

**Review of Environmental Factors (REF)**  
**Decision Statement Report**

**Picnic Island Pole Replacement**

**24/09/2024**

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## 1. Introduction

Endeavour Energy is the proponent for the Picnic Island Pole Replacement project.

The proposed activity includes:

- Establishment of new poles locations at the northern side of the island.
- re-establishment of existing access track and establishment of new access track from the northern side of the island to the new poles locations.
- removal of existing cut down poles on Picnic Island
- establishment of a turning circle and laydown area to accommodate machinery around the new pole
- re-stringing and re-energisation of feeder 7381 across Picnic Island.

The project is required to mitigate the impact of coastal erosion on feeder 7381, maintain electrical supply and reliability for customers.

The proposed activity has been classed as Class 4 activity. In accordance with the *NSW Code of Practice for Authorised Network Operators* (DPE, 2015)(the Code), a Review of Environmental Factors (REF) must be prepared.

A REF was prepared by Endeavour Energy (August 2023) to assess the potential impacts of the proposed activity. The REF was prepared in accordance with Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), Section 171 of the *Environmental Planning and Assessment Regulation 2021* and the *NSW Code of Practice for Authorised Network Operators* (DPE, 2015) which is an approved Code under Section 198 of the *Environmental Planning and Assessment Regulation 2021*.

The REF will be published on the Endeavour Energy website as required by the Code. Consultation for the REF was carried out as detailed in the REF and as summarised in Section 0 of this Decision Statement. Comments/submissions received on the REF are included in Appendix D of the REF.

To allow the proposed activity to proceed, Endeavour Energy must make a self-determination of the REF in accordance with Part 5 of the *EP&A Act*. The NSW Government has prescribed Endeavour Energy, an Authorised Network Operator, as a prescribed determining authority for the purpose of the *Environmental Planning and Assessment Act 1979*.

The objectives of this Decision Statement are to:

- Assess the environmental impacts of the proposed activity and determine the significance of those impacts
- Document consultation with agencies and the public
- Explain clearly why the key conclusions in the REF were or were not accepted
- Document the authorised person's engagement with the REF
- Make a determination of the proposed activity, or make a decision that there is insufficient information to discharge the duty under section 5.5 of the *EP&A Act*.

## 2. Description of Proposed Activity

Plant and equipment will be transported by barge from Berkeley Boat Harbour, located off Northcliffe Drive, Berkeley, to the eastern side of Picnic Island, via Lake Illawarra, an approximately 7 km journey. The barge will land on Picnic Island's north shore for around 30 minutes at a time, approximately four times per day whilst plant and equipment are being transported to and from Picnic Island.

Feeder 7381 supplies power to residents and businesses in the Warilla and Lake Illawarra area. The feeder traverses Picnic Island with two H structures - one on the northern side of the island (prior to being cut own), the other on the southern side of the island. The H structure comprising poles 878259 and 878260 within alignment 7181, on the southern side of the island, is currently in good condition; however, access is required for maintenance and alignment re-stringing as a result of cutting down, replacing and relocating poles 212269 and 212270. To enable access to poles 878259 and 878260, an existing overgrown access path will be re-established in the area.

An access path approximately 27 m long and 4 m wide will be established from the northern bank of Picnic Island to the new pole area. Additionally, a turning circle and construction laydown area to accommodate turning of necessary equipment will be established near the new pole location.

Access paths, turning circle, and the construction laydown area will be cleared with handheld equipment, down to ankle height, resulting in the removal of 0.14 ha of native vegetation. Vegetation displaced by path re-establishment will be left on Picnic Island to enrich habitat and soil. The project site will be cleaned up and restored by Soil Conservation upon project completion.

### 3. Consultation

Consultation for the proposed activity was undertaken in accordance with Endeavour Energy's *Consultation Protocol* and legislative requirements.

A summary of the consultation undertaken with the general public and Government agencies is provided below. Full details of all consultation undertaken for the proposed activity are included in the REF and Appendix D of the REF.

During preparation of the REF, the following consultation tasks were undertaken:

- Stakeholders were notified by letter on 6 April 2023 to advised them of the proposed activity and the REF. The letter included details on how to make a comment/submission on the proposed activity. A phone number and email address were provided in the letter and on the website to enable all stakeholders to contact Endeavour Energy to find out more information.
- Council notification was provided by letter on 12 April 2023 to Shellharbour City Council. A notification was also sent to the local member of parliament and Shellharbour Ward B Councillors on 14 April 2023.
- Sydney Water and Transport for NSW were both notified by email on 14 April 2023.
- Various consultations were had with relevant Aboriginal stakeholders and registered aboriginal parties (RAP) as part of the Aboriginal Cultural Heritage Assessment Appendix A of the REF.

The REF will be published on the Endeavour Energy website as required by the [Code](#).

No submissions received on the REF, notifications provided are included in Appendix D of the REF.

No submissions were from the community and Government agencies. No objections to the proposed activity were raised by Government agencies that responded.

Endeavour Energy have addressed all issues raised in the comments/submissions and detailed how they have been considered and taken into account.

## 4. Consideration of Environmental Impacts

The REF details the proposed activity, assesses the potential impacts of the proposed activity on the environment and provides management measures to avoid, minimise, manage and/or offset those impacts.

The main issues raised in the REF and the submissions related to:

- Aboriginal heritage
- Biodiversity
- Water, soils and aquatic ecology
- Noise

**Aboriginal heritage** – An Aboriginal Cultural Heritage Assessment Report (ACHAR) was prepared for the project by Biosis (2023) (refer Appendix A of the REF). The assessment was prepared in accordance with Part 5 of the EP&A Act. The ACHAR details the investigation, consultation and assessment of Aboriginal cultural heritage within the study area.

The ACHAR concluded that ground disturbing works associated with the installation of new twin electrical poles and dismantling of the current electrical poles will impact AHIMS 52-2-0119/Picnic Island Midden. An Aboriginal Heritage Impact Permit (AHIP), continued consultation with the registered Aboriginal stakeholders and long-term care and control agreement for any Aboriginal objects collected under the AHIP were identified as controls to be implemented for the project.

**Biodiversity** – A Flora and Fauna Assessment (FFA) for the project was prepared by Biosis (Biosis 2023a) in order to assess whether the project area may support any native vegetation, threatened species, populations and communities listed under the BC Act and/or EPBC Act (refer Appendix B of the REF).

- **Flora** – The project will result in a direct disturbance of 0.14 ha of native vegetation, being PCT 1234 Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion, and 1236 Swamp Paperbark – Swamp Oak tall shrubland on estuarine flats, Sydney Basin Bioregion and South East Corner Bioregion.

Indirect impacts may include:

- disturbance to fauna due to noise and dust emissions
- spread of weed species (if mitigation measures are not followed).

A Significant Impact Criteria was completed for an EEC and a flora species subject to assessment under the EPBC Act within the study area, a summary of which can be found in Table 1 below. A Tests of Significance (ToS) was also completed for two entities occurring within the study area which are subject to assessment under the BC Act. The ToS result concluded that the proposed works are unlikely to significantly impact the flora species and a species impact statement was not required. Full test SIC and ToS results can be found in Appendix B of the REF.

Table 1 - Significant Impact Criteria (EPBC Act)

EEC or species tested	SIC Result
Coastal Swamp Oak ( <i>Casuarina glauca</i> ) Forest of New South Wales and South East Queens land ecological community (EEC)	Impacts are relatively localised and the proposed works are unlikely to result in a significant reduction of the extent of the EEC. Coastal Swamp Oak Forest is unlikely to be significantly impacted by the proposed works.
White flowered Wax Plant <i>Cynanchum elegans</i>	There are several recorded White-flowered Wax Plants within 5 km of the study area, and the local area supports habitat for the species. The proposed works are unlikely to lead to a significant impact on White-flowered Wax Plant

- Fauna - The White-bellied Sea Eagle *Haliaeetus leucogaster*, and the Eastern Osprey *Pandion cristatus*, are listed as vulnerable species under the BC Act. Both have been observed within 5 km of the study area, though not during field survey, and are associated with all the PCTs observed on Picnic Island. The project will result in removal of potential habitat and are therefore subject to assessment under the BC Act through a Test of Significance. ToS results can be found in Table 2 below. Full results can be found in Appendix B of the REF.

Table 2 - Test of Significance - fauna (BC Act)

Species	Test of Significance result
White-bellied Sea Eagle	The proposed works will not significantly impact the White-bellied Sea Eagle. Application of the BOS or preparation of an SIS is not required.
Eastern Osprey	It is unlikely the proposed works will impose a significant impact on threatened shorebirds.

**Water, soils and aquatic ecology** – A technical memorandum was commissioned as part of the project (GHD 2022) to summarise the reviews undertaken on the erosion issue of the Picnic Island shoreline. The greatest erosion risks are expected during delivery and pick up of plant and equipment via barge on the north-eastern side of Picnic Island and when boring pole holes for pole relocation. Another risk is the storage and/or stockpiling of any excess spoil that may need to be disposed of following construction works, especially considering the likelihood of encountering acid sulphate soil (ASS). The project will involve the use of a barge to transport equipment onto Picnic Island, which may result in localised turbidity impacts and may impact on the FM listed aquatic ecological community Ribbonweed *Zostera*. Accordingly, a permit under the FM Act will be required.

**Noise** – Given the works will be contained within Picnic Island, over a short duration, aside from two helicopter transport occurrences, it is anticipated that construction noise should not greatly disturb many residential, commercial, and industrial premises. With the exception of residences along Reddall Parade, which will only experience light vehicle movements associated with construction personnel, the nearest sensitive receivers are residential dwellings located across the estuary and dwellings across the road from Cec Glenholmes Oval. These receivers may be temporarily affected by the noise from project works. The noisiest activity within Picnic Island, pole hole boring, only takes around two hours per hole, totalling around four hours. Transporting poles by helicopter is also a noisy activity, however, will only last approximately two hours per day for four days. Hence, noise impacts will be minimal.

The REF addresses the requirements of Section 5.5 of the *EP&A Act* by considering to the fullest extent possible, all matters affecting or likely to affect the environment from the proposed activity. The REF also considers factors prescribed under Section 171 of the *Environmental Planning and Assessment Regulation 2021*.

The REF assesses and considers the likely significance of the environmental impacts of the proposed activity under Section 5.7 of the *EP&A Act*.

The REF also considers the requirements of the *Commonwealth Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) and assesses all matters of National Environmental Significance (NES) and any impacts on Commonwealth land.

## 5. Conclusion

The REF concludes that the proposed activity not likely to significantly affect the environment or threatened species, populations or ecological communities, or their habitats.

The REF also considers that the proposed activity is not likely to have a significant impact on matters of National Environmental Significance (NES) or Commonwealth land, and therefore does not require a referral under the Commonwealth EPBC Act.

With consideration of the environmental impacts detailed in the REF, the key conclusions are accepted for the following reasons:

- The REF has been prepared by persons appropriately trained to consider and assess the impacts of the proposed activity
- It is considered that the REF provides a true and fair review of the proposed activity in relation to its potential effects on the environment
- The REF is comprehensive and examines and takes into account, to the fullest extent possible, all matters affecting or likely to affect the environment as a result of the proposed activity.



## 6. Determination

I, FAITH IJEYAN, as an authorised person on behalf of Endeavour Energy, have examined and considered the REF for the PICNIC ISLAND POLE REPLACEMENT in accordance with Section 5.5 of the *EP&A Act*.

I have been provided a detailed briefing on the contents of the REF and consultation carried out for the proposed activity, and I have gained an understanding of the impacts of the proposed activity.

In accordance with the requirements of Section 2.5.1 of the Code, I am an appropriately authorised person and I am not the same person who conducted the assessment.

I determine, on behalf of Endeavour Energy, that:

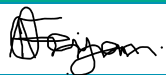
The proposed activity is not likely to significantly affect the environment, and is not likely to significantly affect threatened species, ecological communities or their habitats and is not to be carried out on land that is or is part of a declared area of outstanding biodiversity value. No Environmental Impact Statement (EIS) or Species Impact Statement (SIS) is therefore required in respect of the subject Activity. Further:

This is not a conditional decision and no further conditions are required (other than the mitigation measures stipulated in the REF)

This is a conditional decision and the conditions are attached to this Decision Statement below. The conditions are required for the following reasons.

The proposed activity is likely to significantly affect the environment and an EIS or SIS or both is required in respect of the subject Activity.

there is insufficient information contained in REF and a supplementary REF should be prepared.

Signature Panel for Authorised Person who has made the Determination	
<b>Signature</b>	
<b>Name in full</b>	Faith Ijeyan
<b>Role/Title</b>	Environmental Specialist
<b>Date</b>	24/09/2024

# **Picnic Island Pole Replacement Review of Environmental Factors**

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Prepared for Endeavour Energy

August 2023

# Picnic Island Pole Replacement

## Review of Environmental Factors

Endeavour Energy

E220571

August 2023

Version	Date	Prepared by	Reviewed by	Comments
V1	04/08/2023	Sheri Thomson	Janet Krick	Draft
V2	31/08/2023	Sheri Thomson	Janet Krick	Final. Addressed EE comments
V3	19/09/2024	Sheri Thomson		Minor word changes for finalisation

Approved by



**Janet Krick**

Associate

31 August 2023

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This report has been prepared in accordance with the brief provided by Endeavour Energy and, in its preparation, EMM has relied upon the information collected at the times and under the conditions specified in this report. All findings, conclusions or recommendations contained in this report are based on those aforementioned circumstances. The contents of this report are private and confidential. This report is only for Endeavour Energy's use in accordance with its agreement with EMM and is not to be relied on by or made available to any other party without EMM's prior written consent. Except as permitted by the *Copyright Act 1968* (Cth) and only to the extent incapable of exclusion, any other use (including use or reproduction of this report for resale or other commercial purposes) is prohibited without EMM's prior written consent. Except where expressly agreed to by EMM in writing, and to the extent permitted by law, EMM will have no liability (and assumes no duty of care) to any person in relation to this document, other than to Endeavour Energy (and subject to the terms of EMM's agreement with Endeavour Energy).

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# Executive summary

Endeavour Energy (EE) proposes to replace and relocate a two-pole structure on Picnic Island due to the structure being cut down after erosion rendered it unsafe, leaning, and at risk of cascading failure. To access the pole structure, comprising poles 212269 and 212270, EE also proposes to re-establish an access track on Picnic Island, establish an access track from the northern side of Picnic Island to the works area, establish a turning circle and establish a laydown area to facilitate works. Together the proposed pole relocation, access tracks, turning circle and laydown area works will be referred to as ‘the project’.

EE is the Determining Authority for the project. The project is subject to the provisions of The Code of Practice (The Code) for Authorised Network Operators (ANO), State Environmental Planning Policy (Transport and Infrastructure) 2021 and requires assessment under Part 5 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

This Review of Environmental Factors (REF) has been supported by the following technical assessments:

- Aboriginal Cultural Heritage Assessment Report (Appendix A)
- Flora and Fauna Assessment (Appendix B).

This REF details the possible environmental impacts associated with the project and identifies mitigating measures to be incorporated into construction plans to minimise environmental impacts.

The main environmental risks associated with the project are around Aboriginal heritage, acid sulfate soils (ASS), and biodiversity. The project will result in unavoidable and direct disturbance to artefacts associated with a midden site (AHIMS 52-2-0119). An AHIP is required for test excavation in the pole relocation area. A further AHIP may need to be sought prior to the commencement of works based on the results of test excavation.

Picnic Island is mapped as containing class 2 and 2a acid sulfate soils. As the project involves excavation of pole holes, soil will need to be tested for acid sulfate levels prior to the commencement of works. Test results will inform ongoing management.

Up to 0.14 ha of native vegetation, consisting of Swamp Oak Floodplain Forest EEC (BC Act), including Coastal Swamp Oak Forest EEC (EPBC Act), will be removed but is considered unlikely to result in a significant impact.

A permit under the *Fisheries and Management Act 1994* (FM Act) is required as the project involves the use of a barge to transport equipment to Picnic Island and a community of Ribbonwood *Zostera*, which is protected under the FM Act, is mapped around Picnic Island.

Mitigation measures identified in Chapter 8 of this REF will be included in the Environmental Management Plan prepared for the project.

# Certification

## Certification

I certify that I have reviewed and endorsed the contents of this REF document, and to the best of my knowledge, it is in accordance with the EP&A Act, the EP&A Regulation and the Guidelines for Division 5.1 Assessments approved under clause 170 of the EP&A Regulation, and the information it contains is neither false nor misleading.

Prepared by	Reviewed by
<b>Name:</b> Sheri Thomson	<b>Name:</b> Janet Krick
<b>Title:</b> Environmental Scientist	<b>Title:</b> Associate Environmental Planner
<b>Company:</b> EMM Consulting	<b>Company:</b> EMM Consulting
<b>Date:</b> 31 August 2023	<b>Date:</b> 31 August 2023
<b>Signature:</b> 	<b>Signature:</b> 

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# List of abbreviations and glossary of terms

Term	Meaning
A	amp: the unit of measure for current (or load) which is the amount
AHIMS	Aboriginal Heritage Information Management System
ANO	Authorised Network Operator under the <i>Electricity Networks Assets (Authorised Transactions) Act 2015</i>
ASP	Accredited Service Provider
CEMP	Construction Environmental Management Plan
DCCEEW	Department of Climate Change, Energy, the Environment and Water
Determining Authority	Minister or public authority by or on whose behalf the activity is or is to be carried out or any Minister or public authority whose approval is required in order to enable the activity to be carried out.
DBYD	Dial Before You Dig
DC	Direct Current
DPE	Department of Planning and Environment
DM	Demand Management
EE	Endeavour Energy
EMP	Environmental Management Plan
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i> (NSW). Provides the legislative framework for land use planning and development assessment in NSW.
EP&A Regulations	Environmental Planning and Assessment Regulation 2021
EPA	Environment Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Commonwealth). Provides for the protection of the environment, especially matters of national environmental significance, and provides a national assessment and approvals process.
ES Act	<i>Electricity Supply Act 1995</i>
ESCP	Erosion and Sediment Control Plan
ESD	Ecologically sustainable development is development which uses, conserves and enhances the resources of the community so that ecological processes on which life depends, are maintained and the total quality of life, now and in the future, can be increased.
EWP	Elevation Work Platform
Feeder	A set of electric conductors that distribute electricity
HDD	Horizontal Directional Drilling
HV	High Voltage
Hz	Hertz
Joint bay	Concrete bay constructed in various locations along a feeder route which is used for jointing lengths of cable together

# List of abbreviations and glossary of terms

Term	Meaning
km	Kilometre
kV	Kilovolts
LEP	Local Environmental Plan: a type of EPI made under Part 3 of the EP&A Act.
LGA	Local Government Area
m	metre
MNES	Matter of National Environmental Significance
NP	National Park
NPW Act	<i>National Parks and Wildlife Act 1974</i>
NPWS	National Parks and Wildlife Service (OEH)
OH	Overhead
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
REF	Review of Environmental Factors
Road	Includes the airspace above the surface of the road, the soil beneath the surface of the road and any bridge, tunnel, causeway, road-ferry, ford or other work or structure forming part of the road. The road reserve is inclusive of the carriageway and the footpath.
SCADA	Supervisory Control and Data Acquisition
SEPP	State Environmental Planning Policy: a type of EIP made under Part 3 of the EP&A Act
SER	Summary Environmental Report
SIS	Species Impact Statement
The Code	The Code of Practice for Authorised Network Operators (ANO) designed to regulate the ANOs decision making process as to the appropriate level of environmental assessment required relative to the impacts of a proposed project.
TMP	Traffic Management Plan
UGOH	Underground to overhead construction- a structure which facilitates the transition of underground cabling to aerial (overhead) construction
V	volt: the unit of measure for voltage which is the pressure that electricity is pushed through the wire
ZS	Zone Substation

# 1 Introduction

## 1.1 Background

Endeavour Energy (EE) is a network electricity distributor operator servicing over 2.5 million people living and working across Sydney's Greater West, the Blue Mountains, the Southern Highlands, Illawarra and the South Coast of New South Wales (NSW).

EE is proposing the replacement and relocation of two power poles and supporting works on Picnic Island (the project) in Lake Illawarra, NSW. To facilitate the pole replacement and relocation, supporting works will be required, consisting of:

- the re-establishment of an access track on Picnic Island to enable power pole access
- the establishment of an access track from the northern side of Picnic Island to the new pole location
- removal of existing cut down poles on Picnic Island
- the establishment of a turning circle and laydown area to accommodate machinery around the new pole location re-stringing and re-energisation of line 7381 across Picnic Island.

The poles are to be relocated approximately 15 metres (m) south of their current position, along the existing alignment. The project is required to provide a safe power supply to the Shellharbour area, as the current de-energisation of the Picnic Island alignment is putting additional load stress on nearby alignments. The project is proposed to commence in November 2023, for a duration of four weeks.

EMM Consulting Pty Ltd (EMM) has been engaged by EE to prepare a Review of Environmental Factors (REF) for the project. The project is subject to the provisions of NSW Code of Practice (the Code) for Authorised Network Operators (ANO), State Environmental Planning Policy (Transport and Infrastructure) 2021 (Transport and Infrastructure SEPP) and requires assessment under Division 5.1, Section 5.5 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

The determining authority is EE under Section 5.5 of the EP&A Act for the project. In accordance with requirements under Section 5.5 of the EP&A Act, EE is also responsible for assessing all matters affecting or likely to affect the environment as a result of the proposal.

