City of Rockingham

# Palm Beach Boat Ramp West Redevelopment Environmental Management Plan

rockingham.wa.gov.au

city of Rockingham
where the coast comes to life

# Contents


1 Introduction ..... 4
2 Relevant Legislation, Policy, Guidelines and Standards ..... 4
3 Existing Environment ..... 4
3.1 Climate ..... 4
3.2 Terrestrial Environment ..... 5
3.2.1 Soils and Geology ..... 5
3.2.2 Hydrology ..... 5
3.2.3 Vegetation and Flora ..... 5
3.2.4 Fauna ..... 5
3.2.5 Aboriginal Heritage ..... 6
3.3 Nearshore Environment ..... 6
3.3.1 Bathymetry ..... 6
3.3.2 Shoreline movement ..... 7
3.3.3 Benthic Communities and Habitat ..... 7
3.3.4 Marine Fauna ..... 7
4 Description of Works ..... 9
4.1 Demolition, Removal and Earthworks ..... 9
4.1.1 Demolition works ..... 9
4.1.2 Earthworks ..... 9
4.2 Piling ..... 10
4.3 Scour Protection ..... 10
4.4 Concrete Elements ..... 10
5 Induction, Training and awareness ..... 10
6 Environmental Impacts and Management ..... 11
6.1 Flora and Vegetation ..... 11
6.1.1 Terrestrial Vegetation ..... 11
6.1.2 Seagrass ..... 11
6.2 Fauna ..... 11
6.2.1 Terrestrial fauna ..... 11
6.2.2 Nesting birds ..... 11
6.2.3 Marine Fauna ..... 11
6.3 Turbidity and sedimentation ..... 12
6.4 Waste Management ..... 12
6.5 Hazardous Materials, ..... 12
6.5.1 Fuel and Spills ..... 12
6.5.2 Hazardous or Potentially contaminated materials ..... 13

6.6 Dust and Wind Blown Material ..... 15
6.7 Noise and Vibrations ..... 15
6.8 Rehabilitation ..... 15
6.8.1 Existing Condition and Dilapidation Record ..... 15
6.8.2 Site Clean-up and Reinstatement ..... 16
6.9 Monitoring and Reporting ..... 16
7 Clearing Principles ..... 16
8 Landscaping: ..... 18
9 Environmental Risk Assessment ..... 19
10 References ..... 23
Figures ..... 24
Attachment 1 - Marine Fauna Observation Log ..... 29
Attachment 2 - Turbidity Observation Log ..... 31
Attachment 3 - Natural Area Holdings (2022). *Foreshore Reserves Environmental Assessment.* ..... 33

# 1 Introduction

Located on the Esplanade at the southern end of Cockburn Sound, the Palm Beach boat ramp facilities are the 3rd most popular recreational vessel launching and retrieval option within the City of Rockingham. There are two individual boat ramp facilities, being Palm Beach's eastern and western boat ramps (Figure 1). While the eastern facility was fully refurbished in late 2009, its adjacent western facility's most recent refurbishment activities took place in 2000, which at the time comprised of the addition of concrete ramp lanes, a fixed timber finger jetty on its western side which also acts as a wooden groyne to trap sand, and scour protection. In recent years this western facility has experienced wear and tear through seasonal exposure to large storm surges and wave impacts.

An engineering condition assessment of the western boat ramp facility was commissioned by the City of Rockingham (the City) in 2016. This assessment found that the facility's marine infrastructure was experiencing degradation, with the recommendation made to undertake a major refurbishment the Palm Beach West Boat Ramp Facility (the site) to meet relevant current day Australian Standards and Department of Transport Guidelines. The general arrangement for the proposed refurbishment works is shown in Figure 2.

The refurbishment works will result in some clearing of terrestrial vegetation and seagrass (Figure 3) the City will be submitting a clearing permit application to DWER, this Environmental Management Plan has been prepared in support of this application.

# 2 Relevant Legislation, Policy, Guidelines and Standards

The following is a list of relevant Legislation, Policy, Guidelines and Standards that must be complied with when undertaking works as outlined in this Environmental Management Plan:

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- *Biodiversity Conservation Act 2016* (BC Act)
- *Environmental Protection Act 1986* (EP Act)
- *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*
- *Environmental Protection (Noise) Regulations 1997*

# 3 Existing Environment

The Palm Beach Boat Ramp is located at the southern end of Cockburn Sound, outside of the Shoalwater Islands Marine Park.

## 3.1 Climate

The Perth metropolitan region experiences a Mediterranean climate with warm dry summers and cool wet winters. Mean maximum temperatures range from 17.9℃ to 27.5℃ and mean minimum temperatures ranging from 11.2℃ to 19.4℃ (Bureau of Meteorology, 2024). The average annual rainfall for the area is 612.5mm (as recorded at the Garden Island weather station (9256)).

The strongest winds are from the southwest during the afternoon in summer with strong gusts experienced during winter storms.

## 3.2 Terrestrial Environment

### 3.2.1 Soils and Geology

The Geological Society of Western Australia 1:50 000 Environmental Geology Series map (Rockingham (2033-II, 2033-III)) shows the general geological features at the site. The general geology of the site comprises of calcareous sand, with silts and clays at the base of the Cockburn Sound basin.

### 3.2.2 Hydrology

As the land based components of the project are located at the edge of the coastline, groundwater level will be approximately 0mAHD.

There are no wetlands mapped within the proposed terrestrial footprint.

### 3.2.3 Vegetation and Flora

Vegetation at the site is within the mapped extent of the Quindalup vegetation complex, which is described as a 'coastal dune complex consisting of mainly two alliances – the strand and fore-dune alliance and the mobile sand and stable dune alliance. Local variations include the low closed forest of *Melaleuca lanceolate* (Rottnest Teatree) – *Callitris preissii* (Rottnest Island Pine), the closed scrub of *Acacia rostellifera* (Summer-scented wattle) and the low closed *Agonis flexuosa* (Peppermint) forest of Geographe Bay' (Heddle et al., 1980).

A basic and targeted flora and vegetation survey was conducted by Natural Area Holdings (NAH) in 2021 of the City's foreshore reserves. Vegetation within the project footprint to the west of the boat ramp was recorded as Tuart Open Woodland, with the vegetation to the east recorded as Mixed Coastal Shrubland (NAH, 2022). Vegetation condition was recorded as degraded (to the west) and good (to the east). Applicant removed survey from application during validation.

The site also contains an area of public open space consisting of a number of mature *Eucalyptus gomphocephala* (Tuart) trees, and planted *Araucaria heterophylla* (Norfolk Island Pine).

The site is located within Reserve 22779 which is an A class reserve vested with the City of Rockingham for the purposes of recreation.

#### *3.2.3.1 Threatened Ecological Communities*

No threatened or priority ecological communities were determined to occur within the survey area. The patch of tuart woodland identified to the west of the site was found to not meet the key diagnostic criteria as outlined in the conservation advice (Department of Environment and Energy, 2019) due to the small size and condition.

### 3.2.4 Fauna

A fauna survey was undertaken by NAH in 2021. It was determined that six priority bird species, one priority mammal species and two priority reptile species could potentially occur within this portion of the City's foreshore reserves as outlined in Table 1.

*Table 1: Threatened and Priority fauna species with the potential to occur within the City's foreshore reserves*

| Species name | Common name | Type | Conservation code |
|---|---|---|---|
| *Actitis hypoleucos* | Common Sandpiper | Bird | IA/MI |
| *Calidris alba* | Sanderling | Bird | IA/MI |
| *Calidris tenuirostris* | Great Knot | Bird | T/CR |
| *Falco peregrinus* | Peregrine Falcon | Bird | S/OS |
| *Hydroprogne caspia* | Caspian Tern | Bird | IA/MI |
| *Pluvialis squatarola* | Grey Plover | Bird | IA/MI |
| *Isoodon fusciventer* | Quenda | Mammal | P4 |
| *Lerista lineata* | Perth Lined Lerista | Reptile | P3 |
| *Neelaps calonotos* | Black striped burrowing snake | Reptile | P3 |

Two species of conservation significant fauna were found in the survey area (NAH, 2022).

