a of the Due Diligence Code, a search on AHIMS indicated that there were two recorded Aboriginal heritage sites within the subject site. One site was mapped as occurring 30 m on the northwest foredune and another is mapped as occurring on the beach. The sites cards were obtained for these two heritage sites, but unfortunately the site cards are very old and do not provide sufficient information to determine the extent of the sites. The site card for the heritage item mapped on Cormorant Beach, describes a different location outside the subject site, as the site card describes the site as '*northern end of northern headland at Bawley Point*'. The other site card outlines the heritage site is largely destroyed, and is located outside of the subject site, along the southwest headland of Bawley Point Headland. This heritage site is located within the study area. However, the proposed activity is not permitted in this location. As nothing was found during the site inspection in preparation for this REF, and the site cards describe different locations outside of the subject site for these heritage items, the impact from the proposed activity is considered negligible.

Step 2b of the Due Diligence Code then requires a consideration of whether Aboriginal objects are likely to be in the area of the proposed activity with consideration to certain landscape features listed in the Code to have higher propensity for objects, *i.e.*:

- within 200 m of waters; or
- located in a sand dune system; or;
- located on a ridge top, ridge line or headland; or
- located within 200 m below or above a cliff face; or
- within 20 m of or in a cave, rock shelter, or cave mouth.

The proposed activity area does comprise of such landforms (within 200 m of waters and located in a sand dune system).

A literature search was conducted utilising Council's document archive and AHIMS on 24 July 2023 and 29 August 2024. An Aboriginal Heritage Assessment for a 'Proposed observation/viewing platform – Southern Headland – Gannett Beach Bawley Point' was written in October 2020 which determined that the headland at Gannett Beach would likely be an area of cultural sensitivity and contain evidence of Aboriginal occupation. As this location is 600 m south of Cormorant Beach, it is unlikely that the proposed activity is going to have an impact on this area. No further investigation was warranted.

The beach environment could also be described as 'disturbed land' as defined by the Due Diligence Code), i.e.:

Land is disturbed if it has been the subject of a human activity that has changed the land's surface, being changes that remain clear and observable. Examples include ploughing, construction of rural infrastructure (such as dams and fences), construction of roads, trails and tracks (including fire trails and tracks and walking tracks), clearing vegetation, construction of buildings and the erection of other structures, construction or installation of utilities and other similar services (such as stormwater drainage and other similar infrastructure) and construction of earthworks."

Accordingly, the proposed activity is within disturbed land as the lands have been subjected to continued disturbance through active, natural coastal processes. The Due Diligence Code states that if the subject site does contain one of the above listed features and is on land that is not disturbed, then Step 3 must occur. As the proposed activity is within disturbed land, and there are no known Aboriginal objects within the subject site, it can proceed with caution and Step 3 is not required.

Step 3 of the Due Diligence Code applies if the activity is on land that is not disturbed or contains known Aboriginal objects. Due to the nature of the activity, i.e., dog walking, it can be determined that disturbance of the landscape feature(s) can be avoided. Therefore, the proposed activity can proceed with caution and Step 4 (which includes further investigation by a competent person) is not required.

Signage installation in additional locations where signposts are not already present has potential to cause harm to Aboriginal objects or disturbance to landscape features. In this case, Step 4 (which includes further investigation by a competent person) will be applied.

In the context of this environmental assessment the area to be affected by the proposed activity:

- is subject to undetermined Aboriginal Land Claims.
- is not an Aboriginal Place in the context of the NPW Act.

In consideration of the above, it is reasonable to conclude that there is a low probability of Aboriginal objects being impacted by the proposed activity. As a result, an AHIP is not required for the proposed activity.

5.3.2 Non-Indigenous

Heritage items for this area listed under Schedule 5 of the SLEP 2014 include:

- Item 17 Bawley Point sawmill and Tingira Drive wharf (former)

Heritage item 17 is of local significance to the Shoalhaven and is located 260 m from the subject site. The heritage item is not expected to be impacted by the proposed activity.

The proposed activity would not involve, or be close to, items on the state heritage list. No further consideration is warranted.

6 Consultation

This REF was prepared in consultation with internal and external stakeholders. This section reports on the stakeholders involved and the submissions received in relation to the proposed activity.

6.1 Department of Primary Industries and Regional Development (NSW Fisheries)

No dredging or impact on fish habitat, consultation is not required.

6.2 Department of Climate Change, Energy, the Environment and Water (DCCEEW)

The NPWS Shorebird Ranger for the Shoalhaven region was consulted during the development of this REF. Corroborating evidence of threatened and migratory shorebird nesting locations was provided. In addition, recommendations were made in relation to mitigative measures including Council Ranger presence to encourage compliance, and educational signage regarding threatened shorebirds in the area.

6.3 Council Departments

This REF has been prepared by Council's Environmental Services in consultation with Council's Ranger Services and Social Infrastructure Planning Team.

Ranger Services have confirmed a monitoring presence will continue at Cormorant Beach, Bawley Point. Other internal representatives from various council teams were also consulted and attended internal workshops, including Shoalhaven Animal Shelter, Open Space and Recreation Planning, Tourism, Community Engagement, and Property. The mitigation measures in Section 8 have been developed in accordance with this consultation.

6.4 Community

Council undertook a comprehensive review of Access Areas for Dogs Policy in 2021 (endorsed by Council in 2023), which involved community and stakeholder engagement. The Council provided workshops, drop-in sessions, online surveys, and Council submissions to allow community members and relevant stakeholders to share their views on dog off-leash access areas in the Shoalhaven LGA. The Community Engagement Summary Report released on 7 December 2021 revealed that external stakeholder input included:

- Jervis Bay Marine Park/Department of Primary Industries
- DPE
- NPWS
- Destination NSW
- Destination Sydney Surrounds South
- Shoalhaven Tourism Advisory Group

There were 123 community working group members engaged in the consultation which included a range of demographics reflecting the Shoalhaven community, including both dog and non-dog owners, dog trainers, members of Community Consultative Bodies (CCB), business operators, people living with disabilities and shorebird rescue organisations. There were 1,396 survey respondents (80.6% were residents, 14.6% ratepayers (but not full-time residents) and 4.8% visitors) and 216 community members engaged in five public drop-in sessions located at Plantation Point Reserve in

Vincentia, Mollymook Beach in Mollymook, Broughton Court in Berry, Jellybean Park in Nowra and outside Ulladulla Civic Centre. Council also received 108 submissions from residents, visitors, and community groups.

The various submissions received both supported and raised concerns with the proposed activity, including issues such as:

- Signage – confusion regarding the boundaries of off-leash, on-leash and prohibited dog areas, inconsistent and confusing messaging, a lack of signage at access points, non-visual signs making it difficult for other language groups, no indication of offences on signs.
- Compliance – ranger presence, dog off-leash activity outside of designated hours, and people not picking up after their dogs.
- User conflict and safety – conflict between beach-users with and without dogs, and conflict between dogs and native fauna.

The mitigation measures in Section 8 have been developed in accordance with the consultation undertaken, notably:

- Increased Council Ranger presence.
- Increased and improved signage that is clear and consistent across the Shoalhaven.
- Dog prohibited buffer between off-leash area and sensitive areas or of high biodiversity value.
- The provision of rubbish bins for dog faeces.
- Liaison with NPWS South Coast Shorebird Recovery Program Coordinator.

Council's Access Areas for Dogs Policy and associated Dog Off-leash Guide provides dog owners with public domain conduct guidelines as well as defining dog off-leash, on-leash and prohibited areas within the ownership, management, care, and control of Council.

Signage and supporting infrastructure will need to be erected to ensure community awareness, and compliance with the CA Act and Council's Access Areas for Dogs Policy. A review of Council's Dog Access Signage has been undertaken, and the outcome of this document will inform future signage installation.

7 Impact Assessment

7.1 Threatened and Migratory Fauna

The impact of the proposed activity on the species listed in Section 5.2 has been assessed in the Test of Significance (BC Act listed entities) presented in Appendix 3 and the Significant impact Criteria Assessment (EPBC listed matters) presented in Appendix 4. These assessments conclude that the proposed activity will not have a significant impact on threatened fauna and migratory species, with the implementation of adequate geographic limitations and prescribed mitigation measures. Factors considered in this assessment are discussed further below. Impacts on threatened fauna species that have habitat preferences for those outside of the intertidal or beach habitat, and subject site, is expected to be negligible. This section focusses primarily on threatened shorebirds as these are the species assessed as likely to occur and have habitat that intersects with, or is potentially indirectly impacted on by, the proposed activity.

In a review of the impacts of dogs on nesting shorebirds, Maguire (2018) detailed the following impacts:

- Disturbance: 'chasing and the unpredictable movement, proximity and speed of unrestrained dogs' can lead to the prolonged absence of adult shorebirds from the nest.
- Egg predation.
- Egg crushing.
- Chick predation.

Maguire (2018) concluded that, while dog-free areas are the most effective at protecting shorebirds, this must be combined with alternative off-leash areas to promote greater compliance in more environmentally sensitive areas where dogs are prohibited.

Long-term conservation programs for beach-nesting birds often focus on achieving coexistence between recreation and wildlife. In some management strategies, dog owners were requested to leash their dogs when approaching and passing vulnerable habitat areas. Maguire (2018) observed low compliance with leashing regulations and suggested that this is an ineffective approach. The alternative, which involves prohibiting dog access from these sensitive beaches, is typically met with conflict and division within the community as dog owners are faced with the risk of losing access (Johnston *et al.* 2013). A proposed solution to this issue is to provide a dog off-leash area in low-risk zones to divert users away from environmentally sensitive habitat areas, which remain dog-prohibited areas.

Tests of Significance have been undertaken for the following threatened species listed under the BC Act that have been recorded at or are considered to potentially occur within the subject site:

Critically Endangered

- Eastern Hooded-Dotterel *Thinornis cucullatus cucullatus*

Endangered

- Green and Golden Bell Frog *Littoria aurea*
- Pied Oystercatcher *Haematopus longirostris*

Vulnerable

- Eastern Osprey *Pandion cristatus*
- Grey-headed Flying-fox *Pteropus poliocephalus*

- Large Bent-winged Bat *Miniopterus orianae oceanensis*
- Sooty Oystercatcher *Haematopus fuliginosus*
- Square-tailed Kite *Lophoictinia isura*
- White-bellied Sea Eagle *Haliaeetus leucogaster*
- Yellow-bellied Glider *Petaurus australis*

The Tests of Significance in Appendix 3 have determined that the impact of the proposed activity on these species is negligible.

Assessments in accordance with the Commonwealth Significant Impact Guidelines 1.1 have been undertaken for the following threatened and migratory species listed under the EPBC Act that have been recorded at or are considered to potentially occur within the subject site:

Endangered

- Common Greenshank *Tringa nebularia*

Vulnerable

- Eastern Hooded-Dotterel *Thinornis cucullatus cucullatus*
- White-throated Needletail *Hirundapus caudacutus*
- Green and Golden Bell Frog *Littoria aurea*
- Grey-headed Flying-fox *Pteropus poliocephalus*
- Yellow-bellied Glider *Petaurus australis*

Migratory

- Caspian Tern *Hydroprogne caspia*
- Common Greenshank *Tringa nebularia*
- Common Tern *Sterna hirundo*
- Double Banded Plover *Charadrius bicinctus*
- Eastern Osprey *Pandion cristatus*
- Fork-tailed Swift *Apus pacificus*
- Greater Crested Tern *Thalasseus bergii*
- Grey-tailed Tattler *Tringa brevipes*
- Ruddy Turnstone *Arenaria interpres*
- White-throated Needletail *Hirundapus caudacutus*

The assessments against the Significant Impact Criteria (EPBC Act) have determined that the impact of the proposed activity on these species is negligible.

7.2 Threatened Flora and Ecological Communities

The majority of the subject site is a sandy beach and therefore no impact on threatened flora from the proposed activity is likely as these species occur outside of this habitat - impacts on threatened flora may occur indirectly but are not considered significant.

Appendix 3 contains Tests of Significance undertaken for BC Act listed species that were identified in Section 5 as occurring or potentially occurring at the Subject Site, including:

- Leafless Tongue Orchid *Cryptostylis hunteriana*, listed as Vulnerable
- *Bangalay Sand Forest in the Sydney Basin and South East Corner bioregions* – endangered TEC

The Tests of Significance determined that the impact of the proposed activity on BC Act listed threatened flora species and threatened ecological communities that have the potential to occur at the site is low.

Appendix 4 contains assessments in accordance with the Commonwealth Significant Impact Guidelines 1.1 for the following threatened flora species:

- Leafless Tongue Orchid *Cryptostylis hunteriana*, listed as Vulnerable.

The assessment against the Significant Impact Criteria determines that the impact of the proposed activity on this species is negligible.

There are no Commonwealth listed ecological communities considered likely to occur within the Subject Site or wider Study Area.

7.3 Social Impact

Community and social values of the subject site and study area are described in Section 2.3.

The subject site is located within Community Land and is frequently used as a public reserve for social and recreational activities.

SCC's Access Areas for Dogs Policy states as a goal: to 'support a risk-based approach to the designation and management of dog control areas to balance social and environmental needs in accordance with legislation.'

The proposed activity will not impact on views, community services and infrastructure such as water, waste management, educational, medical or social services.

The social risks that are associated with dog off-leash access include potential injury or death from dog attack, incompatibility between different groups of beach users, conflict between different groups of users, and broader social disharmony as the community is polarised by dog access preferences that have been dictated by environmental and social constraints.

The public currently use Cormorant Beach as a 24-hour dog off-leash access area throughout the year. These time arrangements have been monitored by SCC's Ranger Services. Such monitoring has revealed a low incidence of social conflict. As such, these arrangements will remain in place and monitoring will continue and adjustments can be made in future years if the social conflicts between recreational user groups increase.

Bawley Point is a popular tourist destination with visitors year-round to both the beaches and surrounding national parks. Cormorant Beach has a carpark and public amenities block located to the north of the beach on Tingira Drive that service both visitors to the beach and the adjacent wetlands.

There is no present indication that the current use of the foreshore for 24-hour dog-off leash access and for other recreational activities and tourist access, is in conflict and as such, there is no proposed changes to the off-leash arrangements for this site.

8 Impact mitigation

Mitigation hierarchy provides a multi-step approach to limit the amount of harm an action will have. Avoidance is the primary and preferential level of the hierarchy, resulting in no harm. This is followed by minimisation measures that aim to reduce the duration, intensity and/or extent of the impacts that are unable to be completely avoided. Offsetting is typically the final level of the hierarchy whereby unavoidable harm is compensated for elsewhere.

