

Revegetation and Rehabilitation Plan

Proposed Pathway, Parking Bays, and Utilities - Brazier Road, Yanchep

Native Vegetation Clearing Permit amendment
application - Supporting Documentation

November 2025

CPS 10868/2 Proposed Pathway, Parking Bays, and Utilities - Brazier
Road: Revegetation and Rehabilitation Plan

Document Control

Revision	Author	Date
Version 2	K. Allan	26/11/2025
Version 1	K. Allan	09/10/2025

CPS 10868/2 Proposed Pathway, Parking Bays, and Utilities - Brazier Road: Revegetation and Rehabilitation Plan

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1 Introduction

1.1 Purpose

This Revegetation and Rehabilitation Plan outlines the City of Wanneroo's (the City) proposed approach to onsite revegetation as a condition of the amendment application of CPS 10868/1 clearing permit under CPS 10868/2.

The amendment application of CPS 10868/2 clearing permit is to support the City's proposed pathway, parking bays, and upgrade of utilities on Brazier Road, Yanchep (the Project). The Project construction activities will include service location, excavation, installation of utilities to the alignment as per the specification of each of the respective service authorities, subgrade preparation, limestone sub-base installation, drainage works, asphalt paving, pram ramp installation, and the final construction of the footpath and parking bays.

The Project requires the clearing of a total of 0.156 hectares (ha) of native vegetation, 0.117 ha of which is temporary with plans to revegetate fully with additional revegetation planned outside the current existing extent of native vegetation upon project completion. The remaining 0.038 ha of clearing will be permanent to accommodate the pathway and parking bays. The applied for temporary and total clearing area can be seen in Figure 1. A breakdown of the purpose of the three proposed components of the Project is detailed below.