- *Isoodon fusciventer* (Quenda) – Priority 4
- *Lerista lineata* (Perth Lined Lerista) – Priority 3

#### *3.2.4.1 Fauna Habitat*

Fauna habitat to the west of the Palm Beach west boat ramp was recorded as open woodland, which provides important hunting habitat for birds of prey. The habitat to the east was recorded as coastal shrubs and heathland, which provides shelter and resources for mammals, reptiles and amphibians.

Public open space within the site was found to contain *Eucalyptus gomphocephala* (Tuart) trees with the potential to contain hollows for bird species in the future however they were not currently considered habitat trees for any of the three threatened black cockatoo species (*Calyptorhynchus banksia naso* (Forest red tailed black cockatoo)*; Calyptohynchus lairostis* (Carnaby's Black Cockatoo); or *Calyptorhynchus baudinii* (Baudin's black cockatoo)) as their diameter at breast height is less than 500mm.

### 3.2.5 Aboriginal Heritage

A search of the Department of Planning, Lands and Heritage (DPLH) database of Aboriginal Heritage places shows that a portion of the Palm Beach West Boat Ramp is located within the registered Aboriginal Heritage Site Rotary Park (Place ID 3471). This is a mythological site and extends to the shorelines at the boat ramps and adjacent foreshore areas (Figure 4).

The proposed works may have a minor impact on the site. A heritage site investigation has been scheduled with the South West Aboriginal Land and Sea Council (SWALSC) on behalf of the Gnaala Karla Boodja Aboriginal Corporation.

## 3.3 Nearshore Environment

### 3.3.1 Bathymetry

Wave conditions at the site are created by a combination of locally wind generated seas, swell waves from more severe storm events and wake from passing vessels (Westpeak, 2023).

The shallow sandbar in the lee of the Garden Island Causeway provides significant sheltering of waves reaching the site.

### 3.3.2 Shoreline movement

The existing groyne on the western side of the Palm Beach West Boat Ramp provides reasonable sand holding capacity. The sand trapping capacity of the new ramps and their subsequent scour protection should be consistent with that of the existing groyne.

The Palm Beach West Boat Ramp is known to be relatively shallow and generally unsuitable for large and deep draft vessels, especially at low tides.

### 3.3.3 Benthic Communities and Habitat

A seagrass meadow consisting of *Posidonia* spp, is located adjacent to the project area (Figure 3). The extent of the seagrass meadow has been determined based on a comparison of aerial imagery with available mapping (BMT, 2017). Ground truthing to confirm the presence of seagrass was undertaken by City of Rockingham in 2024.

Seagrass meadows provide an important food source and shelter a large variety of other marine plants and animals such as tiny worms, shellfish, sea stars and crustaceans. These, in turn, attract larger animals, forming a complex and ecologically significant food web. Seagrasses provide nursery areas for species such as western rock lobsters, pink snapper and herring that are important to our fishing industries. Seagrass meadows also help to stabilise the seafloor by trapping sediments.

Annual monitoring of seagrass shoot density has been undertaken at sites throughout Cockburn Sound since 1998. The monitoring has found no trends in the nearby Mangles Bay site potentially indicating that seagrass density has become more stable here (Cockburn Sound Management Council, 2022).

### 3.3.4 Marine Fauna

A variety of marine fauna species that typically occur within Cockburn Sound and therefore may occasionally be located within the site are summarised in Table 1. Given the shallow water depth at the site and limited impacts to seagrass, the proposed works are not likely to have significant impacts on marine fauna.

*Table 2 Marine Fauna Species*

| **Marine fauna species** | **Common name** | **Conservation Status [1]BC Act, [2]EPBC Act, [3]IUCN List** |
|---|---|---|
| *Eudyptula minor* | Little penguin | Marine[2]<br>Least Concern[3] |
| *Hyperlophus vittatus* | Whitebait | Least Concern[3] |
| *Neophoca cinerea* | Australian sea lion | Endangered[3] |
| *Lobodon carcinophagus* | Crab-eater seal | Least Concern[3] |
| *Arctocephalus forsteri* | New Zealand fur seal | Least Concern[3] |
| *Arctocephalus tropicalis* | Sub-Antarctic fur seal | Least Concern[3] |
| *Hydrurga leptonyx* | Leopard seal | Least Concern[3] |
| *Pelecanus conspicillatus* | Australian pelican | Least Concern[3] |
| *Puffinus assimilis* | Little shearwater | Marine[2] |
| *Phalacrocorax varius* | Pied cormorant | Least Concern[3] |

| Marine fauna species | Common name | Conservation Status [1]BC Act, [2]EPBC Act, [3]IUCN List |
|---|---|---|
| *Pagrus auratus* | Pink snapper (commercial fish species) | Least Concern[3] |
| *Portunus pelagicus* | Blue swimmer crab (commercial fish species) | |
| *Sillago sp.* | Whiting | |
| *Pomatomus saltatrix* | Tailor | Vulnerable[3] |
| *Arripis georgianus* | Australian herring | |
| *Pseudocaranx dinjerra* | Skipjack trevally | Least Concern[3] |
| *Glaucsoma hebraicum* | Dhufish | |
| *Arripis truttaceus* | Australian salmon | |
| *Megaptera novaeangliae* | Humpback whale | Vulerable[2]<br>Least Concern[3] |
| *Eubalaena australis* | Southern right whale | Endangered[2]<br>Least Concern[3] |
| *Tursiops truncatus* | Bottlenose dolphin | Least Concern[3] |

#### 3.3.4.1 Little Penguins

Penguin Island is located 3.9km south of the excavation area and is home to the most westerly population of Little Penguins (*Eudyptula minor*). The Penguins from Penguin Island are considered to be under the highest threat of all marine fauna in the local region (Cannell. B, 2024). The population is currently in decline largely as a result of:

- Reduced breeding and/or reduction in breeding success
- Reduction in fledgling survival
- Changes in mortality rate of adults due to:
    - Watercraft injury
    - Higher terrestrial temperatures ≥35℃, which can cause hyperthermia during breeding/moulting season
- Reduced food availability (Cannell. B, 2024)

Little penguins from Penguin Island travel and forage over 150km from Cockburn Sound in the north to Geographe Bay in the south.

#### 3.3.4.2 Other Fauna

Large marine mammals such as the Humpback whale (*Megaptera novaengliae*) and the Southern right whale (*Eubalaena australis*) are known to visit Cockburn Sound during their annual migrations.

Bottlenose dolphins (*Tursiops truncates*) are common in waters in the Perth metropolitan area and many have been recorded in Cockburn Sound, where they breed and hunt along the shoreline and offshore reef system.

The Australian sea lion (*Neophoca cinerea)* is known to occur within Cockburn Sound, with Seal Island (3km south of the site) and Carnac Island (17km north of the site) providing primary rest areas for the species during the non-breeding season.

# 4 Description of Works

The City of Rockingham own and manage the Palm Beach West Boat Ramp facility. The existing facility which includes two boat ramp lanes, a fixed jetty/groyne on the western side and scour protection, was constructed in the early 2000s and is nearing the end of its service life. The City plans to upgrade the facility to meet the relevant current day Australian Standards and Department of Transport Guidelines.

The extent of the refurbishment works is shown in Figure 2 and will include:

- Demolition, removal and disposal of the existing boat ramp, the fixed jetty and subsequent piles, 2 light poles/cabling and sections of irrigation, asphalt, kerbs and paths.
- Removal, confirmation of suitability, and stockpiling of existing groyne and scour protection rock for reuse.
- Earthworks.
- Construction of precast concrete boat ramps including 2 boat ramp launch/retrieve lanes and a single PWC/kayak launch/retrieve lane.
- Construction of scour protection.
- Construction of 2 fixed finger jetties, including piling.
- Construction of various landscaping items, such as asphalt, 5 solar lights, paths, kerbs and line-marking.
- Design and construction of irrigation modifications to suit.

