



REVIEW OF ENVIRONMENTAL FACTORS

Job No: 240821

Date: 27 December 2024



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Review of Environmental Factors, Blue Lagoon Staircase Installation.

Issue	Date	Description	Author
1	18/11/24	Draft for comment	K. McQueen
2	27/12/2024	Final report incorporating CCC comments received 18/12/2024	K. McQueen

EXECUTIVE SUMMARY

Central Coast Council (council) engaged Coast Ecology to provide a Review of Environmental Factors (REF) for the proposed installation of two new staircases at Blue Lagoon (*Subject Site*) to replace one on the back dune near Bateau Bay Road which was removed in 2023 due to deterioration and recurring vandalism and to replace an existing dilapidated staircase on the foredune down to Blue Lagoon beach.

The aim of the proposal is to provide a safe pedestrian route to the foreshore.

The proposal will consist of the design & construction of two new staircases. The top staircase has been removed and a cleared track remains where the original staircase occurred. The location of the new staircase will be in approximately the same location as the previous staircase and the *Area of Impact* includes a 3-meter buffer either side of the proposed 2-metre-wide staircase. The lower staircase is still present but in a dilapidated state. This staircase will be replaced with a new staircase; however, the location of the replacement staircase will be determined by the construction contractor following further advice regarding coastal hazards.

This REF has been prepared to review the potential environmental impacts of the proposed Blue Lagoon staircase installation. Investigations identified that areas of potential environmental impact are predominately related to:

- stabilising the substrate during and post construction, as the sand dune is steep in parts and
- the potential presence of middens under the surface in the foredune.

Mitigation Measures have been provided to reduce the risk to the environment for the duration of works.

This Review of Environmental Factors concludes that:

1. The impact of the proposed works will not be significant;
2. An Environmental Impact Statement is not required; and
3. Review of Environmental Factors is an adequate level of assessment for the proposed activity.

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1.0 Introduction

Central Coast Council (council) engaged Coast Ecology to provide a Review of Environmental Factors (REF) for the proposed installation of two new staircases at Blue Lagoon (*Subject Site*) to replace one on the back dune near Bateau Bay Road which was removed in 2023 due to deterioration and recurring vandalism and to replace an existing dilapidated staircase on the foredune down to Blue Lagoon beach.

The aim of 'The Project' is to provide a safe pedestrian route to the foreshore

Definitions:

The *locality* is a 10 x 10 km area centered on the *Subject Site* and was used for threatened species database searches (Figure 1-1).

The *Subject Site* was defined by council's tender and subsequently adjusted during an online Teams meeting (22/12/2024). The *Subject Site* is Crown Reserve managed by council. It includes the *Area of Impact* where the staircases would be installed and the proposed works area for stockpiling and compounds (Figure 1-2). It is assumed that only vegetation within the *Area of Impact* requires removal, however the entire *Subject Site* has been assessed for environmental impact which allows for any deviations to the final location of the staircases.

The *Area of Impact* refers to the area that would be directly impacted by the proposal and approximately covers a width of 2 m for the staircase in addition to a 3 metre buffer either side of the staircase where bush regeneration and revegetation works would be undertaken following completion of construction (Figure 1-2).

1.1 Description of the *Subject Site*

The *Subject Site* is in the Central Coast Council local government area (LGA) on the coast at Blue Lagoon, near the suburb of Bateau Bay (Figure 1-1). The *Subject Site* consists of a back dune adjoining Bateau Bay Rd which is dominated by native vegetation on the top of the dune (Plate 1) and disturbed vegetation down the steep slope of the dune face, which has a fall of approximately 40 meters until it meets with a level parkland area. There is an existing steep, sandy track where the previous staircase was located and subsequently removed (Plate 2). The level area is maintained (mown) lawn and includes some remnant trees (Coast Banksia) and an amenity block (in disrepair) (Plate 3). The level area is the top of the foredune, which has a fall of approximately 2 meters to Blue Lagoon beach. An existing staircase remains in disrepair in this area (Plate 4) (Figure 1-2).



Plate 1. Native vegetation on top of the back dune



Plate 2. Steep sandy slope where the previous staircase occurred



Plate 3. Level maintained area



Plate 4. Existing staircase in disrepair on the foredune

1.2 Proposal

The proposal will consist of the design & construction of two new staircases. The top staircase has been removed and a cleared track remains where the original staircase occurred. The location of the new staircase will be in approximately the same location as the previous staircase and the *Area of Impact* includes a 3-meter buffer either side of the proposed 2-metre-wide staircase. The lower staircase is still present but in a dilapidated state. This staircase will be replaced with a new staircase; however, the location of the replacement staircase will be determined by the construction contractor following further advice regarding coastal hazards. The (approximate) extent of the proposed works is shown in Figure 1-2.

1.3 Justification of the proposal

A popular walking track exists between Wyrabalong lookout at Forresters Beach and Shelly Beach. The *Subject Site* occurs along this route as does street parking in the vicinity of the *Subject Site*. Access to the northern end of Blue Lagoon beach from parking areas along Bateau Bay Rd and from the walking track is currently not available as the top staircase has been removed and the track is very steep. Access from the level parkland area to the beach via the existing dilapidated stairs is not possible as the stairs have been blocked and vegetation has subsequently grown over the stairs. A new track has been made by pedestrians through bush nearby to the existing staircase.

As such, there is currently limited access to the northern end of Blue Lagoon beach for local beach goers.

1.4 Description of the zoning applying to the proposal

The *Subject Site* is zoned RE1 *Public Recreation* under Central Coast Local Environmental Plan (LEP) 2022 (Figure 1-3).

Zone RE1 Public Recreation

1 Objectives of zone

- To enable land to be used for public open space or recreational purposes.

- To provide a range of recreational settings and activities and compatible land uses.
- To protect and enhance the natural environment for recreational purposes.
- To identify areas suitable for development for recreation and cultural purposes.
- To provide space for integrated stormwater treatment devices for flow and water quality management.

2 Permitted without consent

Environmental facilities; Environmental protection works

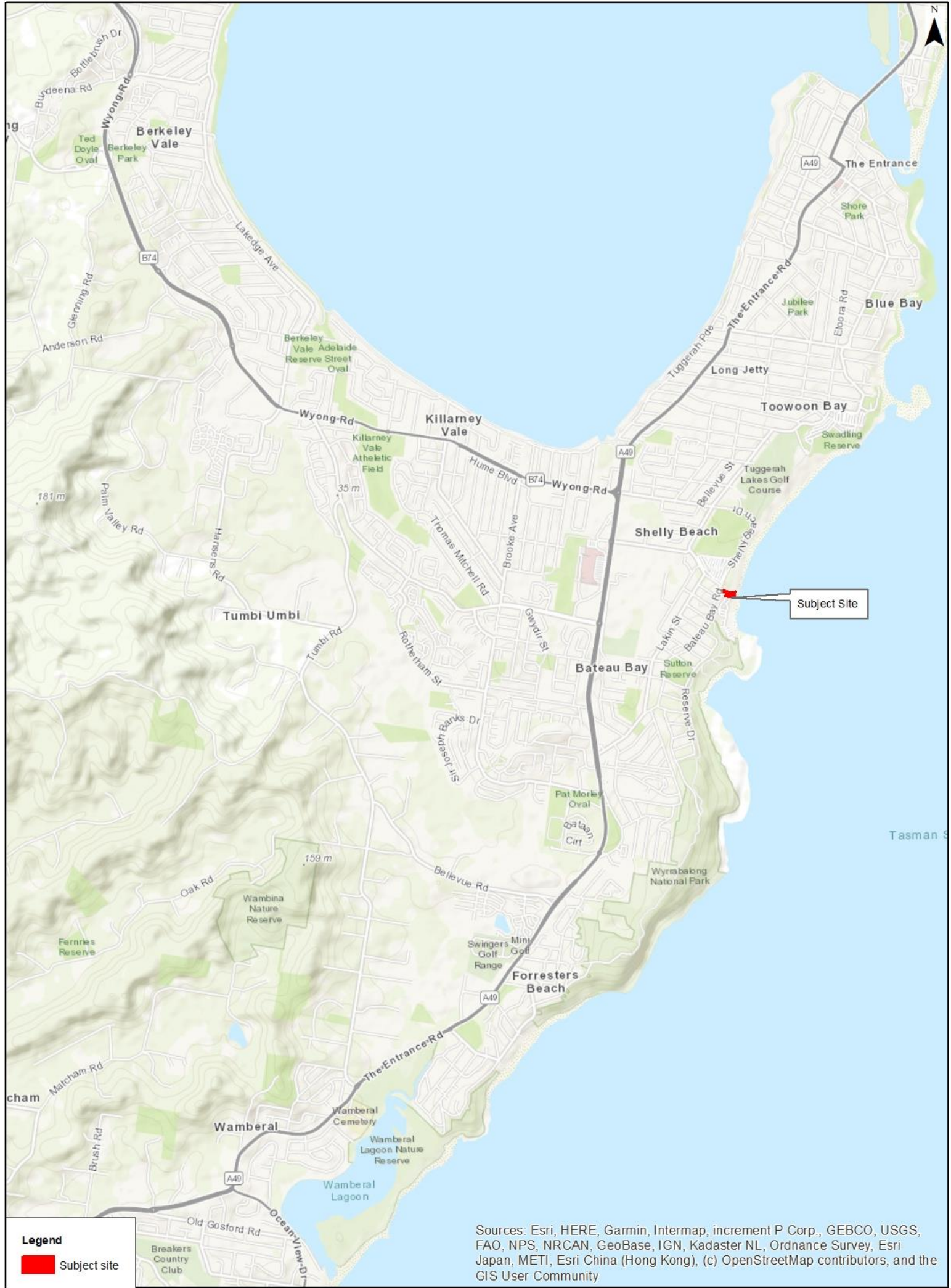
3 Permitted with consent

Aquaculture; Boat launching ramps; Boat sheds; Building identification signs; Business identification signs; Camping grounds; Car parks; Caravan parks; Charter and tourism boating facilities; Centre-based child care facilities; Community facilities; Eco-tourist facilities; Emergency services facilities; Entertainment facilities; Flood mitigation works; Food and drink premises; Function centres; Information and education facilities; Jetties; Kiosks; Marinas; Markets; Mooring pens; Moorings; Recreation areas; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Respite day care centres; Roads; Sewerage systems; Water recreation structures; Water supply systems