An adaptive management framework has been established for the subject site for the proposed activity. The implementation of management actions can be adjusted based on monitoring changes to threatened species distributions, human behaviour and community expectations to ensure required outcomes are met.

Following the detailed assessment of environmental factors relating to the proposed activity in Section 5, consultation outcomes in Section 6 and the assessment of potential impacts in Section 7, the following safeguards are required to mitigate potential impacts of the proposed activity on the community and the environment (Table 5; Figure 5).

8.1 Proposed definition of the dog off-leash area

The current proposed activity area is partially mapped as 'Coastal Wetlands' under the *State Environmental Planning Policy (Resilience and Hazard SEPP) 2021*. To avoid potential impacts of the proposed activity on the coastal wetland area, and to ensure the proposed activity does not contribute to listed key threatening process 'Degradation of Native Riparian Vegetation', the mapped off leash is redefined (Refer to Figure 5 Impact Mitigations). This change will be accompanied by improved signage.

The proposed activity is permitted to be carried out without consent in an area mapped as 'Proximity Area for Coastal Wetlands' as long as Council is satisfied the activity will not significantly impact on the the biophysical, hydrological, or ecological integrity of the adjacent coastal wetland or the quantity and quality of surface and ground water flows to and from the adjacent coastal wetland.

Table 5 Environmental safeguard and mitigation measures for potential impacts on the community and the environment in response to the proposed activity.

Category	Type of Impact	Safeguard/Mitigation Measure
Flora and Fauna	Loss of threatened species and associated habitats	The 24-hour off-leash boundary is redefined in the northwest and west of the site (Figure 6) to ensure there is no dog off-leash access to the SEPP Resilience & Hazards Coastal Wetlands mapped area, or the Bangalay Sand Forest – a Threatened Ecological Community.
		Signage clearly detailing the dog off-leash area and dog prohibited areas will ensure dog owners and dog walkers and dog owners are aware of these.
		Educational signage regarding the presence of and threat of dogs on threatened shorebirds will be installed at priority access points.
		Council's Environmental Services Department will liaise with NPWS South Coast Shorebird Recovery Program Coordinator on a regular basis, including key breeding season times. This will enable the provision of further subject matter expertise and a regulatory and collaborative influence from NPWS, to inform adaptive management of controls.
		Mitigation measures will be revised as required, for example, if a nest or nesting birds are detected within or immediately adjacent to the subject site, to ensure threatened and migratory shorebirds are adequately protected. Council will collaborate with NPWS South Coast Shorebird Recovery Program Coordinator regarding any revised mitigation measures. Additional measures to be considered will include boundary changes of the access areas in response to seasonal shorebird nesting sites, increased presence of Council Rangers at key times, and the temporary fencing of nest sites to clearly demarcate the presence of nesting shorebirds.
	Vegetation clearing for signage installation	Signage installation will utilise existing posts where possible. No vegetation clearing will be necessary for the installation of additional signage or maintenance of access tracks. Where new posts may be required this will be positioned to avoid the need to remove native vegetation. Council's Environmental Services staff will advise on timing of installation and locations of new posts to ensure threatened shorebird nesting and foraging habitat is not impacted on.

Category	Type of Impact	Safeguard/Mitigation Measure
	Trail proliferation and trampling	Only existing access tracks will be utilised to ensure surrounding vegetation remains undisturbed. If the vegetation surrounding the access tracks become disturbed or degraded, fencing will be installed to confine beach users to the access tracks only.
	Invasive species	Equipment used for signage installation and ancillary works will be cleaned prior to entering and leaving the subject site to ensure invasive plant species are not introduced or transported.
Water	Water pollution – dog waste	Dog owners/walkers are required to clean up dog faeces under the CA Act. The provision of bins as well as compliance activities will help to facilitate appropriate waste disposal and enforce this obligation as required.
Heritage items	Aboriginal heritage – unexpected finds of heritage items	If Aboriginal heritage items are uncovered during sign installation and ancillary works, all works will cease and the steps under the NSW Department of Planning and Environment's Due Diligence Code of Practice for the Protection of Aboriginal Objects will be followed.
	Non-indigenous heritage – unexpected finds of heritage items	If heritage items listed under the <i>Shoalhaven Local Environmental Plan 2014</i> or the State Heritage List are uncovered during signage installation and ancillary works, all works will cease, and a statement of heritage impact will be prepared.
Noise	Noise during dog off-leash hours and signage installation	Reports and submissions regarding noise will be monitored and adaptive management will be implemented.
		The works involved in signage installation would be very short term and the noise generated will occur during normal working hours. There are no sensitive receivers in the vicinity of the proposed works.
Social	Impact on beach users	Dog owners/walkers are required to have control of their dogs at all times and are responsible for waste disposal from dog faeces under the CA Act. Compliance activities will help to enforce this obligation. Dog Owner education resources produced by Council's Rangers Team are available on Council's

Category	Type of Impact	Safeguard/Mitigation Measure
		website: https://www.shoalhaven.nsw.gov.au/Home-and-property/Pets-and-animals/Responsible-dog-ownership#section-2 and https://doc.shoalhaven.nsw.gov.au/LinkGeneratorAPI/record/8398836/preview_latest_final_version_pdf . These resources encourage responsible owner behaviour.
		Signage clearly detailing the off-leash area and dog-prohibited areas will ensure dog owners are aware of these as per the CA Act (Section 14(1)(d)).
		Regular monitoring by Council Rangers to enforce compliance, and to provide additional assurance to users of the beach. The presence of Council Rangers will also enable the provision of education to the community.
		A penalty infringement notice will be issued, following an initial caution, for any repeat offenders observed during regular inspections.
		Off-leash activity may be suspended during major events upon direction from Council.
		An adaptive management approach will be incorporated into the ongoing monitoring and maintenance of the site, which will respond to changes including threatened species distribution, human behaviour and resulting from ongoing and regular assurance activities with stakeholders
Waste minimisation and management	Amenity and pollution	There is a single waste bin near the northern entrance of the subject site. Additional waste bins should be considered for the two southern entry points to the beach.



Figure 6 Impact Mitigation Measures. Revised off-leash access area as required to avoid Coastal Wetland (Resilience and Hazards SEPP), Bangalay Sand Forest and to reflect existing usage of the beach area.

9 Determination

This REF has assessed the likely environmental impacts, in the context of Part 5 of the EP&A Act, of a proposed activity by Shoalhaven City Council to permit dogs off-leash on a stretch of Cormorant Beach, including the associated signage installations.

Shoalhaven City Council has considered the potential environmental effects of the proposed activity and the effectiveness and feasibility of measures for reducing or preventing detrimental effects. It is determined that:

1. The proposed safeguards identified in the report (Section 8) shall be maintained/adopted and implemented.
2. It is unlikely that there will be any significant environmental impact from the proposed activity and an Environmental Impact Statement is not required for the proposed activity.
3. The proposed activity is not likely to significantly affect threatened species or ecological communities, or their habitats for the purposes of the *NSW Biodiversity Conservation Act 2016* and entry into the Biodiversity Offset Scheme or preparation of a Species Impact Statement is not required.
4. The proposed activity is not a 'controlled action' for the purposes of the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* and referral to the Commonwealth Environment Minister is not required.



Shane Pickering
Acting Manager, Environmental Services
Shoalhaven City Council

Date: 04/06/2025

10 References

Atlas of Living Australia occurrence download at <https://www.ala.org.au/>. Accessed 20 August 2024.

Atlas of Living Australia website. Species pages:

<https://bie.ala.org.au/species/https://biodiversity.org.au/afd/taxa/e8de02a9-0e01-4136-b1c3-fa28a09476ce>; <https://bie.ala.org.au/species/https://biodiversity.org.au/afd/taxa/c88390d9-2583-474b-b576-b00349b7eb3b>; [Accessed 27 August 2024]

Australian Museum website. Species pages: <https://australian.museum/learn/animals/fishes/giant-manta-ray-mobula-birostris/>. [Accessed 28 August 2024].

Australian Government Department of the Environment (2013). *Matters of National Environmental Significance Significant impact guidelines 1.1 Environmental Protection and Biodiversity Conservation Act 1999*
https://www.awe.gov.au/sites/default/files/documents/nes-guidelines_1.pdf
Australian Government Department of the Environment and Energy (2017). *EPBC Act Policy Statement 3.21 Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species*
<https://www.awe.gov.au/sites/default/files/documents/bio4190517-shorebirds-guidelines.pdf>
Australian Government Department of Environment, Climate Change and Water (DECCW) 2023, Protected Matters Search Tool.

Australian Government Department of Environment, Climate Change and Water (DECCW) 2023. Species Profiles: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=832; http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=851; https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=86651; https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=952; https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=612; https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=66986; http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=35; http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=43; http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=39

BirdLife Australia 2024, Birddata <https://birddata.birdlife.org.au/>

EPBC Act Policy Statement 3.21—Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species, Commonwealth of Australia 2017

Gómez-Serrano, M. (2020). *Four-legged foes: dogs disturb nesting plovers more than people do on tourist beaches*, Ibis, International Journal of Avian Science, vol. 163, pp-338-352.

Hennings, Lori. (2016). Impacts of dogs on wildlife and water quality. 10.13140/RG.2.1.1107.5445.

Maguire, G.S., Miller, K.K. & Weston, M.A. (2018). *Only the Strictest Rules Apply: Investigating Regulation Compliance of Beaches to Minimize Invasive Dog Impacts on Threatened Shorebird Populations*, Impacts of Invasive Species on Coastal Environments, pp. 397-412.
Maguire, G.S. (2018). *A Review of Dog Impacts to Beach-nesting Birds and Management Solutions*, Birdlife Australia
https://direct.birdlife.org.au/documents/Dogs_and_Beach-nesting_Birds_Management_Solutions_Nov2018.pdf

- NSW Department of Environment, Climate Change and Water (DECCW) (2010). *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New south Wales*. State of New South Wales and the Department of Environment, Climate Change and Water NSW.
- NSW Department of Urban Affairs and Planning (DUAP) (1996). *Is an EIS required? – Best Practice Guidelines for Part 5 of the Environmental Planning and Assessment Act 1979*. ISBN 0 7310 8920 0
- NSW Department of Planning and Environment (2022). *Guidelines for Division 5.1 Assessments*. State of New South Wales. <https://www.planning.nsw.gov.au/sites/default/files/2023-02/guidelines-for-division-51-assessments.pdf>
- NSW Department of Planning, Industry, and Environment (DPE) (2023), NSW BioNet. Online database accessed August 2024: <http://www.bionet.nsw.gov.au/>
- NSW Department of Planning, Industry and Environment (DPE) 2023, NSW Vegetation Information Sydney (VIS) Classification Database VIS 2.1.
- Shoalhaven City Council (2014), *Local Environment Plan*.
- Shoalhaven City Council (2020), *Shoalhaven 2040 Our Strategic Land-use Planning Statement*.

Appendix 1 Photographs of the subject site



Plate 1: Cormorant Beach, Bawley Point.



Plate 2: Northern aspect of Cormorant Beach, Bawley Point displaying rock shelf and stormwater drainage/Bawley Point Wetland runoff.



Plate 3: Existing dog off-leash signage at Cormorant Beach (north), Bawley Point.



Plate 4: Existing signage at Cormorant Beach (north), Bawley Point.



Plate 5: Dune/foreshore vegetation at mid-bank looking south, Cormorant Beach, Bawley Point.



Plate 6: Dune/foreshore vegetation at mid-bank looking west, Cormorant Beach, Bawley Point.



Plate 7: Dune/foreshore vegetation at mid-bank looking south, Cormorant Beach, Bawley Point. Existing southern rock shelf is also visible.



Plate 8: Southerly Cormorant Beach path access, Bawley Point.

Appendix 2 Likelihood of occurrence assessment

An assessment of likelihood of occurrence was made for threatened and migratory species identified from database searches (Council's GIS Enquiry, Atlas of Living Australia, iNaturalist, Birddata and BioNet) and site visits (section 1.4). Likelihood of occurrence was assessed for the species listed under BC Act and EPBC Act that have been previously recorded within the locality.

The terms for likelihood of occurrence (Table 6) are defined as:

- High – the species was or has been observed/recorded on the site, and/or the site provides important habitat known to the species.
- Medium – the species was or has been observed/recorded on the site, and/or suitable habitat is located on the site, and/or the species is known to occupy the site's habitat occasionally.
- Low – the species was or has been observed/recorded near the site. However, the site's habitat is considered unsuitable or unlikely for species to occur to the extent their life cycle would be impacted on.

For threatened species determined to have a medium or high likelihood of occurrence listed under the BC Act, a Test of Significance (ToS) pursuant to section 7.3 of the BC Act has been conducted (Appendix 3 Test of Significance (BC Act)).

For those listed under the EPBC Act, a Significant Impact Criteria assessment, in accordance with the Significant Impact Guidelines 1.1 – Matters of National Environmental Significance, has been conducted (The Test of Significance concludes that the proposed activity will not have a significant impact on threatened species or ecological communities. As such, a Species Impact Statement or entry into the Biodiversity Offset Scheme is not required.

Appendix 4 Significant Impact Criteria assessment for EPBC Act listed threatened species).