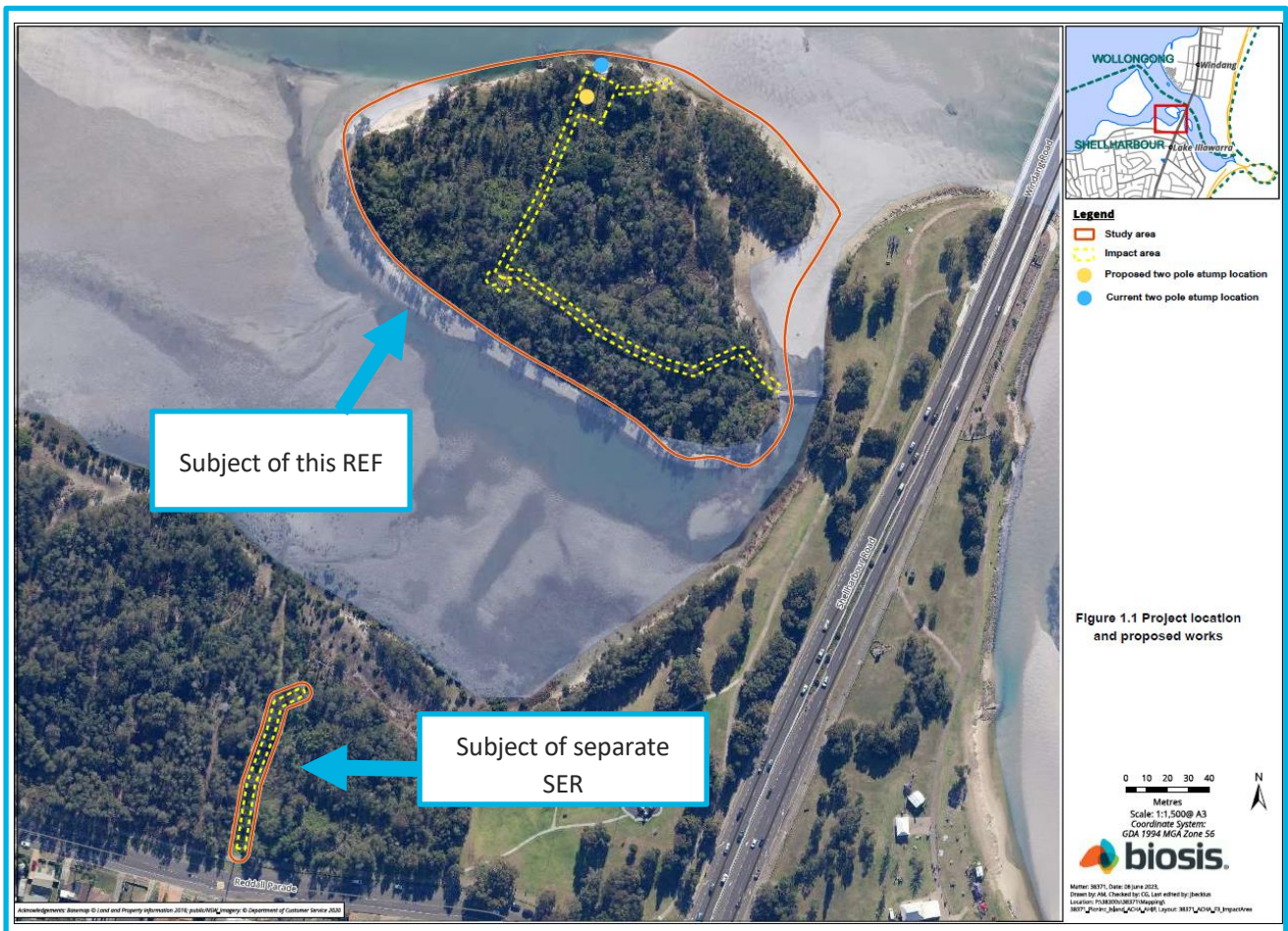
The REF has been developed in accordance with Section 171 of the NSW Environmental Planning and Assessment Regulation 2021 (EP&A Regulation), with consideration of measures that will be implemented to avoid or minimise the potential for environmental impacts as a result of construction and operation of the project. This REF is based on a desktop review of potential environmental sensitives at the site, a site visit by an EMM environmental scientist, a habitat-based field investigation conducted by two ecologists from Biosis, a site visit by a Biosis archaeologist, technical assessment reports, and other relevant project documentation provided by EE.

Separate works are required to support the project, consisting of the re-establishment of an access track to the south of Picnic Island, on Pelican View Reserve, to re-establish access to the electrical poles from Reddall Parade (refer Figure 1.1). The component of works within Pelican View Reserve do not form part of the project and have been considered separately in a Summary Environmental Report (SER).

## 1.2 Location of the project site

The project site is located on Picnic Island, west of Windang Road, Lake Illawarra, NSW. The island sits within the inlet connecting Lake Illawarra to the Tasman Sea and can be accessed via a pedestrian and authorised vehicles bridge from Pelican View Reserve. The island is a 3-hectare (ha) council managed Crown Land Reserve, located on lot 60, DP751299. (Figure 1.1). The project also includes a pole laydown area in Cec Glenholmes Oval, located on lot 7005, DP1029495, off Reddall Parade, near Windle Street, Lake Illawarra. Replacement poles will be flown from Cec Glenholmes by helicopter to Picnic Island.

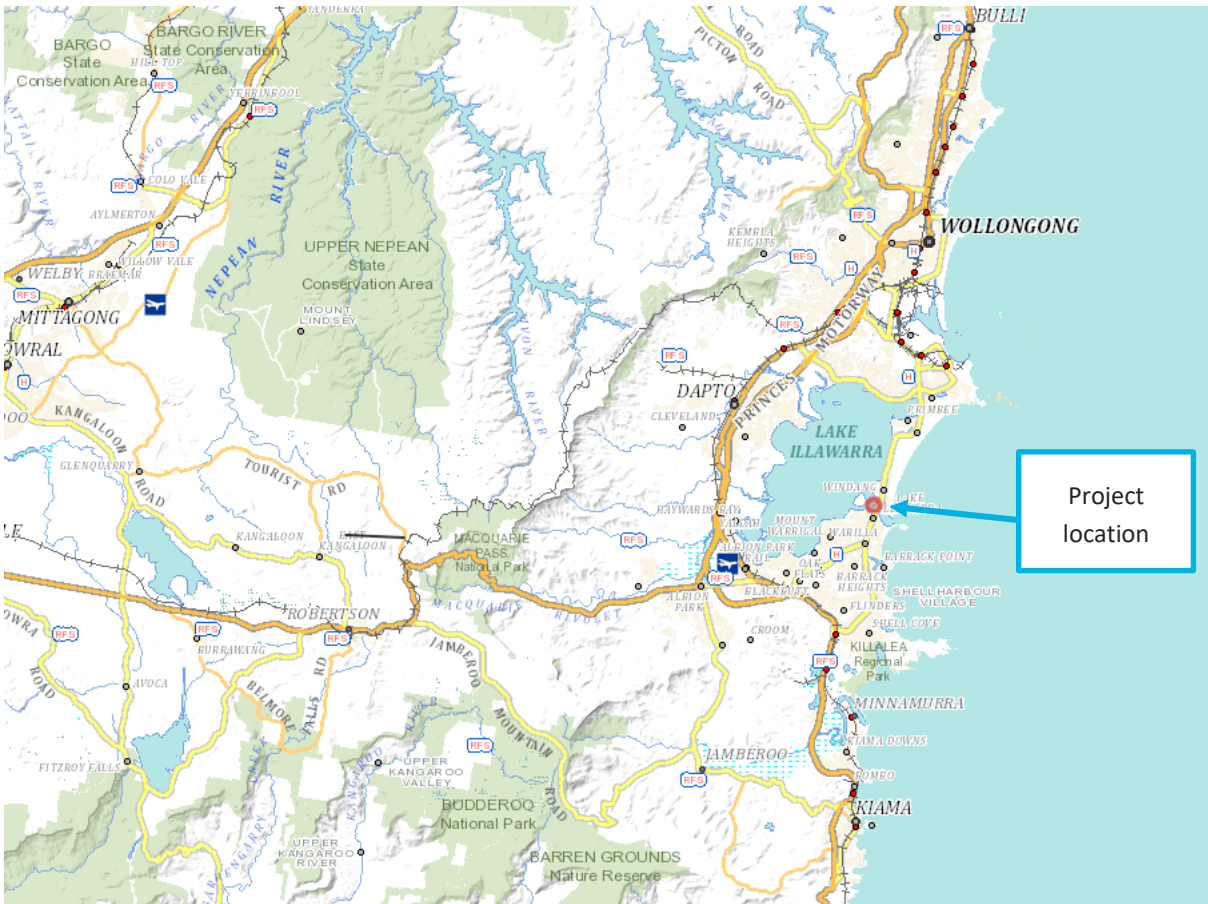
The project site is located in the Shellharbour Local Government Area (LGA), approximately 7 kilometres (km) south-west of Port Kembla, 12.5 km south-west of Wollongong's Central Business District and 3 km northeast of Shellharbour's CBD. The regional and local settings are shown in Figure 1.2 and Figure 1.3, respectively.



**Figure 1.1 Project location (Picnic Island portion only) and proposed works**

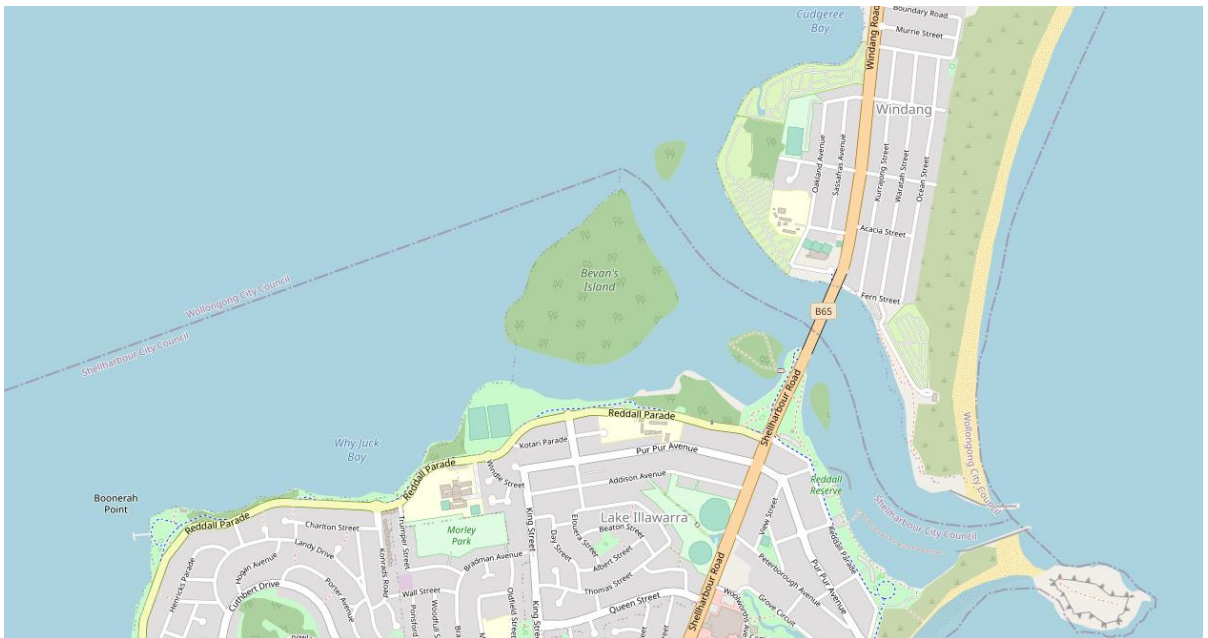
Source: Biosis





**Figure 1.2 Regional setting of the project**

Source: SEED portal



**Figure 1.3 Local setting of the project location**

Source: SEED portal

### 1.3 Proponent

Endeavour Energy is the proponent of the proposal. They operate under national electricity laws, statutory instruments and policies which govern networks in the National Electricity Market. The EE network spans approximately 24,800 square kilometres and services over 2.6 million people across Sydney’s Greater West, the Blue Mountains, the Southern Highlands, Illawarra and the South Coast of NSW.

EE is a regulated stand-alone power system pursuant to the National Electricity (NSW) Law, Section 6B.

EE is also constituted as a State-owned corporation under the *Energy Services Corporation Act 1995*.

Proponent details are provided in the table below.

**Table 1.1 Proponent details**

Specification	Details
Proponent	Endeavour Energy
Address	51 Huntingwood Dr, Huntingwood NSW 2148
Website	<a href="https://www.endeavourenergy.com.au/">https://www.endeavourenergy.com.au/</a>
Contact	Ali Youssef

### 1.4 Purpose of this REF

The purpose of this REF is to assess potential impacts that may result from the pole relocation and access path works, described in greater detail in Chapter 7 of this report.

The structure of this REF has been prepared in accordance with the table of contents presented on page 21 of EE’s Environmental Management Standard: Environmental impact assessment and environmental management plans (EMS 0001) Amendment no.5 (EE 2014) and in accordance with requirements set out in the Code, with the exception of a small number of additional sections added for greater clarity.

## 2 Project justification

Poles 212269 and 212270 are part of Feeder 7381 which connects the Warilla Zone Substation (ZS) to the Outer Harbour sub-transmission network at Port Central ZS. In 1948, Picnic Island's shoreline was 12 m away from the poles (GHD 2022). Staged construction of a permanent entrance to Lake Illawarra from the ocean between 2000 and 2007 resulted in significant hydrological and structural changes which increased erosion of Picnic Island's shoreline (Wollongong City Council 2018). Subsequent significant rainfall events increased discharge through the estuary, exacerbating shoreline erosion.

Erosion caused pole 212270 to stand within 50 cm of Picnic Island's northern bank and pole 212269 within 1.2 m (Plate 2.1). Additionally, there was a 15 mm gap between pole 212270 and the edges of its pole hole (Plate 2.2), suggesting further movement toward the water. A risk report from GHD (2022) found without pole relocation, there was a high risk of catastrophic structural failure with potentially fatal consequences to Picnic Island and Lake Illawarra users, as well as adjacent residents.

Furthermore, significant lean would place additional load on adjacent structures to the north and south, with risk of cascading failure. Poles 3TH150 and 3TH151 in Judbooley Parade, the next structure north in the alignment, were particularly at risk of failing if poles 212269 and 212270 leaned further. In the event of adjacent pole failure, conductors could be dropped onto residential properties and busy public areas in Windang, north of Lake Illawarra, as well as into the lake itself. Electrical lines were subsequently removed from poles 212269 and 212270 and the poles were cut down to mitigate risk (Plate 2.3, Plate 2.4).

The alignment is temporarily being diverted via surrounding alignments, which is putting strain and excessive load on the surrounding alignments. Poles 212269 and 212270 need to be relocated, re-strung and re-energised to relieve stress on surrounding alignments.



**Plate 2.1** Pole 212269 (left) and pole 212270 (right) near the eroded bank of Picnic Island

Source: Biosis 2023





**Plate 2.2** 15 mm gap between pole 212270 and the ground

Source: Biosis 2023



**Plate 2.3** Stump of pole 212270

Source: S. Thomson 2023





**Plate 2.4** Cut down poles remain on Picnic Island (to be removed as part of the project)

Source: S. Thomson 2023

## 3 Legislative framework

### 3.1 Overview

This chapter describes the legislative framework that applies to the project, including the approval pathway under the EP&A Act. An overview of the approval requirements under relevant Commonwealth and NSW legislation and environmental planning instruments (EPIs) is also provided.

### 3.2 Approval pathway

The EP&A Act and the EP&A Regulation provide the framework for assessing environmental impacts and determining environmental approvals for 'development' and 'activities' in NSW. The EP&A Act also provides for State environmental planning policies (SEPPs) and local environmental plans (LEP) to regulate development.

Relevant provisions from statutory instruments are examined below.

#### 3.2.1 *Environmental Planning and Assessment Act 1979*

##### i Overview

The EP&A Act includes a definition of 'development' (refer Section 1.5 of the EP&A Act), being:

- (1) For the purposes of this Act, **development** is any of the following:
  - (a) the use of land
  - (b) the subdivision of land
  - (c) the erection of a building
  - (d) the carrying out of a work
  - (e) the demolition of a building or work
  - (f) any other act, matter or thing that may be controlled by an environmental planning instrument.
- (2) However, development does not include any act, matter or thing excluded by the regulations (either generally for the purposes of this Act or only for the purposes of specified provisions of this Act).

The proposed works are, therefore, considered to be development for which the EP&A Act and its supporting instruments apply.

Section 3.18 further states that an environmental planning instrument may provide for specified development to be carried out without development consent, or with development consent.

Further, Section 4.2 of the EP&A Act provides that an environmental planning instrument (such as a local environmental plan or State environmental planning policy) may provide for development to be carried out with consent.

The Transport and Infrastructure SEPP (refer Section 3.2.3) provides at Section 2.44(1) that development for the purpose of an electricity transmission or distribution network may be carried out by or on behalf of an electricity supply authority or public authority without consent on any land (unless the land is reserved under the NSW *National Parks and Wildlife Act 1974*). Hence, the proposed development is permitted without consent.

The provisions under Part 4 of the EP&A Act therefore do not apply to this proposed development but the provisions of Part 5 of the EP&A Act are triggered because Division 5.1 of Part 5 defines 'activities' to include (amongst other things) the use of land, erection of a building and the carrying out of a work, provided that the

activity is not exempt development, prohibited development or development which requires consent under Part 4.

The EP&A Act provides, at Section 3.2.4(i), that a determining authority in its consideration of an activity shall examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity. If the activity is found to be likely to significantly affect the environment, then Section 5.7(1) requires an environmental impact statement (EIS) to be prepared.

This REF has been prepared to assess the environmental impacts to satisfy the requirements of Division 5.1 of the EP&A Act. Based on the conclusions reached in this REF, the project would not have a significant impact on the environment and an EIS is not required.

Section 171 of the EP&A Regulation stipulates that the determining authority must take into account certain prescribed environmental factors (Section 171(2)).

It is also stated (Section 171(3)) that a determining authority must prepare a review of the environmental factors that demonstrates how the environmental factors were taken into account.

Those factors are considered within the Review of Environmental Factors (REF). Table 3.2 includes an itemised list of these factors for the project.

### 3.2.2 State Environmental Planning Policy (Transport and Infrastructure) 2021

The aim of the Transport and Infrastructure SEPP is to facilitate the effective delivery of transport and infrastructure across NSW.

The Transport and Infrastructure SEPP provides at Section 2.44(1) that development for the purpose of an electricity transmission or distribution network may be carried out by or on behalf of an electricity supply authority or public authority without consent on any land (unless the land is reserved under the NSW *National Parks and Wildlife Act 1974*). Pursuant to Section 2.44 (2) development for the purpose of an electricity transmission or distribution network includes construction work, access tracks, emergency works or routine management works, and environmental management works.

Section 2.7 of the Transport and Infrastructure SEPP provides that the SEPP prevails over all other Environmental Planning Instruments including LEPs and SEPPs, except in the case where Part 2.1, note 2.7 (2) provides that the following SEPPs override all the requirements of the Transport and Infrastructure SEPP to the extent of any inconsistency:

- clauses 10, 11 and 19 of the State Environmental Planning Policy (Coastal Management) 2018 (Coastal Management SEPP) [now Sections 2.7, 2.8 and 2.16 Chapter 2 the State Environmental Planning Policy (Resilience and Hazards) 2021].

As the project is within a mapped Coastal Wetland, the State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP) applies. However, Part 2.1, 2.7 (4) of the Transport and Infrastructure SEPP states:

A provision of this Chapter that permits development for the purpose of emergency works or routine maintenance works to be carried out without consent, or that provides that development for that purpose is exempt development, prevails over clauses 10 and 11 of *State Environmental Planning Policy (Coastal Management) 2018* to the extent of any inconsistency, but only if any adverse effect on the land concerned is restricted to the minimum possible to allow the works to be carried out.



Emergency works are defined in Part 2.1 Preliminary, 2.3 as:

- a) a sudden natural event, including a storm, flood, tree fall, bush fire, land slip or coastal inundation
- b) accident, equipment failure, or structural collapse
- c) damage caused by vandalism, arson, or a pollution incident

provided the works involve no greater disturbance to soil or vegetation than necessary and are carried out in accordance with all applicable requirements of the Blue Book.

As the works are considered emergency works, Section 2.7(4) of the Transport and Infrastructure SEPP prevails over the State Environmental Planning Policy (Resilience and Hazards) 2021 and, as such, the project may be carried out without development consent.

### 3.2.3 Land use and permissibility

The project site is located within the Shellharbour LGA and is zoned as C2, Environmental Conservation in the Shellharbour LEP (Figure 3.1). As the Transport and Infrastructure SEPP allow the works to be carried out ‘without consent on any land’, the provisions of the Shellharbour LEP do not apply and the project is permissible.