## 4.1 Demolition, Removal and Earthworks

### 4.1.1 Demolition works

Demolition works are required to enable construction of the new concrete boat ramp and scour protection. All demolished items will be removed in their entirety to a depth of at least 500mm below the finished cross section levels. Any piles that cannot be removed entirely shall be cut off at least 500mm below the design finished surface levels.

An asbestos drainage outlet terminates on the eastern side of the boat ramp which will need to be demolished and removed. Works are to be undertaken in accordance with an Approved Asbestos Management Plan (See section 6.5.2).

### 4.1.2 Earthworks

#### *4.1.2.1 Clearing and Grubbing*

Clearing will be limited to small shrubs within the footprint as outlined in Figure 4. All large trees are to be retained in accordance with Figure 2, and management measures for their protection are to be in accordance with *Australian Standard 4970:2009 Protection of trees on development sites*. In accordance with AS 4970:2009 where works are proposed within the Tree Protection Zone of trees to be retained, an approved Tree Protection Management Plan shall be implemented for the duration of works.

#### *4.1.2.2 Cut and Fill*

Earthworks involving cut, fill and trimming of slopes shall be carried out in accordance with the approved plans (Figure 2).

Excavated material will be reused where possible or disposed of appropriately.

#### *4.1.2.3 Backfill*

Any backfill material required will be clean, graded granular material with a maximum particle size of 37.5mm as defined in AS1289.3.6.1-2009. It shall have no more than 4% of particles finer than 75µm and be cohesion-less, free draining and free of organics and other deleterious materials.

For backfill within the tidal zone a coarser crushed limestone material will be used to limit the risk of washout and turbidity during Works.

#### *4.1.2.4 Compaction*

Backfill and subgrade shall be compacted to the lines and levels shown on the approved plans.

### 4.2 Piling

11 CHS steel piles are to be installed as part of the proposed works (7 for the central boat ramp jetty and 4 for the PWC/kayak jetty).

There is the potential for underwater noise/vibration from piling activities to impact marine fauna. Best practice mitigation measures will reduce potential impacts as far as practicable. These are outlined in section 6.2.2.

### 4.3 Scour Protection

Scour protection works include:

- Installation of geotextile.
- Reusing existing rock;
- Installing riprap, bedding, filter and armour rock; and,
- Grouting rocks adjacent to the ramps and paths.

### 4.4 Concrete Elements

The concrete elements include:

- 14 precast concrete ramp panels with kerbs, including 5 for each lane of the boat ramp and 4 for the PWC/Kayak ramp;
- Insitu poured concrete run on the slabs between the approach asphalt and ramp panels;
- Insitu poured concrete abutments for the central fixed boat ramp and PWC/Kayak jetties;
- Insitu poured concrete infill between the abutment and ramp panels adjacent to each jetty; and,
- Pedestrian paths along the foreshore and to access the jetties.

## 5 Induction, Training and awareness

All employees and contractors are required to complete an induction prior to mobilisation to site. As part of the induction employees and contractors are to familiarise themselves with this document. An overview of the environmental values and potential impacts of the site. All employees and contractors are to abide by the management measures outlined in this document.

# 6 Environmental Impacts and Management

## 6.1 Flora and Vegetation

### 6.1.1 Terrestrial Vegetation

The terrestrial clearing footprint totals 219m$^2$ (Figure 3). A clearing permit application will be submitted to the DWER.

Paths, vehicle turning loops, etc have been positioned so as to avoid impacts to mature trees as far as practicable.

Access to the site is available via existing road network. All native vegetation outside of the project area shall be identified prior to works commencing and measures for their retention implemented in accordance with *AS 4907-2009 Protection of Trees on Development Sites.*

### 6.1.2 Seagrass

There are existing seagrass meadows less than 4m from the existing jetty which will be impacted by the project. To total seagrass clearing footprint will be 52m$^2$ (Figure 3). A clearing permit application will be submitted to the Department of Water and Environmental Regulation (DWER).

The project footprint will be limited to that identified in Figure 3.

All machinery to be fitted with GPS with the clearing footprint installed. Any works within 20m of the seagrass beds will be supervised by a spotter to ensure all works remain within the project footprint and no clearing of seagrass occurs outside of the approved area.

## 6.2 Fauna

### 6.2.1 Terrestrial fauna

It is not expected that the native vegetation clearing will impact terrestrial fauna due to the small clearing footprint. Open woodland habitat has limited habitat value and due to the degraded condition of the vegetation at the site to the west of the existing boat ramp, it is considered low value fauna habitat (NAH, 2022). The understorey vegetation east of the boat ramp may contain small mammals and reptiles. Preclearing inspections will be undertaken to confirm their presence and allow any fauna to move into the surrounding scrub.

The Civil Contractor is responsible for managing potential impacts to terrestrial fauna in accordance with the following:

- A fauna spotter will be present during all clearing activities.
- Cease works and allow terrestrial fauna to move freely into neighbouring vegetation.
- Works shall only resume when fauna are clear of the clearing footprint.

### 6.2.2 Nesting birds

Any mature trees with the potential to form hollows in the future, or that may contain nesting birds are to be retained.

### 6.2.3 Marine Fauna

Given the shallow water depth at the site proposed works are not anticipated to have significant impacts on marine fauna.

There is the potential for pile driving activities to cause direct impacts to marine fauna from underwater noise and/or vibration emissions.

The Civil Contractor will be responsible for carrying out marine fauna observations (Attachment 1) and data collection in accordance with the following:

- Monitor marine fauna presence commencing ten minutes before the start of pile driving activities.
- A 150m marine fauna exclusion zone will be implemented.
- Cease works if a sea lion, dolphin, whale or little penguin is observed within the exclusion zone. Works shall only resume when the sea lion, dolphin, whale or little penguin has moved outside of the exclusion zones of its own accord.
- Cease works immediately if any deceased fauna is observed within the 500m exclusion zone, works shall not recommence until the deceased fauna has been investigated by the DBCA.
- Deceased fauna observations are to be reported immediately to the City's Representative who will notify DBCA.
- A Marine Fauna Observation Log is to be completed daily to record all marine fauna observed within the exclusion zones.
- The Marine Fauna Log is to be submitted to the City's Representative at the end of each week and to the DBCA following completion of works.

## 6.3 Turbidity and sedimentation

The Contractor shall monitor the turbidity from the excavation work through twice daily observations. The monitoring must include recording the sea state, current, wave, wind and rain conditions as well as any turbid plume caused by excavation works. A sketch of the visual extent of turbidity must be recorded. Daily observation sheets (Attachment 2) must be supplemented by supporting photographs, taken from consistent locations to clearly show any plume.

The Contractor must report, in writing, any turbid plumes to the City's Representative immediately.

If sediment encroaches on seagrass or smothering is imminent the Contractor must cease works immediately. Silt curtains will be installed and adequately secured for the duration of works to contain sediment movement at the site. The Contractor is to ensure that silt curtains are adequately installed to prevent drag during inclement weather.

## 6.4 Waste Management

A general waste rubbish bin with an appropriate lid will be provided onsite. Regular site inspections/ clean-up of windblown rubbish will be undertaken.

All waste materials will be removed and disposed of offsite at an appropriately licensed waste disposal facility.

## 6.5 Hazardous Materials,

### 6.5.1 Fuel and Spills

Refuelling to be conducted by service truck only over sealed surfaces in a designated refuelling area. No fuel is to be kept on site, the refuelling truck is to be equipped with suitable spill kits. General purpose and marine spill kits will be kept on site.