4 Prohibited

Any development not specified in item 2 or 3

The proposed works is in accordance with the objectives of this zone (to enable land to be used for public open space) and fall under the definition of environmental facilities as the absence of a functioning staircase has resulted in additional tracks being created through the bushland and potentially contributing to beach erosion. Therefore, works are permitted without consent.



Legend

■ Subject site

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

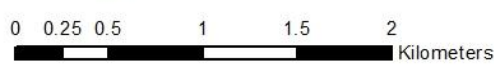


Figure 1.1. Locality
Blue Lagoon Staircase Installation
Central Coast Council Job No. 240821 Date. 07/11/24



Legend

- Subject Site
- Area of Impact
- Lot boundary

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

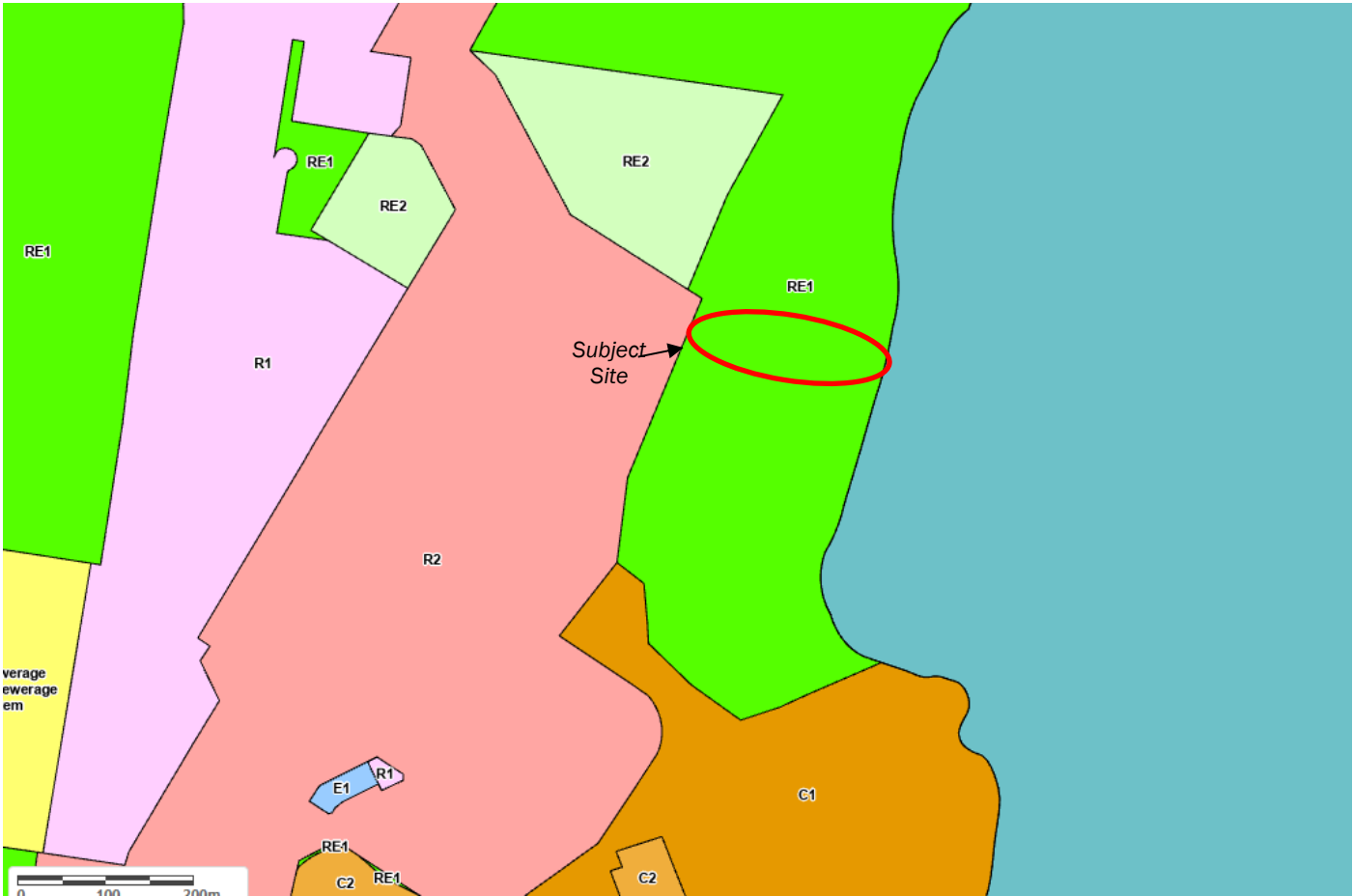


Figure 1-3. Central Coast Council Local Government Area Online Mapping”
Zoning Maps accessed 14/11/2024 <https://maps.centralcoast.nsw.gov.au/public/>

2.0 Legislation

2.1 Commonwealth Legislation

The proposed activity is subject to the provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). An assessment of the proposed activity in relation to the EPBC Act for matters of national environmental significance is provided in Section 4.2 and Appendix 1 of this report.

2.2 State and Local Legislation

2.2.1 Environmental Planning and Assessment Act

The requirement to prepare this REF is identified in Part 5 of the *Environmental Planning & Assessment Act 1979* (EP&A Act) where Council, as the determining authority, must, in its consideration of an activity, "examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity".

The requirement to examine the environmental impact of an "activity" (including the "protecting, improving or utilising, to the best advantage, the environment, (section 26)", in this case, the proposed staircase replacement works, obliges Council to identify, examine and consider the scale and significance of potential environmental effects of the "activity", with a view to determining whether "the activity should proceed, be modified, reviewed or not undertaken at all".

The EP&A Acts principal function is to consider 'environmental impacts' in land use and decision making.

2.2.2 Environmental Planning and Assessment Regulation

Clause 228 of the *Environmental Planning & Assessment Regulation 2000* (EP&A Regulation) outlines the factors which "must be taken into account when consideration is given to the likely impact of an activity on the environment".

The requirements of Clause 228(2) are addressed in Section 4.1 of this report.

2.2.3 Biodiversity Conservation Act 2016

The purpose of the Biodiversity Conservation Act 2016 (BC Act) is to:

- Conserve biodiversity on a bioregional and state scale
- Maintain the quality of ecosystems
- Enhance the ability of ecosystems to adapt to climate change
- Improve and support knowledge, data and resource sharing in the community
- Assess the extinction risk of species and ecological communities
- Identify key threatening processes
- Regulate human-wildlife interactions, based on risk
- Slow the rate of biodiversity loss, and conserve threatened species.

The *Biodiversity Conservation Act 2016* (BC Act) requires that the significance of the impact on threatened species, populations and threatened ecological communities is assessed using the test listed in Section 7.3 of the BC Act. Where a significant impact is likely to occur, a species impact statement (SIS) must be prepared in accordance with the Environment Agency Head's requirements.

A key objective of the BC Act is to avoid, minimise or offset the impacts of development. Council must demonstrate that the design has considered options to avoid and minimise impacts. Where this cannot be achieved, offsetting is required

A Threatened Species Assessment has been undertaken and is provided in Appendix 1 and summarised in Section 3.6 of this report.

2.2.4 Fisheries Management Act 1994

Part 7A of the *Fisheries Management Act 1994* (FM Act) requires that significance assessments are undertaken in accordance with Division 12 of the FM Act. Where a significant impact is likely to occur, a species impact statement (SIS) must be prepared in accordance with the Environment Agency Head's requirements.

The DPI (2013) outlines policies and guidelines aimed at maintaining and enhancing fish habitat for the benefit of native fish species, including threatened species, in marine, estuarine and freshwater environments. It is applicable to all planning and development proposals and various activities that affect aquatic ecosystems in NSW.

One of the key objectives of the FM Act is to conserve 'key fish habitats' (KFH). KFH's are defined in the policy and guidelines to include all marine and estuarine habitats up to highest astronomical tide level (that reached by 'king' tides) and most permanent and semi-permanent freshwater habitats including rivers, creeks, lakes, lagoons, billabongs, weir pools and impoundments up to the top of the bank.