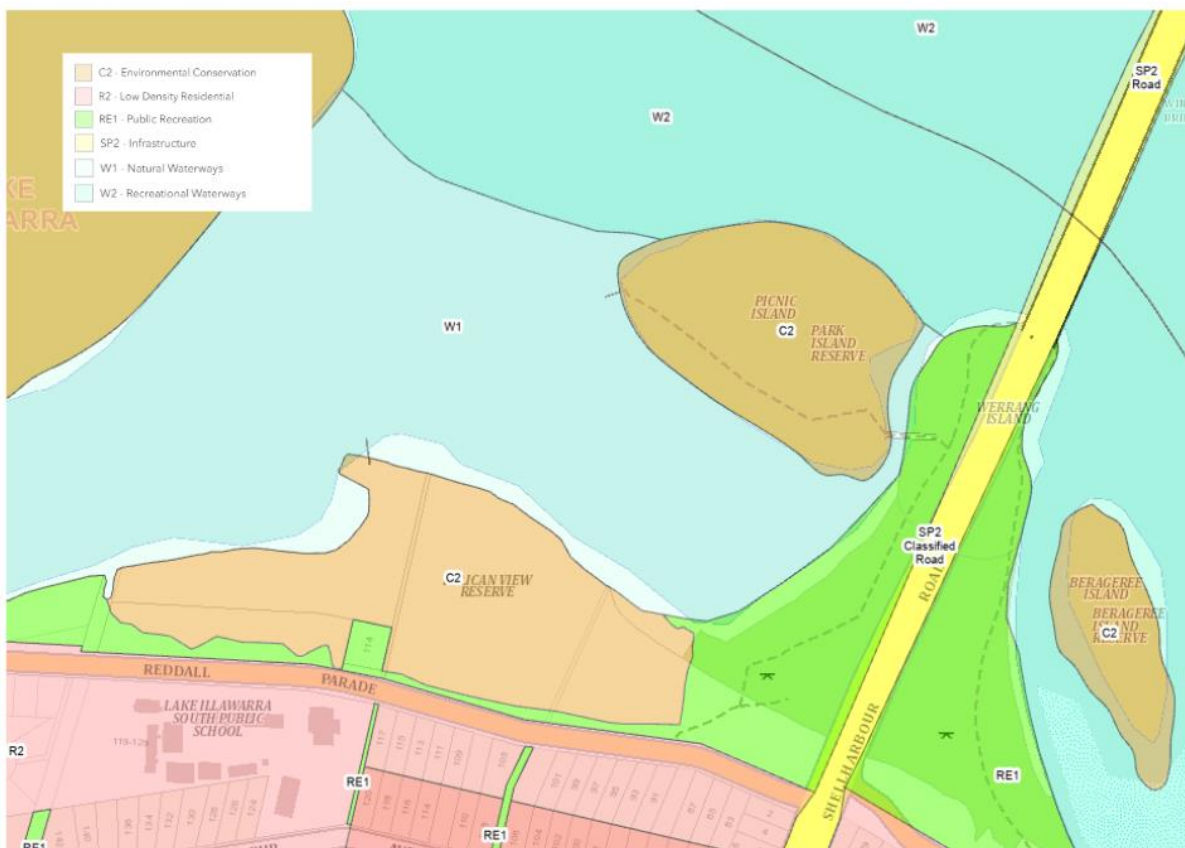


Figure 3.1 Land zoning of the project area

Source: ePlanning Spatial Viewer

### 3.2.4 NSW Code of Practice for Authorised Network Operators (ANO)

#### i Determining authority

The Code is the approved Code under Section 198 of the EP&A Regulation. The NSW Government has leased part of NSW’s transmission and distribution network to privately managed network businesses, which are referred to

as ANOs by the *Electricity Network Assets (Authorised Transactions) Act 2015* (Authorised Transactions Act). ANOs include TransGrid, Ausgrid and EE.

The NSW Government has prescribed the ANOs as prescribed determining authorities for the purposes of Section 5.6 of the EP&A Act and the definition of ‘public authority’ under Section 1.4 of the EP&A Act. This allows an ANO to be a Part 5 determining authority for development for the purposes of an electricity transmission or distribution network.

Therefore, as an ANO, EE can assess and self-determine activities that are not likely to significantly affect the environment and are conducted by or on behalf of EE for the purpose of electricity transmission or distribution.

The Code is deemed to be in force until it is revoked or varied in accordance with the EP&A Regulations.

## ii Assessment class

The Code requires an ANO to classify its proposal into one of six possible assessment classes. The Code applies to Class 3, 4, 5 and 6 proposals only.

- **Class 3:** requires the preparation of a Summary Environmental Report (SER), which refers to projects which are expected on a reasonable basis to be minor and neither extensive nor complex.
- **Class 4:** requires the preparation of an REF and refers to projects which are expected on a reasonable basis to have impacts which go beyond minor, can be extensive and/or complex and at the discretion of the ANO be a project for which it is deemed appropriate to prepare, such as a project which may generate considerable public interest.
- **Class 5:** refers to projects as defined in Class 4, but also require the preparation of a Species Impact Statement (SIS).
- **Class 6:** refers to projects which are “likely to significantly affect the environment” and therefore an EIS is required.

The construction impacts of the project will be confined to the boundaries of the project site, as shown in Figure 1.1. In view of the assessment outlined in Chapter 8, and considering the mitigation measures outlined in Chapter 8 and the attached technical reports are implemented, the project is being assessed as a Class 4 proposal under the Code.

## iii Assessment requirements

Section 2.4.3 of the Code specifies the requirements that must be included and addressed in an REF for a Class 4 proposal. The table below specifies the outlined assessment requirements and where they have been addressed in this REF.

**Table 3.1 REF requirements specified in the NSW Code for Authorised Network Operators**

Requirement	Summarised description	Addressed
The proposed activity	Clear description of the activity that is proposed, including the nature, the purpose, and the sites where it will take place.	Chapter 7 Proposed works
	Sufficient detail about the proposed activity to demonstrate potential impact on the environment.	Chapter 7 Proposed works Chapter 8 Environmental assessment and mitigation
	Discuss viable alternatives and any mitigation measures to be implemented.	Chapter 5 5

**Table 3.1 REF requirements specified in the NSW Code for Authorised Network Operators**

Requirement	Summarised description	Addressed
Certification	Statement signed and dated by the person with principal responsibility for preparing the REF (being an employee or agent of the ANO), as per the requirement specified on page 22 of the Code.	Following the Executive Summary
The proponent, determining authorities and any required approvals	Identify the proponent and all determining authorities and required approvals for the activity.	Section 1.3 Proponent Section 3.2.4 NSW Code of Practice for Authorised Network Operators (ANO)
The environment of the activity	A description of the environment of the site and the surrounding area, with a focus on the aspects of the environment that are of particularly high value, sensitive to impacts of the type the activity will have, or of importance to the community.	Section 3.3 <i>Environment Protection and Biodiversity Conservation Act 1999</i> Chapter 6 Existing environment Section 8.2 Aboriginal heritage Section 8.6 Historic heritage Section 8.10 Visual assessment
	The REF must identify and describe Threatened Species Populations and Ecological Communities that are likely to occur in the area affected by the activity.	Section 8.3 Biodiversity
The impacts of the activity	The likely environmental impacts for all phases of the activity and describe their extent, size, scope, intensity and duration.	Chapter 8 Environmental assessment and mitigation
	As a minimum, the REF should document consideration of each of the factors listed in clause 171(2) of the EP&A Regulation and the document consideration of each of the factors listed in section 5A of the EP&A Act in relation to Threatened Species, Populations and Ecological Communities (including fish and marine vegetation), and their Habitats.	Section 8.3 Biodiversity
	List the sources and data the ANO relied on when preparing the REF.	References Appendix A Aboriginal Cultural Heritage Assessment (Biosis) Appendix B Flora and Fauna Assessment (Biosis) Appendix C Archaeological Report (Biosis)
Mitigating measures that will apply to the activity	An ANO may conclude that the activity should be modified or adapted so that certain measures designed to mitigate the environmental impacts of the activity are observed. These mitigating measures should be documented.	Chapter 9 Environmental management Chapter 8 Environmental assessment and mitigation
Summary of impacts	Include a section that summarises the individual impacts of the activity and provides an overarching view of the impacts of the activity on the environment.	Chapter 8.16 Conclusion Section 8.16 Cumulative impacts
Consultation	Record the consultation undertaken for the purposes of preparing the REF in accordance with Section 2.3.7 of the Code.	Chapter 4 Consultation
Conclusions regarding an EIS and/or a SIS	The REF should describe:	Section 8.2 Aboriginal heritage Section 8.6 Historic heritage

**Table 3.1 REF requirements specified in the NSW Code for Authorised Network Operators**

Requirement	Summarised description	Addressed
	Whether the activity is likely to significantly affect the environment, in which case an EIS is required; and Whether the activity is likely to significantly affect Threatened Species, Populations, Ecological Communities or their Habitats, in which case an SIS is required. Describe the reasons for these conclusions, referencing the more detailed assessments in the body of the REF for support.	Section 8.3 Biodiversity Section 8.10 Visual assessment Chapter 10 Conclusion
	In instances where the REF has been prepared by a third party it is important to note that irrespective of the conclusion of the REF, an ANO is ultimately responsible for deciding whether a proposed activity is likely to significantly affect the environment.	Chapter 10 Conclusion

### 3.3 Environment Protection and Biodiversity Conservation Act 1999

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) outlines the Commonwealth Government’s role regarding environmental assessment, biodiversity conservation, the management of protected species, populations and communities and heritage items.

The EPBC Act lists nine matters of national environmental significance (MNES) which must be considered when assessing the impacts of a proposal, including:

- world heritage properties
- national heritage places
- Ramsar wetlands of international importance
- nationally threatened species and ecological communities
- migratory species
- Commonwealth marine areas
- the Great Barrier Reef Marine Park
- nuclear actions (including uranium mining)
- a water resource, in relation to coal seam gas development and large coal mining development.

If an action will or is likely to have a significant impact on any of the matters of MNES, it is deemed to be a controlled action and requires approval from the Minister for the Environment and Energy or the Minister’s delegate.

An assessment of the project in consideration of flora and fauna protected under the EPBC Act was completed against a search of the Protected Matters Search Tool (PMST), on 30 March 2023, as summarised in Table 3.2 below.



**Table 3.2 Assessment against the EPBC Act**

<b>MNES and other matters protected by the EPBC Act</b>	<b>Search result</b>	<b>Predicted impacts</b>
<b>MNES</b>		
World heritage properties	There are no world heritage properties (including buffer zones) within the search area.	The nearest world heritage site is the Sydney Opera House, approximately 80 km NE of the project area, therefore no significant impact is predicted.
National heritage places	There are no national heritage properties (including buffer zones) within the search area.	There are no national heritage places within the Shellharbour LGA. No significant impact predicted.
Wetlands of international importance (listed under the Ramsar Convention)	There are no wetlands of international importance located within the search area.	The nearest Ramsar Wetland is approximately 250 km NE of the project area. No significant impact predicted.
Great Barrier Reef marine park	There are no Great Barrier Reef marine parks within the search area.	The Great Barrier Reef is located over 1,000 km north of the project area. No significant impact predicted.
Commonwealth marine area	There are no Commonwealth marine areas within the search area.	No significant impact predicted.
Listed threatened ecological communities (TECs)	There are two listed threatened ecological communities recorded in the search area.	Coastal Swamp Oak ( <i>Casuarina glauca</i> ) Forest of New South Wales and south east Queensland was identified in the project area, however an Assessment of Significance (refer Section 8.3 and Appendix B) found no significant impact as a result of the project.  Saltmarsh in estuaries of the Sydney Basin Bioregion and south east Corner Bioregion was also identified; however, this community was identified as non-compliant with TEC criteria, therefore no Assessment of Significance was completed.
Listed threatened species	There are 115 listed threatened species recorded in the search area.	20 threatened flora species and 95 threatened fauna species were identified.  Habitat assessments were completed for threatened flora and fauna species. No threatened flora species apart from White-flowered Wax Plant were found within the study area. The project is not likely to impact threatened fauna species.  An SIC assessment was completed for White-flowered Wax Plant, the Greater Sand-Plover, and endangered and critically endangered shorebirds, which concluded the works are unlikely to lead to a significant impact (refer Section 8.3 and Appendix B).
Listed migratory species	There are 71 migratory species recorded in the search area.	Given the localised nature of the proposed works, and that project safeguards will be employed during the duration of works, the proposed works are unlikely to significantly impact migratory species.
<b>Other matters protected by the EPBC Act</b>		
Commonwealth lands	There is one parcel of Commonwealth land within the search area.	No impact predicted as Commonwealth land (Australian Telecommunications Commission) is located in the search buffer area and the project will be contained to the project area.
Commonwealth heritage places	There are no listed Commonwealth Heritage places (including buffer zones) within the search area.	The closest listed Commonwealth Heritage Place is Holsworthy Military Reserve, approximately 40 km north of the project area. No significant impact predicted.

**Table 3.2 Assessment against the EPBC Act**

MNES and other matters protected by the EPBC Act	Search result	Predicted impacts
Listed marine species	There are 97 listed marine species recorded in the search area. The majority of species are birds, however, fish, seals, and reptiles. Water dwelling species are located in the buffer zones only.	Given the localised nature of the proposed works, and that project safeguards will be employed during the duration of works, the proposed works are unlikely to significantly impact listed marine species.
Whales and other crustaceans	Whales or other crustaceans have been recorded in the search area buffer zone only.	Given the localised nature of the proposed works, and that project safeguards will be employed during the duration of works, the proposed works are unlikely to significantly impact whales and other crustaceans.
Critical habitat	There are no critical habitats in the search area	No significant impact predicted.
Commonwealth reserves terrestrials	There are no Commonwealth reserves terrestrials within the search area.	No significant impact predicted.
Australian marine parks	There are no Australian marine parks within the search area.	The nearest Australian marine park is approximately 70 km southeast of the project area. No significant impact predicted.
Habitat critical to the survival of marine turtles	There is no habitat critical to the survival of marine turtles within the search area.	No significant impact predicted.

### 3.4 NSW Environment and Planning Assessment Regulation 2021

Section 171 of the EP&A Regulation stipulates that the determining authority must take into account certain prescribed environmental factors (Section 171(2)). It is also stated (Section 171(3)) that a determining authority must prepare a review of the environmental factors that demonstrates how the environmental factors were taken into account. Those factors are considered within this REF. Table 3.3 includes an itemised list of these factors for the project.

Section 171(4) requires the REF to be published if the activity has a capital investment value of more than \$5 million, it requires a permit under certain other legislation (e.g. *Heritage Act 1977*) or if it is considered in the public interest to do so. This activity does not have a capital investment value of more than \$5 million.

**Table 3.3 Section 171(2) Review of environmental factors – the Act, s 5.10(a)**

Clause	Response
(a) the environmental impact on the community	<p>The closest residential dwellings to Picnic Island are located approximately 275 m north of Picnic Island, along Judbooley Parade and Pebble Drive. The closest residential dwellings to the project personnel access via Pelican View Reserve are approximately 35 m to the south. The closest residential dwelling to Cec Glenholmes Oval is located approximately 30 m southwest of the oval.</p> <p>The community may temporarily be impacted by elevated noise during path clearing activities, pole hole excavation, and equipment mobilisation, however, these impacts will be short-term and only for the duration of the works.</p> <p>Additionally, the use of helicopters to transport poles will generate noise near Cec Glenholmes Oval, below the helicopter path and around Picnic Island. Helicopter impacts will only occur on two short occasions.</p>

**Table 3.3 Section 171(2) Review of environmental factors – the Act, s 5.10(a)**

Clause	Response
	<p>Should there be any planned electricity outages, relevant residents, commercial and industrial premises will be notified.</p> <p>Furthermore, notification will be provided to affected residents prior to any planned construction works. Construction will be managed in accordance with the recommendations contained in this REF to minimise impacts on affected residents as much as possible.</p>
(b) the transformation of the locality	Works will not result in the transformation of the locality as the electricity alignment and access routes are existing.
(c) the environmental impact on the ecosystems of the locality,	Construction works proposed as part of the project will involve clearing of vegetation, including 0.14 ha of native vegetation. The ecological assessment prepared for the project concluded that the works will not impact on intact native vegetation corresponding to Plant Community Type (PCT) 3320 and Cumberland Plan Woodland CEEC. The assessment concluded that any impacts on MNES, including EPBC listed flora and fauna, are unlikely.
(d) reduction of the aesthetic, recreational, scientific, or other environmental quality or value of the locality,	The project will not result in reduction of aesthetic, recreational, scientific, or other environmental quality or value of the locality. The project will enhance safety of the surrounding area as the danger of catastrophic pole collapse will be minimised after pole relocation.
(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,	Potential impacts to Aboriginal and historic heritage are addressed in Sections 8.2 and 8.6, respectively and involve impacts to one Aboriginal Heritage Information System (AHIMS) site, AHIMS ID-52-2-0119 / Picnic Island Midden.
(f) the impact on the habitat of protected animals, within the meaning of the Biodiversity Conservation Act 2016,	Potential impacts to biodiversity are addressed in Section 8.3. Impacts to native flora and fauna are not expected to be significant.
(g) the endangering of a species of animal, plant or other form of life, whether living on land, in water or in the air,	Potential impacts to biodiversity are addressed in Section 8.3. The project is not expected to endanger any species of animal, plant, or other form of life.
(h) long-term effects on the environment,	No long-term negative effects on the environment are expected as a result of project construction. The project is necessary to overload of surrounding electricity alignments.
(i) degradation of the quality of the environment,	No long-term negative effects on the quality of the environment are expected as a result of project construction.
(j) risk to the safety of the environment,	<p>Project components will be designed and constructed such that it will comply with all relevant Australian and EE Standards and in accordance with legislative and regulatory requirements.</p> <p>Any potential risks to the environment from construction of the project will be managed and mitigated in accordance with the mitigation measures outlined in this REF, as well as any approval(s) issued for the project.</p>
(k) reduction in the range of beneficial uses of the environment,	The project will not have any long-term impacts that will reduce the beneficial uses of the surrounding environment. The project will enhance safety of recreational Picnic Island and Lake Illawarra users and local residents.
(l) pollution of the environment,	Appropriate pollution controls including erosion and sediment pollution control measures will be in place to prevent pollution occurring during the construction of the project. Any potential risks of pollution from construction works or operation of the project will be

**Table 3.3 Section 171(2) Review of environmental factors – the Act, s 5.10(a)**

Clause	Response
	mitigated by the works being implemented in accordance with the various requirements of this REF and EE Environmental Management standards.
(m) environmental problems associated with the disposal of waste,	All wastes associated with the project construction and operation will be disposed of at an approved facility and in accordance with EE Environmental Management Standard EMS 0007 Waste Management.
(n) increased demands on natural or other resources that are, or are likely to become, in short supply,	There will be no demand on resources that are in short supply. All materials required for construction of the project are readily commercially available and considered to be generally in supply.
(o) the cumulative environmental effect with other existing or likely future activities,	No cumulative environmental effect is expected.
(p) the impact on coastal processes and coastal hazards, including those under projected climate change conditions,	The project is necessary due to coastal processes eroding the bank of Picnic Island. The project is not expected to impact coastal processes.
(q) applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1,	Refer to Chapter 2 Project justification and Chapter 3 Legislative framework.
(r) other relevant environmental factors.	Refer to Chapter 8 Environmental assessment and mitigation.

## 3.5 Other legislative requirements

### 3.5.1 NSW Electricity Supply Act 1995

The NSW Electricity Supply Act 1995 (ES Act) defines EE’s licencing requirements and provides a framework for the development and maintenance of electrical infrastructure. In summary, it allows EE to trim and remove trees, carry out works on public roads and acquire land. The ES Act also requires that works (other than routine repairs or maintenance works) must not be undertaken unless a minimum of 40 days’ notice is supplied to the relevant local council. Any submission received must be considered by EE.

The consultation undertaken in accordance with these requirements is provided in Section 4.2.

### 3.5.2 NSW Protection of the Environment Operations Act 1997

The NSW *Protection of the Environment Operations Act 1997* (POEO Act) provides a framework for the licensing of certain activities and is administered by the DPE (formerly Office of the Environment and Heritage (OEH)). Under the POEO Act, the construction and operation of the project must be conducted in such a manner so as:

- not to pollute the environment
- any waste generated must be classified, handled, transported, and disposed appropriately
- environmental incidents involving actual or potential harm to human health, or the environment must be reported to the relevant authority (refer to Chapter 5, Part 5.7, 148 (8)). For management measures, refer Chapters 8 and 9.

### 3.5.3 Environment Operations (Waste) Regulation 2014

The Environment Operations (Waste) Regulation 2014 (Waste Regulation) is a key piece of legislation for the regulatory framework in NSW and includes strict thresholds for Environmental Protection Licences (EPLs). Under the Waste Regulation, a Resource Recovery Exemption and a Resource Recovery Order allow for the reuse of virgin excavated natural materials (VENM) or excavated natural materials (ENM) for the purpose of application to land as engineering fill or for use in earthworks. Resource recovery orders and exemptions have been developed by the NSW Environment Protection Authority (EPA) to ensure that “the use of waste must be genuine, fit-for-purpose and cause no harm to the environment or human health” (2015).

According to the EPA, all soil stockpiles for the purpose of re-use as fill must be classified as either VENM or ENM to be transported and used as fill. Excavated natural material is defined as:

...natural material that:

has been excavated or quarried from areas not contaminated with manufactured chemicals or process residues, as a result of industrial, commercial, mining, or agricultural activities

does not contain sulphidic ores or soils, and includes natural material that meets such criteria for virgin excavated natural material...

In addition to a range of criteria for chemical and other attributes, the material must comply with to be classified as VENM. The in-situ material at the site will be assessed for relevant contaminants of concern.