The following abbreviations are used to indicate the State and Commonwealth Status of species:

- CE = Critically Endangered
- E = Endangered
- V = Vulnerable
- CD = Conservation Dependent
- M = Migratory

Table 6 Threatened species listed under BC Act and EPBC Act, recorded in the subject site, study area, or within the locality or predicted to occur within the locality (within ten kilometres)

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
Birds						
Antipodean Albatross	<i>Diomedea antipodensis</i>	-	V	This species regularly occurs in small numbers off the NSW south coast from Green Cape to Newcastle during winter where they feed on cuttlefish. Although representing a small proportion on its total foraging area, potential forage in NSW waters is nonetheless considered significant for the species.	Low	No - suitable habitat is not present
Arctic Jaeger	<i>Stercorarius parasiticus</i>	-	M	Migratory, when not breeding found in open ocean. Occasionally found on the coast and by large rivers, bordered by grassland and moorland.	Low	No - suitable habitat is not present
Australasian Bittern	<i>Botaurus poiciloptilus</i>	-	E	Favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (<i>Typha</i> spp.) and spike rushes (<i>Eleocharis</i> spp.)	Low	No - suitable habitat is not present
Australian Fairy Tern	<i>Sternula nereis nereis</i>	-	V	The Fairy Tern (Australian) nests on sheltered sandy beaches, spits and banks above the high tide line and below vegetation	Low	No - suitable habitat is not present
Australian Painted Snipe	<i>Rostratula australis</i>	-	E	Prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber.	Low	No - suitable habitat is not present
Australian Pied Oystercatcher	<i>Haematopus longirostris</i>	E	-	Favours intertidal flats of inlets and bays, open beaches and sandbanks. Coastal of estuarine beaches.	Medium	Yes – (ToS, Appendix 3)

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
						The species has been recorded near subject site and suitable habitat is located within subject site.
Barking Owl	<i>Ninox connivens</i>	V	-	Inhabits woodland and open forest, including fragmented remnants and partly cleared farmland. It is flexible in its habitat use, and hunting can extend in to closed forest and more open areas.	Low	No - suitable habitat not present and species not commonly found east of Great Dividing Range
Bar-tailed Godwit	<i>Limosa lapponica</i>		V	Coastal habitats such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays. Less frequently it occurs in salt lakes and brackish wetlands, sandy ocean beaches and rock platforms. It often occurs around beds of seagrass, and sometimes in nearby saltmarsh or the outer margins of mangrove area.	Low	No – species have not been recorded within locality for a decade. No impact as species is unlikely to be reliant on the vegetation communities or habitats located within the subject site.
Beach Stone-curlew	<i>Esacus magnirostris</i>	E	-	Inhabits open forests and woodlands with a sparse grassy ground-layer and fallen timber.	Low	No - suitable habitat is not present

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
Black-browed Albatross	<i>Thalassarche melanophris</i>	V	V	Marine and pelagic	Low	No - suitable habitat is not present
Black-faced Monarch	<i>Monarcha melanopsis</i>		M	Found in rainforests, eucalypt woodlands, coastal scrub and damp gullies. Forages for insects among foliage, breeds in the south of its range in the fork of trees.	Low	No – unlikely to be reliant on the habitat within the study area.
Black-tailed Godwit	<i>Limosa limosa</i>	V	M	Found in sheltered bays, estuaries, lagoons with large intertidal mudflats and/or sandflats.	Low	No – species distribution typically north of subject site. No impact as species is unlikely to be reliant on the vegetation communities or habitats located within the subject site.
Blue-winged Parrot	<i>Neophema chrysostoma</i>	-	V	Inhabits a range of habitats from coastal, sub-coastal and inland areas, right through to semi-arid zones. Throughout their range, they favour grasslands and grassy woodlands. They are often found near wetlands both near the coast and in semi-arid zones.	Low	No - suitable habitat is not present
Brown Treecreeper (south-eastern)	<i>Climacteris picumnus victoriae</i>	-	V	Occurs in eucalypt forests and woodlands of inland plains and slopes of the Great Dividing Range. It is less commonly found on coastal plains and ranges.	Low	No - suitable habitat is not present

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
Buller's Albatross	<i>Thalassarche bulleri</i>	-	V	Marine and pelagic	Low	No - suitable habitat is not present
Campbell Albatross	<i>Thalassarche impavida</i>	-	V, M	Marine and pelagic	Low	No - suitable habitat is not present
Caspian Tern	<i>Hydroprogne caspia</i>	-	M	Sheltered coastal habitats including harbours, lagoons, inlets, bays, estuaries, and rivers with sandy or muddy margins.	Medium	Yes – (SIC, Appendix 4) The species has been recorded near subject site and suitable habitat is located nearby.
Chatham Albatross	<i>Thalassarche eremita</i>	-	E	Marine and pelagic	Low	No - suitable habitat is not present
Chestnut-rumped Heathwren	<i>Calamanthus pyrrhopygius</i>	-	E	Found in dense vegetation on coastal heath, mountain heath and hinterlands, forests and woodlands.	Low	No - species is unlikely to be reliant on the vegetation communities or habitats located within the subject site.
Common Greenshank	<i>Tringa nebularia</i>	-	E, M	Found both on the coast and inland, in estuaries and mudflats, mangrove swamps and lagoons, and in billabongs, swamps, sewage farms and flooded crops. Does not breed in Australia.	Medium	Yes – (SIC, Appendix 4) The species has been recorded near the subject site and suitable foraging

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
						habitat is located nearby.
Common Sandpiper	<i>Actitis hypoleucos</i>	-	M	Utilises a wide range of coastal wetlands and some inland wetlands, with varying levels of salinity, and is mostly found around muddy margins or rocky shores and rarely on mudflats.	Low	No – species distribution is typically in northern and western Australia; species presence is rare.
Common Tern	<i>Sterna hirundo</i>	-	M	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. Occasionally recorded in coastal and near-coastal wetlands, either saline or freshwater, including lagoons, rivers, lakes, swamps and saltwork.	High	Yes – (SIC Appendix 4) The species has been recorded at subject site and suitable habitat is located within subject site.
Curlew Sandpiper	<i>Calidris ferruginea</i>	-	CE	It generally occupies littoral and estuarine habitats, and in New South Wales is mainly found in intertidal mudflats of sheltered coasts.	Low	No - suitable habitat is not present
Diamond Firetail	<i>Stagonopleura guttata</i>	V	V	It is widely distributed in NSW, with a concentration of records from the Northern, Central and Southern Tablelands, the Northern, Central and South Western Slopes and the North West Plains and Riverina. Not commonly found in coastal districts, though there are records from near Sydney, the Hunter Valley and the	Low	No - suitable habitat is not present

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
				Bega Valley. Found in grassy eucalypt woodlands, including Box-Gum Woodlands and Snow Gum Eucalyptus pauciflora Woodlands		
Double Banded Plover	<i>Charadrius bicinctus</i>	-	M	Found on littoral, estuarine and fresh or saline terrestrial wetlands and saltmarsh, grasslands and pasture. It occurs on muddy, sandy, shingled or sometimes rocky beaches, bays and inlets, harbours and margins of fresh or saline terrestrial wetlands such as lakes, lagoons and swamps, shallow estuaries and rivers.	Medium	Yes – (SIC Appendix 4) The species has been recorded near subject site and suitable habitat is located nearby.
Dusky Woodswallow	<i>Artamus cyanopterus cyanopterus</i>	V	-	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. It has also been recorded in shrublands, heathlands and very occasionally in moist forest or rainforest. Also found in farmland, usually at the edges of forest or woodland.	Low	No - species does not inhabit the sandy beach habitats present within the subject site.
Eastern Bristlebird	<i>Dasyornis brachypterus</i>	-	E	Dense, low vegetation including heath and open woodland with a heath understorey. here are three main populations: Northern - southern Queensland/northern NSW, Central - Barren Ground NR, Budderoo NP, Woronora Plateau, Jervis Bay NP, Booderee NP and Beecroft Peninsula and Southern -	Low	No - suitable habitat is not present

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
				Nadgee NR and Croajingalong NP in the vicinity of the NSW/Victorian border.		
Eastern Curlew	<i>Numenius madagascariensis</i>	-	CE, M	Generally occupies coastal lakes, inlets, bays, estuarine habitats including intertidal mudflats and saltmarsh of sheltered coasts. Has been recorded on open beaches (often near estuaries, and coral reefs and rocky platforms.	Low	No – species records indicate presence is unlikely at subject site and suitable habitat not present.
Eastern Ground Parrot	<i>Pezoporus wallicus wallicus</i>	V	-	Occurs in high rainfall coastal and near coastal low heathlands and sedgelands, generally below one metre in height and very dense (up to 90% projected foliage cover). These habitats provide a high abundance and diversity of food, adequate cover and suitable roosting and nesting opportunities. It spends most of its time on or near the ground.	Low	No – while the species has been recorded in the locality, it is unlikely to occur within the dune vegetation adjoining the subject site given the high level of human disturbance.
Eastern Hooded-Dotterel	<i>Thinornis cucullatus cucullatus</i>	CE	V	Sandy ocean beaches, especially those that are broad and flat, with a wide wave-wash zone for feeding, much beach cast seaweed, and backed by sparsely vegetated sand-dunes for shelter and nesting. Occasionally found on tidal bays, estuaries, rock platforms and sandy/rocky covered reefs near sandy beaches.	High	Yes – (ToS Appendix 3 Test of Significance (BC Act), SIC Appendix 4) The species has been recorded at subject site and suitable habitat is located within subject site.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
Eastern Osprey	<i>Pandion cristatus</i>	V	M	Favour coastal areas, especially the mouths of large rivers, lagoons and lakes.	Medium	Yes – (ToS Appendix 3 Test of Significance (BC Act), SIC Appendix 4) The species has been recorded near the subject site and suitable habitat is located at subject site.
Fairy Prion (southern)	<i>Pachyptila turtur subantarctica</i>	-	V	The species as a whole has a circumpolar distribution, and probably frequents subtropical waters during the non-breeding period. Breeding occurs on Macquarie Island and a number of other subantarctic islands outside of Australia.	Low	No – species records indicate presence is unlikely at subject site and suitable habitat not present.
Flame Robin	<i>Petroica phoenicea</i>	V	-	In NSW, it breeds in upland areas and in winter, many birds move to the inland slopes and plains. Prefers clearings or areas with open understoreys. It is likely that there are two separate populations in NSW, one in the Northern Tablelands, and another ranging from the Central to Southern Tablelands.	Low	No – species records indicate presence is unlikely at subject site and suitable habitat not present.
Flesh-footed Shearwater	<i>Ardenna carneipes</i>	V	M	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. Migrate around Australia. Mainly occurs in	Low	No - relies on offshore islands for breeding and typically forages at sea. Species is not

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
				the subtropics over continental shelves and slopes and occasionally inshore water.		reliant on the habitats located within the subject site.
Fork-tailed Swift	<i>Apus pacificus</i>	-	M	Mostly aerial. Hover over cliffs and beaches, settled areas (urban centres, towns), and mostly occur over dry or open habitats, including riparian woodland and tea-tree swamps, low scrub, heathland or saltmarsh.	Medium	Yes – (SIC Appendix 4) The species has been recorded near subject site and suitable habitat is located within subject site.
Freckled Duck	<i>Stictonetta naevosa</i>	V	-	Prefers permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. During drier times they move from ephemeral breeding swamps to more permanent waters such as lakes, reservoirs, farm dams and sewage ponds. Generally rest in dense cover during the day, usually in deep water. Feed at dawn and dusk and at night on algae, seeds and vegetative parts of aquatic grasses and sedges and small invertebrates.	Low	No - suitable habitat is not present
Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>	V	E	In spring and summer, generally found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. In autumn and winter, the species often moves to lower altitudes in drier more open eucalypt forests and woodlands, particularly box-gum and box-ironbark	Low	No – while the species has been recorded near the subject site, it does not utilise the beach habitat, absent of trees.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
				assemblages, or in dry forest in coastal areas and often found in urban areas.		
Gibson's Albatross	<i>Diomedea gibsoni</i>	V	V	Foraging is extremely patchy, both spatially and temporally, and individuals traverse great distances in search of food. Can occur along the NSW Coast.	Low	No – a marine species with no habitat present within the subject site.
Gould's Petrel	<i>Pterodroma leucoptera leucoptera</i>	-	E	Breeds on Cabbage Tree Island. Range and feeding areas unknown.	Low	No – species records indicate presence is unlikely at subject site and suitable habitat not present.
Greater Crested Tern	<i>Thalasseus bergii</i>	-	M	Coastal areas including open shores, low-lying sandy, rocky or coral islands and sometimes shrubland.	High	Yes – (SIC, Appendix 4) The species has been recorded at subject site and suitable habitat is located within subject site.
Greater Sand Plover	<i>Charadrius leschenaultii</i>	-	V	Almost entirely restricted to coastal areas in NSW, occurring mainly on sheltered sandy, shelly or muddy beaches or estuaries with large intertidal mudflats or sandbanks.	Low	No - suitable habitat is not present

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
Grey Falcon	<i>Falco hypoleucos</i>	-	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. The Grey Falcon is sparsely distributed in NSW, chiefly throughout the Murray-Darling Basin, with the occasional vagrant east of the Great Dividing Range.	Low	No - suitable habitat is not present
Grey Plover	<i>Pluvialis squatarola</i>	-	M	Almost entirely in coastal areas, where they usually inhabit sheltered embayment's, 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. Forage on expose mudflats and beaches of sheltered coastal shores.	Low	No – species records indicate presence is unlikely at subject site.
Grey-tailed Tattler	<i>Tringa brevipes</i>	-	M	Forages in shallow water on hard intertidal substrates such as reef or rock platforms. Occasionally forages on intertidal mudflats, and intertidal sandflats. Roosts in the branches of mangroves or dense strands of other shrubs, occasionally beach dunes. Breeds in Siberia.	Medium	Yes – (SIC, Appendix 4) Suitable foraging and roosting habitat is present on site. Activity is listed as a threat.
Indian Yellow-nosed Albatross	<i>Thalassarche carteri</i>	-	V	The Indian Yellow-nosed Albatross is a marine bird, located in subtropical and warmer subantarctic waters. The Indian Yellow-nosed Albatross breeds on islands of the southern Indian Ocean	Low	No - suitable habitat is not present

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
Kermadec Petrel (western)	<i>Pterodroma neglecta neglecta</i>	-	V	Marine. Nests in a crevice amongst rocks	Low	No - suitable habitat is not present
Latham's Snipe	<i>Gallinago hardwickii</i>	-	M	Occurs in open, freshwater wetlands that have some form of shelter (usually low and dense vegetation) nearby, or saline or brackish water, such as saltmarsh, mangrove creeks, around bays and beaches, and at tidal rivers.	Low	No - suitable habitat is not present
Lesser Sand-plover	<i>Charadrius mongolus</i>	V	E, M	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. Individuals are rarely recorded south of the Shoalhaven estuary, and there are few inland records.	Low	No - species distribution is northern NSW and rarely recorded south of Shoalhaven estuary
Little Eagle	<i>Hieraaetus morphnoides</i>	V		Occupies open eucalypt forest, woodland or open woodland. Sheoak or <i>Acacia</i> woodlands and riparian woodlands of interior NSW are also used. Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter.	Low	No – species records indicate presence is unlikely at subject site.
Little Lorikeet	<i>Glossopsitta pusilla</i>	V		Forages primarily in the canopy of open <i>Eucalyptus</i> forest and woodland, yet also finds food in <i>Angophora</i> , <i>Melaleuca</i> and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity.	Low	No - suitable habitat is not present
Little Tern	<i>Sternula albifrons</i>	E		Coastal sheltered environments. However, may occur several kilometres from the sea in harbours, inlets and	Low	No – species is not typically recorded at