Where fuel is spilt the following steps are to be followed:

1. Stop the source (ie turn of valves or taps).
2. Contain the spill – utilise booms where required.
3. Clean up the spill utilising the appropriate spill kit.
4. Soiled material and soil to be dispose of in designated bins and/or double bagged and stored in designated area for removal by a licenced contractor.
5. Report spill as per incident reporting procedure.

### 6.5.2 Hazardous or Potentially contaminated materials

Pre-design site investigations have confirmed that there are one to two known stormwater outfall pipes that are manufactured from asbestos reinforced concrete. It will be within the Contractor's scope of works to remove this quantified hazardous material and dispose of it in accordance with relevant regulatory health, safety and environmental procedures. An Asbestos Management Plan will be required to be submitted as part of the Contractor's pre-mobilisation documentation package, which shall be reviewed and approved by the City of Rockingham prior to actual site mobilisation commencing.

While unlikely, it is possible that the demolition materials may contain additional fragments of asbestos containing materials (ACM), of unknown quantity.

Should the Contractor find any additional ACMs or other unexpected contaminants during excavation or stockpiling work, it must immediately notify the City's Representative. The Contractor shall be responsible for the removal and disposal of the ACM and other contaminated material/s, in accordance with the Contractor's scope of works, regulatory conditions, and any reasonable direction given by the City's Representative.

All personnel working on site will receive a health and safety induction. This induction will include information on potential contamination risks, identification of asbestos fragments and contaminated soil, and the below steps to be followed in the event potentially contaminated material is disturbed.

All management of asbestos and suspected ACM contamination, is to be conducted in accordance with the Western Australian Department of Health's "Guidelines for the Assessment of Asbestos Contaminated Sites in Western Australia" (2021), and its list of supporting documents.

*Table 3: Unexpected finds procedure*

| Step | Action | Details | Responsibility |
|---|---|---|---|
| **1** | Immediately stop works and inform project supervisor and City project manager. | City's Representative to be contacted immediately. | Site supervisor |
| **2** | Barricade area of suspected contamination and signpost the area to prevent accidental access. | Barriers and warning signs must remain in place until a clearance to re-occupy has been granted. | Site supervisor and Contractor Project Manager |

| Step | Action | Details | Responsibility |
|---|---|---|---|
| | Inform all site contractors of barricade and instruct no-entry until barricade has been removed. | | |
| **3** | Contamination to be assessed by contractor's health and safety officers and if confirmed as contaminated material the area will remain barricaded.<br><br>Anyone entering the barricaded area for testing or assessment will have to wear appropriate Personal Protective Equipment. | Should health and safety officers be unable to determine whether contamination is present, the site will remain barricaded and an expert contaminated sites consultant / inspector will be contacted to undertake testing of material and to determine the extent of contamination.<br><br>Appropriate Personal Protective Equipment to include as a minimum, P2 type disposable respirators and nitrile gloves. | Contractor's Project Manager and Contractor's Health and Safety Officer/s |
| **4** | If the material found is asbestos then the material will be kept wet with a low pressure water source.<br><br>Removal of asbestos material will be only be undertaken by a person or business with a Class A Asbestos Removal Licence and disposed of appropriately at a licensed waste facility. | More than 10 square metres of non-friable asbestos containing material must be removed by a licensed and trained individual or business with either a Class A or Class B Asbestos Removal Licence. | Contractor's Project Manager and Contractor's Health and Safety Officer/s |
| **5** | Following removal of the contaminated material, testing will be undertaken by an appropriately qualified person to ensure all material has been removed. | Testing may be visual for asbestos, or be based on laboratory tests for contaminated soil. Barricade is to remain in place until confirmation has been provided in writing that all contaminated material has been removed. | Contractor's Project Manager and Contractor's Health and Safety Officer/s |

| Step | Action | Details | Responsibility |
|---|---|---|---|
| **6** | Once confirmation has been received that all material has been removed, the barricade and signage can be taken down and works can re-commence. | | Site supervisor |

## 6.6 Dust and Wind Blown Material

The Contractor must take all reasonable steps to prevent all dust and windborne material emanating from the site.

This includes ensuring that works are in accordance with "A guideline for managing the impacts of dust and associated contaminants from land development sites, contaminated sites remediation and other related activities" (Department of Environment and Conservation, March 2011).

## 6.7 Noise and Vibrations

The Contractor must ensure that all work is carried out in accordance with regulation 13 of the *Environmental Protection (Noise) Regulations 1997* and any applicable Legal Requirement. All of Excavation Work and Stockpiling Work must be carried out so as to control noise and vibrations as outlined in "AS 2436-2010 Guide to Noise and Vibration Control on Construction, Demolition and Maintenance Sites".

Hours of operation are between 07:00 and 17:00 Monday to Friday.

The Contractor must arrange its operations and must provide silencing equipment to its plant and equipment at its own expense to whatever extent is necessary to satisfy the requirements of the previous paragraph and the City of Rockingham's Health Department in relation to the sound level arising from excavation work undertaken by the Contractor near the boundaries of sensitive receptors.

## 6.8 Rehabilitation

### 6.8.1 Existing Condition and Dilapidation Record

There are a number of existing items and features in and adjacent to the site. These include among other items, utility infrastructure, the Palm Beach Boat Ramp East facility, roads, kerbs, footpaths, native vegetation and landscaped areas (items).

Prior to commencing works, the Contractor must inspect the site and document (in written form and supported by photographs) any existing damage to items that may be deleteriously affected by the works (Pre-Dilapidation Report).

The Contractor must undertake a final inspection of the Items within 2 weeks of the completion of works and within a further 2 weeks thereafter:

- document (in written form and supported by photographs) any damage to items (Post-Dilapidation Report) and provide that report to the City's Representative; and

- outline its proposal to repair or replace any Items damaged or destroyed by the performance of the works, as determined by a comparison between the Pre-Dilapidation Report and the Post-Dilapidation Report (Damaged Items).

The Contractor acknowledges and agrees that it will, at its own cost, do all that is required to repair, replace or reinstate the damaged items to the state in which they were recorded as being in the Pre-Dilapidation Report.

### 6.8.2 Site Clean-up and Reinstatement

At completion of works the contractor will at its own cost:

- Demobilise all plant and equipment; and
- Clean up the site, remove all waste material and leave the site in a clean and level condition to the reasonable satisfaction of the City's Representative.

## 6.9 Monitoring and Reporting

Monitoring of any disturbance to marine flora and fauna as outlined in sections 6.1, 6.2 and 6.3 is to be conducted during all works, with a report submitted to the City's Representative.

# 7 Clearing Principles

The *Environmental Protection Act 1986* (EP Act) defines clearing of native vegetation (including individual trees) to be an offence unless it is undertaken under the authority of a clearing permit. The City will be submitting a clearing permit application to DWER, this Environmental Management Plan has been prepared in support of this application.

An assessment of the ten clearing principles has been completed to assist in the consideration of the clearing application as outlined in Table 3 below.