In accordance with section 205 of the FM Act and section 228 of the Fisheries Management (General) Regulation 2019, marine vegetation includes:

- Mangroves
- Seagrass
- Attached marine and estuarine macroalgae
- Saltmarsh in a protected area.

A portion of the *Subject Site* where the lower steps are proposed for replacement, is mapped by NSW Department of Primary Industries (DPI) Fisheries as KFH (Figure 2-1) however the *Subject Site* and *Area of Impact* consists of terrestrial habitat only and contains no aquatic features. As such, the requirement for a part 7 permit application for dredging and reclamation in accordance with the FM Act is not considered appropriate in this instance.

2.2.5 Heritage Act

The objectives of the *Heritage Act* (1977) are:

- a) To promote an understanding of the State's heritage;
- b) To encourage the conservation of the State's heritage;
- c) To provide for the identification and registration of items of State heritage significance;
- d) To provide for the interim protection of items of State heritage significance;
- e) To encourage the adaptive reuse of items of State heritage significance;
- f) To constitute the Heritage Council of New South Wales and confer on it functions relating to the State's heritage; and
- g) To assist owners with the conservation of items of State heritage significance.

Under Section 139 of the *Heritage Act* (1977) an excavation permit must be obtained to disturb or excavate any land which is likely to result in a relic being discovered, exposed, moved, damaged or destroyed.

Refer Section 3.9 for discussion on the State Heritage Register Database search.

2.2.6 Coastal Management Act

The Coastal Management Act 2016 replaces the Coastal Protection Act 1979 and establishes a strategic framework and objectives for managing coastal issues in NSW.

The Act promotes strategic and integrated management, use and development of the coast for the social, cultural and economic wellbeing of the people of NSW.

Its focus is on ecologically sustainable development that:

- protects and enhances sensitive coastal environments, habitats and natural processes
- strategically manages risks from coastal hazards
- maintains and enhances public access to scenic areas, beaches and foreshores
- supports the objectives for our marine environments under the Marine Estate Management Act 2014
- protects and enhances the unique character, cultural and built heritage of our coastal areas, including Aboriginal cultural heritage.

2.2.7 SEPP Resilience and Hazards

The State Environmental Planning Policy (SEPP) Resilience and Hazards gives effect to the objectives of the Coastal Management Act 2016 from a land use planning perspective, by specifying how development proposals are to be assessed if they fall within the coastal zone.

Detailed interactive maps accompany the SEPP and were reviewed for relevance of this SEPP to the *Subject Site* (Figure 2-1).

The *Subject Site* is mapped as the following:

- Coastal Environmental Area
- Coastal Use Area

Activities assessed under Part 5 of the EP&A Act do not require council consent for works in coastal environment areas or coastal use areas. Regardless, the assessment criteria listed in Division 3 and 4 of the SEPP were considered in the Biodiversity Assessment (BA) (Appendix A) and it was concluded that the proposal was unlikely to result in a significant or adverse impact on the Coastal Environment and Coastal Use area as the proposal would be sited in approximately the previous location of the staircase to minimise disturbance to vegetation and the dune, and mitigation measures include bush regeneration and revegetation using native species to stabilize the soils and improve the biodiversity of the vegetation in the vicinity of the *Area of Impact*.

Note. Part of the *Subject Site* is mapped on Councils online mapping as littoral rainforest, however this is not supported by the interactive maps that accompany this SEPP (i.e. accessed on DPI Spatial Data portal and SEED portal) nor is it consistent with the revised NSW State Vegetation mapping. This is addressed further in the BA (Appendix A).



Legend

- Subject Site
- Area of Impact
- Key Fish Habitat (NSW DPI Fisheries mapping)
- SEPP Resilience & Hazards Coastal Environmental Area
- SEPP Resilience & Hazards Coastal Use Area

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

2.3 Summary

An activity is to be assessed under Part 5 of the EP&A Act if development consent is not required and it is not a major project under Part 3A. This proposal is not a major project and development consent is not required under CC LEP or SEPP Resilience and Hazards.

This Review of Environmental Factors (REF) is an environmental assessment under Part 5 of the EP&A Act 1979 that is required as part of the assessment of activities needing approval under NSW legislation. It considers the likely impacts of the activity on the environment and addresses appropriate state and federal legislation in consideration of the assessment.

3.0 Environmental Aspects, Impacts and Safeguards

3.1 Air Quality

The existing air quality of the study area is considered good, with only low vehicle emissions present from residential streets. The proposed works may result in short term negative impacts on the local air quality such as increase dust and emissions associated with heavy machinery that is required for excavation works, vegetation clearing and instalment of the staircases.

Following works, any exposed soils will be stabilized as soon as possible through re-vegetation to help stabilise the dune.

There is not expected to be any long-term changes in air quality following the completion of works.

3.2 Water Quality

Run-off from the *Subject Site* would flow into the ocean at Blue Lagoon. As such, there is potential for the works to result in an increase in turbidity in receiving oceanic waters during works.

Appropriate erosion and sediment control measures are to be in place prior to the commencement of works, including around stockpile areas. Erosion and sediment control measures are to be in accordance with The Blue Book (Landcom, 2004) and are to be routinely inspected throughout works to ensure that they are achieving their purpose.

All work areas are to be stabilized as soon as possible after surface works. This includes the use of revegetation in accordance with the mitigation measures provided in the Biodiversity Assessment (Appendix A) and summarized in Section 5.

There is also potential for pollution from accidental chemical spills. Vehicles working on site are to be equipped with spill kits and any leaked vehicle or machinery fluids are to be captured and cleaned immediately.

3.3 Soils

The *Subject Site* is comprised of the Norah Head and Narrabeen soil landscape which are described below (Murphy, 1992) (Figure 3-1):

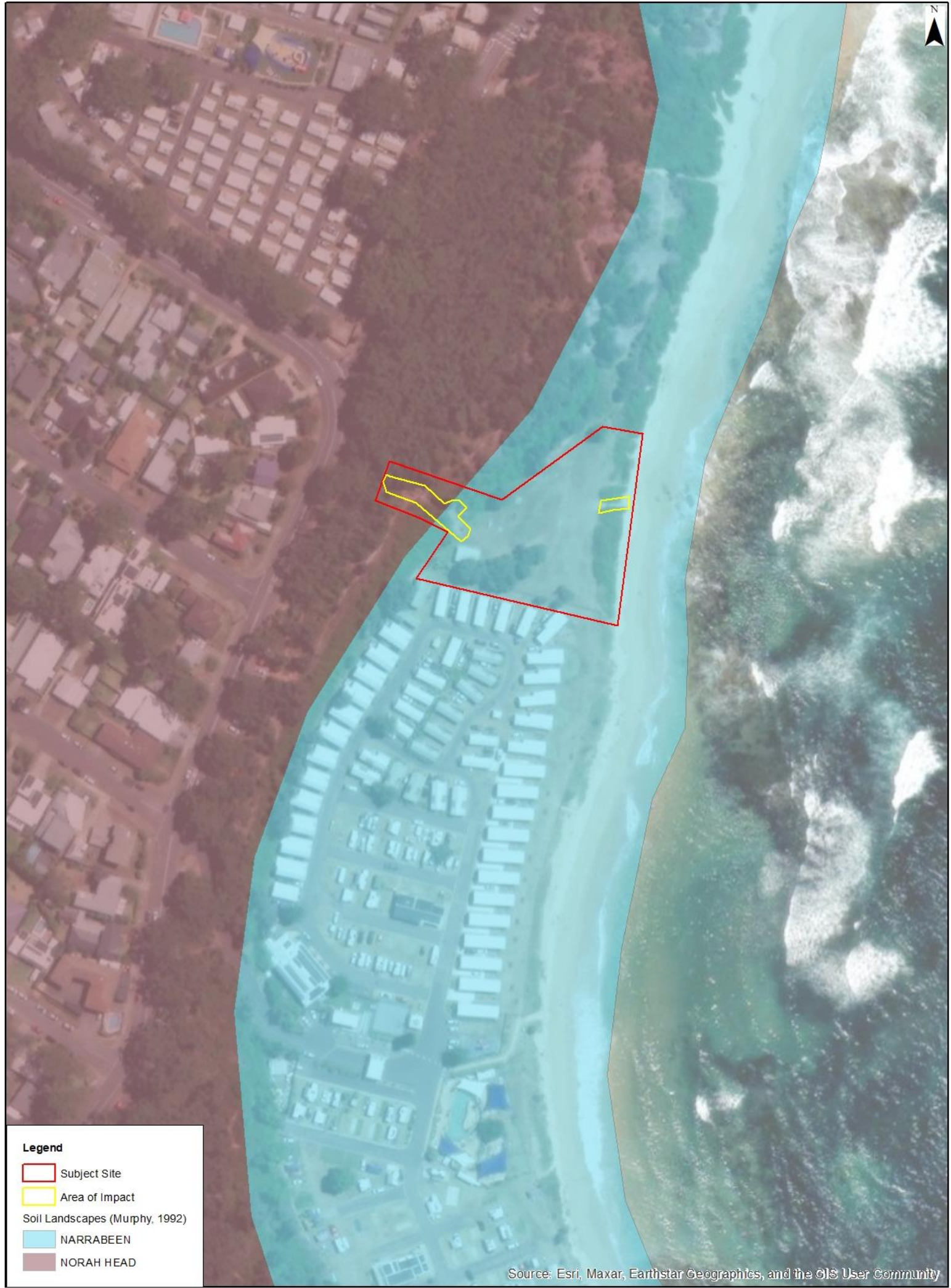
Norah Head soil landscape

Geology consists of aeolian quartz dunes and sandsheets of Pleistocene age perched on Triassic and Permian bedrock and is mapped on the back dune at the top of the *Subject Site* near Bateau Bay Rd. This soil landscape is mostly stabilized by urban development. Areas of disturbed bushland suffer from high wind erosion. The surface condition is generally loose but may be friable when abundant organic content is present (Murphy, 1992).