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
				rivers (with occasional offshore islands or coral cay records).		the subject site. There is no known nesting sites in the locality.
Marsh Sandpiper	<i>Tringa stagnatilis</i>		M	Commonly seen singly, or in small to large flocks in fresh or brackish (slightly salty) wetlands such as rivers, water meadows, sewage farms, drains, lagoons and swamps.	Low	No – species records indicate species has not been present at or near subject site for over a decade.
Masked Owl	<i>Tyto novaehollandiae</i>	V		Dry eucalypt forests and woodlands from sea level to 1100 m.	Low	No – no impact as species is unlikely to be reliant on the vegetation communities or habitats located within the subject site.
Northern Giant Petrel	<i>Macronectes halli</i>	-	V	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	No - suitable habitat is not present
Northern Royal Albatross	<i>Diomedea sanfordi</i>	-	E	The Northern Royal Albatross primarily forages in inshore and offshore waters over the continental shelf to the shelf edge.	Low	No - suitable habitat is not present
Nunivak Bar-tailed Godwit, Western	<i>Limosa lapponica baueri</i>	-	V	Found mainly in coastal habitats such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays. Less frequently it	Low	No – species records indicate presence is

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
Alaskan Bar-tailed Godwit				occurs in salt lakes and brackish wetlands, sandy ocean beaches and rock platforms.		unlikely at subject site.
Olive Whistler	<i>Pachycephala olivacea</i>	V	-	Inhabits the wet forests on the ranges of the east coast. It has a disjunct distribution in NSW chiefly occupying the beech forests around Barrington Tops and the MacPherson Ranges in the north and wet forests from Illawarra south to Victoria.	Low	No - suitable habitat is not present
Orange-bellied Parrot	<i>Neophema chrysogaster</i>	-	CE	On the mainland, the Orange-bellied Parrot spends winter mostly within 3 km of the coast in sheltered coastal habitats including bays, lagoons, estuaries, coastal dunes and saltmarshes. The species also inhabits small islands and peninsulas and occasionally saltworks and golf courses. Birds forage in low samphire herbland or taller coastal shrubland.	Low	No - suitable habitat is not present
Oriental Cuckoo	<i>Cuculus optatus</i>	-	M	Mainly inhabits forests, foraging for insects in trees and bushes. Breeds in Russia.	Low	No – suitable habitat is not present.
Pacific Golden Plover	<i>Pluvialis fulva</i>		M	Found on muddy, rocky and sandy wetlands, shores, paddocks, saltmarsh, coastal golf courses, estuaries and lagoons.	Low	No – no impact as suitable habitat no present.
Painted Honeyeater	<i>Grantiella picta</i>	-	V	Inhabits Boree/ Weeping Myall (<i>Acacia pendula</i>), Brigalow (<i>Acacia harpophylla</i>) and Box-Gum Woodlands and Box-Ironbark Forests.	Low	No - suitable habitat is not present
Pectoral Sandpiper	<i>Calidris melanotos</i>	-	M	Found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands.	Low	No – species records indicate presence is

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
						unlikely at subject site.
Pilotbird	<i>Pycnoptilus floccosus</i>	-	V	Pilotbirds live on the ground in dense forests with heavy undergrowth where they forage for insects and occasionally eat seeds and fruits. The species appear to be largely sedentary, occupying small territories all year round.	Low	No - suitable habitat is not present
Pomarine Jaeger	<i>Stercorarius pomarinus</i>	-	M	Migratory, mostly occurring in open sea. When it comes to land, it stays in low-lying coastal areas. Can be found at the junction of ocean currents and upwellings that bring fish close to the surface.	Low	No - suitable habitat is not present
Powerful Owl	<i>Ninox strenua</i>	V	-	Inhabits a range of vegetation types, from woodland and open sclerophyll forest to tall open wet forest and rainforest. Requires large tracts of forest or woodland habitat but can occur in fragmented landscapes as well.	Low	No - no impact as species is unlikely to be reliant on the vegetation communities or habitats located within the subject site.
Providence Petrel	<i>Pterodroma solandri</i>	V	-	Spend the majority of their time at sea.	Low	No – pelagic species which spend most of the time at sea. No records within the area for decades.
Red Knot	<i>Calidris canutus</i>	-	E	In NSW the Red Knot mainly occurs in small numbers on intertidal mudflats, estuaries, bays, inlets, lagoons,	Low	No - suitable habitat is not present

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
				harbours and sandflats and sandy beaches of sheltered coasts.		
Red-necked Stint	<i>Calidris ruficollis</i>		M	Found in sheltered inlets, bays, lagoons and estuaries with intertidal mudflats, often near spits, islets and banks and, sometimes, on protected sandy or coralline shores.	Low	No – records indicate presence is unlikely at the subject site.
Red-tailed Tropicbird	<i>Phaethon rubricauda</i>	V	M	Breeds in coastal cliffs and under bushes in tropical Australia. Vagrant bird of coastal NSW waters. Mostly a plunge diver, occasionally catching prey in the air.	Low	No – has been recorded at the subject site but suitable breeding and foraging habitat is not present.
Regent Honeyeater	<i>Anthochaera Phrygia</i>	E	CE	Inhabits dry open forest and woodland, particularly Box-Ironbark woodland, and riparian forests of River Sheoak. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes.	Low	No - suitable habitat is not present
Ruddy Turnstone	<i>Arenaria interpres</i>	-	M	Found along the coastline and occasionally inland on exposed rocks and reefs with shallow pools and on sandy beaches.	High	Yes – (SIC, Appendix 4) The species has been recorded at subject site and suitable habitat is located within subject site.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
Rufous Fantail	<i>Rhipidura rufifrons</i>	-	M	Found in wet sclerophyll forests, often in gullies dominated by tall eucalypts. Occasionally in temperate coastal rainforest, and often recorded in passage through parks and gardens or the edge of drier forests.	Low	No - The species has been recorded near the subject site but suitable habitat is not present
Salvin's Albatross	<i>Thalassarche salvini</i>	-	V	Occasional individuals are encountered both in inshore and offshore over the continental shelf and in pelagic waters off the shelf break. In NSW waters it is an uncommon visitor principally occurring between June and October, with the majority of sightings from waters south of Sydney.	Low	No - suitable habitat is not present
Sanderling	<i>Calidris alba</i>	V	M	Found along the coastline and occasionally inland on exposed rocks and reefs with shallow pools and on sandy beaches.	Medium	Yes – (ToS Appendix 3, SIC Appendix 4) The species has been recorded near subject site and suitable habitat is located within subject site.
Satin Flycatcher	<i>Myiagra cyanoleuca</i>	-	M	Inhabits heavily vegetated gullies in eucalypt-dominated forests and taller woodlands, and on migration in coastal forests and mangroves. Nests in the fork of tall trees, breeding in elevations of more than 600m above sea level.	Low	No - no suitable habitat on site.
Scarlet Robin	<i>Petroica boodang</i>	V		Lives in dry eucalypt forests and woodlands. The understorey is usually open and grassy with few	Low	No – while the species has been

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
				scattered shrubs. This species lives in both mature and regrowth vegetation. It occasionally occurs in mallee or wet forest communities, or in wetlands and tea-tree swamps. The habitat usually contains abundant logs and fallen timber: these are important components of its habitat.		recorded in the locality, it is unlikely to occur within the dune vegetation adjoining the subject site given the high level of human disturbance.
Short-tailed Shearwater	<i>Ardenna tenuirostris</i>	-	M	Pelagic species. Coastal areas including open shores, low lying sandy, rocky, or coral island, low-lying sandy, rocky or coral islands and sometimes shrubland.	Low	No - relies on offshore islands for breeding and typically forages at sea. Species is not reliant on the habitats located within the subject site
Shy Albatross	<i>Thalassarche cauta</i>	V	E, M	Mostly at sea. Occasionally occurs in continental shelf waters, in bays or harbours.	Low	No – a marine species with no suitable habitat present within the subject site.
Sooty Albatross	<i>Phoebastria fusca</i>	-	V	Mostly at sea. Occasionally occurs in continental shelf waters, in bays or harbours.	Low	No – a marine species with no suitable habitat present within the subject site.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
Sooty Owl	<i>Tyto tenebricosa</i>	V		Occurs in rainforest, including dry rainforest, subtropical and warm temperate rainforest, as well as moist eucalypt forests.	Low	No - no impact as species is unlikely to be reliant on the vegetation communities or habitats located within the subject site.
Sooty Oystercatcher	<i>Haematopus fuliginosus</i>	V		Favours rocky headlands, rocky shelves, exposed reefs with rock pools, beaches and muddy estuaries.	High	Yes – (ToS Appendix 3) The species has been recorded at subject site and suitable habitat is located within subject site.
Sooty Shearwater	<i>Ardenna grisea</i>	-	V, M	Forages in pelagic (open ocean) 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.	Low	No - relies on offshore islands for breeding and typically forages at sea. Species is not reliant on the habitats located within the subject site.
Sooty Tern	<i>Onychoprion fuscata</i>	V	-	Found over tropical and sub-tropical seas and on associated islands and cays around Northern Australia. In NSW, only known to breed at Lord Howe Island. Occasionally seen along coastal NSW, especially after cyclones.	Low	No - suitable habitat is not present

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
South-eastern Hooded Robin	<i>Melanodryas cucullata cucullata</i>	-	E	Rarely found on the coast. Prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas.	Low	No - suitable habitat is not present
South-eastern Glossy Black Cockatoo	<i>Calyptorhynchus lathami lathami</i>	V	V	Inhabits open forest and woodlands of the coast and the Great Dividing Range where stands of sheoak occur. Black Sheoak (<i>Allocasuarina littoralis</i>) and Forest Sheoak (<i>A. torulosa</i>) are important foods.	Low	No – while the species has been recorded near the subject site, it does not utilise the beach habitat, absent of trees.
Southern Giant Petrel	<i>Macronectes giganteus</i>	-	E	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. Is a common visitor off the coast of NSW	Low	No - suitable habitat is not present
Southern Royal Albatross	<i>Diomedea epomophora</i>	-	V	Migratory marine bird	Low	No - suitable habitat is not present
Southern Whiteface	<i>Aphelocephala leucopsis</i>	-	V	Dry open forests and woodland and inland scrubs of mallee, mulga and saltbush are the preferred habitat of Southern Whiteface, especially areas with fallen timber or dead trees and stumps.	Low	No - suitable habitat is not present
Spectacled Monarch	<i>Symposiachrus trivirgatus</i>	-	M	This species inhabits subtropical or tropical moist lowland forests , subtropical or tropical mangrove	Low	No - no suitable habitat on site

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
				forests, and subtropical or tropical moist montane forests .		
Square-tailed Kite	<i>Lophoictinia isura</i>	V	-	Found in a variety of timbered habitats including dry woodlands and open forests. Shows a particular preference for timbered watercourses.	Medium	Yes – (ToS Appendix 3) The species has been recorded at subject site and suitable habitat is located within subject site.
Swift Parrot	<i>Lathamus discolor</i>	E	CE	Occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. Favoured feed trees include winter flowering species such as Swamp Mahogany <i>Eucalyptus robusta</i> , Spotted Gum <i>Corymbia maculata</i> , Red Bloodwood <i>C. gummifera</i> , Forest Red Gum <i>E. tereticornis</i> , Mugga Ironbark <i>E. sideroxylon</i> , and White Box <i>E. albens</i> . Commonly used lerp infested trees include Inland Grey Box <i>E. microcarpa</i> , Grey Box <i>E. moluccana</i> , Blackbutt <i>E. pilularis</i> , and Yellow Box <i>E. melliodora</i> .	Low	No - species records and habitat assessment indicate the species is unlikely to occur at the subject site. No breeding habitat for the species occurs in the Shoalhaven.
Wandering Albatross	<i>Diomedea exulans</i>	-	V	The Wandering Albatross is marine, pelagic and aerial. In the Australasian region, it occurs inshore, offshore and in pelagic waters.	Low	No - suitable habitat is not present

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
Wedge-tailed Shearwater	<i>Ardenna pacifica</i>	-	M	Mostly a pelagic, marine species. Found along inshore and offshore water masses.	Low	No - relies on offshore islands for breeding and typically forages at sea. Species is not reliant on the habitats located within the subject site.
Whimbrel	<i>Numenius phaeopus</i>	-	M	Intertidal mudflats, along muddy banks of estuaries and in coastal lagoons, either in open unvegetated areas or mangroves. Occasionally in harbours, lagoons, estuaries, rivers or sandy and rocky beaches, platforms or reefs.	Low	No - suitable habitat is not present
White-bellied Sea Eagle	<i>Haliaeetus leucogaster</i>	V		Occurs at large areas of open water including larger rivers, swamps, lakes, and the sea. Occurs at sites near the sea or sea-shore, such as around bays and inlets, beaches, reefs, lagoons, estuaries and mangroves; and at, or in the vicinity of freshwater swamps, lakes, reservoirs, billabongs and saltmarsh. Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, and forest (including rainforest).	High	Yes – (ToS Appendix 3) The species has been recorded at subject site and suitable habitat is located within subject site.
White-bellied Storm-Petrel	<i>Fregetta grallaria grallaria</i>	-	V	Occurs at large areas of open water including larger rivers, swamps, lakes, and the sea. Occurs at sites near the sea or seashore, such as around bays and inlets, beaches, reefs, lagoons, estuaries and mangroves; and at, or in the vicinity of freshwater swamps, lakes, reservoirs, billabongs and saltmarsh.	Low	No - suitable habitat is not present