*Table 4: Project assessment against the Clearing Principles for native vegetation under Schedule 5 of the EP Act.*

| Principal | Description | Applicable to Project (Y/N) | Justification / Comments |
|---|---|---|---|
| **(A)** | Native vegetation should not be cleared if it comprises a high level of biological diversity. | N | Vegetation condition on the foreshore was assessed as 'good' to 'degraded'. The clearing footprint does not contain any threatened ecological communities or rare or priority flora. Native trees with the potential to form hollows in the future are to be retained.<br>Less than 52m$^2$ of seagrass is expected to be directly impacted and management actions will be implemented to prevent in-direct impacts (sediment smothering). |
| **(B)** | Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia. | N | Proposed clearing in the foreshore is minor and is not anticipated to impact the available habitat for fauna in the area and will not disrupt the ecological linkages that exist along the City's foreshore reserves.<br>Native trees with the potential to form hollows in the future are to be retained. |

| Principal | Description | Applicable to Project (Y/N) | Justification / Comments |
|---|---|---|---|
| | | | Only a small area of seagrass will be required to be cleared which is not expected to impact on marine fauna habitat. |
| **(C)** | Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora. | N | No threatened or priority flora species or communities were recorded in the survey area. |
| **(D)** | Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community. | N | There are no mapped or recorded threatened ecological communities within the project area. |
| **(E)** | Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared. | N | The Quindalup complex has not been extensively cleared with 60.49% of its pre-European extent remaining on the Swan Coastal Plain. |
| **(F)** | Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland. | N | There are no mapped Geomorphic Wetlands of the Swan Coastal Plain within the site. |
| **(G)** | Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation. | N | Cleared areas will be sealed using concrete (footpaths), asphalt (vehicle turn around) and scour protection to prevent land degradation. Clearing will be limited as far as practicable with mature trees to remain. |
| **(H)** | Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area. | N | The clearing footprint is within the boundary of Reserve 22779, which is an A Class reserve vested with the City of Rockingham for the purposes of Recreation. This reserve is highly modified and includes public open space, the palm beach west boat ramp, the palm beach east boat ramp and the terrestrial portion of the Palm Beach Jetty. The proposed clearing for the project is consistent with existing land uses within the reserve and is not expected to have an impact on the environmental values of the reserve. |

| Principal | Description | Applicable to Project (Y/N) | Justification / Comments |
|---|---|---|---|
| **(l)** | Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water. | N | The refurbishment works include modifications to the existing drainage, pavement, kerbing, etc will be constructed to ensure adequate drainage management to existing gullies and pits. |

## 8 Landscaping:

Following completion of works the foreshore area shall be revegetated utilising endemic species. This work will be undertaken by the City of Rockingham's Natural Area Maintenance Team.

# 9 Environmental Risk Assessment

In consideration of the Environmental Protection Authority's (EPA) Environmental Principles, Factors and Objectives Guidelines (EPA, 2016), the below environmental factors have been considered in relation to the Palm beach boat ramp west refurbishment works.

*Table 5 Key environmental Factors, Potential Impacts and Control Measures*

| Environmental Factor | Aspect | Potential Impact | Control Methods |
|---|---|---|---|
| **Sea** | | | |
| Marine environmental quality | Demolition of existing ramp<br><br>Clearing<br><br>earthworks | Increased turbidity/ sedimentation as a result of works | - Twice daily monitoring of turbidity.<br>- Silt curtains to be installed and maintained for the duration of works.<br>- Daily observation sheets (Attachment 2) must be supplemented by supporting photographs, taken from consistent locations to clearly show any plume outside the silt curtains.<br>- Report any turbid plumes to the City immediately. |
| | | Hydrocarbon spill | - Refuelling to be conducted by service truck only over sealed surfaces in designated refuelling area.<br>- No fuel is to be kept on site.<br>- The refuelling truck is to be equipped with suitable spill kits.<br>- General purpose and marine spill kits will be kept on site. |
| Marine fauna | Demolition of existing ramp<br><br>Clearing<br><br>earthworks<br><br>Piling | Interaction with marine fauna causing injury or death | - Marine fauna observations and data collection undertaken in accordance with (Attachment 1).<br>- Cease works if a sea lion, dolphin, whale or little penguin is observed within the exclusion zone.<br>- Works shall only resume when the sea lion, dolphin, whale or little penguin has moved outside of the exclusion zone of its own accord.<br>- Cease works immediately if any deceased fauna is observed within 550m of work area. |

| Environmental Factor | Aspect | Potential Impact | Control Methods |
|---|---|---|---|
| | Scour Protection | | - Works shall not recommence until the deceased fauna has been investigated by the (DBCA). |
| | Piling | Direct impacts from underwater noise emissions | - Pile driving activities will only be undertaken during daylight hours<br>- Where practicable pile driving activities will be undertaken during low tide<br>- Marine fauna observations and data collection undertaken in accordance with (Attachment 1).<br>- Cease works if a sea lion, dolphin, whale or little penguin is observed within the exclusion zone.<br>- Works shall only resume when the sea lion, dolphin, whale or little penguin has moved outside of the exclusion zone of its own accord.<br>- Cease works immediately if any deceased fauna is observed within 550m of work area.<br>- Works shall not recommence until the deceased fauna has been investigated by the (DBCA). |
| Benthic communities and habitat | Demolition of existing ramp<br><br>Clearing<br><br>earthworks<br><br>Piling | Mechanical clearing of seagrass meadows | - The excavation footprint will be limited to the excavation areas as identified in Figure 3.<br>- All machinery to be fitted with GPS with the clearing footprint installed.<br>- Any works within 20m of the seagrass beds will be supervised by a spotter to ensure all remain within the project footprint and no clearing of seagrass occurs outside of the approved area. |
| | | Smothering of seagrass | - Twice daily monitoring of turbidity<br>- Silt curtains will be installed to reduce risk of sediment smothering outside works area<br>- If sediment encroaches on seagrass or smothering is imminent the Contractor must cease works immediately. |

| Environmental Factor | Aspect | Potential Impact | Control Methods |
|---|---|---|---|
| | | | - Report any turbid plumes to the City immediately. |
| **Land** | | | |
| Terrestrial fauna | Demolition of existing ramp<br><br>Clearing<br><br>Earthworks | Interaction with terrestrial fauna causing injury or death | - Clearing footprint to be limited to that shown in Figure 3.<br>- A fauna spotter to be present during all clearing works.<br>- Native trees with the potential to for hollows in the future or to contain nesting birds to be retained.<br>- Speed limits are to be adhered to at all times. |
| | | Inappropriate disposal of general waste attracting feral fauna. | - A general waste rubbish bin with an appropriate lid will be provided onsite.<br>- Regular site inspections/ clean-up of windblown rubbish will be undertaken.<br>- All waste materials will be removed and disposed of offsite. |
| Flora and Vegetation | Demolition of existing ramp<br><br>Clearing<br><br>Earthworks | Mechanical clearing of native vegetation | - The project area is to be set-out in accordance with Figure 3.<br>- All trees identified for retention to be protected in accordance with *Australian Standard AS4970-2009 Protection of Trees on Development Sites*. |
| | | Inappropriate disposal of general waste smothering vegetation | - A general waste rubbish bin with an appropriate lid will be provided onsite.<br>- Regular site inspections/ clean-up of windblown rubbish will be undertaken.<br>- All waste materials will be removed and disposed of offsite. |
| | | Dust causing smothering of vegetation | - Works undertaken in accordance with “A guideline for managing the impacts of dust and associated contaminants from land development sites, contaminated sites remediation and other related activities” |
| Terrestrial Environmental Quality | Demolition of existing ramp | Demolition materials containing fragments of | - All personnel working on site will receive a health and safety induction. |

| Environmental Factor | Aspect | Potential Impact | Control Methods |
|---|---|---|---|
| | | asbestos containing materials (ACM) | - This induction will include information on potential contamination risks, identification of asbestos fragments and contaminated soil, and the steps to be followed in the event potentially contaminated material is disturbed.<br>- Should the Contractor find any ACMs or other contaminants during demolition works it must immediately follow the unexpected finds procedure as outlined in Section 6.5.2 above. |
| | Demolition of existing ramp<br><br>Clearing<br><br>Earthworks | Hydrocarbon spill | - Refuelling to be conducted by service truck only over sealed surfaces in designated refuelling area away from the works area.<br>- No fuel is to be kept on site.<br>- The refuelling truck is to be equipped with suitable spill kits.<br>- General purpose and marine spill kits will be kept on site. |
| **Air** | | | |
| Air Quality | Demolition of existing ramp<br><br>Clearing<br><br>Earthworks | Dust and windblown material causing nuisance | - Works undertaken in accordance with “A guideline for managing the impacts of dust and associated contaminants from land development sites, contaminated sites remediation and other related activities” |
| **People** | | | |
| Human health | Demolition of existing ramp<br><br>Clearing<br><br>Earthworks<br><br>Piling | Noise and vibration causing nuisance | - The Contractor must ensure that all work is carried out in accordance with regulation 13 of the *Environmental Protection (Noise) Regulations 1997.*<br>- Silencing equipment to Plant and Equipment as required.<br>- Hours of operation will be between 07:00 and 17:00 Monday to Friday. |

# 10 References


BMT Western Australia (2018). *Cockburn Sound Drivers, Pressures, State, Impacts, Responses Assessment 2017: Summary Report.* Prepared for the Department of Water and Environmental Regulation, the Kwinana Industries Council, the City of Rockingham and the City of Kwinana on behalf of the Cockburn Sound Management Council, Perth, Western Australia.