Narrabeen soil landscape

Geology consists of quaternary sands consisting of marine quartz sand with shell fragments, interdune (swale) silt and fine sand and is mapped on the foredune part of the *Subject Site*. Beaches are dynamic landscapes with common processes of severe wind and wave erosion. Wind erosion can be extreme on foredunes especially where stabilizing vegetation cover is absent or disturbed. Wind erosion on foredunes is characterized by the presence of blowouts. Extreme wave erosion occurs during high seas. In many cases the seaward slope of the foredune is significantly eroded resulting in erosion scarps. During storms, large volumes of sand can be removed from the beach and deposited in the nearshore zone (Murphy, 1992).

Council should seek advice from geotechnical engineers and coastal engineers during the design phase to ensure that the proposed design is suitable for the existing soils and wave/tidal environment.



Legend

- Subject Site
- Area of Impact
- Soil Landscapes (Murphy, 1992)
- NARRABEEN
- NORAH HEAD

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

3.4 Acid Sulfate Soils

The *Subject Site* is not mapped as potential acid sulphate soils (PASS) on the SEED portal (Figure 3-2), however on Councils Geocortex mapping, it is defined as Class 5 acid sulphate soils (Figure 3-3). Class 5 acid sulphate soils require the preparation of an acid sulphate soil Plan of Management (PoM) only if works are within 500m of class 1, 2, 3 or 4 land that is below 5 m Australian Height Datum (AHD) and by which the water table is likely to be lowered below 1 m AHD on adjacent lands.

Thus, if any excavation is likely to impact adjoining watertables, soil testing for contaminants and acid sulphate soil prior to the commencement of works is required. Material classification is to identify the potential for acid sulphate soil. If PASS or acid sulphate soil is present, an acid sulphate soil PoM is required.

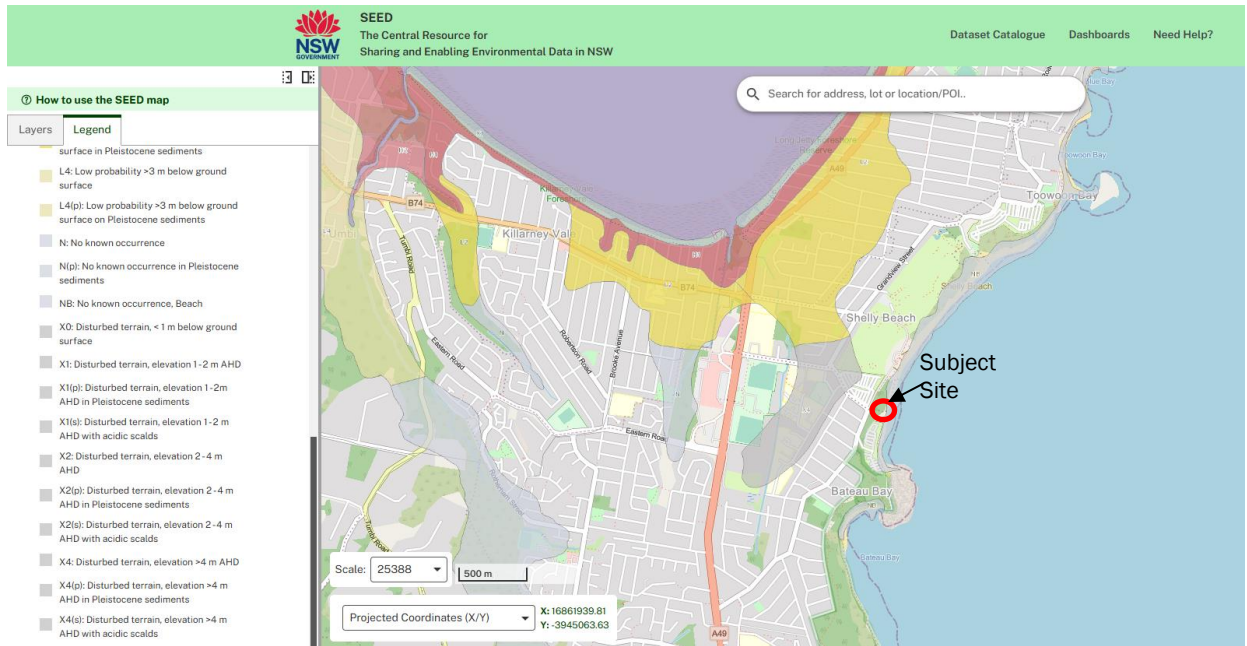


Figure 3-2. Acid sulphate soil mapping (Seed portal accessed 10/12/24)



Figure 3-3. Acid sulphate soil mapping (Councils Geocortex mapping accessed 10/12/24)

3.5 Noise and Vibration

Noise and vibration may impact nearby residents during construction works. The following mitigation measures are recommended:

- Working hours are restricted to Monday to Friday between 7.00am and 6.00pm and Saturday 8.00am to 1.00pm with no work undertaken on Sundays or public holidays.
- Works are to be conducted during the quieter winter months, and outside of school holidays.
- Residents are to be notified of commencement dates.

3.6 Biodiversity

Habitat assessment and surveys were conducted on 24/09/24 and 08/11/24. Surveys identified 45 flora species (27 native), 17 birds and two reptiles.

The study area was mapped by Coast Ecology as consisting of 4 zones based on Plant Community Type (PCT) and vegetation condition along with areas of maintained lawn:

1. Zone 1 PCT 3544 Coastal Sands Apple-Blackbutt Forest – moderate condition
2. Zone 2 PCT 3788 Coastal Foredune Wattle Scrub– moderate condition
3. Zone 3 PCT 3788 Coastal Foredune Wattle Scrub - – poor condition
4. Zone 4 PCT 3788 Coastal Foredune Wattle Scrub – Canopy only

The proposal would impact 89 m² of native vegetation in moderate condition (i.e. zone 1 and 2) and 245 m² of highly disturbed vegetation (zone 3) dominated by Boneseed *Chrysanthemoides monilifera*. PCT 3544 and PCT 3788 are not defined as threatened ecological communities (TECs) under the BioNet Vegetation Classification, and despite a portion of the *Subject Site* being mapped as a Littoral Rainforest TEC on councils internal Geocortex mapping platform, this TEC is not mapped as Littoral Rainforest on the interactive maps that accompany the SEPP Resilience and Hazards, is not mapped on the NSW State vegetation mapping (2024) and was not mapped by Coast Ecology as occurring within the *Subject Site*. Thus, no threatened ecological communities (TECs) occur within the *Subject Site*. This is detailed further in the BA.

Following desktop analysis, habitat assessment and field surveys, the following six threatened species were assumed to be present:

1. Eastern False Pipistrelle *Falsistrellus tasmaniensis* (V BC Act)
2. Eastern Coastal Free tailed Bat *Micronomus norfolkensis* (V BC Act)
3. Little Bentwing-bat *Miniopterus australis* (V BC Act)
4. Large Bentwing-bat *Miniopterus orianae oceanensis* (V BC Act)
5. Greater Broad-nosed Bat *Scoteanax rueppellii* (V BC Act)
6. Grey-headed Flying-fox *Pteropus poliocephalus* (V BC Act, V EPBC Act)

Assessment of Significance (BC Act)

Assessment under the BC Act determined that the *Subject Site* does not contain important nesting or roosting habitat for threatened species previously recorded on BioNet in the broader locality, and while the proposal would result in the loss of potential foraging habitat, it is unlikely to have a significant impact on a local population of threatened species such that it places a species at risk of extinction. As the *Subject Site* is on the edge of an already fragmented landscape, the proposal is unlikely to contribute further to fragmentation and isolation of habitat. As such, a Biodiversity Development Assessment Report (BDAR) pursuant to the BC Act, is not required.

However, the proposal may result in an increase in exotic invasion by Bitou Bush *Chrysanthemoides monilifera*, which is listed as a key threatening process (KTP) under the BC Act. Mitigation measures have been included to assist with the control of this exotic species.

Assessment of Significance (EPBC Act)

Only one threatened species listed under the EPBC Act was considered to have moderate likelihood of foraging within the *Subject Site* (Grey-headed Flying-fox *Pteropus poliocephalus*). However, the *Subject Site* does not support an “important” population of this species as it does not have a roost camp and therefore does not support a key source population for breeding and dispersal, a population necessary for maintaining genetic diversity or a population near the limit of this species range. As such, no further assessment is required and the proposal does not require referral to the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW).