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
				Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, and forest (including rainforest).		
White-capped Albatross	<i>Thalassarche steadi</i>	-	V	Mostly observed in inshore and offshore waters over the continental shelf and less frequently in pelagic waters off the shelf break. May occasionally enter larger bays	Low	No - suitable habitat is not present
White-tailed Tropicbird	<i>Phaethon lepturus lepturus</i>	-	M	Occupies marine habitats in tropical waters, breeds on islands and atolls. Captures most of its food by deep-plunging vertically to catch fish and is rarely collected within sight of land, even when breeding.	Low	No - no suitable habitat on site.
White-throated Needletail	<i>Hirundapus caudacutus</i>	-	V, M	Mostly found in coastal areas, in most vegetation and habitat types including forested wetlands, freshwater wetlands, grasslands, saline wetlands, and coastal beaches and estuaries.	Medium	Yes – (SIC Appendix 4) The species has been recorded near subject site and suitable habitat is located within subject site.
Varied Sitella	<i>Daphoenositta chrysoptera</i>	V		Inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and Acacia woodland.	Low	No - no impact as species is unlikely to be reliant on the vegetation communities or habitats located within the subject site.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
Fish						
Australian Grayling	<i>Prototroctes maraena</i>	Endangered - FM Act	V	This species is diadromous, spending part of its lifecycle in freshwater and at least part of the larval and/or juvenile stages in coastal seas	Low	No - suitable habitat is not present
Black Rockcod	<i>Epinephelus daemeli</i>	-	V	The Black Rockcod is a territorial species that inhabits caves, gutters and crevices. They are usually found in depths up to 50 m, although individuals have been collected from below 100 m. Juveniles are found inshore, often in coastal rockpools and estuaries.	Low	No - suitable habitat is not present
Blue Warehou	<i>Seriotelella brama</i>	-	CD	Blue Warehou are a bentho-pelagic species that inhabits continental shelf and slope waters.	Low	No - suitable habitat is not present
Eastern Gemfish	<i>Rexea solandri</i> (eastern Australian population)	-	CD	Gemfish is a bottom-dwelling species that inhabits temperate waters of Australia and New Zealand	Low	No - suitable habitat is not present
Giant Manta Ray	<i>Mobula birostris</i>	-	M	Lives in tropical marine waters, occasionally in temperate seas. Feeds at sea.	Low	No – ocean dwelling species.
Grey Nurse Shark (east coast population)	<i>Carcharias taurus</i> (east coast population)	Endangered - FM Act	CE	Grey Nurse Sharks are predominantly found in inshore coastal waters. They are likely to be seen to cruising around sandy bottoms and rocky caves, and close to reefs and islands.	Low	No - suitable habitat is not present
Oceanic Whitetip Shark	<i>Carcharhinus longimanus</i>	-	M	Inhabits tropical and subtropical waters.	Low	No – ocean dwelling species.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
Porbeagle	<i>Lamna nasus</i>	-	M	Inhabits ocean waters and areas around the edge of the continental shelf. Occasionally moves into coastal waters.	Low	No - ocean dwelling species.
School Shark	<i>Galeorhinus galeus</i>	-	CD	School shark are a temperate demersal species found on the continental shelf and slope.	Low	No - suitable habitat is not present
Southern Bluefin Tuna	<i>Thunnus maccoyii</i>	-	CD	Southern bluefin tuna occur throughout the Atlantic, Pacific and Indian Oceans. Southern bluefin tuna are highly migratory and travel long distances. They are a pelagic species that can be found to depths of 500 metres.	Low	No - suitable habitat is not present
Whale Shark	<i>Rhincodon typus</i>	-	V	The Whale Shark is an oceanic and coastal, tropical to warm-temperate pelagic shark. It is often seen far offshore, but also comes close inshore and sometimes enters lagoons of coral atolls.	Low	No - suitable habitat is not present
White's Seahorse	<i>Hippocampus whitei</i>	E E - FM Act	E	This species occurs in coastal estuaries and prefers sponge gardens, seagrass meadows and soft corals, but has been known to use artificial habitats such as jetty pylons and beneath wharves	Medium	No - suitable habitat is not present
White Shark	<i>Carcharodon carcharias</i>	-	V	White Sharks are typically found from inshore habitats (e.g. islands, rocky reefs and shallow coastal bays) to the outer continental shelf and slope areas.	Low	No - suitable habitat is not present
Frogs						

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
Giant Burrowing Frog	<i>Heleioporus australiacus</i>	-	V	Found in heath, woodland and open dry sclerophyll forest on a variety of soil types except those that are clay based. Spends more than 95% of its time in non-breeding habitat in areas up to 300 m from breeding sites. Whilst in non-breeding habitat it burrows below the soil surface or in the leaf litter. Individual frogs occupy a series of burrow sites, some of which are used repeatedly. The home ranges of both sexes appear to be non-overlapping suggesting exclusivity of non-breeding habitat. Home ranges are approximately 0.04 ha in size. When breeding, frogs will call from open spaces, under vegetation or rocks or from within burrows in the creek bank.	Low	No - suitable habitat is not present
Green and Golden Bell Frog	<i>Litoria aurea</i>	E	V	Inhabits marshes, dams and stream-sides, particularly those containing bullrushes (<i>Typha</i> spp.) or spikerushes (<i>Eleocharis</i> spp.). Optimum habitat includes water-bodies that are unshaded, free of predatory fish such as Plague Minnow (<i>Gambusia holbrooki</i>), have a grassy area nearby and diurnal sheltering sites available	Medium	Yes – (ToS Appendix 3 Test of Significance (BC Act), SIC Appendix 4) The species has been recorded near subject site and suitable habitat is located nearby.
Stuttering Frog	<i>Mixophyes balbus</i>	-	V	Found in rainforest and wet, tall open forest in the foothills and escarpment on the eastern side of the Great Dividing Range. Outside the breeding season	Low	No - suitable habitat not present

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
				adults live in deep leaf litter and thick understorey vegetation on the forest floor.		
Watson's Tree Frog	<i>Litoria watsoni</i>	E	E	Forest-dependent species, recorded from wet and dry forest, woodland, bushland, and heathland at low to high elevations. Watson's Tree Frog prefers moister areas, with most records from wet forest, followed by damp forest, and warm temperate rainforest.	Low	No - suitable habitat not present
Reptiles						
Broad-headed Snake	<i>Hoplocephalus bungaroides</i>	-	V	Nocturnal. Shelters in rock crevices and under flat sandstone rocks on exposed cliff edges during autumn, winter and spring. Moves from the sandstone rocks to shelters in crevices or hollows in large trees within 500 m of escarpments in summer.	Low	No - suitable habitat not present
Flatback Turtle	<i>Natator depressus</i>	-	V	They feed in the northern coastal regions of Australia, extending as far south as the Tropic of Capricorn. Their feeding grounds also extend to the Indonesian archipelago and the Papua New Guinea coast.	Low	No - marine reptile that does not breed on Shoalhaven beaches.
Green Turtle	<i>Chelonia mydas</i>	V	V	Ocean-dwelling species spending most of its life at sea.	Low	No - marine reptile that does not breed on Shoalhaven beaches.
Hawksbill Turtle	<i>Eretmochelys imbricata</i>	-	V	The hawksbill turtle forages over coral reefs, rock outcroppings, and seagrass beds. In Australia the hawksbill turtle is found along the tropical coasts of	Low	No - marine reptile that does not breed on Shoalhaven beaches.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
				northern and eastern Australia, from mid-western Western Australia to southern Queensland.		
Leatherback Turtle	<i>Dermochelys coriacea</i>	-	E	Occurs in inshore and offshore marine waters. 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	No - marine reptile that does not breed on Shoalhaven beaches.
Loggerhead Turtle	<i>Caretta caretta</i>	-	E	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. 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.	Low	No - marine reptile that does not breed on Shoalhaven beaches.
Mammals						
Blue Whale	<i>Balaenoptera musculus</i>	-	E	Breeds in warm water at low latitudes, preferring open seas rather than coastal waters.	Low	No – ocean-going species.
Brush-tailed Phascogale	<i>Phascogale tapoatafa</i>	V		Prefer dry sclerophyll open forest with sparse groundcover of herbs, grasses, shrubs or leaf litter. Also inhabit heath, swamps, rainforest and wet sclerophyll forest.	Low	No - no impact as species is unlikely to be reliant on the vegetation communities or

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
						habitats located within the subject site.
Bryde's Whale	<i>Balaenoptera edeni</i>	-	M	Occurs in both temperate and tropical waters, both oceanic and inshore but at 200m deep waters.	Low	No - ocean-going species
Dusky Dolphin	<i>Lagenorhynchus obscurus</i>	-	M	Prefers inshore temperate waters but may also be pelagic at times. Feeds offshore in deep waters.	Low	No – ocean-going species.
Eastern Cave Bat	<i>Vespadelus troughtoni</i>	V	-	A cave-roosting species that is usually found in dry open forest and woodland, near cliffs or rocky overhang	Low	No - suitable habitat not present
Eastern Coastal Free-tailed Bat	<i>Micronomus norfolkensis</i>	V		Occur in dry sclerophyll forest, woodland, swamp forests and mangrove forests.	Low	No – likely to forage in the adjoining wetland at night. However, species is unlikely to be reliant on the beach habitats located within the subject site.
Eastern False Pipistrelle	<i>Falsistrellus tasmaniensis</i>	V		Prefers moist habitats, with trees taller than 20 m. Generally, roosts in eucalypt hollows, but has also been found under loose bark on trees or in buildings.	Low	No – likely to forage in the adjoining wetland at night. However, species is unlikely to be reliant on the beach habitats located within the subject site.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
Eastern Pygmy Possum	<i>Cercartetus nanus</i>	V		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. Occupy small patches of vegetation in fragmented landscapes, can be known to occur in grassy woodlands and the presence of Eucalypts alone is sufficient for populations of low densities.	Low	No - no impact as species is unlikely to be reliant on the vegetation communities or habitats located within the subject site.
Fin Whale	<i>Balaenoptera physalus</i>	-	V	Fin whales are typically found in deep, offshore waters of all major oceans, primarily in temperate to polar latitudes.	Low	No – ocean-going species.
Golden-tipped Bat	<i>Phoniscus papuensis</i>	V		Found in rainforest and adjacent wet and dry sclerophyll forest up to 1000 m. Also recorded in tall open forest, Casuarina-dominated riparian forest and coastal Melaleuca forests.	Low	No – species records indicate presence is unlikely at subject site.
Greater Broad-nosed Bat	<i>Scoteanax rueppellii</i>	V		Utilises a variety of habitats from woodland through to moist and dry eucalypt forest and rainforest, though it is most commonly found in tall wet forest.	Low	No – species records indicate presence is unlikely at subject site.
Grey-headed Flying Fox	<i>Pteropus poliocephalus</i>	V	V	Occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops.	Medium	Yes – (ToS Appendix 3, SIC Appendix 4) The species has been recorded near subject site and suitable

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
						habitat is located nearby.
Humpback Whale	<i>Megaptera novaeangliae</i>	V	V	The population of Australia's east coast migrates from summer cold-water feeding grounds in Subantarctic waters to warm-water winter breeding grounds in the central Great Barrier Reef.	Low	No – ocean-going species.
Koala	<i>Phascolarctos cinereus</i>	E	E	Inhabit eucalypt woodlands and forests.	Low	No - no impact as species is unlikely to be reliant on the vegetation communities or habitats located within the subject site.
Large Bent-winged Bat	<i>Miniopterus orianae oceanensis</i>	V	-	Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings and other man-made structures.	Medium	Yes – (ToS Appendix 3) The species has been recorded near subject site and suitable habitat is located nearby.
Large-eared Pied Bat	<i>Chalinolobus dwyeri</i>	V	V	Roosts in caves (near their entrances), crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the Fairy Martin (<i>Petrochelidon ariel</i>), frequenting low to mid-elevation dry open forest and woodland close to these features. Females have been recorded raising young in maternity roosts (c. 20-	Low	No - suitable habitat not present

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
				40 females) from November through to January in roof domes in sandstone caves and overhangs. They remain loyal to the same cave over many years.		
Long-nosed Potoroo	<i>Potorous tridactylus trisulcatus</i>	-	V	Inhabits coastal heath and dry and wet sclerophyll forests with dense cover which provides diurnal sheltering sites and protection from predators, whilst foraging in adjacent, open areas.	Low	No - suitable habitat not present
New Holland Mouse	<i>Pseudomys novaehollandiae</i>	-	V	Open heathland, open woodland with a heathland understorey and vegetated sand dunes.	Low	No - suitable habitat not present
New Zealand Fur-seal	<i>Arctocephalus forsteri</i>	V		Prefers rocky parts of islands with jumbled terrain and boulders.	Low	No – no impact as the proposed activity is restricted to the shoreline and species presence is unlikely.
Orca	<i>Orcinus orca</i>	-	M	Prefers oceanic, pelagic and neritic regions (over continental shelf) rather than temperate coastal waters.	Low	No – ocean species with no populations known for NSW waters.
Pygmy Right Whale	<i>Caperea marginata</i>	-	M	Prefers oceanic areas with upwellings and high zooplankton abundance. Juveniles and sub-adults occasionally shelter in shallow bays.	Low	No - ocean species, no suitable habitat present
Sei Whale	<i>Balaenoptera borealis</i>	-	V	Sei whales have a wide distribution and live in subtropical, temperate, and subpolar waters around the world.	Low	No – ocean-going species.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
Southern Brown Bandicoot (eastern)	<i>Isodon obesulus obesulus</i>	E	E	Generally only found in heath or open forest with a heathy understorey on sandy or friable soils.	Low	No - no impact as species is unlikely to be reliant on the vegetation communities or habitats located within the subject site.
Southern Greater Glider	<i>Petauroides volans</i>	-	E	Can be found in dry or wet sclerophyll forests, heathlands and temperate rainforests.	Low	No – likely to forage in the adjoining wetland at night. However, species is unlikely to be reliant on the beach habitats located within the subject site.
Southern Myotis	<i>Myotis macropus</i>	V	-	Typically roosts close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage.	Low	No – likely to forage in the adjoining wetland at night. However, species is unlikely to be reliant on the beach habitats located within the subject site.
Southern Right Whale	<i>Eubalaena australis</i>	E	E	Migrate between summer feeding grounds in Antarctica and winter breeding grounds around the	Low	No - suitable habitat not present

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
				coasts of southern Australia, New Zealand, South Africa and South America.		
Sperm Whale	<i>Physeter macrocephalus</i>	V	-	Tend to occur where the seabed rises steeply from a greater depth, beyond the continental shelf	Low	No – ocean-going species.
Spotted-tail Quoll	<i>Dasyurus maculatus maculatus</i>	V	E	Range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Use hollow-bearing trees, fallen logs, other animal burrows, small caves and rock outcrops as den sites.	Low	No - no impact as species is unlikely to be reliant on the vegetation communities or habitats located within the subject site.
Squirrel Glider	<i>Petaurus norfolcensis</i>	V	-	Inhabits mature or old growth Box, Box-Ironbark woodlands and River Red Gum forest west of the Great Dividing Range and Blackbutt-Bloodwood forest with heath understorey in coastal areas. Prefers mixed species stands with a shrub or Acacia midstorey.	Low	No - no impact as species is unlikely to be reliant on the vegetation communities or habitats located within the subject site.
White-footed Dunnart	<i>Sminthopsis leucopus</i>	V	-	Can be found in coastal dune vegetation, coastal forest, tussock grassland and sedgeland, heathland, woodland and forest. In NSW, the species seems to favour vegetation communities with an open understorey structure.	Low	No - no impact as species is unlikely to be reliant on the vegetation communities or