Bureau of Meteorology (2004). *Climate Data Online*. Available at *Climate Data Online - Map search (bom.gov.au)* (Accessed 11 June 2024).

Cannell, Dr B (2024) *Population estimate of the Little Penguin colony on Penguin Island during September to November 2023.* Report prepared for the City of Rockingham. University of Western Australia, Perth, Western Australia.

City of Rockingham (2016). *Foreshore Management Plan.* City of Rockingham, Perth, Western Australia.

Cockburn Sound Management Council (2022). *State of Cockburn Sound Marine Area Report*

Department of Health (2021). *Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia*

Department of Environment and Energy (2019). Approved Conservation Advice (incorporating listing advice) for the Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain ecological community. Canberra: Department of the Environment and Energy. Available at http://www.environment.gov.au/biodiversity/threatened/communities/pubs/153-conservation-advice.pdf (Accessed 13 August 2024)

Department of Parks and Wildlife (2014). *A Survey of Selected Seagrass Meadows in Cockburn Sound, Owen Anchorage and Warnbro Sound.* Prepared for Cockburn Sound Management Council, Perth Western Australia.

Natural Area Holdings (2022). *Foreshore Reserves Environmental Assessment.* The City of Rockingham, Perth, Western Australia.

Westpeak Engineering (2023). Palm Beach West Boat Ramp Upgrade Detailed Design Report. The City of Rockingham, Perth Western Australia.