Mitigation measures include:

- Installation of fencing clearly marking ‘No Go Zones’, excluding access to native vegetation outside of the *Area of Impact*.
- Efforts are to be made to retain any native trees within the *Area of Impact*. This may include using sensitive works methodologies around the root zone of trees.
- Laydown areas and stockpiling are to be limited to cleared areas away from retained trees and away from native vegetation
- Efforts are to be made to reduce the spread (and current extent) of Bitou Bush *Chrysanthemoides monilifera* subsp. *rotundata* which is listed as a KTP under the BC Act. To facilitate Bitou Bush management, bush regeneration is required within a clearing area of 3 meters either side of the completed staircase. All weeds within this buffer area are to be removed and the area immediately revegetated.

The following number and species of native plants are to be used in revegetation on completion of works:

- Either side of the top staircase:
 - 30 x Coastal Wattle *Acacia longifolia* subsp. *sophorae*
 - 6 x Tuckeroo *Cupaniopsis anacardioides*

- 14 x Coast Banksia *Banksia integrifolia*
 - 60 x Spiny-headed Mat-rush *Lomandra longifolia*
 - Either side of the installed lower staircase and in the location of existing staircase (once removed):
 - 12 x Coastal Wattle *Acacia longifolia subsp. sophorae*
 - 2 x Tuckeroo *Cupaniopsis anacardioides*
 - 4 x Coast Banksia *Banksia integrifolia*
 - 24 x Spiny-headed Mat-rush *Lomandra longifolia*.
 - Planting and coir logs (and/or sand dune biodegradable erosion mats) under the staircases using Spiny-headed Mat-rush *Lomandra longifolia* is required to stabilize sand.
 - Plants are to be installed in spring or autumn.
 - Plants are to be watered as required to prevent drying out for a period of 6 weeks or until plants have established.
 - Clean, weed free mulch is to be used. Any native vegetation would be mulched on site and used in soil stabilization and landscape works. Exotic mulch would be disposed of at a licensed waste disposal facility. The existing timber staircase would be recycled or disposed of at a licensed waste disposal facility
 - Coir logs (and/or sand dune biodegradable erosion mats) are to be installed at 2-meter intervals on both staircase slopes to assist in erosion control while plants establish.
 - Any mortality of planted trees within two years of planting are to be re-instated.
 - Quarterly bush regeneration to manage the spread of exotic species and replace any dead plants is to be undertaken for a minimum of 2 years (total of 128 hours of bush regeneration over two years).
- Appropriate erosion and sediment control measures in accordance with the Blue Book (Landcom, 2004) are to be installed around the *Area of Impact*, to prevent erosion of the steep sand banks and to protect water quality in receiving waterways. This includes the installation of coir logs (and/or sand dune biodegradable erosion mats).
- Contractors are to be made aware of the possibility of microbats occurring under bark of trees. Any trees requiring removal are to be firmly tapped three times by the excavator, prior to felling.
- Works are to move from the edge towards areas of retained bushland, to encourage fauna to move to retained bushland.
- Any injured fauna is to be handled by a qualified wild-life handler and taken to the nearest vet (if required) at a cost to Council.
- Chemical spill kits are to be kept on site at all times, and contractors are to be familiar with their use, to minimise the risk of pollution to the marine environment from machine leaks and or spills.
- Due to the potential high erosion pressures of wave, wind and tidal action on the *Subject Site*, particularly in the location of the lower staircase to be replaced, the excavation area is to be kept to a minimum and works in this area are to be timed to avoid heavy rainfall, large swells or king tides. Erosion and sediment control measures are to be maintained around the works area for the duration of works and excavated areas are to be re-instated with vegetation and coir logs (and/or sand dune biodegradable erosion mats) as soon as possible following completion of works.

3.7 Chemical and Hazardous Substance Management

The type of works to be undertaken may require the storage of dangerous material such as fluids and fuels contained within machinery.

Mitigation Measures include the installation of environmental management controls prior to the commencement of works. Specific mitigation measures to address potential impacts from chemicals and hazardous substances should incorporate the following:

- The material safety data sheets (MSDS) for each chemical are to be kept on site at all times.
- Fuel and chemicals are to be secured within the *Subject Site* compound or vehicles.
- A suitable chemical spill kit is to be always available on site during working hours. Spill kits should be stored on site or in a vehicle and their location and instructions on usage are to be made clear to all workers. If the spill kit is to remain within a vehicle then that vehicle is not to leave the works area whilst machines or hazardous chemicals are on site.

3.8 Traffic Generation and Management

Bateau Bay Rd is the main road along the coastal strip, and potential diversion may not be possible to enable access to all areas. The *Subject Site* is in a medium to high traffic and pedestrian area and as such a traffic management and pedestrian diversion plan will be required if works are blocking the road or the walking tracks.

3.9 European Heritage

Searches of the State Heritage Inventory for items listed near Blue Lagoon (<https://www.hms.heritage.nsw.gov.au/App/Item/SearchHeritageItems? ga=2.165972984.714120821.165811792>)

[0-344545924.1656901875](#)) were undertaken on 14/11/2024 however there were no heritage listed items (Figure 3-4).

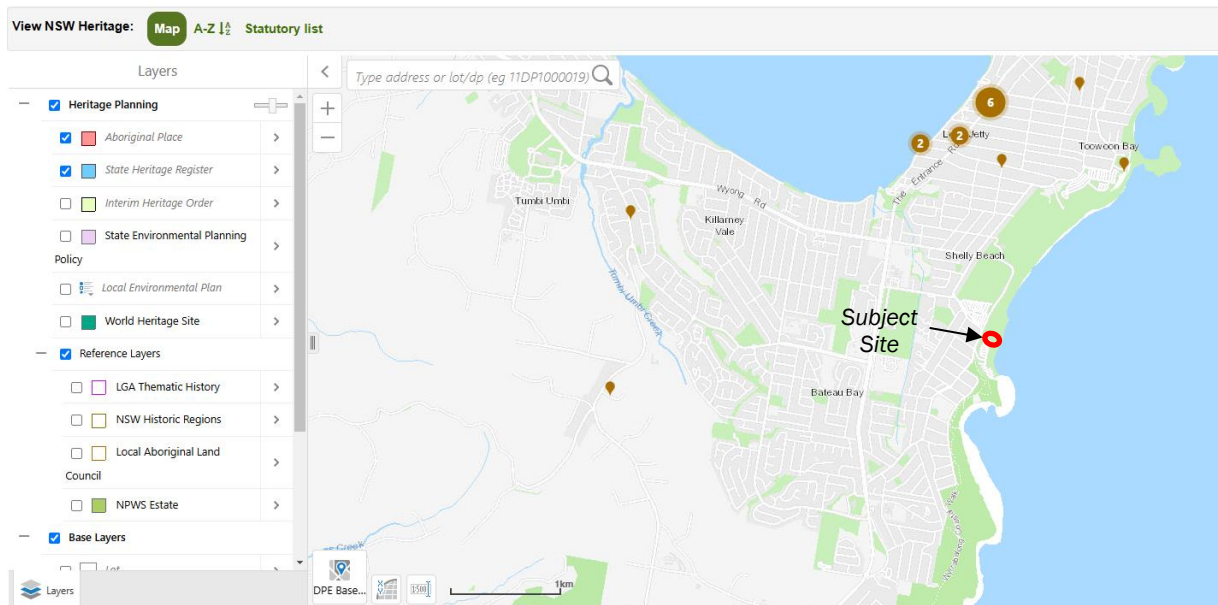


Figure 3-4. State Heritage Inventory Search

3.10 Aboriginal Heritage

Following an extensive search of Aboriginal Heritage and Information Management System (AHIMS) on 14/11/24, seven Aboriginal sites were recorded in close proximity to the *Subject Site* (Figure 3-5; Table 3-1).

All records were valid and open sites.

Table 3-1. Results of AHIMS extensive search

Site ID	Site name	Datum	Zone	Easting	Northing	Site features	Site types
45-3-2251	Blue Lagoon Resort	AGD	56	359090	6305230	Shell : -, Artefact : -	Midden
45-3-0591	Upright Point	AGD	56	359044	6305474	Shell : -, Artefact : -	Midden
45-3-0592	Upright-Point	AGD	56	359055	6305383	Shell : -, Artefact : -	Midden
45-3-0594	Upright_Point	AGD	56	359109	6305200	Shell : -, Artefact : -	Midden
45-3-2252	Blue Lagoon Resort_2	AGD	56	358950	6305340	Shell : -, Artefact : -	Midden
45-3-2253	Blue Lagoon Resort_3	AGD	56	359080	6305300	Shell : -, Artefact : -	Midden
45-3-0593	Upright Point.	AGD	56	359109	6305200	Shell : -, Artefact : -	Midden

All known Aboriginal sites are outside of the *Subject Site* and would not be directly or indirectly impacted by the proposed works.