### 3.5.4 NSW Biodiversity Conservation Act 2016

In accordance with the NSW *Biodiversity Conservation Act 2016* (BC Act), several factors need to be considered when making a determination as to whether an action, development or activity is likely to significantly affect threatened species, populations or ecological communities or their habitats. These factors are assessed in the ecological assessment prepared for the project (see Appendix B). The report identifies that there will be no impacts to threatened species.

### 3.5.5 Water Management Act 2000

Background research indicates that a perennial Strahler Order 6 waterway north of the study area connects Lake Illawarra with Kurrakwah Bay at Thom Thumb entrance. The works will involve a barge utilising this waterway to transport equipment and machinery onto the island in order to carry out the works.

In cases where controlled activities are to be carried out in, on or under waterfront land, the activities are regulated by the *Water Management Act 2000* (WM Act). This means that works to occur in riparian areas should be assessed under the WM Act. It is recommended by DPI, that riparian widths be based on watercourse order under the Strahler method. Since Lake Illawarra was classified as a sixth order stream, a riparian corridor of 80 metres from the ‘top of bank’ on either side is required.

The WM Act states that an approval is required to undertake controlled activities on waterfront land. Waterfront land is defined within the WM Act as the bed of any river, lake or estuary and any land within 40 metres of the riverbanks, lake shore or estuary mean high water mark, or determined to be the original creek line.

However, Endeavour Energy are licenced/authorised under the *Electricity Supply Act 1995*. Under Subdivision 4, Clause 43 of Water Management (General) Regulation 2018 Act, it is stated that:

A network operator is exempt from section 91E(1) of the Act in relation to a relevant activity of the operator or licensee if:

- The activity is carried out in, on or under waterfront land relating to a river, estuary or lake (other than in or on the bed or banks of a river, the bed or shore of a lake, or the bed of land lying between the bed and mean high water mark of an estuary), and

- The activity does not cause any change in the course of the river, and
- The operator or licensee, after considering the environmental impact of the activity in accordance with section 5.5 of the Environmental Planning and Assessment Act 1979 (as if the operator or licensee were the determining authority under that section), is satisfied that activity is not likely to significantly affect the environment.

The project will not remove the stumps of the cut down poles and as such will not require works to be carried out on the bed or banks of Lake Illawarra. The project will not change the hydrology of Lake Illawarra or significantly affect the environment. As such a controlled activity approval is not required for the project.

### 3.5.6 Fisheries Management Act 1994

The purpose of the *Fisheries Management Act 1994* (FM Act) is to conserve fishery resources in NSW and to develop and share such resources for the benefit of everyone, including future generations. Under the FM Act, NSW Department of Primary Industries (NSW DPI) is responsible for managing fish and marine vegetation.

DPI Fisheries have defined 'Key Fish Habitat' as:

those aquatic habitats that are important to the sustainability of the recreational and commercial fishing industries, the maintenance of fish populations generally, and the survival and recovery of threatened aquatic species.

The purpose of the Act is to conserve these habitats, thus activities that may cause harm to these habitats must be referred to the NSW DPI. Any works that harm marine vegetation, obstruct fish passage, involve dredging or reclamation, or cultivation of fish or marine vegetation for commercial purposes will require a permit under Part 7 of the FM Act.

A seagrass community of Ribbonweed *Zostera* has also been mapped around most of Picnic Island, which is protected under the FM Act. Under the Fisheries Management (general) Regulation 2019, works harmful to marine vegetation (which includes mangroves, seagrasses and any other vegetation declared to be marine vegetation by regulations) such as driving a vehicle over marine vegetation or an activity that obstructs or alters tidal flows to marine vegetation requires a permit under Part 7 section 205 of the FM Act.

As the project will involve the use of a barge to transport equipment onto Picnic Island, a permit under the FM Act is required.

### 3.5.7 National Parks & Wildlife Act 1974

The *National Parks & Wildlife Act 1974* (The NP&W Act) provides protection for all Aboriginal 'objects' (consisting of any material evidence of the Aboriginal occupation of NSW) and for 'Aboriginal Places' (areas of cultural significance to the Aboriginal community). Aboriginal objects are afforded automatic statutory protection in NSW whereby it is an offence to:

Damage, deface or destroy Aboriginal sites without prior consent of the Director-General of the National Parks and Wildlife Service (now OEH).

The NPW Act defines an Aboriginal 'object' as:

Any deposit, object or material evidence (not being a handicraft for sale) relating to indigenous and non-European habitation of the area that comprises New South Wales, being habitation before or concurrent with the occupation of that area by persons of non-Aboriginal European extraction and includes Aboriginal remains.

The aim of the Due Diligence Code of Practice guidelines (DECCW 2010) is to assist individuals and organisations to exercise due diligence when carrying out activities that may harm Aboriginal objects and to determine whether

they are required to undertake further archaeological assessment and apply for consent in the form of an Aboriginal Heritage Impact Permit (AHIP).

An Aboriginal Cultural Heritage Assessment has been prepared for the project (refer Section 8.2 and Appendix A), including detailed field survey and consideration of the cultural values of the project site. The impact areas themselves are located within low and high archaeological potential areas. A midden site has been located on the northern side of Picnic and is likely to experience a partial loss in value as a result of the proposal. As such, Endeavour Energy has applied for an Aboriginal Heritage Impact Permit (AHIP) under section 90 of the NP&W Act. No works would commence until an AHIP is obtained.

### 3.5.8 Summary of legislative requirements

**Table 3.4 Other legislative requirements**

Legislation	Authority	Responsibility	Requirement	Comment
<i>NSW Contaminated Land Management Act 1997</i> (CLM Act)	DPE	Project manager/ Project supervisor	Notification – under s60 by a person whose activities have contaminated land or a landowner whose land has been contaminated is required to notify the EPA when they become aware of the contamination.	If contamination is discovered the duty to report would be determined.
<i>NSW Electricity Supply Act 1995</i> (ES Act)	Local Council	EE	Notification – under s45, a 40 days' notice is required for proposed electricity works.	Councils have been notified as part of REF notification process.
<i>NSW Heritage Act 1977</i> (Heritage Act)	DPE/ Heritage Council	EE/Project manager	Consideration – under s139 as to whether a permit to excavate or disturb land is required.	There are no listed heritage items in the project area. No impact is expected.
Transport and Infrastructure SEPP	Local Council	EE	Notification – under s13 – 15, 21 days' notice of substantial impact on Council related infrastructure and local heritage works in flood liable land that will change flood patterns other than to a minor extent.	Notified as part of REF notification process.
Transport and Infrastructure SEPP	Local Council	EE	Notification – under s42 of 21 days' notice for works involving new or existing feeders.	Notified as part of REF notification process.
<i>National Greenhouse and Energy Reporting Act 2007</i>	Clean Energy Regulator	EE	Reporting – under s19, a registered corporation is required to report information on energy production, energy consumption, and the amount of greenhouse gas emissions for the facilities under their operational control on an annual basis by 31 October following the financial year for which they are reporting.	Reporting will be undertaken each year by 31 October.
<i>NSW Protection of the Environment Operations Act 1997</i> (POEO Act)	DPE	Project manager/ Project supervisor	General – under s120 no “dirty water” discharge into stormwater drains.	Refer Section 8.4
POEO Waste Regulation	DPE	Project manager/ Project supervisor	General – under section 24 transportation of certain waste must be tracked.	Refer Section 8.15
<i>NSW Roads Act 1993</i>	TfNSW	Project manager/ Project supervisor	Approval – under s138 for work on a classified road.	Proposed works will not affect any roads.

**Table 3.4 Other legislative requirements**

Legislation	Authority	Responsibility	Requirement	Comment
<i>Rail Safety National Law (NSW) 2012</i>		Project manager/ Project supervisor		Proposed works will not affect any railways.
<i>NSW Rural Fires Act 1997</i>	NSW Rural Fire Service	Project manager/ Project supervisor	Consideration – under s63 public authorities must take all reasonable steps to prevent the occurrence and minimise the spread of bushfires on or from lands vested in or under its control/management.	Refer 8.14
<i>NSW Water Act 1912</i>	Water NSW	Project manager/ Project supervisor	Consideration/ permit – under s113 to extract groundwater via any type of bore, well or excavation	It is not expected that a permit would be required for these works. The extraction of ground water is not part of this project.



# 4 Consultation

## 4.1 Overview

Endeavour Energy have a Stakeholder Engagement Framework that is based on the spectrum of participation developed by IAP2 (the International Association of Public Participation). The principles on which Endeavour Energy's framework is built are, that consultation must be:

- purposeful
- timely
- transparent
- inclusive
- responsive
- best practice
- collaborative
- measurable.

This is combined into Endeavour Energy's overall framework which is summarised in the figure below.

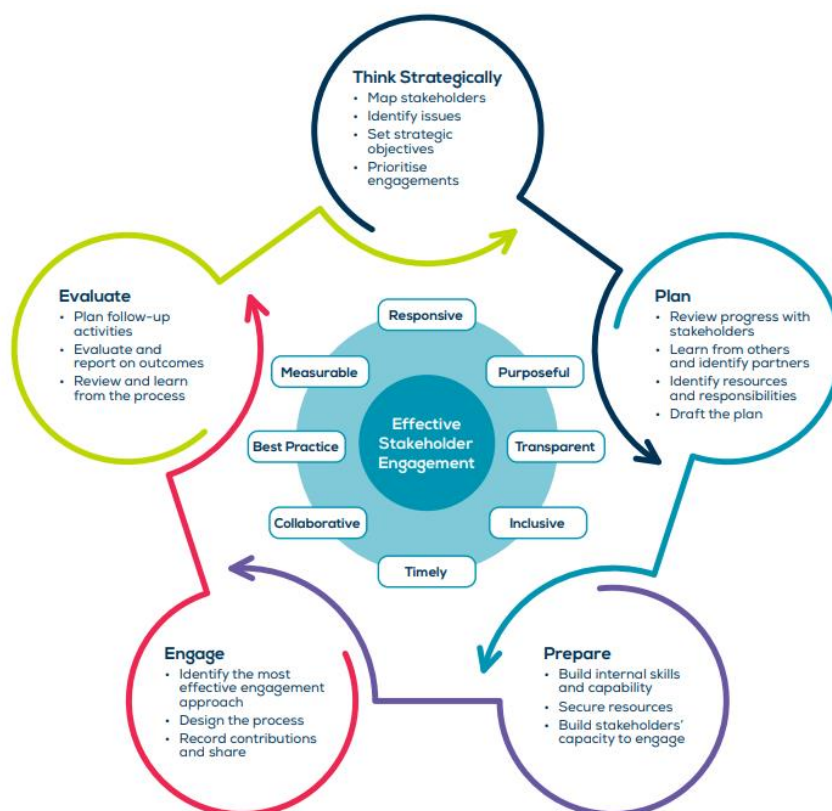


Figure 4.1 Endeavour Energy Stakeholder Engagement Framework

## 4.2 Project specific consultation

### 4.2.1 Council notification and requirements

In accordance with the NSW *Electricity Supply Act 1995*, Endeavour Energy is required to consult with the relevant councils no less than 40 days prior to the commencement of construction. A letter providing notification of the proposal was sent to Shellharbour Council on 14 April 2023 via email. No response has been received to date.

A notification was also sent to local MP Ms Anna Watson and Shellharbour Ward B Councillors John Davey and Moira Hamilton on 14 April 2023.

Under section 171(4) of the EP&A Regulations 2021 require that all REFs be published on the determining authority's website if above a particular monetary threshold. This project's capital investment value is not above that threshold; however, the project will be published on EE's website. If any member of the public has questions or concerns, EE have a connection point via EE "Your Say" at [www.yoursay.endeavourenergy.com.au/](http://www.yoursay.endeavourenergy.com.au/).

### 4.2.2 Notification of nearby landowners

Adjacent landowners were notified via letter on 6 April 2023. Should construction planning result in direct impacts to a landowner's property, Endeavour Energy will also immediately and directly engage with them.

### 4.2.3 Future consultation

Notification of the exact construction date will be provided to the Council and neighbouring properties prior to commencement.

The Construction Environmental Management Plan (CEMP) for the project will include site specific control measures as required. In addition, the Project Manager will develop a project specific complaints and grievance handling protocol to be adhered to.

### 4.2.4 Aboriginal engagement

An Aboriginal Cultural Heritage Assessment Report (ACHAR) was prepared for the project. The ACHAR process includes consultation with Registered Aboriginal Parties (RAPs) in accordance with Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010a). Upon registration, Aboriginal parties were invited to provide their knowledge on the study area and comment on the proposed works. The responses identified the study area as an area of high significance.

Additionally, a site officer from Illawarra Local Aboriginal Land Council (LALC) participated in a field investigation and agreed with the recommendations Biosis proposed for management of the study area.

Full details of Aboriginal engagement can be found in Chapter 4 and Appendix 3 of the ACHAR (Biosis 2023). In summary, Aboriginal engagement included the following:

- notification of project to relevant Aboriginal stakeholders
- public notice published in the Illawarra Mercury inviting Aboriginal people who hold cultural knowledge to register their interest in the community consultation process
- registration of Aboriginal parties
- presentation of project information to registered Aboriginal Parties (RAPs)
- cultural significance information gathering.

## 5 Consideration of alternatives

Many options were considered to mitigate the risk of catastrophic, potentially immediate failure:

- Option 1 – Do nothing.
- Option 2 – Apply cross bracing to existing poles to reduce risk of collapse in an east or west direction.
- Option 3 – Anchor the base of the existing poles with two x two-tonne blocks each to reduce the risk of a collapse in a southerly direction.
- Option 4 – Cut down and relocate poles 212269 and 212270 20 m south along the existing electricity feeder alignment to a more stable environment away from the bank of Picnic Island.
- Option 5 – Remove transmission line from Picnic Island
- Option 6 – Relocation of poles 212269 and 212270 off Picnic Island.

If nothing was done, cascading pole failure was highly likely, which could have had catastrophic consequences for residents and recreational users of Picnic Island, Lake Illawarra and the surrounding area. Due to erosion on the northern side of Picnic Island, the most likely failure mode was collapse in a northern direction, rendering Options 2 and 3 ineffective. Options 5 and 6 removing the transmission line or relocating the affected poles from Picnic Island was not chosen due to time constraints and cost.

As Option 4 first mitigates the danger of cascade failure, then moves the poles away from the bank of Picnic Island out of longer-term erosion danger, Option 4 was selected as the preferred and safest option. As part of Option 4, poles 212269 and 212270, have already been cut down.

## 6 Existing environment

### 6.1 General context

The project is located on Picnic Island in Lake Illawarra (Figure 1.3), a suburb of Wollongong within the Shellharbour local government area (LGA). Lake Illawarra is located approximately 12 km south of the Wollongong Central Business District (CBD) and approximately 103 km south of Sydney. Lake Illawarra (suburb) is on the northern tip of the peninsula at the entrance to Lake Illawarra (water body). Picnic Island is lot 60, DP751299.

Picnic Island is a Crown Land reserve managed by Council, which is surrounded by waters of the Lake Illawarra estuary. Picnic Island is part of the broader recreational area which contains trails, playgrounds, and reserves. The area is also popular for fishing, prawning, boating, windsurfing, and yachting.

Picnic Island is connected to the mainland by a bridge with a load capacity of 6 tonnes, though public vehicle access is prohibited. During low tide, Picnic Island is connected to the mainland via a sand bank. The island is also a focus for local bush regeneration groups.

The estuary surrounding Picnic Island, Lake Illawarra, and the Tasman Sea, around the mouth of the estuary, are all mapped as key fish habitat by the Department of Primary Industries (DPI – Fisheries).

### 6.2 Physical context

The project is located within the Sydney Basin Bio Region and covers a relatively flat area between 2–4 m Australian Height Datum. The study area is within the estuarine tidal-delta flat geological unit and consists of fine- to medium-grained marine-deposited lithic carbonate-quartz sand, silt, clay, shell material, and polymictic gravel (Biosis 2023a).

Regional soil landscape mapping indicates that Picnic Island occurs on the Seven Mile landscape of the Kiama 1:100,000 Sheet Map and Report. The Seven Mile soil landscape is characterised as an estuarine soil landscape and occurs as a series of dune ridges, swamps, and lagoons on Quaternary Marine sands. The soil is typically deep Siliceous Sands and Podsoles, which are often saline, low in organic matter, and moderately acidic. Picnic Island is generally subject to channel flow and tidal actions (Biosis 2023a).

Picnic Island contains a mapped Threatened Ecological Community (TEC) *Swamp Oak Floodplain Forest in the Sydney Basin Bioregion*, which is endangered under the BC Act. The community also met the condition of the *Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community*, which is endangered under the EPBC Act. There is a patch of Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions on the eastern side of the Island that is listed as endangered under the BC Act. A seagrass community of Ribbonweed *Zostera*, which is protected under the FM Act surrounds most of Picnic Island.

Furthermore, Picnic Island is mapped as Coastal Wetlands under Chapter 2 of the State Environmental Planning Policy (Resilience and Hazards) 2021 and the majority of the project area is mapped as ‘Key Fish Habitat’ as defined by the Department of Primary Industries (DPI 2022).

### 6.3 Cultural setting

It is difficult to determine the extent of land use and human disturbance of the area prior to 1970, though aerial imaging shows significant vegetation clearance and path construction on Picnic Island around 1990, with vegetation regeneration by 2002 (Biosis 2023a).

The area south of Picnic Island and Pelican View Reserve is home to suburban houses, duplexes, battle axe blocks and townhouses. According to the 2021 census, Lake Illawarra’s population was 3,288 people and 1,626 private dwellings (ABS 2021). Aboriginal and European history is further discussed in Section 8.2 and Section 8.6 respectively.

# 7 Proposed works

## 7.1 Overview

EE is proposing to replace and relocate existing twin H structure poles (pole 212269 and 212270) 15 m south along the Picnic Island alignment as they were cut down to avoid cascading failure. As part of the proposal, EE also proposes:

- to re-establish an access path from the existing bridge, along the southern portion of the alignment to a second twin H pole structure and from the second pole structure to poles 212269 and 211270
- establish an access path from the northern bank of Picnic Island to the works area
- and establish a turning circle and construction laydown area near the new pole location
- removal of existing cut down poles on Picnic Island (stumps to remain on Picnic Island).

To facilitate works, a pole laydown area will be located within Cec Glenholmes Oval. Poles will be helicoptered from the oval to Picnic Island and will become replacements for poles 212269 and 212270. A barge will be used to transport plant and equipment from Berkeley Boat Harbour to Picnic Island.

## 7.2 Description and method of works

### 7.2.1 Plant and equipment

Plant and equipment will be transported by barge from Berkeley Boat Harbour, located off Northcliffe Drive, Berkeley, to the eastern side of Picnic Island, via Lake Illawarra, an approximately 7 km journey. The barge is 15.98 m long and 6 m wide. The barge will land on Picnic Island's north shore for around 30 minutes at a time, approximately four times per day whilst plant and equipment are being transported to and from Picnic Island. A total of 20 movements are expected.

Plant and equipment will be parked overnight within project disturbance areas on Picnic Island with security cameras and/or security guards engaged for protection.

### 7.2.2 Access path re-establishment

Feeder 7381 supplies power to residents and businesses in the Warilla and Lake Illawarra area. The feeder traverses Picnic Island with two H structures - one on the northern side of the island (prior to being cut down), the other on the southern side of the island (Figure 7.1). The H structure comprising poles 878259 and 878260 within alignment 7181, on the southern side of the island, is currently in good condition; however, access is required for maintenance and alignment re-stringing as a result of cutting down, replacing and relocating poles 212269 and 212270. To enable access to poles 878259 and 878260, re-establishment of an existing overgrown access path is required.

The current, overgrown access path is less than a metre wide in some areas (Photograph 7.1). The track traverses the southern end of Picnic Island, starting at the existing bridge from the mainland and finishing on a sandy bank on western end of the island. The path is approximately 140 m from the existing bridge to poles 878259 and 878260. From poles 878259 and 878260, the path to be re-established turns approximately 90 degrees northeast, traversing approximately 95 m to poles 212269 and 212270. Paths will be cleared to approximately 4 m wide. Poles 878259 and 878260 and the severely overgrown area around them can be seen in Photograph 7.2.

An access path approximately 27 m long and 4 m wide will be established from the northern bank of Picnic Island to the new pole area. Additionally, a turning circle and construction laydown area to accommodate turning of necessary equipment will be established near the new pole location.