# Figures

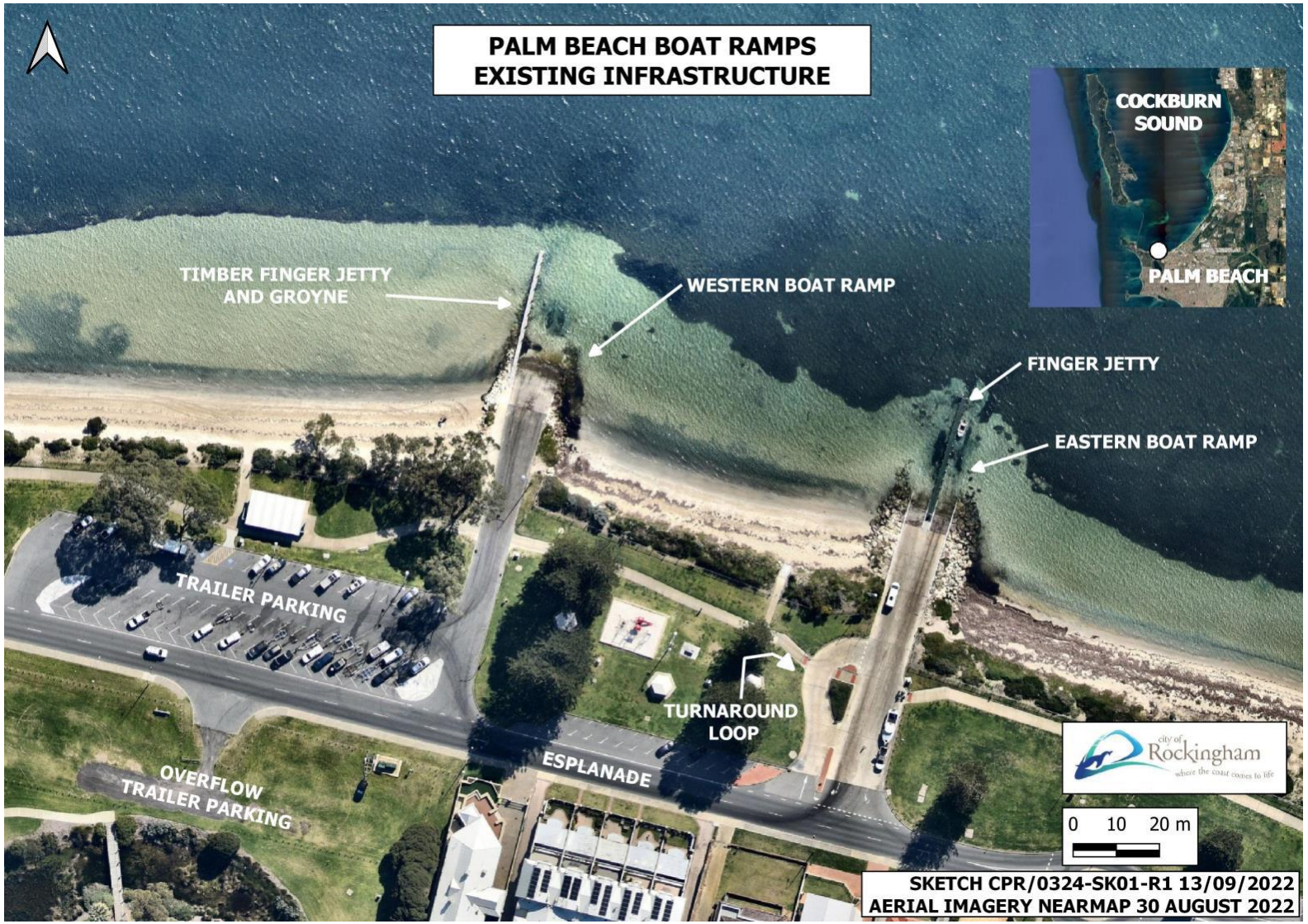



Figure 1 Existing Infrastructure

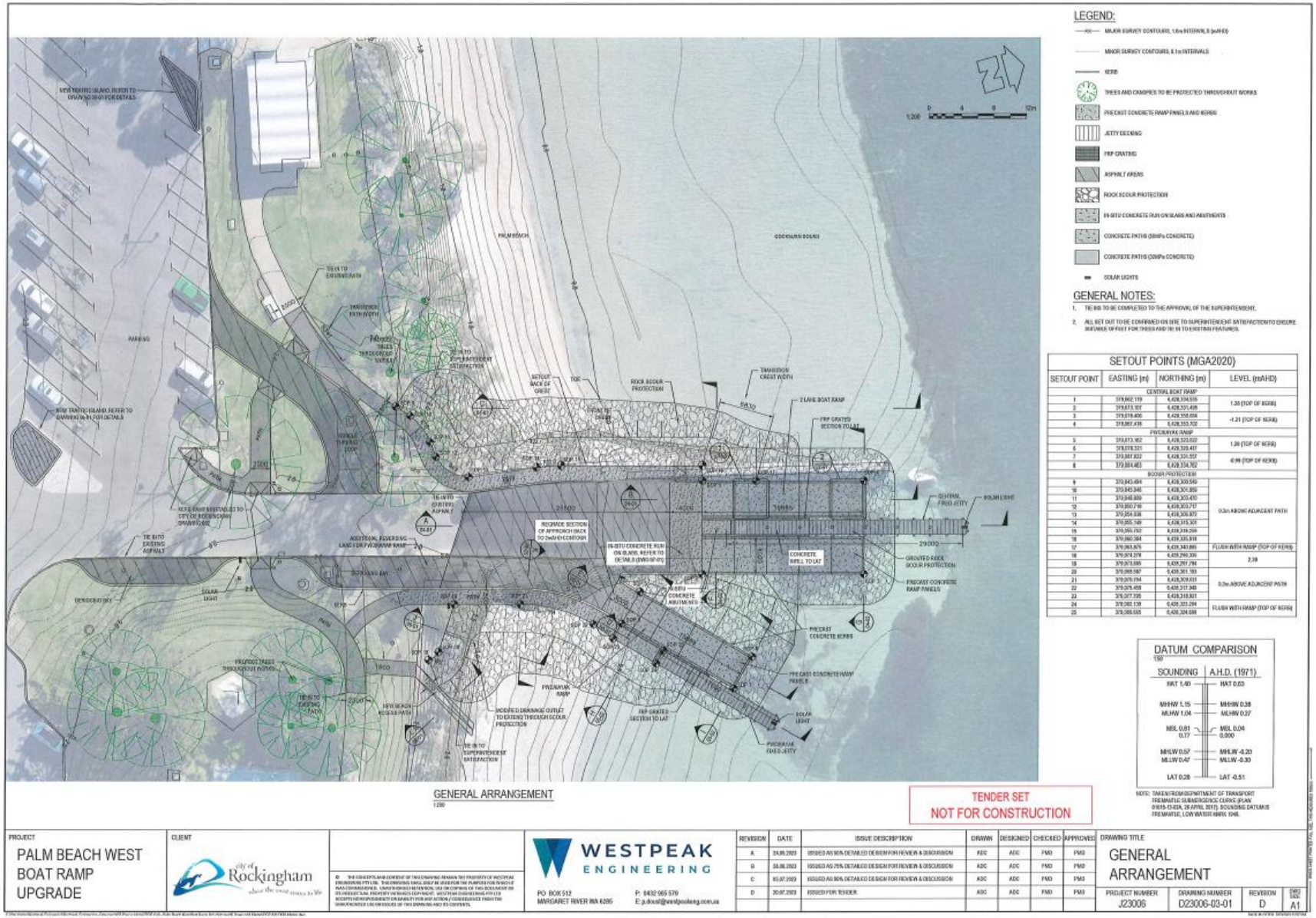



Figure 2 General arrangement for refurbished Palm Beach West Boat Ramp Facility

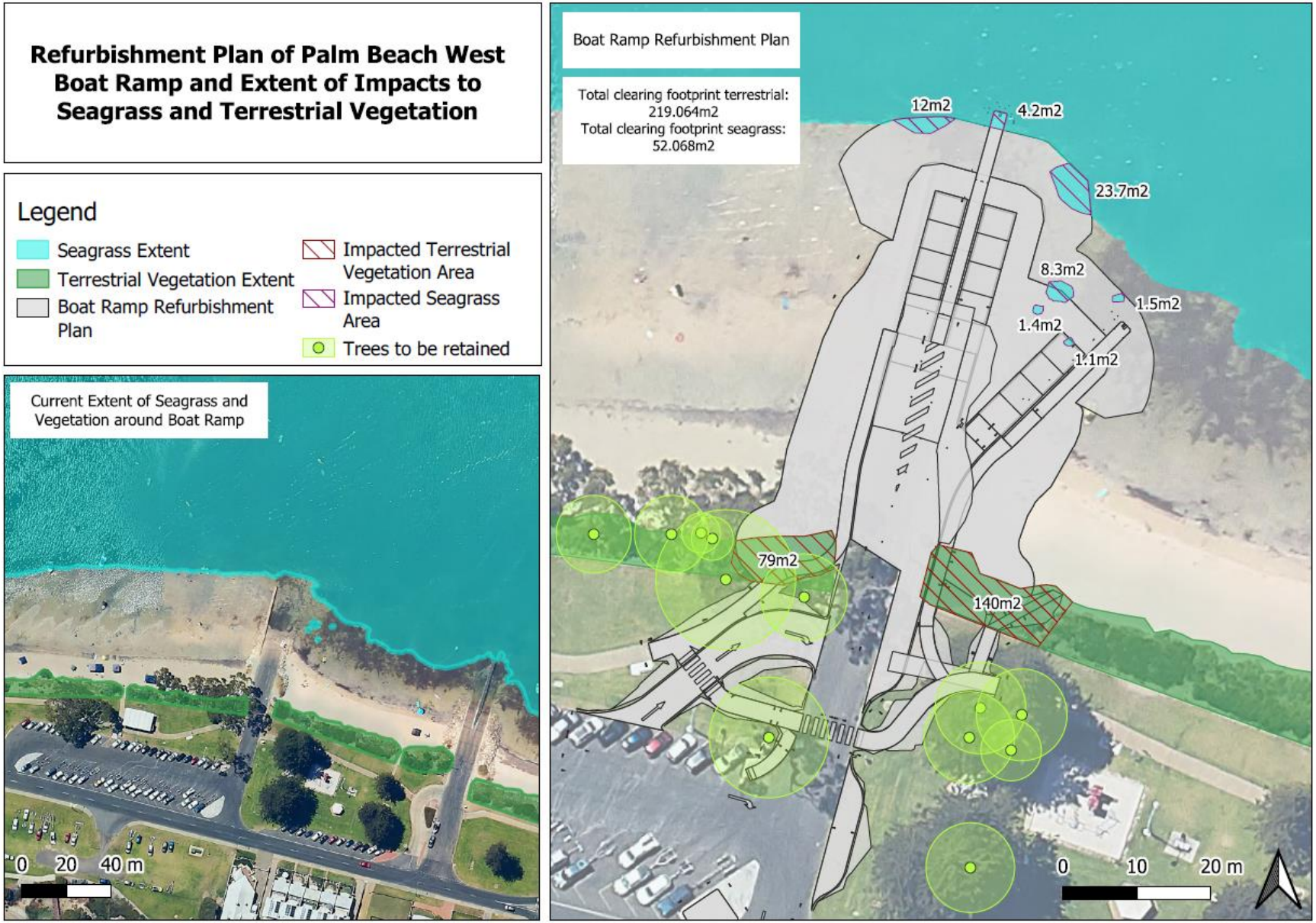



Figure 3: Clearing footprint

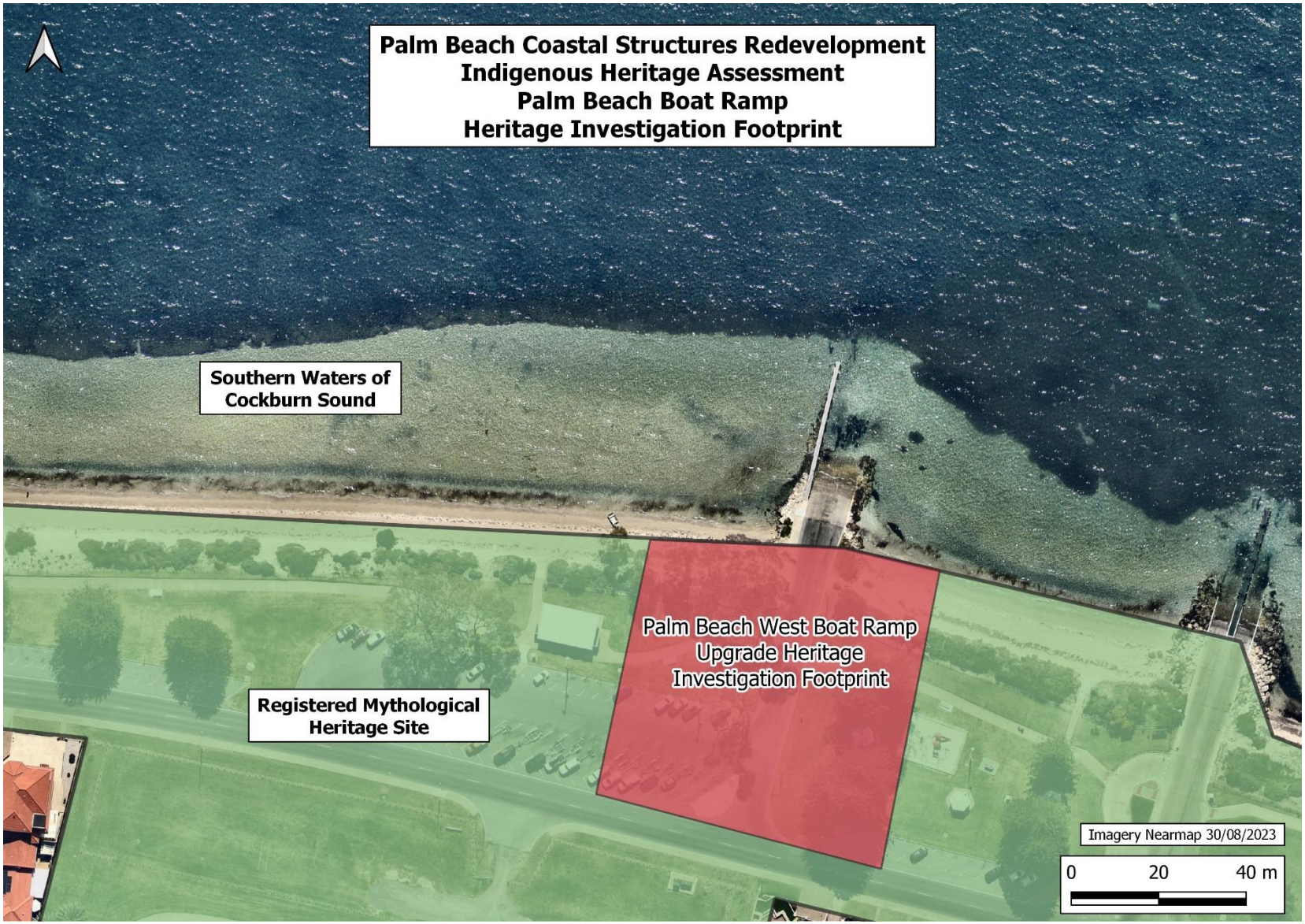
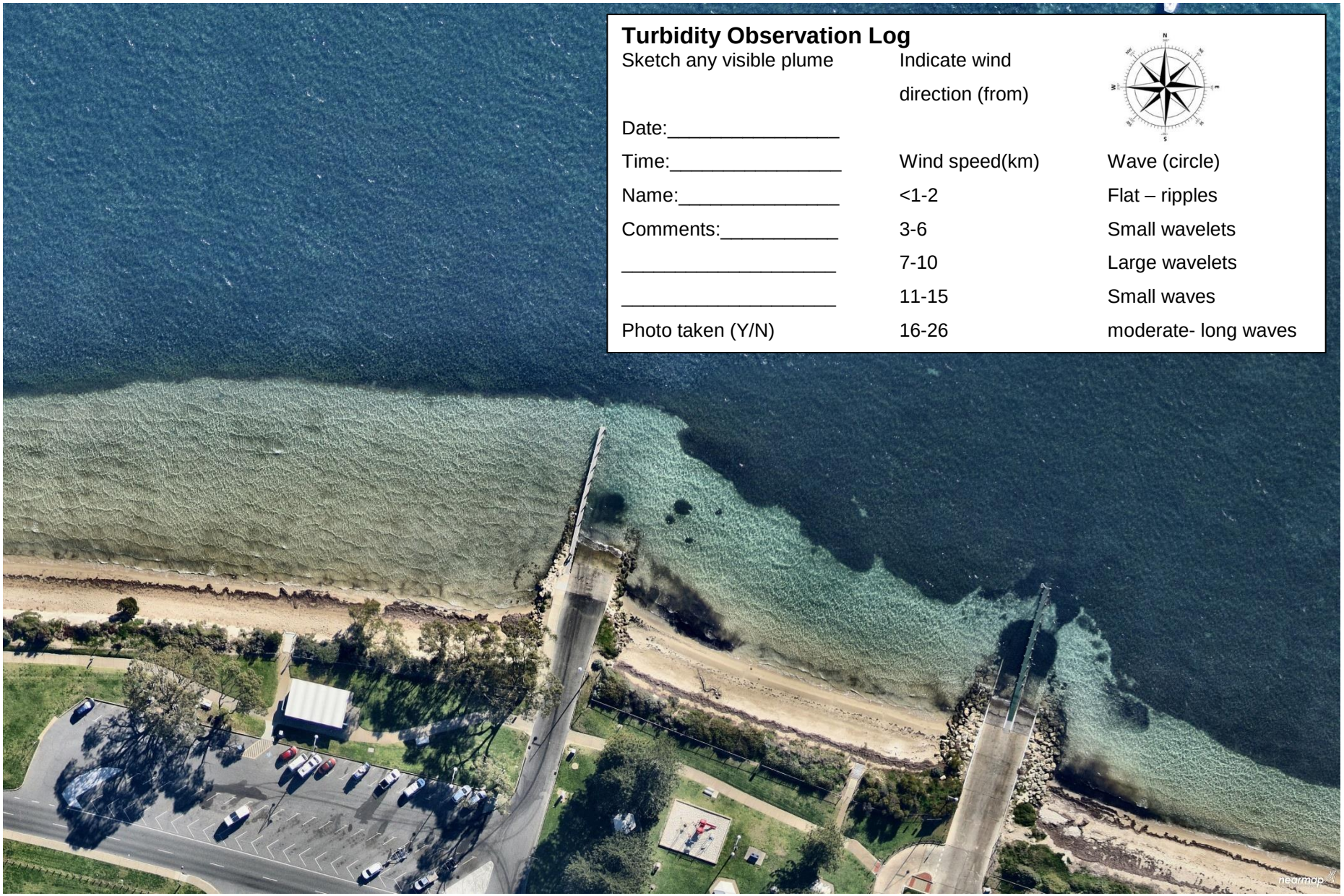



Figure 4: Aboriginal Heritage Site

# Attachment 1 - Marine Fauna Observation Log

| | DD/MM/YY | DD/MM/YY | DD/MM/YY | DD/MM/YY | DD/MM/YY | DD/MM/YY |
|---|---|---|---|---|---|---|
| Prestart beach inspection completed (Y/N) | | | | | | |
| Marine Fauna observations within 100m of work area | | | | | | |
| Dolphins | | | | | | |
| Number of Sightings | | | | | | |
| Total Number of Animals | | | | | | |
| Whales | | | | | | |
| Number of sightings | | | | | | |
| Total number of animals | | | | | | |
| Sea Lions | | | | | | |
| Number of sightings | | | | | | |
| Total number of animals | | | | | | |
| Little Penguins | | | | | | |
| Number of sightings | | | | | | |
| Total number of animals | | | | | | |
| Shut down required (Y/N) | | | | | | |
| Number of Minutes | | | | | | |
| Deceased fauna observations within 500m of work area | | | | | | |
| Dolphins | | | | | | |
| Number | | | | | | |
| Location | | | | | | |
| Whales | | | | | | |
| Number | | | | | | |
| Location | | | | | | |
| Sea Lions | | | | | | |
| Number | | | | | | |
| Location | | | | | | |
| Little Penguins | | | | | | |
| Number | | | | | | |
| Location | | | | | | |

# Attachment 2 - Turbidity Observation Log


Turbidity Observation Log
Sketch any visible plume
Indicate wind direction (from)
Date:_____
Time:_____
Name:_____
Comments:_____
_____
_____
Photo taken (Y/N)
Wind speed(km)
<1-2
3-6
7-10
11-15
16-26
Wave (circle)
Flat – ripples
Small wavelets
Large wavelets
Small waves
moderate- long waves
nearmap

Attachment 3 - Natural Area Holdings (2022). *Foreshore Reserves Environmental Assessment.*