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
						habitats located within the subject site.
Yellow-bellied Glider	<i>Petaurus australis australis</i>	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; moist coastal gullies and creek flats to tall montane forests in the south.	Medium	Yes – (ToS Appendix 3, SIC Appendix 4) The species has been recorded near subject site and suitable habitat is located nearby.
Plants						
Austral Toadflax	<i>Thesium australe</i>	-	V	Occurs in grassland on coastal headlands or grassland and grassy woodland away from the coast. Often found in association with Kangaroo Grass (<i>Themeda australis</i>).	Low	No - species not recorded within Study Area
Biconvex Paperbark	<i>Melaleuca biconvexa</i>	-	V	Generally grows in damp places, often near streams or low-lying areas on alluvial soils of low slopes or sheltered aspects.	Low	No - species not recorded within Study Area
East Lynne Midge Orchid	<i>Genoplesium vernale</i>	V	V	The East Lynne Midge Orchid grows in dry sclerophyll woodland and forest extending from close to the coast to the adjoining coastal ranges.	Low	No - species not recorded within Study Area
Eastern Underground Orchid	<i>Rhizanthella slateri</i>	-	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.	Low	No - species not recorded within Study Area

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
Illawarra Greenhood	<i>Pterostylis gibbosa</i>	-	E	All known populations grow in open forest or woodland, on flat or gently sloping land with poor drainage. In the Illawarra region, the species grows in woodland dominated by Forest Red Gum <i>Eucalyptus tereticornis</i> , Woollybutt <i>E. longifolia</i> and White Feather Honey-myrtle <i>Melaleuca decora</i> . Near Nowra, the species grows in an open forest of Spotted Gum <i>Corymbia maculata</i> , Forest Red Gum and Grey Ironbark <i>E. paniculata</i> . In the Hunter region, the species grows in open woodland dominated by Narrow-leaved Ironbark <i>E. crebra</i> , Forest Red Gum and Black Cypress Pine <i>Callitris endlicheri</i> .	Low	No - species not recorded within Study Area
Jervis Bay Leek orchid	<i>Prasophyllum affine</i>	-	E	Grows on poorly drained grey clay soils that support low heathland and sedgeland communities.	Low	No - species not recorded within Study Area
Knotweed	<i>Persicaria elatior</i>	-	V	This species normally grows in damp places, especially beside streams and lakes. Occasionally in swamp forest or associated with disturbance.	Low	No - species not recorded within Study Area
Leafless Tongue Orchid	<i>Cryptostylis hunteriana</i>	V	V	Does not appear to have well defined habitat preferences and is known from a range of communities, including swamp-heath and woodland.	Medium	Yes – (ToS Appendix 3, SIC Appendix 4) The species has been recorded near subject site and suitable habitat is located nearby.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
Magenta Lilly Pilly	<i>Syzygium paniculatum</i>	-	V	Occurs on grey soils over sandstone, restricted mainly to remnant stands of littoral (coastal) rainforest.	Low	No - species not recorded within Study Area
Pretty Beard Orchid	<i>Calochilus pulchellus</i>	-	E	At Vincentia the species grows in low Scribbly Gum dominated woodland with a low wet heath understorey. The soil is a sandy loam overlying sandstone. In Booderee National Park it grows in a tall heathy association. In Morton National Park on the Little Forest Plateau, it occurs in low heath among scattered clumps of emergent eucalypts and Banksia in shallow coarse white sand over sandstone, in a near-escarpment area subject to strong orographic precipitation.	Low	No - species not recorded within Study Area
Scrub Turpentine	<i>Rhodamnia rubescens</i>	E	CE	Found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest usually on volcanic and sedimentary soils.	Low	No – the activity will not result in any impact on vegetation. Habitat preferences are not available within the subject site.
Swamp Everlasting	<i>Xerochrysum palustre</i>	-	V	Grows in swamps and bogs which are often dominated by heaths.	Low	No - species not recorded within Study Area
Tangled Bedstraw	<i>Galium australe</i>	E		In NSW and ACT Territory in Jervis Bay has been recorded in Turpentine forest and coastal Acacia shrubland.	Low	No – habitat preferences are not available within the subject site.

Common name	Scientific name	Legislation		Habitat associations	Likelihood of occurrence	Significance assessment completed (Appendix 3 / 4)
		BC Act	EPBC Act			
Thick-lipped Spider-orchid	<i>Caladenia tessellata</i>	-	V	Generally found in grassy sclerophyll woodland on clay loam or sandy soils, though the population near Braidwood is in low woodland with stony soil.	Low	No - species not recorded within Study Area
Wingless Raspwort	<i>Haloragis exalata subsp. exalata</i>	-	V	Appears to require protected and shaded damp situations in riparian habitats.	Low	No - species not recorded within Study Area
Yellow Gnat-orchid	<i>Genoplesium baueri</i>	-	E	Grows in dry sclerophyll forest and moss gardens over sandstone.	Low	No - species not recorded within Study Area
Threatened Ecological Communities						
Bangalay Sand Forest in the Sydney Basin and South East Corner Bioregions		CE	CE			

Appendix 3 Test of Significance (BC Act)

Following the analysis of likelihood of occurrence (Appendix 2), the BC Act Test of Significance was applied to:

Birds:

- Eastern Hooded-Dotterel *Thinornis cucullatus cucullatus*, listed as Critically Endangered
- Eastern Osprey *Pandion cristatus*, listed as Vulnerable
- Australian Pied Oystercatcher *Haematopus longirostris*, listed as Endangered
- Sooty Oystercatcher *Haematopus fuliginosus*, listed as Vulnerable
- Square-tailed Kite *Lophoictinia isura*, listed as Vulnerable
- White-bellied Sea Eagle *Haliaeetus leucogaster*, listed as Vulnerable

Frogs:

- Green and Golden Bell Frog *Littoria aurea*, listed as Endangered

Mammals:

- Grey-headed Flying-fox *Pteropus poliocephalus*, listed as Vulnerable
- Large Bent-winged Bat *Miniopterus orianae oceanensis*, listed as Vulnerable
- Yellow-bellied Glider *Petaurus australis*, listed as Vulnerable

Flora

- Leafless Tongue Orchid *Cryptostylis hunteriana*, listed as Vulnerable

Ecological Communities

- *Bangalay Sand Forest in the Sydney Basin and South East Corner bioregions*, listed as Critically Endangered

a) In the case of a threatened species, where the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is to be placed at risk of extinction.

- **Threatened shorebirds – Australian Pied Oystercatcher, Sooty Oystercatcher, Eastern Hooded-Dotterel**

Pied Oystercatchers have been recorded in the study area, but have not been known to nest on Cormorant Beach. Cormorant Beach provides suitable habitat for the Pied Oystercatcher. However, records indicate nesting is unlikely, and more suitable habitat is located at nearby beaches which do not allow dog off-leash access.

Sooty Oystercatcher tend to breed on offshore islands, and occasionally on isolated promontories. They tend to favour rocky headlands, rocky shelves, exposed reefs with rock pools, beaches and muddy estuaries. Cormorant Beach provides suitable habitat in some locations for foraging behaviour, including the rock platforms located at the north and south ends of the beach. However, disturbance to the species via dog presence is unlikely to have a significant impact on the survival of the species as more adequate foraging habitat is located at nearby beaches which do not allow dog off-leash access. Also, the rock platforms at the north and south ends of Cormorant Beach are outside of the subject site, therefore dog disturbance is considered minimal.

Eastern Hooded Dotterel prefer sandy ocean beaches, especially those that are broad and flat, with a wide wave-wash zone for feeding, much beach cast 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. Suitable habitat for nesting and foraging is located within the subject site. However, the species has not been recorded nesting at Cormorant Beach, and suitable foraging habitat at Bawley Beach and Gannet Beach will remain unaffected by the proposed activity.

Cormorant Beach is not considered a viable nesting location for threatened shorebirds, as previous records indicate no species have nested there. Maguire *et al.* (2018) note the positive impact of diverting dog walkers to specific areas, as dogs are then less likely to be present in more sensitive, prohibited areas.

Foraging habitat is also critical in the life cycle of shorebirds. Foraging habitat for shorebirds along Cormorant Beach will be reduced by the presence of dogs. However, more optimal areas of foraging habitat to the north at Bawley Beach and south at Gannet Beach will be unaffected. Mitigation measures detailed in Section 8 are expected to avoid impacts to these optimal areas of foraging and breeding habitat.

In relation to signage installation:

- locations will be selected to avoid disturbance.
- a Council officer or other suitably qualified person will survey the area prior to works commencing and if any of these species are detected in the vicinity, works will stop immediately and not resume until the bird species has vacated the site of its own accord.
- If a nest or nesting birds are detected, works will cease, and mitigation measures will be adapted in consultation with the NPWS Shorebird Recovery Coordinator (or similar expert), to minimise the risk of disturbance to the birds and ensure their protection. This may include, but not be limited to, delaying the works until the cessation of the breeding season.

As such, the proposed activity is unlikely to have an adverse effect on the life cycle of the Pied Oystercatcher, Sooty Oystercatcher or Eastern Hooded Dotterel such that a viable local population is placed at risk of extinction.

- **Threatened birds – White-bellied Sea Eagle, Square-tailed Kite and Eastern Osprey**

Cormorant Beach foredune and surrounding vegetation provides appropriate habitat for White-bellied Sea Eagle. Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, and forest (including rainforest). Breeding habitat consists of mature tall open forest, tall woodland, and swamp sclerophyll forest close to foraging habitat. Nest trees are typically large emergent eucalypts and often have dead branches or large dead trees nearby which are used as 'guard roosts'. This species has also been recorded to construct nests on a cliff edge, on a telegraph pole, and in some cases, on the ground or on rocks (where there are no suitable 30 m or greater elevations). White-bellied Sea Eagles have not been recorded nesting in the area. However, if nesting was to occur, the species would be unaffected due to the nature and location of preferred potential nesting locations being outside the subject site.

Foraging habitat is also critical in the life cycle of White-bellied Sea Eagle. White-bellied Sea-eagles predominately feed on fish, birds and aquatic reptiles. The species is considered a scavenger, and forage over freshwater and marine landscapes where they hunt prey from a perch or whilst in flight. Prey is often consumed in flight or taken to a feeding platform, but some items are consumed on the

ground. Foraging habitat along Cormorant Beach may be reduced by the presence of dogs. However, there is extensive suitable foraging habitat within the locality and the species is highly mobile.

The Square-tailed Kite species mainly inhabit open eucalyptus forests and woodlands, often dominated by stringybarks, peppermints or box-ironbark eucalypts, as well as Woollybutt, Spotted Gum, Manna Gum, Messmate, River Red Gums, as well as other trees such as Angophora, cypress-pines and casuarinas. It also occurs along the edges of dense forest and along in road verges with remnant or planted trees, and in clearings within forest or in areas of regrowth, up to 4 years after the area has been devoid of vegetation. The species typically nests along or near watercourses, in the fork of a tree, or on large horizontal lead branches. Critical habitat needed for the survival of Square-tailed Kite is not located within the subject site and therefore the species is not considered to be affected by the proposed activity.

Eastern Osprey is considered uncommon to rare or absent from many closely settled parts of south-eastern Australia, but has been recorded within the Vincentia locality. Eastern Osprey favour coastal areas, especially the mouths of large rivers, lagoons and lakes. When nesting, Eastern Osprey create nests in high dead trees within 1 km from the sea. Suitable habitat for nesting occurs along Cormorant Beach. However, the species has not been recorded nesting adjacent to the dog off-leash access area. It is unlikely that the proposed activity will have a significant impact on the survival of the species, due to the nature and location of nests, occurring high in trees. Eastern Osprey feed on fish over clear, open water, so foraging behaviour will remain unaffected.

It is therefore considered unlikely White-bellied Sea Eagle, Square-tailed Kite, and Eastern Osprey would be impacted by the proposed activity. The proposed activity is unlikely to have an adverse effect on the lifecycle of these species such that a viable local population of any of these species is likely to be placed at risk of extinction.

- **Threatened frogs - Green and Golden Bell Frog**

Green and Golden Bell Frog inhabits a very wide range of water bodies including marshes, dams and streams, particularly those containing emergent vegetation such as bull-rushes or spike-rushes. It also inhabits numerous types of man-made water bodies including quarries and sand extraction sites. Optimum habitat includes waterbodies that are un-shaded, free of predatory fish such as Plague Minnow, have a grassy area nearby and diurnal sheltering sites available.

Breeding sites are usually permanent or semi-permanent water bodies that contain emergent vegetation. They appear to be more likely to breed in waterbodies that have little shading and may prefer water bodies that are close to other water bodies inhabited by the species. Suitable habitat for the species is not located within the dog off-leash access area, therefore the impact on the species is negligible.

- **Threatened mammals - Yellow-bellied Glider, Grey-headed Flying Fox and Large Bent-winged Bat**

Yellow-bellied Glider occurs in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. They feed primarily on plant and insect exudates, including nectar, sap, honeydew and manna with pollen and insects providing protein. The Yellow-bellied Glider extracts sap by incising (or biting into) the trunks and branches of favoured food trees (Red Bloodwood), often leaving a distinctive 'V'-shaped scar. They are nocturnal, live in hollows of large trees and are very mobile; home ranges are between 20 to 85 ha to encompass dispersed and seasonally variable food resources. The subject site does not contain suitable habitat for foraging, breeding or roosting, and nearby suitable habitat will be unaffected by the proposed activity.

The Grey-headed Flying-fox (*Pteropus poliocephalus*) is the largest Australian bat, with a head and body length of 23 - 29 cm. The wing membranes are black and the wingspan can be up to 1m. 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. In times of natural resource shortages, they may be found in unusual locations. This species occurs in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. 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. Annual mating commences in January and conception occurs in April or May; a single young is born in October or November. Site fidelity to camps is high; some camps have been used for over a century. GHFF can travel up to 50 km from the camp to forage; commuting distances are more often <20 km. They feed on the nectar and pollen of native trees, in particular Eucalyptus, Melaleuca and Banksia, and fruits of rainforest trees and vines, also foraging in cultivated gardens and fruit crops. Grey-headed Flying-fox may forage in the study area at night, but is unlikely. As dog off-leash exercise predominately occurs during daylight hours, the impact to the species is negligible.

Large Bent-winged Bat primarily roost in caves, but also utilise derelict mines, stormwater tunnels, buildings and other man-made structures. The species hunt in forested areas, catching moths and other flying insects above the tree-tops. Large Bent-winged Bats are nocturnal, therefore foraging behaviour is unlikely to coincide with dog off-leash activity. The subject site does not contain suitable habitat for the species, and the wetland that backs Cormorant Beach will remain unaffected.

- **Threatened flora – Leafless Tongue Orchid**

Leafless Tongue Orchid typically occurs in woodland dominated by Scribbly Gum *Eucalyptus sclerophylla*, Silvertop Ash *E. sieberi*, Red Bloodwood *Corymbia gummifera*, and Black Sheoak *Allocasuarina littoralis*. This species prefers open habitat amongst an established understory of sedgeland and Spear Grass-tree.