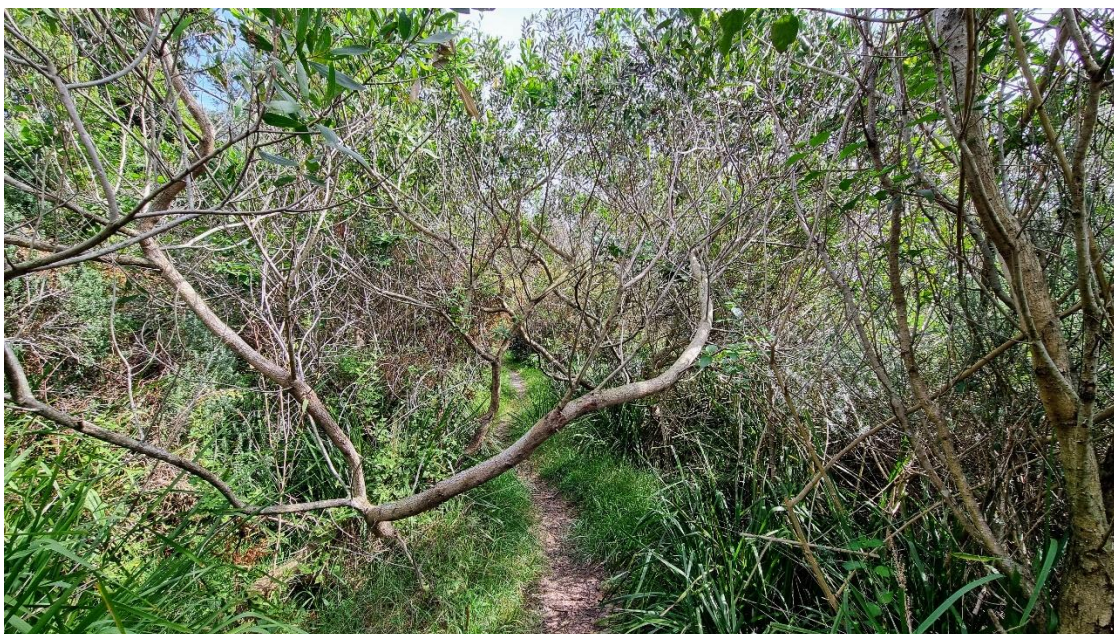


Access paths, turning circle, and the construction laydown area will be cleared with handheld equipment, down to ankle height, resulting in the removal of 0.14 ha of native vegetation (refer Section 8.3 and Appendix B). Vegetation displaced by path re-establishment will be left on Picnic Island to enrich habitat and soil. The project site will be cleaned up and restored by Soil Conservation upon project completion.



**Figure 7.1** Location of poles, alignment and works on Picnic Island

Source: Endeavour Energy 2022



**Photograph 7.1** Current overgrown path to second H pole structure, facing south west

Source: S. Thomson 2023





**Photograph 7.2** H Pole structure (poles 878259 and 878260) on southern end of Picnic Island

Source: S. Thomson 2023

### 7.2.3 Pole replacement and relocation

As discussed in Chapter 2, poles 212269 and 212270 require urgent replacement and relocation as the northern bank of Picnic Island eroded to within 50 cm of pole 212270. The poles were subsequently cut down as an emergency precaution to prevent catastrophic cascading failure. The poles remain on Picnic Island, awaiting removal by helicopter as part of the works set out in this REF. The new pole location will be 15 m south of the current location, along the existing alignment. Clearing of native vegetation will be required around both new pole locations to access and install the poles (refer Section 8.3 and Appendix B). Vegetation clearing of the new location will be completed by Soil Conservation Service. Vegetation removed will stay on Picnic Island as requested by Shellharbour City Council and to provide habitat for native fauna.

Pole replacement and relocation will include the following works:

- Remove existing cut down poles by helicopter.
- Bore hole 4.5 m deep and 900 mm wide for each pole at new location.
  - Dieci Pegasus 45.19 Telehandler or similar with boring attachment will be used to bore the holes.
  - Spoil removed will be spread out on Picnic Island (potentially subject to remediation depending on soil sample testing results) as requested by RAPs.
- Install bottom section of new poles in pole holes.
- 6 m long steel sleeves with a 700 mm diameter and 3 mm thick walls will be used in pole holes to prevent hole collapse.
  - Transport poles by helicopter.
  - Insert poles into pole holes via helicopter and Dieci Pegasus.
- Concrete new poles into new holes.
  - Allow 48 hours to cure.
- Install top section of new poles on top of bottom sections.
  - Transport top sections by helicopter.
  - Install by helicopter and Dieci Pegasus.
- Install conductors to new H pole structure.
  - Install conductors using spider lift.
  - Soil Conservation Service to clean up and restore site as required.
- Re-string and re-energise alignment.

## 7.3 Stages of construction

The proposed works will take place over a four-week period. Works will be completed in two stages comprising access path re-establishment, turning circle and construction laydown establishment; and pole removal, replacement and relocation.

## 7.4 Equipment and materials required

The general plant and equipment required for the works are expected to include:

- barge
- helicopter
- spider lifts (x2)
- telehandlers (x2)
- sucker truck
- Dieci Pegasus
- 5t skidsteer
- concrete truck
- whipper snippers.

## 7.5 Workforce

The construction workforce will include approximately 20 personnel. Personnel will park along Reddall Parade and access Picnic Island via the existing bridge from Reddall Reserve.

## 7.6 Construction laydown areas

A construction laydown area will be located adjacent to the new pole location on the northern side of Picnic Island. Plant and equipment will be parked overnight on Picnic Island, within project disturbance areas.

## 7.7 Timing, duration, hours of work

As noted above, the project works are scheduled to commence in November 2023 over approximately four weeks. Impacted landowners were notified about proposed construction activities via letterbox drop on 6 April 2023. Notification of the exact construction date will be provided to the Council and neighbouring properties prior to commencement.

Construction works will be undertaken during standard working hours:

- 7:00 am to 6:00 pm Monday to Friday
- 8:00 am to 1:00 pm on Saturdays
- no works on Sundays or public holidays.

Approval from the Endeavor Energy Environmental Team will be required for more than two consecutive nights of unplanned night works. In the event works are required for more than two consecutive nights, nearby sensitive receivers will be notified.

## 8 Environmental assessment and mitigation

### 8.1 Overview

The following environmental factors were assessed to determine the environmental impacts associated with the project:

- Aboriginal heritage
- biodiversity
- water, soils and aquatic ecology
- noise.

Detailed stand-alone assessment reports for Aboriginal heritage and biodiversity are provided as Appendices and summarised in the following sections. The assessment reports were prepared by subject matter experts (Biosis) on behalf of EE.

Lower risk environmental factors for the project that are required to be considered under Clause 171 of the EP&A Regulation and the Code are also addressed in this section and include:

- historic heritage
- utilities and services
- roads, traffic and access
- land use
- landscape and visual
- socio-economic impacts
- noise
- air quality and dust suppression
- safety and hazards
- bushfire
- waste generation storage
- contamination
- cumulative impacts.

Each section below provides an overview, describes the existing environment, assesses impact and discusses mitigation and management. The mitigation and management measures for the project are also provided. Prior to the commencement of construction, a construction contractor will develop a CEMP with the approval of EE, which will capture the management and mitigation measures presented in this REF, providing further site-specific detail where appropriate, and detailing responsibilities and timing for their implementation.



## 8.2 Aboriginal heritage

### 8.2.1 Overview

An Aboriginal Cultural Heritage Assessment Report (ACHAR) was prepared for the project by Biosis (2023) (refer Appendix A). The assessment was prepared in accordance with Part 5 of the EP&A Act. The ACHAR details the investigation, consultation and assessment of Aboriginal cultural heritage within the study area.

This section serves to summarise the findings of the ACHAR, which is appended in Appendix A.

### 8.2.2 Existing environment

#### i Study area

The ACHAR identified the study area as Picnic Island (subject of this REF) and an existing easement on Pelican View Reserve, which is subject to a separate Summary Environmental Report (SER). The study area is shown in Figure 8.1 below.



**Figure 8.1** Map showing the study area in the ACHAR (red outline) with the disturbance area in yellow. This REF only considers the Picnic Island portion of the study area.

Source: Biosis 2023

## ii Aboriginal history of the locality

The study area is located in the traditional lands of the Tharawal/Dharawal people. Analysis of middens in the area suggests occupation dating back 6–7,000 years at Lake Illawarra, and it is accepted that Aboriginal occupation of the south coast dates to around 20,000 years ago (Biosis 2023). The ACHAR describes the ethnohistoric context of the study area in Chapter 3. The study area would have provided many natural resources for the local Aboriginal people, with evidence of occupation reflected across the landscape by many recorded sites around Lake Illawarra.

The arrival of European settlers restricted movement of Aboriginal people through loss of land to agriculture. Violence and conflict erupted as Aboriginals and Europeans competed for resources. Europeans also brought diseases including smallpox, which devastated Aboriginal populations (Biosis 2023).

## iii Previous archaeological investigations and research

Several cultural heritage investigations have been conducted for the Illawarra region. Most south coast Aboriginal sites date to the last 6,000 years when the sea-level stabilised following the end of the last ice age. Coastal sites older than 6,000 years are rare as the sea levels were lower, with the shore around 14 kilometres away from the current shoreline – older sites have been inundated by the rising sea.

Ethnohistorical records suggest two major zones of exploitation in the Illawarra area: (1) the coastal zone, including the shoreline, offshore islands and Lake Illawarra and (2) in the inland zone, including undulating tablelands.

Furthermore, previous documentary and archaeological research indicates that archaeological evidence is likely to be found with certain landforms, largely as a result of the resources that were associated with these landforms. OEH (now DPE) lists five such landforms:

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

Several investigations have been conducted within five kilometres of the study area, mostly as part of development applications. These are summarised in chapter 3.2.2 of Appendix 5 in the ACHAR. One investigation, Dallas and Navin (1987) included Picnic Island in an archaeological survey along the southern foreshore of Lake Illawarra and on Bevans, Picnic, Berageree and Werrang Islands. Picnic Island AHIMS 52-2-0119, a midden site, was re-identified during the survey and five new shell midden sites were identified. Dallas and Navin suggested that the locations of middens on the islands was not necessarily indicative of preferential use, but more likely that the lack of disturbances on the islands compared to the heavily disturbed Lake Illawarra foreshore resulted in midden preservation on the islands and destruction of foreshore middens.

### 8.2.3 Aboriginal Heritage Information System (AHIMS) database search

The Aboriginal Heritage Information System (AHIMS) was searched on 11 January 2023 by Biosis within a 5 km search area centred on the study area. The AHIMS search results identified a total of 96 sites, one of which, AHIMS ID 52-5-0119 / Picnic Island Midden, is located within the study area, though the site is incorrectly entered into the AHIMS database (discussed further below).

It should be noted that the AHIMS database reflects Aboriginal sites that have been officially recorded and included on the list. Large areas of NSW have not been subject to systematic, archaeological survey; hence,



AHIMS listings may reflect previous survey patterns and should not be considered a complete list of Aboriginal sites within a given area. Some recorded sites consist of more than one element, for example artefacts and a modified tree; however, for the purposes of this breakdown and the predictive modelling, all individual site types will be studied and compared. This explains why there are 146 results presented here, compared to the 96 sites identified in AHIMS.

Aboriginal site type frequency of is summarised in Table 8.1.

**Table 8.1** Frequency of recorded site types

Site features	Frequency	Percentage
Artefact	76	52.05
Shell	46	31.51
PAD	10	6.85
Burial	6	4.11
Aboriginal Ceremony and Dreaming	3	2.05
Aboriginal Resource and Gathering	1	0.68
Modified Tree (Carved or Scarred)	1	0.68
Habitation Structure	1	0.68
<b>Total</b>	<b>146</b>	<b>100</b>

A simple analysis of the Aboriginal cultural heritage sites registered within 5 km of the study area indicates that the dominant site type is artefact representing 52.05% (n=76), followed by shell with 31.51% (n=46) and Potential Archaeological Deposit (PAD) with 6.85% (n=10). Burial sites represented 4.11% (n=6), with Aboriginal ceremony and dreaming representing 2.05% (n=3) and restricted sites representing 1.37% (n=2). Finally, modified tree, Aboriginal resource and gathering and habitation structure site types had the lowest frequency with 0.82% each (n=1).

Biosis contacted the AHIMS Registrar on 11 January 2023 to confirm if the restricted sites (AHIMS 52-5-0847 and AHIMS 52-5-0826) were in or near the study area. They were confirmed to be located outside of the study area, though the distance was not available due to restrictions. The Registrar confirmed that the sites will not be impacted by the development.

An AHIMS search conducted on 11 January 2023 identified AHIMS 52-5-0119/Picnic Island Midden within the study area. Recorded AHIMS sites within the vicinity of the project are shown in



**Figure 8.2** Location of recorded AHIMS sites

Source: Biosis 2023a

### 8.2.4 Site inspection

A site inspection of the study area was carried out on 22 February 2023 by Crystal Garabedian (Heritage Consultant), and Samantha Keats (Manager-Heritage) from Biosis, with Pam Glover (Site Officer) from Illawarra LALC. The site inspection consisted of an archaeological survey conducted on foot. Recording during the survey followed the archaeological survey requirements of the Code and industry best practice methodology.

### 8.2.5 Archaeological sensitivity

Archaeological sensitivity is closely related to levels of ground disturbance, whether artefacts are located on, or close to, the surface, and whether the area is within a sensitive landform unit according to the predictive statements.

AHIMS ID 52-5-0119/Picnic Island Midden is located directly under poles 212269 and 212270 on the northern side of Picnic Island but has been mapped incorrectly within the AHIMS database. Biosis reviewed the site card which indicates the site is located on Picnic Island, within the study area. The February 2023 site inspection confirmed the presence of AHIMS 52-5-0119 beneath poles 212269 and 212270. The exposed portion of the site measured approximately 2 m in length, 20 cm in depth, with an undetermined width. Partial loss of the m caused by erosion.

The survey also found the possible presence of a second midden at the north-western point of the study area, but access to the location was restricted due to tidal levels and presence could not be confirmed.

The Picnic Island portion of the study area has been defined as having high potential to contain Aboriginal sites due to past archaeological reports, database records, environmental discussion, and site survey. Conversely, vegetation clearance and construction have likely caused significant disturbance to subsurface deposits on the mainland portion of the study area, resulting in a nomination of low potential.

### 8.2.6 Consultation with Aboriginal stakeholders

Preparation of the ACHAR included consultation with Aboriginal people in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* and the requirements of Clause 60 of the NPW Regulation 2019.

Relevant consultation activities undertaken are listed in Appendix 1 of the ACHAR, and registered Aboriginal stakeholders are listed in Section 4.1.3 of the ACHAR (Biosis 2023).

The Aboriginal cultural values identified as part of the consultation process show that the study area is highly sensitive to the local Aboriginal community and is of importance to cultural heritage (Biosis 2023). These values become tangible when tied to identified Aboriginal objects found at archaeological sites. In this way the Aboriginal objects can be seen as exhibiting both scientific information and cultural meaning, knowledge about the past tied with social values and belief system.

### 8.2.7 Site observations and archaeological findings

As previously noted, AHIMS ID-52-5-0119/Picnic Island Midden is present within the northern portion of the study area, below the current pole location. The site can be seen eroding out of the northern facing bank. The exposed portion of the site measures approximately 2 metres long, 10 cm deep and has an currently undetermined width. The deposit layer is underlain with approximately 30 cm of soil.

The midden consists of shell and lithic material including local shell species Sydney Cockle *A. Trapezia*, native mud oyster *O. Angasi*, and hercules club mud whelk *P. ebeninus*. Lithic material consisted of five artefacts, including three flakes, one pebble, and one core, with raw materials basalt and silcrete.

### 8.2.8 Cultural heritage values and statement of significance

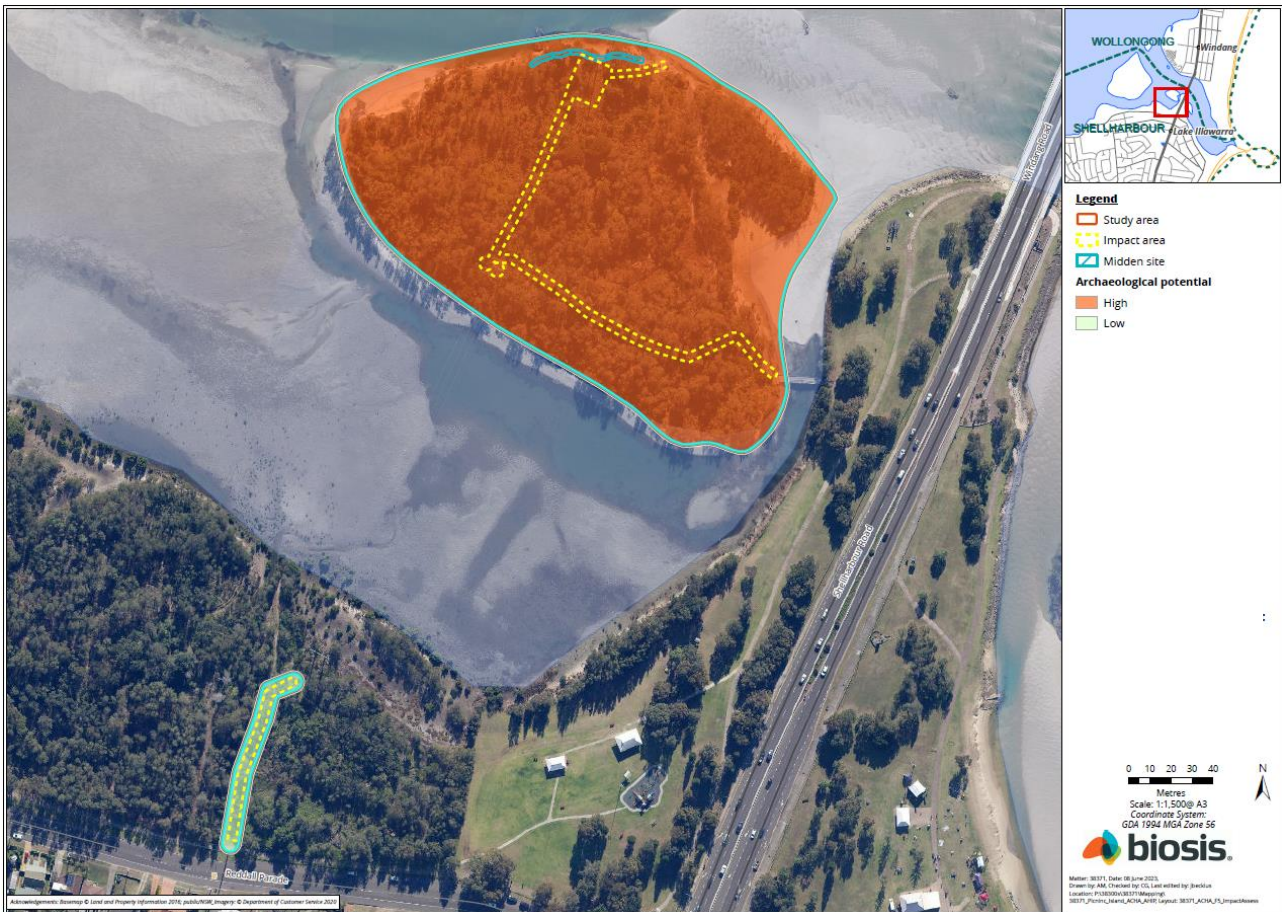
The ACHAR considered the cultural heritage values of the study area for Aboriginal people by assessing the cultural/social, historic, scientific/archaeological significance and aesthetic values of the Aboriginal site uncovered. Overall, the study area, and AHIMS 52-2-0119/Picnic Island Midden were found to have ‘moderate archaeological significance’.

### 8.2.9 Impact assessment

The ACHAR concluded that ground disturbing works associated with the installation of new twin electrical poles and dismantling of the current electrical poles will impact AHIMS 52-2-0119/Picnic Island Midden.

**Table 8.2 Proposed impact to Aboriginal archaeological site within the study area**

Site name	AHIMS number	Type of harm	Degree of harm	Consequence of harm
Picnic Island Midden	52-2-0119	Direct	Partial	Partial loss of value



**Figure 8.3** Impact assessment AHIMS 52-2-0119/Picnic Island Midden as shown in the ACHAR

Source: Biosis 2023a

### 8.2.10 Management and mitigation measures

The ACHAR recommended that test excavation under an AHIP permit be undertaken, as a mitigation measure, within the impact area of the proposed pole locations and works boundaries to collect information about the nature and extent of potential subsurface Aboriginal objects. Following excavations, an analysis of any potential archaeological objects or features identified will be undertaken to provide further information about the potential uses of the site by Aboriginal people. A second AHIP is likely to be required prior to commencement of works, as it is anticipated cultural material will be found during test excavation. Results of test excavation will inform a possible subsequent AHIP application.