A representative from Darkinjung Local Aboriginal Land Council (DLALC) (Jacob Cain) did a walkover on part of the *Subject Site* with a council representative on 24/03/2023 (relating to a separate bush regeneration project). The walkover identified possible midden sites in Section 8 which covers the foredune area to the north of the *Subject Site* (Figure 3-6; Appendix B). The upper portion of the *Subject Site* was included in the walkover but was not identified as having potential Aboriginal sites, and the remainder of the *Subject Site* was not included in the walkover assessment. The DLALC representative requested that excavation or mulching (as part of that bush regeneration project) not be undertaken within the Section 8 area (foredune). The foredune of the *Subject Site* may therefore have a higher likelihood of works uncovering Aboriginal middens. As such, additional care is required in the lower section of the *Subject Site* during works.

Due Diligence Process

1. Will the activity disturb the ground surface or any culturally modified trees?

Yes, the works involve disturbance of the ground surface however there are no culturally modified trees within the *Area of Impact*.

2. are there any:

- a) relevant confirmed site records or other associated landscape feature information on AHIMS? and/or

There are no confirmed site records on AHIMS within the *Subject Site*. Seven Aboriginal sites have been identified to the south of the *Subject Site* (Figure 3.5).

- b) any other sources of information of which a person is already aware? and/or

A DLALC representative identified a potential partially covered midden in the foredune to the north of the *Subject Site* during a walkover as part of a separate bush regeneration project in that area. The *Subject Site* was not included in the walkover; however, this suggests that there is potential for covered middens to occur in the foredune of the *Subject Site*. Mitigation Measures have been included to ensure that Aboriginal sites are not disturbed as part of this project.

- c) landscape features that are likely to indicate presence of Aboriginal objects?

Yes. The *Subject Site* is within 200 m of water which is defined as a landscape feature.

3. Can harm to Aboriginal objects listed on AHIMS or identified by other sources of information and/or can the carrying out of the activity at the relevant landscape features be avoided?

This step only applies for activities on land that is not disturbed land or contains known Aboriginal objects.

The entire *Subject Site* shows evidence of previous disturbance through past clearing of vegetation, potential filling and or leveling the parkland area, and subsequent regrowth of Bitou Bush in disturbed areas. The *Area of Impact* has been previously disturbed for the installation of the original staircases, including minor excavation works to install the uprights. As there are no records of Aboriginal objects or place within the *Subject Site* and there has been considerable disturbance within the *Subject Site*, an AHIP is not required and the work can proceed with caution.

Mitigation measures include:

- Workers should be observant and keep a look out for surface shell, bone, rocks or any other Aboriginal Cultural Heritage material.
- Clearing of vegetation on the foredune in the location of the lower staircase is to be undertaken by hand (not an excavator).
- If Aboriginal Cultural Heritage sites or material including bones are discovered, work should cease. The area should then be avoided and the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) and the DLALC should be notified immediately

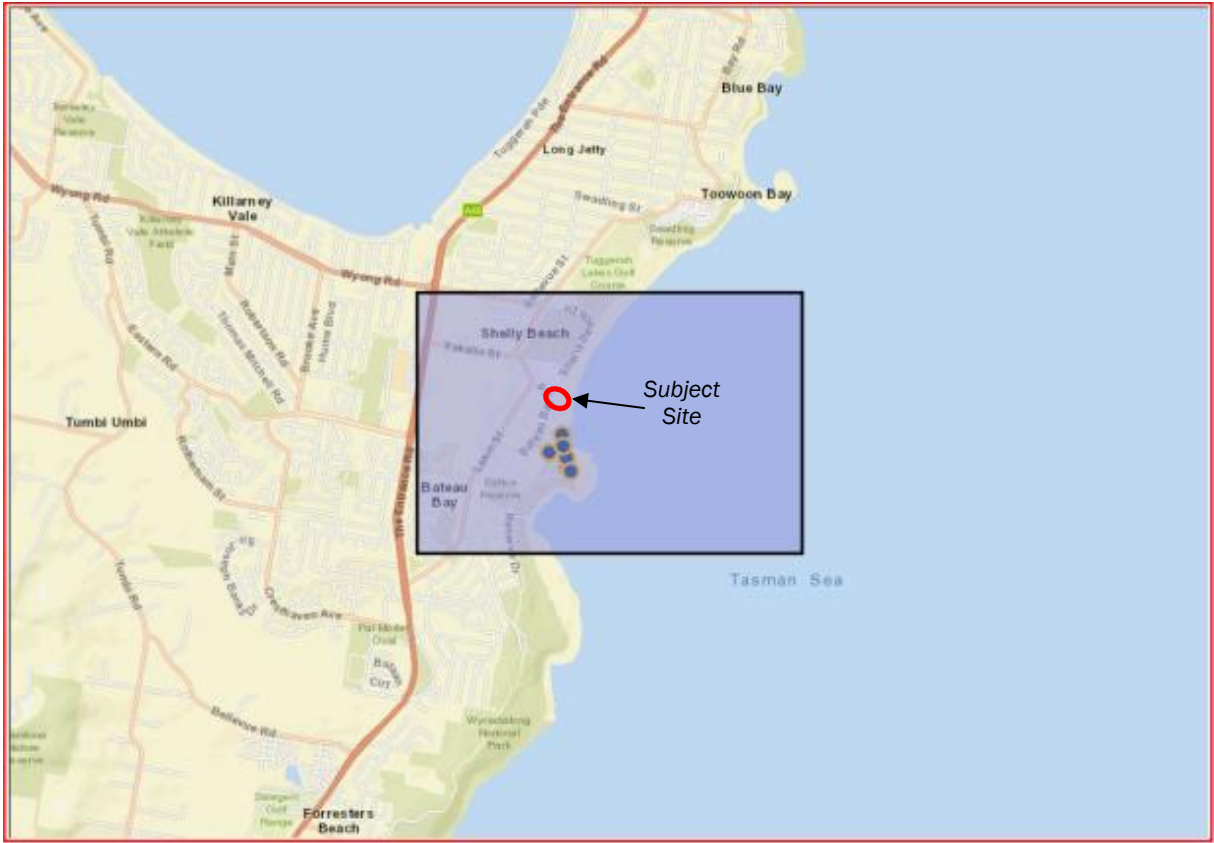


Figure 3-5. Results of AHIMS Basic Map Search



- Legend**
- DLALC investigation area 24/03/23
 - Subject Site
 - Area of Impact
 - AHIMS Extensive Search Results

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

3.11 Visual Management

Temporary visual impacts will include machinery, barricading, workers, vehicles and equipment necessary to complete the works.

The proposed staircases would be sited in approximately the same location as the original staircases and would be designed and scaled in keeping with the character and needs of the area. As such, the proposal would not significantly alter the existing amenity of the *Subject Site*.

3.12 Public Access and Safety

Access to the *Subject Site* will be temporarily restricted during works for public safety. Following the completion of works, access to the beach front would be restored.

3.13 Socio Economic Impact

The proposed activity may result in short term negative social impacts during works from an increase in noise and vehicle/worker activity.

Positive benefits following the completion of works include improved safety and reinstated beach access for pedestrians.

3.14 Future Landuse

The landuse would remain the same as existing, following completion of works.

3.15 Ecologically Sustainable Development and Sustainability

Australia's *National Strategy for Ecologically Sustainable Development (1992)* defines ecologically sustainable development as: 'using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased'.

The proposed works are to remediate existing staircases which provide beach access for the public.

The sustainability outcomes for this project are summarized in Table 3-2 below.

Table 3-2. Summary of Project sustainability Outcomes

Sustainability Element	Component	Expected Outcome
Economic	Work Force	Local employment opportunities
Environmental	Removal of vegetation, mainly exotic Bitou Bush.	Revegetation and bush regeneration within the <i>Area of Impact</i> .
Social	Installation of two staircases	Reinstate access to the beach front for members of the public.

4.0 Environmental Factors Considered

4.1 Clause 228(2) Factors (NSW Legislation)

The Environmental Planning and Assessment Regulation (2000) include factors to be taken into account when consideration is being given to the likely impact of an activity on the environment. Consideration of each of the Clause 228 factors is included in Table 4-1.

The impacts are qualified as:

- Positive: The overall effect on the environment is beneficial;
- Non-Significant Impact: There is likely to be some detrimental impact on the environment;
- Significant Impact: The impacts are significant and cannot be adequately mitigated;
- Neutral: The overall effect on the environment is neither beneficial nor detrimental;
- Not Applicable: The factor cannot be applied in any way in any aspect of the activity.