Leafless Tongue Orchid does not appear to have well defined habitat preferences and is known from a range of communities, including swamp-heath and woodland. It is known historically from a number of localities on the NSW south coast and has been observed in recent years at many sites between Batemans Bay and Nowra (although it is uncommon at all sites). It is unlikely that the species occurs within the subject site, as it is a sandy coastal beach. No vegetation is to be removed by the proposed activity.

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

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

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

The beach and foredune area, where dogs are proposed to be permitted off-leash, does not comprise an endangered ecological community. However, a patch of vegetation immediately to the west of the subject site, and within the southern boundary of the subject site was identified as the BC Act listed TEC *Bangalay Sand Forest in the Sydney Basin and South East Corner Bioregions*. Given the mitigation measure to avoid the area of this TEC, there will be no impacts off the off-leash activity.

The works associated with the proposed activity within this community, such as signage installation, will not have an adverse effect on the extent of the TEC or 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, population or ecological community in the locality.

No habitat of a threatened species or ecological community is likely to be removed/modified or become fragmented or isolated from other areas of habitat as a result of this proposal.

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 areas of outstanding biodiversity value have been declared in the Shoalhaven LGA.

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 proposal will not contribute to any key threatening process listed under the NSW BC Act.

Conclusion

The Test of Significance concludes that the proposed activity will not have a significant impact on threatened species or ecological communities. As such, a Species Impact Statement or entry into the Biodiversity Offset Scheme is not required.

Appendix 4 Significant Impact Criteria assessment for EPBC Act listed threatened species

The Commonwealth *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance* details criteria to assess whether the proposed activity is likely to have a significant impact on a matter protected under national environment law — the EPBC Act, and whether referral to the Commonwealth Department for further assessment and approval is required.

The Significant Impact Guidelines provide varying criteria depending on the conservation status. The relevant criteria for threatened species, as per their Commonwealth status, is outlined in this section.

The following terminology is used throughout the Significant Impact Criteria (SIC) assessment:

- **Population of a species:** an occurrence of the species in a particular area. In relation to critically endangered, endangered or vulnerable threatened species, occurrences include but are not limited to:
 - a geographically distinct regional population, or collection of local populations, or
 - a population, or collection of local populations, that occurs within particular bioregion
- **Important population of a species:** a population that is necessary for a species' long-term survival and recovery. This may include populations identified as such in recovery plans, and/or that are:
 - key source populations either for breeding or dispersal
 - populations that are necessary for maintaining genetic diversity, and/or
 - populations that are near the limit of the species range.
- **Invasive species:** an introduced species, including an introduced (translocated) native species, which out-competes native species for space and resources or which is a predator of native species.
- **Habitat critical for the survival of a species** refers to areas that are necessary:
 - for activities such as foraging, breeding, roosting, or dispersal
 - for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)
 - to maintain genetic diversity and long-term evolutionary development, or
 - for the reintroduction of populations or recovery of the species or ecological community
- **Important habitat for migratory species:**
 - habitat utilised by a migratory species occasionally or periodically within a region that supports an ecologically significant proportion of the population of the species, and/or
 - habitat that is of critical importance to the species at particular life-cycle stages, and/or
 - habitat utilised by a migratory species which is at the limit of the species range, and/or
 - habitat within an area where the species is declining.

Following the analysis of Likelihood of Occurrence (Appendix 2), the EPBC Act SIC were applied for the following taxa:

Endangered Fauna

- Common Greenshank

Vulnerable Fauna

- Eastern Hooded Dotterel
- White-throated Needletail
- Green and Golden Bell Frog
- Grey-headed Flying-fox
- Yellow-bellied Glider

Vulnerable Flora

- Leafless Tongue Orchid

Migratory Birds

- Caspian Tern
- Common Greenshank
- Common Tern
- Double Banded Plover
- Eastern Osprey
- Fork-tailed Swift
- Greater Crested Tern
- Grey-tailed Tattler
- Ruddy Turnstone
- White-throated Needletail

Threatened Ecological Communities

- Bangalay Sand Forest in the Sydney Basin and South East Corner Bioregions –endangered

Endangered species

- [Common Greenshank *Tringa nebularia*](#)

Each significant impact criterion has been assessed below:

Lead to a long-term decrease in the size of a population

No important populations have been recorded within the subject site. The subject site does not support key source populations for breeding or dispersal, populations necessary for maintaining genetic diversity, or populations near the limit of the species range.

Reduce the area of occupancy of the species

Common Greenshank is not known to occupy the study area. The species may use the very rear of the subject site for foraging purposes. However, more optimal foraging habitat is located in the wetlands to the west of the subject site or the north along Bawley Point headland, which will remain unaffected by the activity.

However, if Common Greenshank is discovered to occupy the study area, mitigation measures will be adopted in line with the adaptive management approach of the SCC Access Areas for Dogs Policy.

In consultation with the NPWS Shorebird Coordinator (or similar expert), temporary or partial closures can be designated to minimise risk of disturbance to the Common Greenshank and ensure their protection.

Lead to a long-term decrease in the size of a population

No important populations have been recorded within the subject site. The subject site does not support key source populations for breeding or dispersal, populations necessary for maintaining genetic diversity, or populations near the limit of the species range.

Reduce the area of occupancy of the species

Common Greenshank is not known to occupy the study area. The species may transit through the subject site for foraging or roosting purposes. More optimal foraging and roosting habitat is in the wetlands to the west of the subject site or the north along Bawley Point headland, which will remain unaffected by the activity.

Fragment an existing population into two or more populations

There are no existing populations for these species that occur at the subject site. Individual species may occur periodically within the subject site. However, the proposed activity will not result in fragmentation of the population.

Adversely affect habitat critical to the survival of a species

No critical habitat is located within the subject site for these species. Common Greenshank forages and roosts in wetlands, mudflats and occasionally elevated rocks and sandbanks. Primary foraging and roosting habitat are not located within the subject site, and the species does not breed in Australia.

Disrupt the breeding cycle of a population

The breeding cycle of this species will not be disrupted. The Common Greenshank breeds outside of Australia during southern hemisphere winter.

Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline

No critical habitat is located within the subject site for these species. The proposed activity will not destroy, remove, isolate, or decrease the availability or quality of habitat for the shorebird species, as dogs must remain on leash and on access tracks and transit areas through the edge of the coastal wetland buffer when traversing to the beach.

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 proposed activity will not result in the establishment of an invasive species that is harmful to the Common Greenshank.

Introduce disease that may cause the species to decline, or

The proposed activity will not result in the introduction of a disease that is harmful to Common Greenshank.

Interfere with the recovery of the species.

Considering the above factors, the proposal will not interfere substantially with the recovery of this species.

Conclusion

The proposal is not considered to constitute a significant impact on the Common Greenshank and therefore a referral to the Commonwealth is not recommended.

Vulnerable species

- **Eastern Hooded Dotterel** *Thinornis cucullatus cucullatus*
- **White-throated Needletail** *Hirundapus caudacutus*

Each significant impact criterion is addressed below:

Lead to a long-term decrease in the size of an important population of a species

Eastern Hooded Dotterel is reported to be as rare as 64 individuals within NSW and 5,000 individuals as a total population across Australia. The species' known northern limit is Jervis Bay, making any population that occupies the subject site significant in terms of proximity to the northern extent of the species distribution. Any impact leading to reduction in the population of this species would be significant. There are no known important populations that occupy the subject site; therefore, the impact of the proposed activity is negligible.

The White-throated Needletail have not been recorded within the subject site. While the subject site does provide potential foraging and roosting habitat for these species, an important population for these species does not occur. No trees will be removed as a result of the proposed activity.

Reduce the area of occupancy of an important population

These species are not known to occupy the subject site. However, if they were discovered to occupy the study area, mitigation measures will be adopted in line with the adaptive management approach of the SCC Access Areas for Dogs Policy. In consultation with the NPWS Shorebird Coordinator (or similar expert), temporary or partial closures can be designated to minimise risk of disturbance to the species and ensure their protection.

Fragment an existing important population into two or more populations

No existing populations occur at the subject site.

Adversely affect habitat critical to the survival of a species

Both species are largely mobile in nature, so are not at increased risk of being attacked by dogs utilising the dog off-leash access area. Suitable habitat for the species is located within the subject site. However, nearby beaches, including Bawley Beach and Gannet Beach do not provide dog off-leash access and therefore provide more optimal habitat for both species.

Disrupt the breeding cycle of an important population

Eastern Hooded Dotterel nest on open-coast sand beaches. Cormorant Beach has no known records of the species nesting in this location. Suitable nesting habitat is present within the wider locality (Bawley and Gannet Beach) where access to off-leash dogs is not allowed.

White-throated Needletail breeds in the northern hemisphere, therefore the breeding cycle will not be disrupted.

Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline

The proposed activity will not destroy, remove, isolate, or decrease the availability or quality of habitat for the species.

Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat

The proposed activity will not result in the establishment of an invasive species.

Introduce disease that may cause the species to decline, or

The proposed activity will not result in the introduction of a disease that may cause the Eastern Hooded Dotterel or White-throated Needletail species to decline.

Interfere substantially with the recovery of the species.

Considering the above factors, the proposed activity will not interfere substantially with the recovery of the species.

Conclusion

The proposed activity is not considered to constitute a significant impact on the Eastern Hooded Dotterel or White-throated Needletail and therefore a referral to the Commonwealth is not recommended.

- **Green and Golden Bell Frog *Littoria aurea***

Each significant impact criterion is addressed below:

Lead to a long-term decrease in the size of an important population of a species

All currently known populations of the Green and Golden Bell Frog (GGBF) are considered to be important and any activities that will remove vegetation within 200 m of a known site is considered to have the potential to have a significant negative impact on this species. Individuals located within or travelling through the study area may potentially be impacted by dog off-leash access. However, the impacts on the overall population in terms of loss of individuals should be extremely low. The area to be impacted does not appear to provide a suitable habitat for dispersing, foraging or sheltering GGBF. It is unlikely that any deaths will lead to a direct and significant long-term reduction of an important population.

Reduce the area of occupancy of an important population

There is no important populations recorded at the subject site.

Fragment an existing important population into two or more populations

There is no existing population known to occupy the subject site.

Adversely affect habitat critical to the survival of a species

No critical habitat has been declared for this species. Suitable habitat is not located within the subject site, as it is a sandy beach. The wetland that backs the subject site will remain unaffected.

Disrupt the breeding cycle of an important population

The GGBF breeds in a range of permanent and semi-permanent water bodies, that preferably are unshaded, shallow and do not contain the Plague Minnow. No areas of aquatic habitat is to be removed.

Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline

There will be no removal of habitat.

Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat

The Plague Minnow is a recognised invasive species that is listed as a Key Threatening Process under the EPBC Act. It may be present in the locality but would not be spread any further by the proposed activity.

Introduce disease that may cause the species to decline, or

One disease is currently listed as of specific concern in regard to the GGBF. This is the amphibian Chytrid fungus that is listed as a Key Threatening Process under the EPBC Act. This fungus is spread through direct skin contact (with humans or animals), or indirectly from contaminated articles on floors or in the soil. It is unlikely that the proposed activity will introduce any infectious diseases.

Interfere substantially with the recovery of the species.

Considering the above factors, the proposed activity will not interfere substantially with the recovery of the species.

Conclusion

The proposed activity is not considered to constitute a significant impact on the Green and Golden Bell Frog and therefore a referral to the Commonwealth is not recommended.

- **Yellow-bellied Glider *Petaurus australis***
- **Grey-headed Flying-fox *Pteropus poliocephalus***

Each significant impact criterion is addressed below:

Lead to a long-term decrease in the size of an important population of a species

No direct impact to individual GHFF or Yellow-bellied Glider or habitat would occur. Any feeding on adjacent trees would occur during nocturnal foraging periods, when use of the dog off-leash access area is low to negligible. GHFF and Yellow-bellied Glider forage in tree canopies, so would not be at increased risk of being attacked by dogs utilising the dog off-leash access area.

Reduce the area of occupancy of an important population

The species are not known to occupy the subject site. The species may use the subject site for foraging purposes. However, GHFF and Yellow-bellied Glider predominantly occur in forest areas, so are unlikely to occur within the sandy beach habitat at Cormorant Beach.

Fragment an existing important population into two or more populations

There are no existing populations known to occupy the subject site.

Adversely affect habitat critical to the survival of a species

Critical habitat is not located within the subject site.

Disrupt the breeding cycle of an important population

While the subject site does provide potential foraging and roosting habitat for the GHFF and Yellow-bellied Glider, an important population or known camp for these species does not occur.

Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline

No critical habitat is located within the subject site for the species. The proposed activity will not destroy, remove, isolate or decrease the availability or quality of habitat for the species.

Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat

The proposed activity is unlikely to result in the establishment of an invasive species that is harmful to GHFF or Yellow-bellied Glider.

Introduce disease that may cause the species to decline, or

The proposed activity is unlikely to result in the introduction of a disease that is harmful to the GHFF or Yellow-bellied Glider.

Interfere substantially with the recovery of the species.

Considering the above factors, the proposed activity will not interfere substantially with the recovery of the species.

Conclusion

The proposed activity is not considered to constitute a significant impact on the GHFF or Yellow-bellied Glider and therefore a referral to the Commonwealth is not recommended.

- **Leafless Tongue Orchid *Cryptostylis hunteriana***

Each significant impact criterion is addressed below:

Lead to a long-term decrease in the size of an important population of a species

Leafless Tongue Orchid typically occurs in woodland dominated by Scribbly Gum *Eucalyptus sclerophylla*, Silvertop Ash *E. sieberi*, Red Bloodwood *Corymbia gummifera*, and Black Sheoak *Allocasuarina littoralis*. This species prefers open habitat amongst an established understory of sedgelands and Spear Grass-tree. Suitable habitat for the species is not located within the subject site, and no habitat or vegetation will be removed by the proposed activity.

Reduce the area of occupancy of an important population

No, there will be no removal of vegetation.

Fragment an existing important population into two or more populations

No important populations occupy the subject site.

Adversely affect habitat critical to the survival of a species

No critical habitat is located within the subject site.

Disrupt the breeding cycle of an important population

There are no populations of this species known to occupy the subject site.

Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline

The proposed activity will not destroy, remove, isolate or decrease the availability or quality of habitat for the species.

Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat

The proposed activity is unlikely to result in the establishment of an invasive species that is harmful to Leafless Tongue Orchid.

Introduce disease that may cause the species to decline, or

The proposed activity is unlikely to result in the introduction of a disease that is harmful to the Leafless Tongue Orchid.

Interfere substantially with the recovery of the species.

Considering the above factors, the proposed activity will not interfere substantially with the recovery of these species.

Conclusion

The proposed activity is not considered to constitute a significant impact on the Leafless Tongue Orchid and therefore a referral to the Commonwealth is not recommended.