Detailed recommendations are provided in Chapter 7 of the ACHAR (Appendix A of this REF). The following is a summary of recommendations:

1. Application for an AHIP for test excavation of pole locations near AHIMS 52-2-0119/Picnic Island Midden
  - a) Under Requirement 14 of the Code, it is necessary to apply for an AHIP to conduct test excavations in or within 50 m of a known or suspected shell midden. Test excavations should only be carried out within the impact areas of the project where significant ground disturbing works will occur (area of twin pole placement).
2. Manage and mitigate impacts from ground disturbance during works
  - a) laying down protective fabric (i.e. steel or wooden sleepers for vehicles to drive over) and removing fabric once works are complete



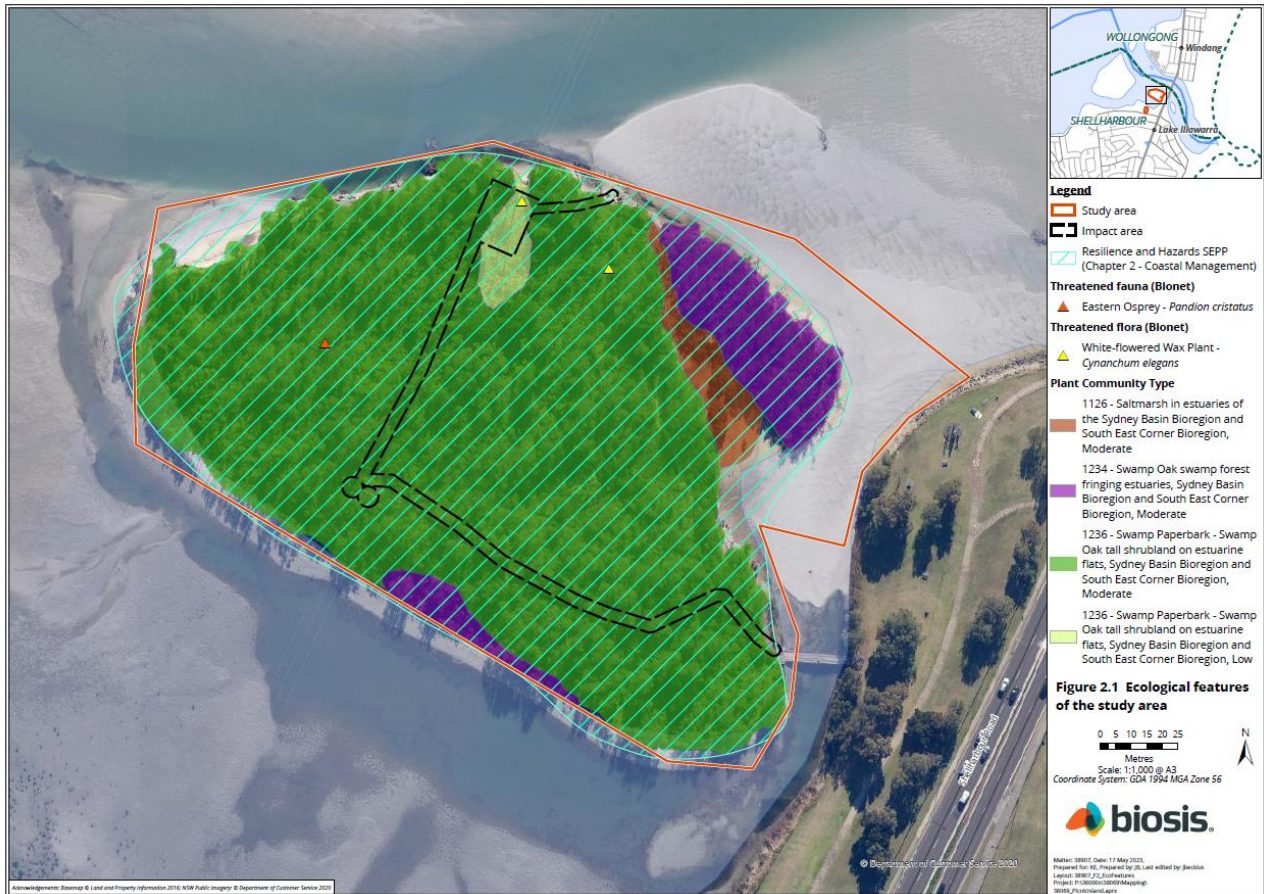
- b) clearly marking boundary of access tracks and limiting vehicle movements to these areas
  - c) clearly marking the boundary of approved works areas (i.e. the AHIP boundary) and limiting works to these areas
  - d) removal of poles through low impact method and leaving stumps in place
  - e) trimming vegetation rather than removing it completely from the ground along with the root
  - f) heritage induction for site workers and contractors should be undertaken to prevent any unintentional harm to Aboriginal sites located within the study area and its surrounds.
3. Continued consultation with the registered Aboriginal stakeholders
4. Long term care and control
- a) A long term care and control agreement for any Aboriginal objects collected under the AHIP must be established in consultation with the Aboriginal community prior to impacts. This should detail the preferred method of repatriation of any cultural material, which will be discerned after testing. This method of repatriation should consider the principles of Ecologically Sustainable Development (ESD) and intergenerational equity and more importantly ensures that recovered artefacts are managed according to the wishes of the RAPs.
5. Discovery of unanticipated Aboriginal Objects
- a) -Should any Aboriginal objects be encountered during works associated with this proposal, works must cease in the vicinity and the find should not be moved until assessed by a qualified archaeologist.
6. Discovery of Aboriginal ancestral remains
- a) immediately cease all work at that location and not further move or disturb the remains
  - b) notify the NSW police and Heritage NSW Environmental Line on 131 555 as soon as practicable and provide details of the remains and their location
  - c) do not recommence work at that location unless authorised in writing by Heritage NSW.

## 8.3 Biodiversity

### 8.3.1 Overview

A Flora and Fauna Assessment (FFA) for the project was prepared by Biosis (Biosis 2023a) in order to assess whether the project area may support any native vegetation, threatened species, populations and communities listed under the BC Act and/or EPBC Act. The FFA study area can be found in Figure 8.4 below.

A desktop assessment was completed, which included searches of relevant databases and the review of existing and available vegetation mapping. The FFA was also informed by two field surveys, first undertaken in 2022 and more recently in March 2023. The more recent field survey included the validation of existing vegetation mapping and threatened flora and fauna habitat assessment.



**Figure 8.4 Flora and Fauna Assessment study Area**

Source: Biosis (2023a)

### 8.3.2 Existing environment

The FFA study area consists of Picnic Island and a portion of tidal flats on the northeastern side of the island (refer to Figure 8.4). The study area is within the Lake Illawarra estuary catchment and the South Coast botanical subdivision on the Wollongong Plains. The Wollongong Plains are characterised by mixed warm temperature and subtropical rainforest complexes on rich shale soils and alluvium under the Illawarra Escarpment, interspersed with patches of lowland forest and woodland communities.

The FFA study area is within a Crown Land reserve, zoned as C2, environmental conservation. Picnic Island is also mapped as a Coastal Wetland under the Resilience and Hazards SEPP 2021 (Figure 8.5).





**Figure 8.5** Picnic Island with Coastal Wetlands mapping

Source: SEED portal

#### i Desktop searches

The Protected Matters Search Tool (PMST) was searched on 30 March 2023 for EPBC Act listed threatened ecological communities and threatened species on Picnic Island and a buffer area of 1 km around Picnic Island.

The results indicate that there are six threatened ecological communities and 86 listed threatened species within the search area.

A search of the Seed database for Bionet species sightings was conducted 3 April 2023. The results indicate sightings of White-flowered Wax Plant, an endangered species, in two locations on the island, which was confirmed by Biosis (2023a) - one along the alignment, north of the condemned poles, the other southeast of the alignment, away from the impact area.

### 8.3.3 Field surveys

#### i Flora

Biosis completed field surveys was on 13 September 2022 and 22 March 2023. The vegetation on Picnic Island is primarily in a moderate condition, with a fairly intact canopy and a number of mid storey species (Biosis 2023a). White-flowered Wax Plant, a threatened species, has observed in two locations on Picnic Island. The understorey, in part, has been heavily invaded by exotic vines, shrubs and herbs such as:

- Madeira Vine (*Anredera cordifolia*)
- Turkey Rhubarb (*Rumex sagittate*)
- Lantana (*Lantana camara*)
- Cape Ivy (*Delairea odorata*).

A saltmarsh community occupies a small area on the eastern side of the island and aquatic vegetation surrounding the island has been partially mapped as a seagrass meadow.

The field surveys identified PCT 1236 Swamp Paperbark, Swamp Oak tall shrubland on estuarine flats, Sydney Basin Bioregion and South East Corner Bioregions. The PCT was present in two conditions, low condition, around the proposed new pole location, and moderate condition. Swamp Oak is the dominant species within the canopy on Picnic Island. This PCT is subject to assessment under the EPBC Act.

PCT 1234 Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Cover Bioregion was identified on the eastern and southern edges of Picnic Island, in moderate condition. The canopy was comprised of Swamp Oak with scattered Grey Mangrove. This community does not meet the criteria for the EEC as the patch size is less than 2 ha.

A small patch of moderate condition community of Saltmarsh in the estuaries of the Sydney Basin Bioregion and South East Corner Bioregion, PCT 1126, was present in the eastern portion of the study area, adjacent to a patch of Grey Mangrove and Swamp Oak swamp forest. This community does not meet TEC requirements as the patch size is isolated and less than 0.1 ha in size. The FFA determined the project will not directly impact the saltmarsh community.

Twenty threatened flora species have been recorded or were identified as predicted to occur within 5 km of the study area through background searches. Those most likely to occur within the study area are as follows:

- Illawarra Zieria (*Zieria granulata*) (Endangered, EPBC and BC Act)
- *Pimelea curviflora* var. *curviflora* (Vulnerable, EPBC and BC Act)
- Prickly Bush-pea (*Pultenaea aristate*) (Vulnerable, EPBC and BC Act)
- Scrub Turpentine (*Rhodamnia rubescens*) (Critically Endangered, BC Act)
- Spiked Rice-flower (*Pimelea spicata*) (Endangered, EPBC and BC Act)
- White-flowered Wax Plant (*Cynanchum elegans*) (Endangered, EPBC and BC Act).

An assessment for habitat values can be found in Table 2 of the Flora and Fauna Assessment (Biosis 2023a).

Furthermore, eight priority weeds for the South East LLS region, which includes Shellharbour LGA, were identified within the study area (Table 8.3).

**Table 8.3** Priority weeds within the study area

Scientific name	Common name	Relevant biosecurity duty
<i>Anredera cordifolia</i>	Madeira Vine	General Biosecurity Duty
<i>Asparagus virgatus</i>	Asparagus Fern	General Biosecurity Duty
<i>Delairea odorata</i>	Cape Ivy	General Biosecurity Duty
<i>Lantana camara</i>	Lantana	<p><b>Regional Recommended Measure</b></p> <p>An exclusion zone is established for all lands in the Greater Sydney region excluding core infestation areas of Eurobodalla, Kiama, Shellharbour, Wollongong and the Shoalhaven LGA north of the Lantana containment line.</p> <p>Exclusion zone: The plant should be eradicated from the land and the land kept free of the plant.</p>
<i>Opuntia aurantiaca</i>	Tiger Pear	General Biosecurity Duty
<i>Opuntia stricta</i>	Prickly Pear	General Biosecurity Duty

**Table 8.3 Priority weeds within the study area**

Scientific name	Common name	Relevant biosecurity duty
<i>Rumex sagittatus</i>	Turkey Rhubarb	General Biosecurity Duty
<i>Senecio madagascariensis</i>	Fireweed	Core infestation area is: Wollongong, Kiama, Shellharbour, Eurobodalla, Shoalhaven, Bega Valley and Wingecaribee Councils. Whole region: Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Core infestation area: Land managers reduce impacts from the plant on priority assets.

## ii Fauna

Background searches identified 95 threatened fauna species as recorded or predicted to occur within 5 km of the study area. Species considered most likely to occur within the study area are:

- Beach Stone-curlew (*Esacus magnirostris*) (Critically Endangered, BC Act)
- Curlew Sandpiper (*Calidris ferruginea*) (Critically Endangered, EPBC Act and Endangered, BC Act)
- Eastern Curlew (*Numenius madagascariensis*) (Critically Endangered, EPBC Act)
- Eastern Osprey (*Pandion cristatus*) (Vulnerable, BC Act)
- Great Knot (*Calidris tenuirostris*) (Critically Endangered, EPBC Act and Vulnerable, BC Act)
- Greater Sand-plover (*Charadrius leschenaultii*) (Vulnerable, EPBC Act and BC Act)
- Grey-headed Flying-fox (*Pteropus poliocephalus*) (Vulnerable, EPBC Act and BC Act)
- Lesser Sand-plover (*Charadrius mongolus*) (Endangered, EPBC Act and Vulnerable, BC Act)
- Little Tern (*Sternula albifrons*) (Endangered, BC Act)
- Pied Oystercatcher (*Haematopus longirostris*) (Endangered, BC Act)
- Red Knot (*Calidris canutus*) (Endangered, EPBC Act)
- Sanderling (*Calidris alba*) (Vulnerable, BC Act)
- Sooty Oystercatcher (*Haematopus fuliginosus*) (Vulnerable, BC Act)
- Turquoise Parrot (*Neophema pulchella*) (Vulnerable, BC Act)
- White-bellied Sea-Eagle (*Haliaeetus leucogaster*) (Vulnerable, BC Act).

An assessment of habitat values of the study area can be found in table 3 of the Flora and Fauna assessment (Biosis 2023a) (Appendix B).

## 8.3.4 Impact assessment

### i Flora

The project will result in a direct disturbance of 0.14 ha of native vegetation, being PCT 1234 Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion, and 1236 Swamp Paperbark – Swamp Oak tall shrubland on estuarine flats, Sydney Basin Bioregion and South East Corner Bioregion.

Indirect impacts may include:

- disturbance to fauna due to noise and dust emissions
- spread of weed species (if mitigation measures are not followed).

Biosis (2023) completed a Significant Impact Criteria for an EEC and a flora species subject to assessment under the EPBC Act within the study area, a summary of which can be found in Table 8.4 below. Full test SIC results can be found in Appendix B.

**Table 8.4 Significant Impact Criteria (EPBC Act)**

EEC or species tested	SIC Result
Coastal Swamp Oak ( <i>Casuarina glauca</i> ) Forest of New South Wales and South East Queensland ecological community (EEC)	Impacts are relatively localised and the proposed works are unlikely to result in a significant reduction of the extent of the EEC. Coastal Swamp Oak Forest is unlikely to be significantly impacted by the proposed works.
White flowered Wax Plant <i>Cynanchum elegans</i>	There are several recorded White-flowered Wax Plants within 5 km of the study area, and the local area supports habitat for the species. The proposed works are unlikely to lead to a significant impact on White-flowered Wax Plant

Biosis (2023) also completed a Tests of Significance (ToS) for two entities occurring within the study area which are subject to assessment under the BC Act, Summary ToS results can be found in Table 8.5 below. Full results can be found in Appendix B.

**Table 8.5 Tests of Significance – flora (BC Act)**

TEC / Species	ToS result
Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	The proposed works are unlikely to significantly impact Swamp Oak Floodplain Forest. Application of the BOS or preparation of an SIS is not required.
White-flowered wax plant <i>Cynanchum elegans</i>	The proposed works may affect the White-flowered Wax Plant within the impact area but will not significantly impact the species in the wider locality. Application of the BOS or preparation of an SIS is not required.

### ii Fauna

The White-bellied Sea Eagle *Haliaeetus leucogaster*, and the Eastern Osprey *Pandion cristatus*, are listed as vulnerable species under the BC Act. Both have been observed within 5 km of the study area, though not during field survey, and are associated with all the PCTs observed on Picnic Island. The project will result in removal of potential habitat and are therefore subject to assessment under the BC Act through a Test of Significance. ToS results can be found in Table 8.6 below. Full results can be found in Appendix B.

**Table 8.6 Test of Significance - fauna (BC Act)**

Species	Test of Significance result
White-bellied Sea Eagle	The proposed works will not significantly impact the White-bellied Sea Eagle. Application of the BOS or preparation of an SIS is not required.
Eastern Osprey	It is unlikely the proposed works will impose a significant impact on threatened shorebirds.

### 8.3.5 Management and mitigation measures

Biosis (2023) recommend the following mitigation measures:

- Establish a 2 m buffer, including installation of appropriate “No Go” protective fencing around the White-flowered Wax Plant individuals within the study area.
- A preclearance survey of the proposed route should be completed prior to vegetation clearing to ensure no nests or protected species will be impacted. This should be completed by a suitably qualified and licenced ecologist.
- A suitably qualified and licenced ecologist should be present to establish No Go zones and ensure White-flowered Wax Plant is not impacted during clearing works.
- To the fullest extent practicable, minimise disturbance to any native vegetation surrounding the study area.
- Where possible, any trees to be retained should be protected in accordance with Australian Standard AS4970 – 2009 Protection of trees on development sites, during construction, operation, and decommissioning of site compound.
- In the unlikely event that unexpected threatened species are identified during the project, works should cease and an ecologist contacted.
- Soil transportation should be minimised into or out of the study area to reduce the spread of weeds.
- Eight priority weeds within the Shellharbour Council LGA were identified within the study area. Appropriate measures should be implemented to minimise the spread of these species in accordance with EMS0004 - Managing Vegetation Near Electrical Infrastructure and Pest, Weed and Disease Mitigation
- Appropriate erosion and sediment control measures should be installed at all sites to avoid sedimentation of receiving water bodies or other indirect impacts to surrounding biodiversity values.

## 8.4 Water, soils and aquatic ecology

### 8.4.1 Overview

This section assesses the potential hydrology, flooding, water quality, soil erosion and sedimentation aspects and impacts of the project. A technical memorandum was commissioned as part of the project (GHD 2022) to summarise the reviews undertaken on the erosion issue of the Picnic Island shoreline.

## 8.4.2 Existing environment

### i Hydrology and water quality

The project is within the Lake Illawarra catchment, more specifically, the Lake Illawarra estuary catchment. Lake Illawarra estuary. Lake Illawarra is a large lake, positioned between the Illawarra escarpment and the Tasman Sea. In the mid-2000s, the Lake Illawarra Entrance Works Project was completed, providing a permanent entrance from the Tasman Sea to Lake Illawarra. The works resulted in significant hydrodynamic and geomorphic changes, particularly, an increased hydraulic capacity of the entrance channel, which has altered the patterns in scour, erosion and sedimentation. These changes have impacted Picnic Island, causing erosion of the northern bank that has been exacerbated by recent weather events (GHD 2022).

There are no watercourses on Picnic Island.

### i Flooding

Picnic Island is not within a 1 in 100-year average recurrent interval (ARI) area according to ePlanning Spatial Viewer Flood Planning Map layer (2023), nor is it within a flood planning area, flood prone and major creeks land, or land subject to flooding.

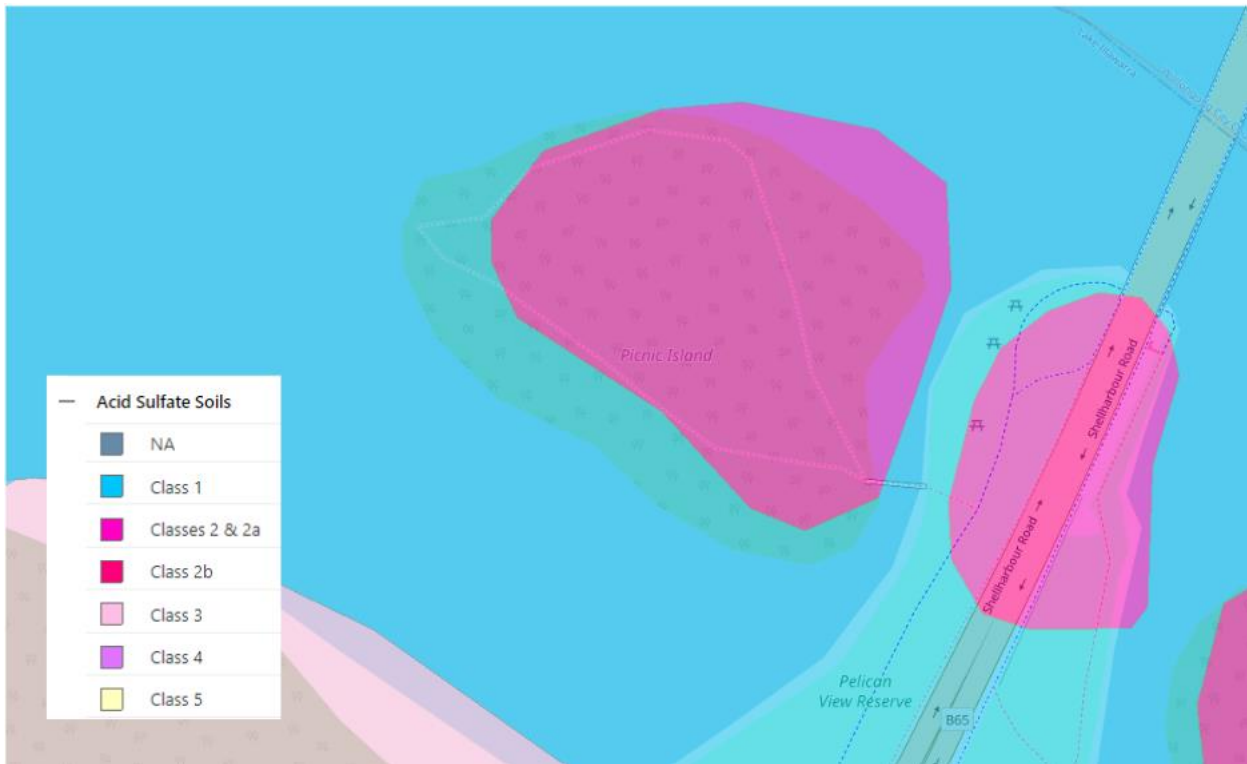
### ii Geology and soils

The project is located within the Sydney Basin. Regional soil landscape mapping indicates that Picnic Island occurs on the Seven Mile landscape of the Kiama 1:100,000 Sheet Map and Report. The Seven Mile soil landscape is characterised as an estuarine soil landscape and occurs as a series of dune ridges, swamps and lagoons on Quaternary Marine sands. The soil is typically deep Siliceous Sands and Podsoles which are often saline, low in organic matter, and moderately acid. Picnic Island is generally subject to channel flow and tidal actions (Biosis 2023a).

Picnic Island surface geology is estuarine tidal-delta flat stratigraphic unit from the Holocene age comprising marine deposited fine to medium grained lithic-carbonate-quartz sand, clay, silt, polymictic gravel and shell material.

The project area is mapped as class 2 & 2a Acid Sulfate Soil (ASS) (Figure 8.6), with acid sulfate soils likely to be found below the natural ground surface. ASS contain iron sulfide minerals (pyrite) that react with oxygen when exposed, which turns the pyrite into environment damaging sulfuric acid.