Table 4-1. Environmental Factors for Consideration

Clause 228 factors
a. Any environmental impact on the community?
<p>Comments: Following desktop analysis, habitat assessment and field surveys, the following six threatened species were assumed to be present:</p> <ol style="list-style-type: none"> 1. Eastern False Pipistrelle <i>Falsistrellus tasmaniensis</i> (V BC Act) 2. Eastern Coastal Free tailed Bat <i>Micronomus norfolkensis</i> (V BC Act) 3. Little Bentwing-bat <i>Miniopterus australis</i> (V BC Act) 4. Large Bentwing-bat <i>Miniopterus orianae oceanensis</i> (V BC Act) 5. Greater Broad-nosed Bat <i>Scoteanax rueppellii</i> (V BC Act) 6. Grey-headed Flying-fox <i>Pteropus poliocephalus</i> (V BC Act, V EPBC Act). <p>The proposal would impact 89 m² of native vegetation in moderate condition and 245 m² of highly disturbed vegetation dominated by Boneseed <i>Chrysanthemoides monilifera</i>.</p> <p>No threatened ecological communities (TECs) occur within the <i>Subject Site</i>.</p> <p>Assessment under the BC Act determined that the <i>Subject Site</i> does not contain important nesting or roosting habitat for threatened species previously recorded on BioNet in the broader locality, and while the proposal would result in the loss of potential foraging habitat, it is unlikely to have a significant impact on a local population of threatened species such that it places a species at risk of extinction. As the <i>Subject Site</i> is on the edge of an already fragmented landscape, the proposal is unlikely to contribute further to fragmentation and isolation of habitat. As such, a BDAR is not required.</p> <p>However, the proposal may result in an increase in exotic invasion by Bitou Bush <i>Chrysanthemoides monilifera</i>, which is listed as a key threatening process (KTP) under the BC Act. Mitigation measures have been included to assist with the control of this exotic species.</p>
Non-Significant Impact
b. Any transformation of a locality?
<p>Comments: The proposed works will result in minor removal of native vegetation, and removal of exotic vegetation along with revegetation using native species. The proposed staircases would replace dilapidated, unsafe staircases and would be designed and scaled to fit in with the existing character and needs of the area.</p>
Non-Significant Impact
c. Any environmental impact on the ecosystems of the locality?
<p>Comments: An ecosystem consists of a biological community together with its abiotic environment, interacting as a system. The proposed works will impact a relatively small area of native vegetation, would have the potential to impact water quality at Blue Lagoon. In addition to the presence of spill kits on site, appropriate erosion and sediment control would be installed prior to the commencement of works and stabilisation of disturbed surfaces will be undertaken using revegetation and coir logs (and/or sand dune biodegradable erosion mats).</p>
Non-Significant Impact
d. Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality?
<p>Comments: The proposal would improve the aesthetic and recreational quality of the <i>Subject Site</i> by removing dilapidated staircases and providing access to the parkland area and the beach front. The <i>Subject Site</i> has not been identified as having scientific or other environmental qualities.</p>
Positive
e. Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations?
<p>Comments: Archaeological due diligence assessment indicated that there is low likelihood of impact on Aboriginal cultural material. Cultural impacts are considered unlikely as no Aboriginal objects have previously been identified on the <i>Subject Site</i> and the <i>Subject Site</i> has been previously disturbed.</p> <p>There are no historical buildings on or near the <i>Subject Site</i>.</p>

Clause 228 factors
Neutral
f. Any impact on the habitat of any protected fauna (within the meaning of the National Parks and Wildlife Act, 1974)?
<p>Comments: The proposed works require the removal of 42 m² of potential foraging habitat for six fauna species:</p> <ol style="list-style-type: none"> 1. Eastern False Pipistrelle <i>Falsistrellus tasmaniensis</i> (V BC Act) 2. Eastern Coastal Free tailed Bat <i>Micronomus norfolkensis</i> (V BC Act) 3. Little Bentwing-bat <i>Miniopterus australis</i> (V BC Act) 4. Large Bentwing-bat <i>Miniopterus orianae oceanensis</i> (V BC Act) 5. Greater Broad-nosed Bat <i>Scoteanax rueppellii</i> (V BC Act) 6. Grey-headed Flying-fox <i>Pteropus poliocephalus</i> (V BC Act, V EPBC Act). <p>The proposal does not, however, impact important habitat features such as hollow bearing trees or caves.</p>
Non-Significant Impact
g. Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air?
<p>Comments: The proposal would not endanger any of the threatened fauna species identified as likely to utilise the <i>Subject Site</i>, as the proposal requires relatively minor impacts to the habitat and the <i>Area of Impact</i> lacks important habitat features for these species.</p>
Non-Significant Impact
h. Any long-term effects on the environment?
<p>Comments: No long-term impacts on the environment have been identified in this REF.</p>
Non-Significant Impact
i. Any degradation of the quality of the environment?
<p>Comments: There will be short term negative impacts such as vegetation clearing and soil exposure however mitigation measures have been included to minimize impacts from the works during construction, and restoration measures have been included for post construction.</p>
Non-Significant Impact
j. Any risk to the safety of the environment?
<p>Comments: The safety will be improved for members of the public wishing to access the beach front in this area.</p>
Positive
k. Any reduction in the range of beneficial uses of the environment?
<p>Comments: There is unlikely to be a reduction in the range of beneficial uses.</p>
Neutral
l. Any pollution of the environment?
<p>Comments: The Proposal is unlikely to result in any long-term pollution of the environment. As discussed in point a), emergency spill kits will be kept on the <i>Subject Site</i> at all times in the event of a fuel or fluid leak from machinery. Appropriate erosion and sediment control measures will also be installed prior to works and maintained for the duration of works. Disturbed soils will be stabilized as soon as possible.</p>
Non-Significant Impact
m. Any environmental problems associated with the disposal of waste?
<p>Comments: Any native vegetation would be mulched on site and used in soil stabilization and landscape works. Exotic mulch would be disposed of at a licensed waste disposal facility. The existing timber staircase would be recycled or disposed of at a licensed waste disposal facility.</p>

Clause 228 factors
Non-Significant Impact
n. Any increased demands on resources, natural or otherwise, which are, or are likely to become in short supply?
Comments: The proposed works require materials which are not currently in short supply.
Non-Significant Impact
o. Any cumulative environmental effect with other existing or likely future activities?
Comments: Clearing of native vegetation for road works and other development within the Central Coast constitutes a cumulative environmental effect. The cumulative impacts of 'minor' clearing is slowly reducing the foraging and nesting opportunities for a range of fauna. The proposal is contributing to the cumulative environmental effects associated with clearing of native vegetation.
Non-Significant Impact
p. Any impact on coastal processes and coastal hazards, including those under projected climate change conditions
Comments: The presence of a staircase on the lower foredune may exacerbate coastal erosion particularly during east coast low pressure systems. However, these events are infrequent, and the <i>Subject Site</i> has partial protection from waves by the rock platform in front.
Non-Significant Impact

4.2 Matters of National Environmental Significance

The impact of the proposal on MNES requires consideration in accordance with the EPBC Act. A search of the EPBC Protected Matters Search Tool (PMST) was completed for a 10 x 10 km area on 06/11/24. A summary of results from database searches are provided in Table 4-2.

No threatened ecological communities (TECs) or nationally important wetlands occur within the *Subject Site*, and it is not within the catchment of a nationally important wetland identified on the PMST (i.e. Tuggerah Lake or Wamberal Lagoon). One threatened species, Grey-headed Flying Fox listed as vulnerable under the EPBC Act, has potential foraging habitat within the *Subject Site*. However, the *Subject Site* does not support an "important" population of this species as it does not have a roost camp and therefore does not support a key source population for breeding and dispersal, a population necessary for maintaining genetic diversity or a population near the limit of this species range. As such, no further assessment is required and the proposal does not require referral to the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW).

No other threatened or migratory species were considered to have a moderate or above likelihood of occurring on the *Subject Site* (Appendix A).

Table 4-2. Summary of Matters of National Environmental Significance

MNES	Within 10 km radius
World Heritage Properties	None
National Heritage Places	None
Wetlands of International Importance	None
Nationally Important Wetlands	Two nationally important wetlands: <ol style="list-style-type: none"> 1. Wamberal Lagoon 2. Tuggerah Lake
Great Barrier Reef Marine Park	None
Commonwealth Marine Area	None
Listed Threatened Ecological Communities (TEC's)	4 TECS: <ol style="list-style-type: none"> 1. Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland (E) 2. Subtropical and Temperate Coastal Saltmarsh (V) 3. Coastal Swamp Oak (<i>Casuarina glauca</i>) Forest of New South Wales and South East Queensland Ecological Community (E) 4. River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria (CE).
Listed Threatened Species	102 (refer Annexure B)
Listed Migratory Species	73 (refer Annexure B)