Migratory Species

- **Caspian Tern *Hydroprogne caspia***

Each significant impact criterion has been assessed below:

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

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. Suitable habitat is not located within the subject site to the extent the species will be significantly impacted.

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 proposed dog access is not expected to exacerbate the process of invasive species.

seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

Caspian Tern do not migrate from Australia, and breed in large colonies both inland, along the coast or on offshore islands. There are no known breeding locations in the locality. The species forage 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. Suitable feeding and resting habitat is located in nearby locations which do not allow dog off-leash access.

Conclusion

Based on the review above, the proposed dog off-leash access area is unlikely to have a significant impact on migratory shorebirds.

- **Ruddy Turnstone *Arenaria interpres***

Each significant impact criterion has been assessed below:

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

Ruddy Turnstone is mainly found on coastal regions with exposed rock coastlines or coral reefs. It also lives near platforms and shelves, often with shallow tidal pools and rocky, shingle or gravel beaches. It can be found on sand, coral or shell beaches, shoals, cays and dry ridges of sand or coral. No important habitat will be destroyed or isolated due to proposed activity. The species is unlikely to rely on the habitat within the subject site.

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 proposed activity will not result in the establishment of an invasive species that is harmful to migratory species that visit or forage within the subject site.

Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

Ruddy Turnstone breeds in the northern hemisphere. Ruddy Turnstone forage among banks of stranded seaweed or tide wrack, between the lower super-littoral and lower-littoral zones of foreshores. They are also known to occupy exposed rocky platforms, coral reefs and mudflats. The Ruddy Turnstone roosts on beaches, above the tideline, among rocks, shells, beach-cast seaweed or other debris. They have also been observed roosting on rocky islets among grassy tussocks, and on mudflats and sandflats. Foraging and roosting habitat for the species will be impacted within the subject site. However, more optimal foraging habitat at nearby beaches, including Bawley Beach and Gannet Beach, will remain unaffected.

The subject site does not provide suitable habitat for the breeding, feeding or resting behaviour of the species, and migratory behaviour will not be affected by the proposed activity.

Conclusion

The proposed activity is not considered to constitute a significant impact on the Ruddy Turnstone and therefore a referral to the Commonwealth is not recommended.

- **Double Banded Plover *Charadrius bicinctus***

Each significant impact criterion has been assessed below:

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

The Double-banded Plover is found on littoral, estuarine and fresh or saline terrestrial wetlands and also saltmarsh, grasslands and pasture. It occurs on muddy, sandy, shingled or sometimes rocky beaches, bays and inlets, harbours and margins of fresh or saline terrestrial wetlands such as lakes, lagoons and swamps, shallow estuaries and rivers. Suitable habitat is not located within the subject site for the species.

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 proposed activity will not result in the establishment of an invasive species that is harmful to migratory species that visit or forage within the subject site.

Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

Double Banded Plover forages on vegetated shingle beds, closely cropped pasture, tilled grounds and mudflats. Suitable habitat for this species is not located within subject site to the extent that would provide significant food and restoration for Double Banded Plover. Additionally, no significant proportions of the migratory species are known to occupy the subject site. The proposed activity will not have an impact on breeding, feeding, migration or resting behaviour to the extent that would seriously disrupt the lifecycle of the migratory species.

Conclusion

The proposed activity is not considered to constitute a significant impact on the Double Banded Plover and therefore a referral to the Commonwealth is not recommended.

- **Greater Crested Tern *Thalasseus bergii***

- **Common Tern *Sterna hirundo***

Each significant impact criterion has been assessed below:

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.

Greater Crested Tern are found in a variety of coastal environments, including open shores, low-lying sandy, rocky or coral islands, estuaries, and sometimes shrubland.

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.

The proposed activity is unlikely to modify the beach habitat at Cormorant Beach. Important habitat nearby, such as Bawley Beach and Gannet Beach, remain unaffected by the proposed activity.

Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species.

The proposed activity is unlikely to result in the establishment of an invasive species that is harmful to Greater Crested Tern or Common Tern that may potentially visit the subject site.

Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

Greater Crested Terns are classified as migratory because they breed on offshore islands in large colonies. Common Terns do not breed in Australia, as they are northern hemisphere breeders. Both species are oceanic foragers, and dive for small fish. Common Tern occasionally will forage in near-coastal terrestrial wetlands, including estuaries, rivers and swamps. During calm weather, Greater Crested Tern may rest on the surface of the ocean. However, during more extreme weather, they will shelter within sand dunes, rocks or vegetation. Cormorant Beach does provide suitable habitat for such resting behaviour, but occurrence is unlikely to coincide with the proposed activity as it typically takes place during bad weather.

The subject site does not provide suitable habitat for the breeding, feeding or resting behaviour of the species to the extent that their lifecycle would be disrupted, and migratory behaviour will not be affected by the proposed activity.

Conclusion

The proposed activity is not considered to constitute a significant impact on the Greater Crested Tern or Common Tern and therefore, a referral to the Commonwealth is not recommended.

- **Fork-tailed Swift *Apus pacificus***
- **White-throated Needletail *Hirundapus caudacutus***

Each significant impact criterion has been assessed below:

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

Fork-tailed Swift and White-throated Needletail are almost exclusively aerial, flying from less than 1 m to at least 300 m above ground, with the White-throated Needletail not exceeding 1000 m.

In Australia, Fork-tailed Swift they mostly occur over inland plains but sometimes above foothills or in coastal areas. They often occur over cliffs and beaches and also over islands and sometimes well out to sea. Habitat for White-throated Needletail varies from woodlands to coastal habitats.

Due to the nature of the species and habitat of the subject site, the proposed activity is unlikely to modify, destroy or isolate an important area for the species.

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 proposed activity will not result in the establishment of an invasive species that is harmful to Fork-tailed Swift or White-throated Needletail that visit or forage within the subject site.

Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

Both species are aerial eaters, flying anywhere from 1 m to 300 m above the ground to forage. Both species forage along the edge of low-pressure systems as it helps to lift prey, such as insects, from the ground and assists in flight.

Feeding flight for the Fork-tailed Swift is characterized by circular flight patterns throughout areas of high prey concentration. They feed in flocks ranging from 10 to 1000 birds. They roost aerially but are occasionally observed to land.

Roosting habitat for the White-throated Needletail includes trees in forests and woodlands, both among dense foliage in the canopy or in hollows. Occasionally they roost aerially.

Considering the above, the proposed activity will not have an impact on the breeding, feeding or resting behaviour of the species, and migratory behaviour will not be affected by the proposed activity.

Conclusion

The proposed activity is not considered to constitute a significant impact on the Fork-tailed Swift or White-throated Needletail and therefore a referral to the Commonwealth is not recommended.

- **Common Greenshank *Tringa nebularia***
- **Grey-tailed Tattler *Tringa brevipes***

Each significant impact criterion has been assessed below:

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

The Common Greenshank is found in a wide variety of inland wetlands and sheltered coastal habitats of varying salinity. It occurs in sheltered coastal habitats, typically with large mudflats and saltmarsh, mangroves or seagrass. Recorded less often in tidal pools and rock platforms.

The Grey-tailed Tattler is often found on sheltered coasts with reefs and rock platforms or with intertidal mudflats. It can also be found at intertidal rocky, coral or stony reefs as well as platforms and islets that are exposed at low tide. Occasionally found around coastal wetlands.

Due to the nature of the species and habitat of the subject site, the proposed activity is unlikely to modify, destroy or isolate an important area for the species.

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 proposed activity will not result in the establishment of an invasive species that is harmful to Common Greenshank or Grey-tailed Tattler that visit or forage within the subject site.

Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

The Common Greenshank forages at the edges of wetlands in soft mud or mudflats. The Grey-tailed Tattler forages in shallow water or hard intertidal substrates such as rock platforms, occasionally also on exposed intertidal mudflats where crustaceans, molluscs and fish are an important food source.

The Common Greenshank roosts in wetlands, in shallow pools or sometimes slightly elevated on rocks and sandbanks. The Grey-tailed Tattler usually roosts in the branches of mangroves, sometimes on rocks partially submerged and is also known to roost on beaches and reefs, however rarely.

Both the Common Greenshank and Grey-tailed Tattler breed outside of Australia.

Foraging and roosting habitat for the species have potential to be impacted within the subject site. However, more optimal foraging and roosting habitat at the nearby Bawley Point wetland, will remain unaffected.

Considering the above, the proposed activity will not seriously disrupt the lifecycle needs of these species.

Conclusion

The proposed activity is not considered to constitute a significant impact on the Common Greenshank or Grey-tailed Tattler and therefore a referral to the Commonwealth is not recommended.

- **Eastern Osprey *Pandion cristatus***

Each significant impact criterion has been assessed below:

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

Eastern Ospreys occur in littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia and offshore islands. They are mostly found in coastal areas but occasionally travel inland along major rivers. They exhibit a preference for coastal cliffs and elevated islands in some parts of their range but may also occur on low sandy, muddy or rocky shores and over coral cays. They may occur over atypical habitats such as heath, woodland or forest when travelling to and from foraging sites.

Due to the nature of the species and habitat of the subject site, the proposed activity is unlikely to modify, destroy or isolate an important area for the species.

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 proposed activity will not result in the establishment of an invasive species that is harmful to the Eastern Osprey that visit or forage within the subject site.

Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

Eastern Ospreys search for prey by soaring over open clear water, occasionally from a perch, and then dive down to snatch prey near or just below the surface of the water feet first.

The Eastern Osprey breed in spring in NSW and make nests high up in dead trees or crowns of live trees, usually within one kilometre of the sea. Occasionally they will nest on rocky headlands, deserted beaches and a variety of artificial platforms such as lighthouses and navigation towers.

Suitable habitat for nesting occurs along Cormorant Beach. However, the species has not been recorded nesting adjacent to the dog off-leash access area. It is unlikely that the proposed activity will have a significant impact on the survival of the species, due to the nature and location of nests, occurring high in trees.

Considering the above, the proposed activity will not have an impact on the breeding, feeding or resting behaviour of the species, and migratory behaviour will not be affected by the proposed activity.

Conclusion

The proposed activity is not considered to constitute a significant impact on the Eastern Osprey and therefore a referral to the Commonwealth is not recommended.

Appendix 5 Field survey - observed species list

Table 7 List of flora and fauna observed during the September 2023 field survey (Lodge Environmental)

Common Name	Scientific Name	Exotic	Native
Flora			
Sweet Pittosporum	<i>Pittosporum undulatum</i>		X
Bangalay	<i>Eucalyptus botryoides</i>		X
Asparagus Weed	<i>Asparagus setaceus</i>	X	
Coast Banksia	<i>Banksia integrifolia</i>		X
Tree Broom-heath	<i>Monotoca elliptica</i>		X
Long-leaved Wattle	<i>Acacia longifolia</i>		X
Coast Beard-heath	<i>Leucopogon parviflorus</i>		X
New Zealand Spinach	<i>Tetragonia tetragonioides</i>		X
Knobby Club Rush	<i>Isolepis nodosa</i>		X
American Searocket	<i>Cakile edentula</i>	X	
Monkey Rope	<i>Parsonsia straminea</i>		X
Cape Daisy	<i>Dimorphotheca pluvialis</i>	X	
Blady Grass	<i>Imperata cylindrica</i>		X
Spiny-head Mat-rush	<i>Lomandra longifolia</i>		X
Fireweed	<i>Chamaenerion angustifolium</i>	X	
Kikuyu	<i>Pennisetum clandestinum</i>	X	
Pig Face	<i>Carpobrotus glaucescens</i>	X	
Large leaf Pennywort	<i>Hydrocotyle bonariensis</i>	X	
Scutch Grass	<i>Cynodon dactylon</i>		X
Beach Spinifex	<i>Spinifex sericeus</i>	X	
American Black Nightshade	<i>Solanum Americanum</i>	X	
Fleabane	<i>Conyza bonariensis</i>	X	
Blackberry	<i>Rubus fruticosus</i>	X	
Climbing Saltbush	<i>Einada nutans</i>		X
Scarlet Pimpernel	<i>Anagallis arvensis</i>	X	
Chickweed	<i>Stellaria media</i>	X	
Coastal Tea Tree	<i>Leptospermum laevigatum</i>		X
Sow Thistle	<i>Sonchus oleraceus</i>	X	
Mat Rush	<i>Lomandra multiflora</i>		X
Cape Honeysuckle	<i>Tecomaria capensis</i>	X	
Spear Thistle	<i>Cirsium vulgare</i>	X	
Rushes	<i>Juncus sp.</i>		

Common Name	Scientific Name	Exotic	Native
Tick Bush	<i>Kunzea ambigua</i>		X
Bracelet Honey Myrtle	<i>Melaleuca armillaris</i>		X
Coastal Rosemary	<i>Westringia fruticosa</i>		X
Kangaroo Apple	<i>Solanum aviculare</i>		X
Sea Spurge	<i>Euphorbia paralias</i>	X	
Blue Flax Lily	<i>Dianella cerulea</i>		X
Swamp Sheoak	<i>Casuarina glauca</i>		X
Fauna			
Red Wattlebird	<i>Anthochaera carunculata</i>		X
Superb Fairy Wren	<i>Malurus cyaneus</i>		X
Rainbow Lorikeet	<i>Trichoglossus moluccanus</i>		X
European Honeybee	<i>Apis mellifera</i>	X	
House Sparrow	<i>Passer domesticus</i>	X	
Masked Lapwing	<i>Vanellus miles</i>		X
Jacky Dragon	<i>Amphibolurus muricatus</i>		X
Cabbage White Butterfly	<i>Pieris rapae</i>	X	
Welcome Swallow	<i>Hirundo neoxena</i>		X
White-headed Pigeon	<i>Columba leucomela</i>		X
Pied Cormorant	<i>Phalacrocorax varius</i>		X
Wombat	<i>Vombatus ursinus</i>		X
Dragonfly (unidentified)	-	-	-
Topknot Pigeon	<i>Lopholaimus antarcticus</i>		X
Eastern Grey Kangaroo	<i>Macropus giganteus</i>		X
Pied Currarong	<i>Strepera graculina</i>		X
Little Cormorant	<i>Microcarbo niger</i>		X
Laughing Kookaburra	<i>Dacelo novaeguinea</i>		X

Appendix 6 Birddata survey data for subject site and study area

Table 8 *Birddata survey data for the subject site and study area.*

Threatened/Migratory Species	Subject Site (off-leash area)	Study Area (50m buffer)
Greater Crested Tern		2008
Red-tailed Tropicbird	2010	
Sooty Oystercatcher	2016	2018, 2008
White-bellied Sea-eagle	2016	2008