**Figure 8.6** Acid sulfate soils map

Source: Seed database

### iii Aquatic ecology

A seagrass community of Ribbonweed *Zostera* has also been mapped around most of Picnic Island, which is protected under the FM Act. Under the *Fisheries Management (general) Regulation 2019*, works harmful to marine vegetation (which includes mangroves, seagrasses and any other vegetation declared to be marine vegetation by regulations) such as driving a vehicle over marine vegetation or an activity that obstructs or alters tidal flows to marine vegetation requires a permit under Part 7 section 205 of the FM Act.

#### 8.4.3 Impact assessment

Access track works and pole re-location works will be carried out less than 40 m from the waters of Lake Illawarra.

The greatest erosion risks are expected during delivery and pick up of plant and equipment via barge on the north-eastern side of Picnic Island and when boring pole holes for pole relocation. Sediment control measures will be implemented as outlined in the following section.

Another risk is the storage and/or stockpiling of any excess spoil that may need to be disposed of following construction works, especially considering the likelihood of encountering ASS. Stockpile management will be a key element for inclusion in the CEMP, particularly in relation to location, drainage and appropriate handling, and neutralisation off ASS.

A combination of management and mitigation measures should be implemented to control offsite impacts of these risks, in particular when working close to any waterways.

The project will involve the use of a barge to transport equipment onto Picnic Island, which may result in localised turbidity impacts and may impact on the FM listed aquatic ecological community Ribbonweed *Zostera*. Accordingly, a permit under the FM Act will be required.

#### 8.4.4 Management and mitigation measures

The key objective of any water management and mitigation measures should be prevention of pollution, erosion prevention and sediment/turbidity control. The practices that will be implemented during construction, particularly any under boring activities, are described below.

##### i Pollution control measures, erosion, and sediment control

The objective of erosion and sediment control practices will be to take all reasonable and practicable measures to minimise short- and long-term soil erosion, while minimising sediment transport. This will be achieved by applying the principles of erosion and sediment control detailed in the erosion and sediment control section of EE's Environmental Guidelines Handbook.

The following management and mitigation measures will be applied during construction:

- Spill kits will be available at the construction site, and all persons undertaking construction works will be made aware of EE's incident response procedures.
- Soil and water management will be conducted in accordance with EE's standards and Environmental Guidelines Handbook.
- The Project Manager/Supervisor responsible for construction works will be required to develop a site-specific Erosion and Sediment Control Plan as part of the CEMP.
- Disturbance will be restricted to those areas of the project required for the active stage of works.
- No fuels, oils or other chemicals are to be stored at worksites unless small amounts are required for that specific days' work.
- Refuelling and maintenance of vehicles, plant and equipment will not be carried out on the subject site.
- All drainage, erosion and sediment control measures will be maintained in proper working order until their function is no longer required.
- Flagging tape or bunting will be used during construction to minimise the potential or any disturbance outside of the designated work areas.
- Upon decommissioning any stage of works, erosion and sediment control measures, all materials used to form the control measures will be removed and/or disposed of appropriately.

##### ii Excavated material measures

Excavated materials are to remain on Picnic Island as per RAP request unless soils are found to be contaminated or lab testing determines ASS should be disposed of. Site remediation and clean-up will be managed by Soil Conservation service. Soils are to be tested for the presence of acid sulphate and neutralised according to test results as soon as possible. Stockpiling of acid sulfate soils (ASS) and potential ASS (PASS) should be avoided. Where it is necessary to store spoil or other loose materials on site, sediment fences are to be constructed on the down slope side of the stockpile. Where it is necessary to stockpile ASS and/or PASS, stockpiles are to be covered separately on plastics or in a skip bin to minimise exposure to air and keep damp.

Spoil management and dewatering of worksites will all be managed in accordance with the following EE Standards and the Environmental Guidelines Handbook which are all available on the EE Standards and ASP Website:

- EMS 0007 – Waste Management
- EMS 0008 – Environmental Incidence Response and Management
- EMS 0013 – Spoil management
- EMS 0014 – Dewatering worksites.

### iii Aquatic ecology

As the project involves the use of a barge to transport equipment onto Picnic Island, a permit under the FM Act will be required due to potential impacts on the FM Act listed aquatic ecological community. If the following mitigation measures are enforced, disturbance to marine vegetation are considered to have an acceptable degree of harm:

- The barge will not drop any anchor into areas with sea grass; instead, it will secure the vessel to the shore.
- Whenever possible, the barge will beach itself on shore areas where marine vegetation is absent, reducing potential damage to the environment.
- To minimise contact with sea grass, the barge will limit its time beached, only dropping off and picking up equipment when necessary.

### iv Contaminated soil measures

An unexpected finds protocol will be prepared and implemented, as part of the CEMP, to manage any contamination which may be encountered during construction works.

### v Acid sulfate soils

ASS are expected to be encountered during pole hole drilling. Prior to the commencement of works, soils around the proposed new pole locations need to be tested for the presence of acid sulfate. Test results will be used to inform lime dosing rate for neutralisation of any ASS.

ASS identified during works should be properly managed as follows:

- ASS stockpiling is to be avoided if possible. If stockpiling can't be avoided, stockpiles will be covered separately on plastics or in a skip bin to minimise exposure to air.
- ASS is to be neutralised with lime according to dosing rates informed by lab testing and re-buried or spread out within 24 hours or disposed of at a licenced facility if lab testing determines disposal is required. ASS management will be conducted in accordance with EMS0013 Generic Acid Sulfate Soil Management Plan standard and EE's Environmental Guidelines Handbook.
- All material to be removed from the site should be carried out by a licensed contractor. The material should be sealed and contained on the truck during haulage using appropriate lining and capping material.
- The disturbance of ASS should be avoided as much as possible by minimising excavation works.

## 8.5 Noise

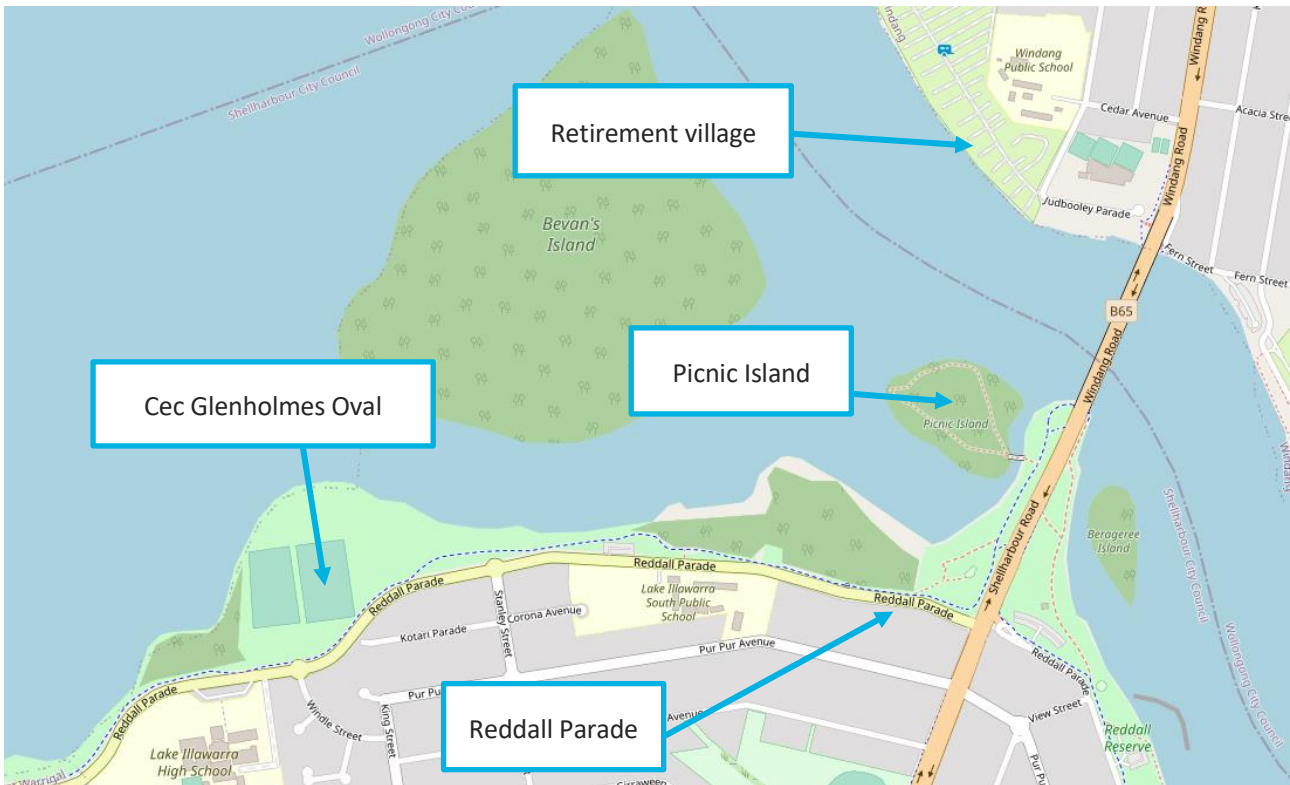
### 8.5.1 Overview

While the project will result in some noise, the works are short in duration and will not have a lasting effect.

### 8.5.2 Existing environment

#### i Sensitive receivers

The nearest potentially residential premises potentially affected by project works on Picnic Island is located approximately 265 m north of the Picnic Island, at 17 Judbooley Place, Windang. 17 Judbooley Place is a retirement village on the waterfront across from Picnic Island, as seen in Figure 8.7. Residents along Redall Parade, across from Cec Glenholmes Oval, the nearest of which is approximately 30 m southeast of the oval, will likely be affected by short term noise when a helicopter transports poles from the oval to Picnic Island. Residential dwellings to the project personnel access via Pelican View Reserve are located approximately 35 m to the south of the access point off Reddall Parade; however, potential noise impacts on these residences are expected to be generally limited to light vehicle movements along Reddell Parade.



**Figure 8.7** Nearest sensitive receivers

Source: SEED portal

### 8.5.3 Project noise

Works associated with the proposal will result in some noise generation. Typical noise generation for the project includes boring machinery, helicopter, skidsteer, barge, concrete truck, spider lift, and vegetation trimming equipment. It may also include other small items of plant, and light and heavy vehicles used by the construction contractors.

Construction will generally be restricted to standard construction hours:

- Mondays to Fridays, 7:00 am to 4:00 pm
- Saturdays, 8:00 am to 1:00 pm
- Sundays and public holidays, no work.

Should construction works need to be conducted outside the times specified above, specific management measures will be implemented to notify nearby residents and other receivers of the works to be undertaken. This will occur if continued work is required to ensure safe completion of the operation.

#### 8.5.4 Impact assessment

Given the works will be contained within Picnic Island, over a short duration, aside from two helicopter transport occurrences, it is anticipated that construction noise should not greatly disturb many residential, commercial, and industrial premises. With the exception of residences along Reddall Parade, which will only experience light vehicle movements associated with construction personnel, the nearest sensitive receivers are residential dwellings located across the estuary and dwellings across the road from Cec Glenholmes Oval. These receivers may be temporarily affected by the noise from project works. The noisiest activity within Picnic Island, pole hole boring, only takes around two hours per hole, totalling around four hours. Transporting poles by helicopter is also a noisy activity, however, will only last approximately two hours per day for four days.

Feasible and reasonable noise mitigation and management measures will be implemented for the duration of works.

#### 8.5.5 Management and mitigation measures

The following management and mitigation measures are recommended for the duration of construction works:

- Construction works must be carried out within normal working hours unless otherwise approved. Any out-of-hours-works will be carried out in accordance with the requirements of EE's Environmental Guidelines Handbook.
- Should power generators be required to supply private properties during any stage of the construction works, the Project Manager must liaise with the Environmental Services Team. If generators are required to operate at night, acoustic consultants may be required to undertake noise assessment prior to their use.

### 8.6 Historic heritage

#### 8.6.1 Overview

This section assesses the historic heritage aspects and impacts of the project. No specialist studies were undertaken as part of this REF as searches found no heritage items or places in the vicinity of the proposed works.

#### 8.6.2 Existing environment

##### i Non-statutory heritage items

The Australian Heritage database was searched for any non-statutory heritage items and identified that there are no non-statutory heritage items within the study area or within 200 m of the study area that are listed on the database.



## ii Listed Heritage items

A search of the State and local heritage registers identified no heritage items within a 200 m buffer of the study area.

### 8.6.3 European history of the locality

Exploration of the area began soon after first settlement, given that the sandy shallow soils of coastal Sydney were unsuitable for cultivation, and it was necessary to find more fertile land. The Shellharbour area was initially settled by Europeans with land grants between 1800 and 1850. Settlements spread with the rise of beef and dairy agriculture in the area and much of the land was cleared for grazing (Shellharbour City Council 2019).

Analysis of historical aerial imagery shows the following historical changes that took place within the study area (Biosis 2023), though aerial photos are not available prior to 1966:

- By 1966, Picnic Island was mostly cleared, with dispersed trees, mostly in the western half of the island. A bridge connected Picnic Island to the nearest land mass to the east. Land to the east of the Island was not connected to the mainland except via a road bridge.
- By 1970, individual trees had become larger, and increased in number, including in the eastern half.
- No changes occurred between 1970 and 1980.
- By 1990, land to the east of Picnic Island was connected to the mainland. Vegetation on Picnic Island had been partially cleared and paths constructed.
- By 2002, vegetation on Picnic Island appears to have regenerated significantly, obscuring the path in the southern portion.

### 8.6.4 Impact assessment

The site is not listed as a heritage item on any statutory heritage register or list, nor is it within a heritage conservation area.

The nearest heritage item on the state register is Albion Park Railway Station Group, approximately 6 km southwest of the study area. The distance and topography are such that there are no direct sight lines to or from the heritage item, and there will be no physical or visual impacts pole relocation proposal.

### 8.6.5 Conclusions and recommendations

No impact is expected to any heritage items, however, in the event of an unexpected find, the Heritage Council of NSW must be notified and advised of the item's location.

## 8.7 Contamination

### 8.7.1 Overview

This section assesses potential site contamination based on desktop assessment.

### 8.7.2 Existing environment

Picnic Island is used for conservation and recreation with no development on the Island apart from two sets of H pole structures as part of feeder 7381. There are no obvious activities which were likely to have resulted in significant or widespread contamination of natural soil or groundwater.

Desktop search of the NSW EPA database identified the following:

- No prevention, clean-up or prohibitions notices have been issued under the POEO Act for the subject site or immediate surrounding land.
- No notices have been issued under the CLM Act for the subject site and immediate surrounding land.
- The subject site or immediate surrounding are not on the list of NSW contaminated sites notified to the EPA.
- The site is not listed by EPA on the NSW Government PFAS Investigation program. The closest PFAS investigation area identified by the EPA is Albion Park Fire and Rescue (Russell Street, Albion Park). Given Albion Park Fire and Rescue is 9 km southwest of the subject site, and Lake Illawarra lies between them, it is unlikely any PFAS related impacts at Albion Park Fire and Rescue pose a risk to the subject site.

Furthermore, no chemical or fuel storage was known to be present on the subject site, consistent with site observations and review of historical aerials.

### 8.7.3 Impact assessment

Contamination is not expected to be encountered.

### 8.7.4 Conclusions and recommendations

Based on the history of the site, there are no obvious activities which are likely to have resulted in significant or widespread contamination of natural soil or water that would prevent pole relocation or access track re-establishment. The site is suitable for the proposed works. If contamination is discovered, the EPA should be notified.

## 8.8 Utilities and services

A detailed Dial Before You Dig (DBYD) search will be conducted for all services in the vicinity of the project route as part of the final project design and prior to construction commencing. Where necessary, relevant authorities and customers will be contacted regarding potential impacts on their services.

### 8.8.1 Management and mitigation measures

The Project Manager will conduct DBYD searches prior to works commencing on site.

The Project Manager will notify impacted residents and businesses regarding any potential interruptions to electricity supply prior to these outages occurring in accordance with National Energy Customer Framework (NECF) requirements.

## 8.9 Roads, traffic and access

### 8.9.1 Overview

As previously noted, the project works will be within Picnic Island, with a pole laydown area within Cec Glenholmes Oval. Plant and equipment access to Picnic Island will be via barge to the northern side of Picnic Island and via Reddall Parade and Pelican View Reserve for personnel (Figure 8.8).

The following section describes the road, traffic and access impacts resulting from the project.



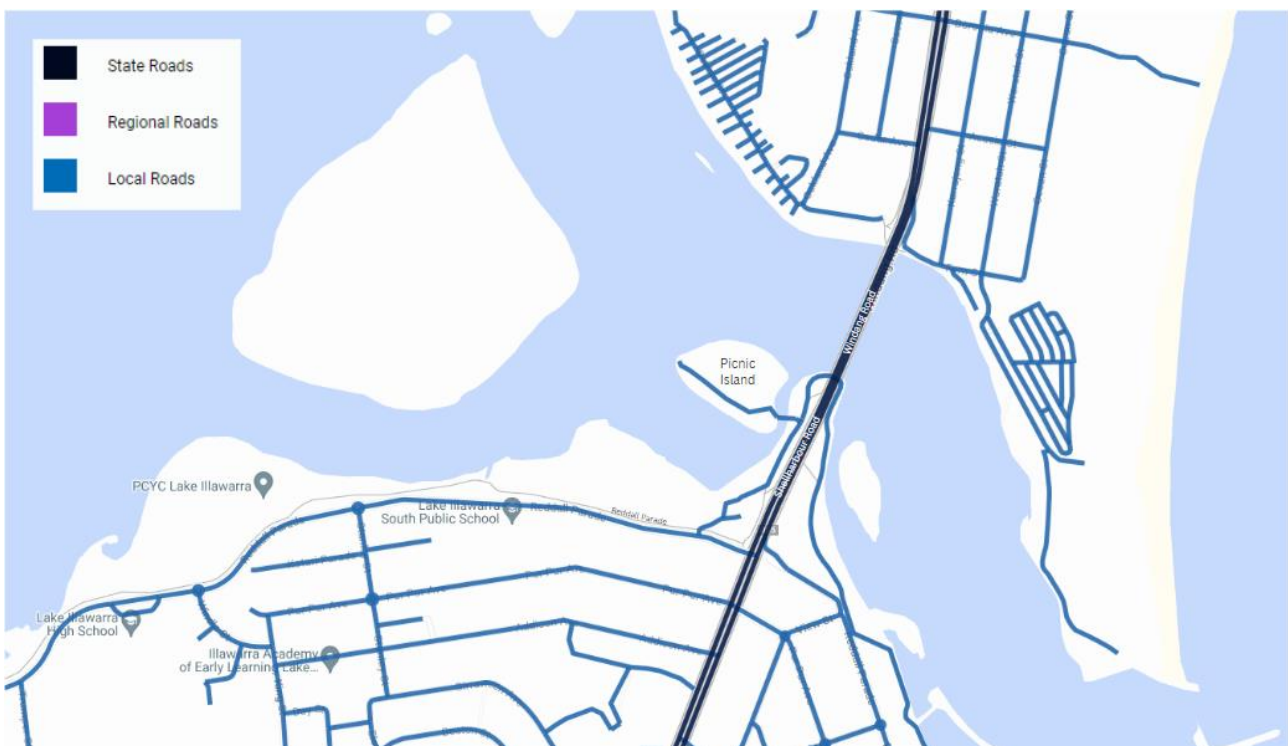
**Figure 8.8** Site access via Reddall Parade and Pelican View Reserve

Source: Google Maps

## 8.9.2 Existing environment

### i Local road network

Reddall Parade is classified as a local road, which can be reached from Windang Road/Shellharbour Road (state road). Reddall Parade is the first turn off after the bridge from Windang. Reddall Parade provides access to Lake Illawarra South Public School, Pelican View Reserve, PCYC Lake Illawarra and Lake Illawarra High School, but is not the main thoroughfare of the area (Figure 8.9).



**Figure 8.9** Local road network

Source: NSW Road Network Classifications

## ii Traffic movements

Traffic movements include personnel vehicles arriving and departing the area and parking along or near Reddall Parade. Movements as a result of the proposed works will not significantly impact local traffic. Up to 40 movements per day are expected.

## iii Crash and casualty statistics – NSW general view

A search of TfNSW's Centre for Road Safety 'Crash and casualty statistics – NSW general view' has identified the following statistics for Shellharbour LGA:

- The statistics results show that the number of fatalities within Shellharbour LGA between 2012–2022 has ranged from a low of 275 in 2021 to a high of 369 in 2012. In 2022, there were 291 fatalities.
- There was one crash on Reddall Parade near the entrance to Pelican View Reserve between 2017 and 2021, which resulted in a serious injury.
- Between 2017 and 2021, there was one crash which resulted in a serious injury and a moderate injury on the corner of Shellharbour Road and Reddall Parade.

### 8.9.3 Impact assessment

Personnel vehicles entering the area and parking along Reddall Parade may temporarily impact parking availability along Reddall Parade; however, the project is short lived and personnel numbers are relatively minor. Picnic Island will be closed to the general public for the duration of works for public safety.

Road occupancy permits will be obtained from TfNSW and Shellharbour City Council if any road closures are required.

Use of electronic signage in advance of construction commencing may be appropriate in a strategic location outside of the site to advise residents and road users of the upcoming works.