5.0 Summary of Mitigation Measures/Recommendations

Environmental Factor	Mitigation Measures/Recommendations
Air Quality	<ul style="list-style-type: none"> Following works, any exposed soils/sand dune will be stabilized as soon as possible.
Water Quality	<ul style="list-style-type: none"> Appropriate erosion and sediment control measures in accordance with the Blue Book (Landcom, 2004) are to be implemented prior to construction. Control measures are to be maintained for the duration of works, with regular inspections to ensure they are achieving their purpose. Rapid stabilisation of exposed soil using revegetation and coir logs (and/or sand dune biodegradable erosion mats) to stabilize the slope and prevent excess runoff Provision of suitable “Chemical Spill Kits” for the work site.
Soils	<ul style="list-style-type: none"> Soils will be stabilised as soon as possible Council should seek advice from geotechnical and coastal engineers during the design phase to ensure that the proposed design is suitable for the existing soils and wave/tidal environment. If any excavation is likely to impact adjoining watertables, soil testing for contaminants and ASS prior to the commencement of works is required. Material classification is to identify the potential for ASS. If PASS or ASS is present, an ASS PoM is required..
Noise and Vibration	<ul style="list-style-type: none"> Working hours are restricted to Monday to Friday between 7.00am and 6.00pm and Saturday 8.00am to 1.00pm with no work undertaken on Sundays or public holidays.
Biodiversity (Flora and Fauna)	<ul style="list-style-type: none"> Installation of fencing clearing marking ‘No Go Zones’, excluding access to native vegetation outside of the <i>Area of Impact</i>. Efforts are to be made to retain any native trees within the <i>Area of Impact</i>. This may include using sensitive works methodologies around the root zone of trees. Laydown areas and stockpiling are to be limited to cleared areas away from retained trees and away from native vegetation Efforts are to be made to reduce the spread (and current extent) of Bitou Bush <i>Chrysanthemoides monilifera subsp. rotundata</i> which is listed as a KTP under the BC Act. To facilitate Bitou Bush management, bush regeneration is required within a clearing area of 5 meters either side of the completed staircase. All weeds within this buffer area are to be removed and the area immediately revegetated. <p>The following number and species of native plants are to be used in revegetation on completion of works:</p> <ul style="list-style-type: none"> Either side of the installed lower staircase and in the location of existing staircase (once removed): <ul style="list-style-type: none"> 30 x Coastal Wattle <i>Acacia longifolia subsp. sophorae</i> 6 x Tuckeroo <i>Cupaniopsis anacardioides</i> 14 x Coast Banksia <i>Banksia integrifolia</i> 60 x Spiny-headed Mat-rush <i>Lomandra longifolia</i> Either side of the lower staircase: <ul style="list-style-type: none"> 12 x Coastal Wattle <i>Acacia longifolia subsp. sophorae</i> 2 x Tuckeroo <i>Cupaniopsis anacardioides</i> 4 x Coast Banksia <i>Banksia integrifolia</i> 24 x Spiny-headed Mat-rush <i>Lomandra longifolia</i>. Coir logs (and/or sand dune biodegradable erosion mats) and planting using Spiny-headed Mat-rush <i>Lomandra longifolia</i> is required under the staircases to stabilize sand. Plants are to be installed in spring or autumn. Plants are to be watered as required to prevent drying out for a period of 6 weeks or until plants have established. The use of clean, weed free mulch. Any native vegetation would be mulched on site and used in soil stabilization and landscape works.

Environmental Factor	Mitigation Measures/Recommendations
	<p>Exotic mulch would be disposed of at a licensed waste disposal facility. The existing timber staircase would be recycled or disposed of at a licensed waste disposal facility</p> <ul style="list-style-type: none"> ○ Coir logs (and/or sand dune biodegradable erosion mats) are to be installed at 2-meter intervals on both staircase slopes to assist in erosion control while plants establish. ○ Any mortality of planted trees within two years of planting are to be re-instated. ○ Bi-annual bush regeneration to manage the spread of exotic species and replace any dead plants is to be undertaken for a minimum of 2 years (total of 64 hours of bush regeneration over two years). ○ Efforts should be made to eradicate Bindyi's <i>Soliva sessilis</i> from the grassy public space. <ul style="list-style-type: none"> ● Appropriate erosion and sediment control measures in accordance with the Blue Book (Landcom, 2004) are to be installed around the <i>Area of Impact</i>, to prevent erosion of the steep sand banks and to protect water quality in receiving waterways. This includes the installation of coir logs (and/or sand dune biodegradable erosion mats). ● Contractors are to be made aware of the possibly of microbats occurring under bark of trees. Any trees requiring removal are to be firmly tapped three times by the excavator, prior to felling. ● Works are to move from the edge towards areas of retained bushland, to encourage fauna to move to retained bushland. ● Any injured fauna is to be handled by a qualified wild-life handler and taken to the nearest vet (if required) at a cost to Council. ● Due to the potential high erosion pressures of wave, wind and tidal action on the <i>Subject Site</i>, particularly in the location of the lower staircase to be replaced, the excavation area is to be kept to a minimum and works in this area are to be timed to avoid heavy rainfall, large swells or king tides. Erosion and sediment control measures are to be maintained around the works area for the duration of works and excavated areas are to be re-instated with vegetation and coir logs (and/or sand dune biodegradable erosion mats) as soon as possible following completion of works.
Chemical & Hazardous Substance Management	<ul style="list-style-type: none"> ● Fuel and chemicals are to be secured within the designated compound or vehicle. ● A suitable chemical spill kit is to be available on site at all times during working hours. Spill kits should be stored within the works compound and its location and instructions on usage are to be made clear to all workers.
Traffic Generation & Management	<ul style="list-style-type: none"> ● Prepare a pedestrian diversion plan to maintain pedestrian access along the existing coastal walking track. ● If traffic is to be blocked, prepare a traffic management/diversion plan. ● Any traffic management and pedestrian diversions are to be implemented in accordance relevant legislation.
Aboriginal & Non-Indigenous Heritage	<ul style="list-style-type: none"> ● Workers should be observant and keep a look out for surface shell, bone, rocks or any other Aboriginal Cultural Heritage material. ● Clearing of vegetation on the foredune in the location of the lower staircase is to be undertaken by hand (not an excavator). ● If Aboriginal Cultural Heritage sites or material including bones are discovered, work should cease. The area should then be avoided and the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) and the DLALC should be notified immediately.
Visual Impacts	<ul style="list-style-type: none"> ● Revegetate cleared areas using appropriate native species. ● Site the proposed staircase in approximately the same location as the existing/previous staircase.

Environmental Factor	Mitigation Measures/Recommendations
	<ul style="list-style-type: none"> Keep design and scale consistent with surrounding character and needs of the area.
Public Access & Safety	<ul style="list-style-type: none"> Provision of signage notifying the public of the works. Council will be responsible for adequate safety precautions during progress of the works, in accordance with the relevant legislation, regulations, standards and codes of practice. This includes but is not limited to the safety of the public, employees and contractor personnel.
Socio-Economic Impact	<ul style="list-style-type: none"> Provision of information to nearby residents and property owners regarding the nature of the works and the expected timeframe. Working hours are to be restricted in accordance with Civil works Design Guidelines, to between 7am and 6pm Monday to Friday and 8am to 1pm Saturday with no works to be undertaken on Sundays or Saturdays without prior approval from the principal. Works are to be undertaken outside of school holidays and in the winter months. Where possible, local contractors should be engaged to supply and undertake works.
Ecologically Sustainable Development	<ul style="list-style-type: none"> Re-vegetation of the <i>Subject Site</i> following completion of works would result in no long-term impacts to the environment.
Coastal Management	<ul style="list-style-type: none"> Council should seek advice from geotechnical and coastal engineers during the design phase to ensure that the proposed design is suitable for the existing soils and wave/tidal environment.

6.0 Conclusions

This REF has been prepared to review the potential environmental impacts of the proposed Blue Lagoon staircase installation. Investigations identified that areas of potential environmental impact are predominately related to the stabilising of the substrate as the sand dune is steep in parts and potential presence of middens under the surface. Mitigation Measures have been provided to reduce the risk to the environment for the duration of works.

This Review of Environmental Factors concludes that:

1. The impact of the proposed works will not be significant;
2. An Environmental Impact Statement is not required; and
3. Review of Environmental Factors is an adequate level of assessment for the proposed activity.

APPENDIX A. Biodiversity Assessment

APPENDIX B. Darkinjung Local Aboriginal Land Council Correspondence



Environmental Assessment Form – Level 2

 Local Aboriginal Land Council
DARKINJUNG
168 Pacific Highway Watanobbi NSW 2259
PO Box 401 Wyong NSW 2259
Phone (02) 4351 2930
Fax (02) 4351 2946
ABN 99 583 297 167
Email darkinjung@dlalc.org.au

26/04/2023 – Letter of Support

To whom it may concern,

On Monday the 24th of March 2023, being the Culture & Heritage Officer at Darkinjung Local Aboriginal Land Council, I undertook a walkover of the potential work zones at Shelly Beach, which John O'Keefe is hoping to mulch a good amount of bitou bush.

Coming up to section 8 of the work zone, I came across what seems to be a midden being uncovered, these are highly significant sites for us. I do not want the mulcher to be in this area at all and believe this section should be done fully by hand if possible or completely leave this small area with the upmost care and respect not to damage any Aboriginal Heritage, leaving any bitou bush or the likes behind if it is likely to damage any of the midden. I am happy with the works to proceed in the other areas as I did not uncover anything of significance, but as we saw in section 8 is very likely to be underneath the surface, so I am really wanting no excavation to be done anywhere over the whole project area at any time.

If at any time the Coast care team come across anything they are unsure of or think could be of Aboriginal Heritage, they must cease work immediately and contact myself for a site visit to confirm. No work is to be continued until a Darkinjung Representative has done a full site inspection, the representative will then make the team aware of next steps and/if they can continue the work.

If any works have been undertaken in section 8 that has affected the heritage site, Shelly Beach Coast Care Group will have to then apply for an AHIP. Darkinjung LALC will need to undertake another walk over the site after the works have been completed to ensure our requirements have been fully respected and met.

X 

Jacob Cain
Culture & Heritage Officer

www.darkinjung.com.au

www.facebook.com/darkinjung



Environmental Assessment Form – Level 2