Personnel vehicles will be parked along Reddall Parade or adjoining side streets in a safe and appropriate manner at all times.

### 8.9.4 Management and mitigation measures

The following management and mitigation measures will be implemented to minimise traffic and access impacts:

- Transportation and equipment deliveries will be in accordance with TfNSW and Shellharbour City Council requirements.
- All other appropriate permits will be obtained from the relevant road authorities prior to any road or lane closures if closures are necessary.
- Traffic management measures will be included as part of the overarching CEMP if closures are required.
- Electronic signage may be used if considered appropriate in advance of works commencing to advise residents and road users of the upcoming works.
- Traffic control and safe pedestrian pathways (if required) will be established and maintained around worksites, as required for the duration of the works.
- Sufficient notice will be given to any impacted residents before construction commences, should this be required.
- Vehicles will not block access to residents' properties at any time.

- Signs should be posted around Pelican View Reserve and Picnic Island notifying recreational users of works in advance.
- Picnic Island will be closed to the public for the duration of works.

## 8.10 Visual assessment

The landscape character surrounding the project is one of predominantly recreational, water and residential.

Pole relocation works will be visible from the retirement village along Judbooley Parade and Pebble Drive; however, the works will be short lived, and the view already included an H structure pole arrangement. Path re-establishment works will be slightly visible from Windang Road, though the works will not change the visual character of Picnic Island.

Visual amenity will be temporarily impacted during works, but visual amenity will not change once works are completed.

## 8.11 Socio-economic impacts

The project may temporarily affect the local community as a result of minor amenity impacts (i.e. short term construction noise and visual impacts) and access impacts due to sections of Picnic Island being temporarily closed during works. These short term access impacts are unavoidable and in the interest of public safety during works; however, impacts are minor and temporary in nature.

The project will, however, result in a safer, more reliable electricity supply as excess load will be taken from surrounding alignments once feeder 7381 is re-energised.

## 8.12 Air quality and dust suppression

### 8.12.1 Project works

The project has the potential to generate dust and other air emissions as a result of the works including pole transport by helicopter, hole boring, vegetation trimming, vehicle emissions and vehicles driving over unsealed surfaces.

Areas disturbed by construction works will be progressively rehabilitated as works are completed.

Dust and exhaust emissions, such as exhaust emissions generated from construction plant and vehicles, would be temporary.

Thus, the impact of the project on the air quality in the surrounding environment will be temporary and minor.

### 8.12.2 Management and mitigation measures

The management and mitigation measures listed below will be implemented to ensure the amount of dust and emissions generated by the construction works are minimal:

- Visually monitor dust levels during construction works. If excessive dust generation is occurring on site, causing a safety issue or complaints are received, immediately follow appropriate mitigation options.
- Any disturbed areas will be revegetated or resurfaced as soon as possible after works have been completed in that area.
- Traffic movement and speed will be restricted over disturbed areas of ground and unsealed access tracks.
- Excavated materials are to be managed according to Section 8.4.4i and section 8.4.4iv.



- Vehicles and machinery are not to be left idling when not in use to reduce exhaust emissions.
- Dust suppression techniques, including wetting down surfaces will be used as necessary.
- Reference is to be made to EE’s Environmental Guideline Handbook for dust mitigation and management techniques.

### 8.13 Safety and hazards

Safety precautions will be implemented throughout the construction works for the protection of the surrounding community, the workforce, road users, pedestrians, and local residents. Hazards which may arise during the construction works, hole boring, machinery and vehicle movements and changes to road and traffic conditions will be managed appropriately.

#### 8.13.1 Management and mitigation measures

The following mitigation measures will be implemented to ensure management of safety and hazards:

- Sections and/or all of Picnic Island will be closed to the public during works to separate the public from active works areas.
- Safety signage, barriers, fencing, etc will be placed around construction laydown areas, as required. These will be checked on a regular basis to ensure they are in adequate working condition.
- The works will not occur on days that have extreme or catastrophic fire rating.
- Any recommendations in the CEMP will be implemented during the construction works.
- Any open holes that are left unattended at any time will be covered and fenced as necessary to prevent access.
- All works will be undertaken in accordance with Safework NSW requirements, EE standards and procedures and any other applicable requirements.

### 8.14 Bushfire

Bushfire prone land is mapped within a local Government area, which becomes the trigger for planning for bushfire protection. The results of the NSW Rural Fire Service search for ‘bush fire prone land’ conducted on 27 August 2023 shows that Picnic Island falls within bush prone land Vegetation category 2 (Figure 8.10).



## Figure 8.10 Bushfire prone land map of Picnic Island

Source: SEED portal

### 8.14.1 Management and mitigation measures

The CEMP prepared for the project will make provision for the following bushfire protection measures:

- A site induction for contractors working on the project will include general bushfire protection measures and requirements.
- Electrical equipment, plant, and equipment to be used for construction works will be maintained in operational order to prevent any potential sparks.
- All legislative requirements regarding safe work procedures will be adhered to, including chemical handling and storage.
- An emergency management plan will be developed by the contractor, which is to include protocols in how to respond to bushfire incidents, including evacuation during construction.
- Any works that have the potential to generate heat and sparks will be restricted on days of declared catastrophic fire danger.
- Construction waste will be removed from the site in a timely manner so as not to cause a fire risk or obstruct emergency vehicle access.
- The works will not occur on days that have extreme or catastrophic fire rating.

## 8.15 Waste

### i General Construction Waste

Activities associated with the project have the potential to generate waste, old conductors and cables, general waste and excess spoil.

Other wastes might include:

- Construction worker generated general waste
- Unused raw material
- Wastewater.

All waste generated during construction will be reused if appropriate, or removed, transported, and disposed from site in accordance with the NSW Environment Protection Authority's *Waste Classification Guidelines* (EPA 2014) and the POEO Act.

### 8.15.2 Management and mitigation measures

Measures to prevent adverse impacts in relation to generated waste will include:

- Waste mitigation and management strategies will be documented in the CEMP and in accordance with EE's Environmental Management Standard EMS 0007 Waste Management.
- Waste material generated on site will not be left on site once the works have been completed.

- Excavated spoil will be re-used on site unless it is found to be contaminated.
- Where excavated spoil is suspected to be contaminated, works will immediately cease, and the project manager and the relevant environmental specialist notified. Spoil suspected of being contaminated will be tested to provide a waste classification for disposal.
- All other waste materials will be removed from the work site at the end of each working day. Where items are able to be recycled, the materials will be sorted and stored at an appropriate site (e.g. the nearest Field Service Centre) for collection and recycling.

## 8.16 Cumulative impacts

As the project involves the relocation of existing pole structures and re-establishment of access tracks, rather than construction of new structures, no cumulative impact is expected.

## 9 Environmental management

### 9.1 Environmental management standards

To ensure that appropriate steps are taken to manage environmental aspects of infrastructure projects, EE has developed a number of Environmental Management Standards.

EE Environmental Management Standard *EMS0001 Environmental Impact Assessment and Environmental Management Plans* (EMS 0001) has the stated purpose of ensuring ‘that all work on EE’s Network is undertaken in such a manner as to manage any actual or potential environmental impacts. Activities are to be carried out using a due diligence approach, in accordance with industry and other appropriate standards to ensure positive environmental outcomes and compliance with relevant legislation’. A copy of EMS 0001 is available on EE’s Standard and EE’s Accredited Service Provider (ASP) website.

### 9.2 Environmental management plan

This REF has identified a number of mitigation and management measures to minimise adverse environmental impacts that could potentially arise from the project.

EE will require the preparation of a site-specific CEMP for the project, which will provide a clear framework for how these measures will be implemented and who will be responsible for their implementation. The CEMP will be prepared prior to commencement of any works and will be reviewed and certified by EE.

The CEMP will be a working document and will be subject to ongoing updates as required to respond to specific requirements. The CEMP will be developed in accordance with the specifications set out in the EMS 0001.

Furthermore, construction of the project will be subject to audits by EE to ensure that the works are carried out in an environmentally satisfactory manner. The assessment has not identified any issues that cannot be managed by employment industry ‘best practice’ environmental management techniques.

### 9.3 Monitoring of impacts

Environmental monitoring will be undertaken in accordance with environmental mitigation and management measures proposed for each of the environmental aspects assessed as part of this REF.

In addition, in accordance with EMS 0001, environmental inspections for ‘Class 4 activities’ will be conducted by EE’s Environmental Services Team at the commencement, completion (close out inspection) and periodically during works for activities being carried out in environmentally sensitive areas, or where the activity duration exceeds six months. The frequency of these periodic inspections will be determined at the commencement of the construction phase of the works by the Project Manager or the Environmental Services Manager or the technical specialists that have full knowledge of the environmental impact assessments for this REF.

Environmental monitoring and inspections will be undertaken in accordance with EMS 0001 where any potential non-conformance identified from the inspection will be discussed, recorded, and addressed.

A summary of environmental safeguards and management measures can be found in Table 9.1.

**Table 9.1 Summary of environmental safeguards and management measures**

Impact	Environmental safeguards	Responsibility
Biodiversity	<p>The following measures will be implemented and included in the CEMP:</p> <ul style="list-style-type: none"> <li>• A preclearance survey of the proposed routes should be completed prior to vegetation clearing to ensure that no nests or protected species will be impacted. This should be completed by a suitably qualified and licensed ecologist.</li> <li>• A suitably qualified and licensed ecologist should be present to establish No Go zones, and ensure White-flowered Wax Plant is not impacted during clearing works.</li> <li>• To the fullest extent practicable, minimise disturbance to any native vegetation surrounding the study area.</li> <li>• Where possible, any trees to be retained should be protected in accordance with Australian Standard AS4970 – 2009 Protection of trees on development sites, during construction, operation and decommissioning of the site compound.</li> <li>• In the unlikely event that unexpected threatened species are identified during the project, works should cease, and an ecologist contacted.</li> <li>• Soil transportation should be minimised into or out of the study area to reduce the spread of weeds.</li> <li>• Eight priority weeds within the Shellharbour Council LGA were identified within the study area (DPI 2021). Appropriate measures should be implemented to minimise the spread of these species.</li> <li>• Appropriate erosion and sediment control measures should be installed at all sites to avoid sedimentation of receiving water bodies or other indirect impacts to surrounding biodiversity values.</li> </ul>	Contractor
General ecological mitigation	Removed and cleared vegetation, dead wood, fallen branches and logs should be retained as habitat. Where removal of dead logs or wood is required, these should be relocated (not removed from the site) into adjacent areas that will not be disturbed by construction workers.	Contractor
Invasive and noxious weed management	Weed control measures (e.g. herbicide spraying) should be undertaken prior to construction commencing in areas where high densities or infestations of weeds occur. This will help to reduce the risk of weeds being spread as a result of the proposed project.	Contractor
Risk of pathogen and pest species	To reduce the likelihood of spreading weeds, tyres and undercarriages of vehicles are to be washed and cleaned out/or sprayed after working with weed infested areas, and prior to entering.	Contractor
Contaminated land	No specific management strategy is considered to be necessary due to the lack of indication that gross contamination is present on site. However, an Unexpected Finds Protocol should be prepared and implemented during construction, particularly when pole hole boring works are undertaken, as a precautionary measure.	
Contaminated land	If contaminated areas are encountered during construction, appropriate control measures will be implemented to manage the immediate risks of contamination. All other works that may impact on the contaminated area will cease until the nature and extent of the contamination has been confirmed and any necessary site-specific controls or further actions identified in consultation with the Transport for NSW's Environment Manager and/or EPA.	Contractor



**Table 9.1** Summary of environmental safeguards and management measures

Impact	Environmental safeguards	Responsibility
Accidental spills	Spill kits will be available at all work sites, and all persons undertaking construction works will be made aware of EE's incident response procedures.	Contractor
Pollution control measures, erosion, and sediment control	Soil and water management will be conducted in accordance with EE's standards and Environmental Guidelines Handbook.	Contractor
Pollution control measures, erosion, and sediment control	The Project Manager/Supervisor responsible for the works will be required to develop a site-specific Erosion and Sediment Control Plan as part of the CEMP.	Contractor
Pollution control measures, erosion, and sediment control	Disturbance will be restricted to those areas of the project route required for the active stage of works.	Contractor
Pollution control measures, erosion, and sediment control	No fuels, oils or other chemicals are to be stored at worksites unless small amounts are required for that specific days' work.	Contractor
Pollution control measures, erosion, and sediment control	Refuelling and maintenance of vehicles, plant and equipment will not be carried out on site. All vehicles, plant and equipment are to be refuelled prior to arriving on site.	Contractor
Pollution control measures, erosion, and sediment control	Where necessary, additional erosion and sediment controls will be installed during periods of highest rainfall risk (April to October).	Contractor
Pollution control measures, erosion, and sediment control	All drainage, erosion and sediment control measures will be maintained in proper working order until their function is no longer required.	Contractor
Pollution control measures, erosion, and sediment control	Flagging tape or bunting will be used during construction to minimise the potential or any disturbance outside of the designated work areas.	Contractor
Pollution control measures, erosion, and sediment control	Upon decommissioning any stage of works, erosion and sediment control measures, all materials used to form the control measures will be removed and/or disposed of appropriately.	Contractor
Excavated material measures	Where it is necessary to store spoil or other loose materials on site, sediment fences are to be constructed on the down slope side of the stockpile.	Contractor
Excavated material measures	Permission of the landowner is to be sought prior to establishing site compounds or stock piling on their land.	Contractor

**Table 9.1 Summary of environmental safeguards and management measures**

Impact	Environmental safeguards	Responsibility
Excavated material measures	<p>Spoil management and dewatering of worksites will all be managed in accordance with the following EE Standards and the Environmental Guidelines Handbook which are all available on the EE Standards and ASP Website:</p> <ul style="list-style-type: none"> <li>• EMS 0007 – Waste Management</li> <li>• EMS 0008 – Environmental Incidence Response and Management</li> <li>• EMS 0013 – Spoil management</li> <li>• EMS 0014 – Dewatering worksites.</li> </ul>	Contractor
Excavated material measures – inspection and maintenance	The construction, inspection and maintenance requirements for all drainage, erosion and sediment control measures will be specified in the CEMP.	Contractor
Excavated material measures – inspection and maintenance	Inspections will be undertaken 24 hours prior to predicted rainfall events and immediately following rainfall events that cause run-off, and weekly during periods of no rain.	Contractor
Excavated material measures – inspection and maintenance	All clean and dirty water, debris and sediment removed from drainage, erosion and sediment control measures will be disposed of in a manner that will not create erosion, sedimentation, or a pollution hazard.	Contractor
Waste	<p>All waste generated during works will be reused if appropriate, or removed, transported, and disposed from site in accordance with the NSW Environment Protection Authority's <i>Waste Classification Guidelines</i> (EPA 2014) and the POEO Act.</p> <p>Measures to prevent adverse impacts in relation to generated waste will include:</p> <ul style="list-style-type: none"> <li>• Waste mitigation and management strategies will be documented in the CEMP and in accordance with EE's Environmental Management Standard EMS 0007 Waste Management.</li> <li>• Stockpiles and excess fill material will be managed in accordance with managed in accordance with the EE Standards and the Environmental Guidelines Handbook and EMS 0013 – Spoil management.</li> <li>• Waste material generated on site will not be left on site once the works have been completed.</li> <li>• Trees will be removed by a licensed arborist.</li> <li>• All excavated spoil will be classified prior to disposal and/or re—use. Spoil will be re-used on site unless it is found to be contaminated.</li> <li>• Where excavated spoil is suspected to be contaminated, works will immediately cease, and the Project manager and the relevant Environmental Specialist notified. Spoil suspected of being contaminated will be tested to provide a waste classification for disposal.</li> <li>• All other waste materials will be removed from the work site at the end of each working day. Where items are able to be recycled, the materials will be sorted and stored at an appropriate site (e.g. the nearest Field Service Centre) for collection and recycling.</li> <li>• Once works are completed in any given location, all disturbed ground surfaces will be reinstated as soon as possible.</li> </ul>	Contractor
Waste - vegetation	Vegetation waste will remain on Picnic Island.	Contractor

**Table 9.1 Summary of environmental safeguards and management measures**

Impact	Environmental safeguards	Responsibility
Fill material	If fill material is brought to site, fill material will be stockpiled in dedicated areas and managed in accordance with the EE Standards and the Environmental Guidelines Handbook and EMS 0013 – Spoil management.	Contractor
Dial Before You Dig	The Project Manager will conduct DBYD searches prior to works commencing on site.	Contractor
Impacts on neighbouring properties – electricity supply	The Project Manager will notify impacted residents and businesses regarding any potential interruptions to electricity supply prior to these outages occurring in accordance with National Energy Customer Framework (NECF) requirements.	Contractor
Noise	Appropriate approvals are to be obtained from the affected Councils as required prior to commencing construction.	Contractor
Noise	All potentially affected residents should be notified prior to the commencement of construction works. Details are to include the likely duration of the works and 24-hour contact details for the Project Manager and Construction Contractor.	Contractor
Noise	Construction works must be carried out within normal working hours unless otherwise approved. Any out-of-hours-works will be carried out in accordance with the requirements of EE’s Environmental Guidelines Handbook.	Contractor
Noise	Should power generators be required to supply private properties during any stage of the construction works, the Project Manager must liaise with the S&E team. If generators are required to operate at night, acoustic consultants may be required to undertake noise assessment prior to their use.	Contractor
Air quality	Visually monitor dust levels during construction works. If excessive dust generation is occurring on site, causing a safety issue or complaints are received, immediately follow appropriate mitigation options.	Contractor
Air quality	Traffic movement and speed will be restricted over disturbed areas of ground and unsealed access tracks.	Contractor
Air quality	Excavated materials are to be spread out on site or re-used.No loose or stockpiled materials are to be stored without appropriate sediment controls or left uncovered for a long time.	Contractor
Air quality	Vehicles and machinery are not to be left idling when not in use to reduce exhaust emissions.	Contractor
Air quality	Dust suppression techniques, including wetting down surfaces will be used as necessary.	Contractor
Air quality	Reference is made to EE’s Environmental Guideline Handbook for dust mitigation and management techniques.	Contractor
Aboriginal heritage	Apply for a test excavation AHIP permit, which will inform the need of a second impact AHIP permit prior to works commencing.	Endeavour Energy

**Table 9.1 Summary of environmental safeguards and management measures**

Impact	Environmental safeguards	Responsibility
Aboriginal heritage	An unexpected finds procedure will be followed in the event that an unknown or potential Aboriginal object/s, including skeletal remains, is found during construction. Work will only re-commence once the requirements of that Procedure have been satisfied.	Contractor
Non-Aboriginal heritage	An unexpected finds procedure will be followed in the event that any unexpected heritage items, archaeological remains or potential relics of Non-Aboriginal origin are encountered. Work will only re-commence once the requirements of that Procedure have been satisfied.	Contractor
Safety and hazards	<p>The following mitigation measures will be implemented to ensure management of safety and hazards:</p> <ul style="list-style-type: none"> <li>• Safety signage, barriers, fencing, etc. will be placed around construction areas, as required. These will be checked on a regular basis to ensure they are in adequate working condition.</li> <li>• The works will not occur on days that have extreme or catastrophic fire rating.</li> <li>• Any open holes that are left unattended at any time will be covered and fenced as necessary to prevent access.</li> <li>• All works will be undertaken in accordance with SafeWork NSW requirements, EE standards and procedures and any other applicable requirements.</li> </ul>	Contractor
Bushfire	<p>The CEMP prepared for the project will make provision for the following bushfire protection measures:</p> <ul style="list-style-type: none"> <li>• Site induction for contractors working on the project will include general bushfire protection measures and requirements.</li> <li>• Electrical equipment, plant, and equipment to be used for construction works will be maintained in operational order to prevent any potential sparks.</li> <li>• All legislative requirements regarding safe work procedures will be adhered to, including chemical handling and storage.</li> <li>• An emergency management plan will be developed as part of the CEMP, which is to include protocols in how to respond to bushfire incidents, including evacuation during construction.</li> <li>• Any works that have the potential to generate heat and sparks will be restricted on days of declared catastrophic fire danger.</li> <li>• Construction waste will be removed from the site in a timely manner so as not to cause a fire risk or obstruct emergency vehicle access.</li> <li>• The project will be constructed and maintained in accordance with EE Company Procedure GAM 0011.</li> <li>• Works will not be conducted on days that have extreme or catastrophic fire rating.</li> </ul>	Contractor

## 10 Conclusion

The investigations undertaken as part of this REF have shown that the construction of the project will have minimal environmental impacts and should proceed subject to the mitigation measures outlined herein and in accordance with any other additional management and mitigation measures (or conditions) required by the determining authority.

The environmental assessment has concluded that the project will not have a significant effect on the environment, considering the mitigation and management measures listed in Chapter 9 are implemented. This includes the retrieval of an AHIP for test excavation of AHIMS ID-52-2-0119 and likely a subsequent AHIP to be informed by the test excavation prior to works commencing.

The following is, therefore, concluded:

- An EIS is not required for the project assuming mitigation and management measures in Chapter 9 are implemented.
- A separate REF will be prepared for other future stages of the project.
- It is required that all works be undertaken in accordance with this REF, any Notice of Determination issued in relation to this REF, the associated CEMP and any other specific mitigation measures that have been developed for this project.



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# Appendix A

## Aboriginal Cultural Heritage Assessment (Biosis)

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# Appendix B

## Flora and Fauna Assessment (Biosis)

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# Appendix C

## Archaeological Report (Biosis)

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