Principle Shared Path

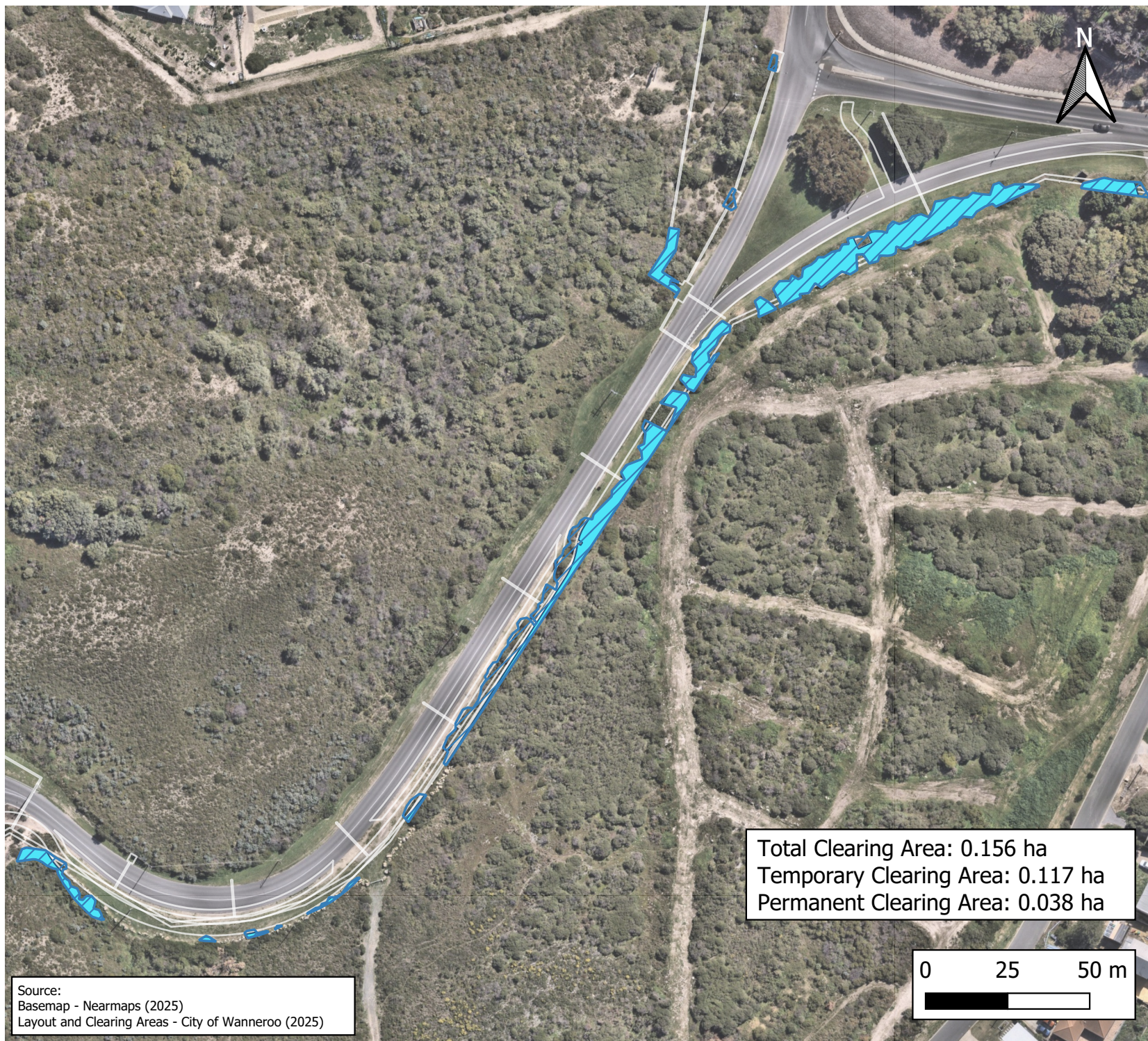
The proposed construction of a principle shared path (dual use pathway) between the two existing pathways on Yanchep Beach Road and the junction of Brazier Road and Capricorn Esplanade seeks to enhance pedestrian safety and community connectivity. The dual use pathway will provide a continuous connection to the beach from transport hubs for residents and visitors, aiming to benefit the Yanchep community while minimizing impacts to existing and proposed areas of native vegetation (revegetation) from informal pedestrian, cycling, and e-transport tracks.

Parking bays

The proposed construction of parallel parking bays along Brazier Road seeks to improve access and safety, including implementation of street lighting and traffic calming measures. The parallel parking bays seeks to formalise informal parking that has been observed along Brazier Road and aligns with the Yanchep Lagoon Preliminary Foreshore Management Plan (UDLA, 2024).

Utilities

The proposed upgrade to utilities will include the relocation of overhead power lines below ground and the provision of gas and NBN services to support the existing and future facilities located within the Yanchep Lagoon precinct.



Source:
Basemap - Nearmaps (2025)
Layout and Clearing Areas - City of Wanneroo (2025)

Legend

Total Clearing Area

Temporary Clearing Area

Project Footprint Outline

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Figure 1: Clearing Plan

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1.2 Location

The Project and onsite revegetation is along Brazier Road and Yanchep Beach Road within Noongar Country (City of Wanneroo, n.d.), located approximately 50 kilometres (km) north of Perth. The onsite revegetation is situated primarily within road reserves with some overlap into Newman Park. The property details of the Project and onsite revegetation, including Lot on Plan and Parcel Identification Numbers (Landgate, 2025), is detailed in the Table 1 below.

Table 1 Project location property details

Property		Total Clearing Area (ha)	Onsite Revegetation Area (ha)
Lot 522 on Deposited Plan 406005 (Crown Reserve 12439)		0.156	0.211
Lot 50 on Deposited Plan 189279 (PIN 465927)			
Road reserve	PIN 12225492		
	PIN 11750190		
	PIN 12186401		
	PIN 12225581		
	PIN 12225580		
	PIN 12186404		

The location of the Project’s proposed works (the Project Footprint) is depicted within the Figure 2 (Parts 1 to 3) below.



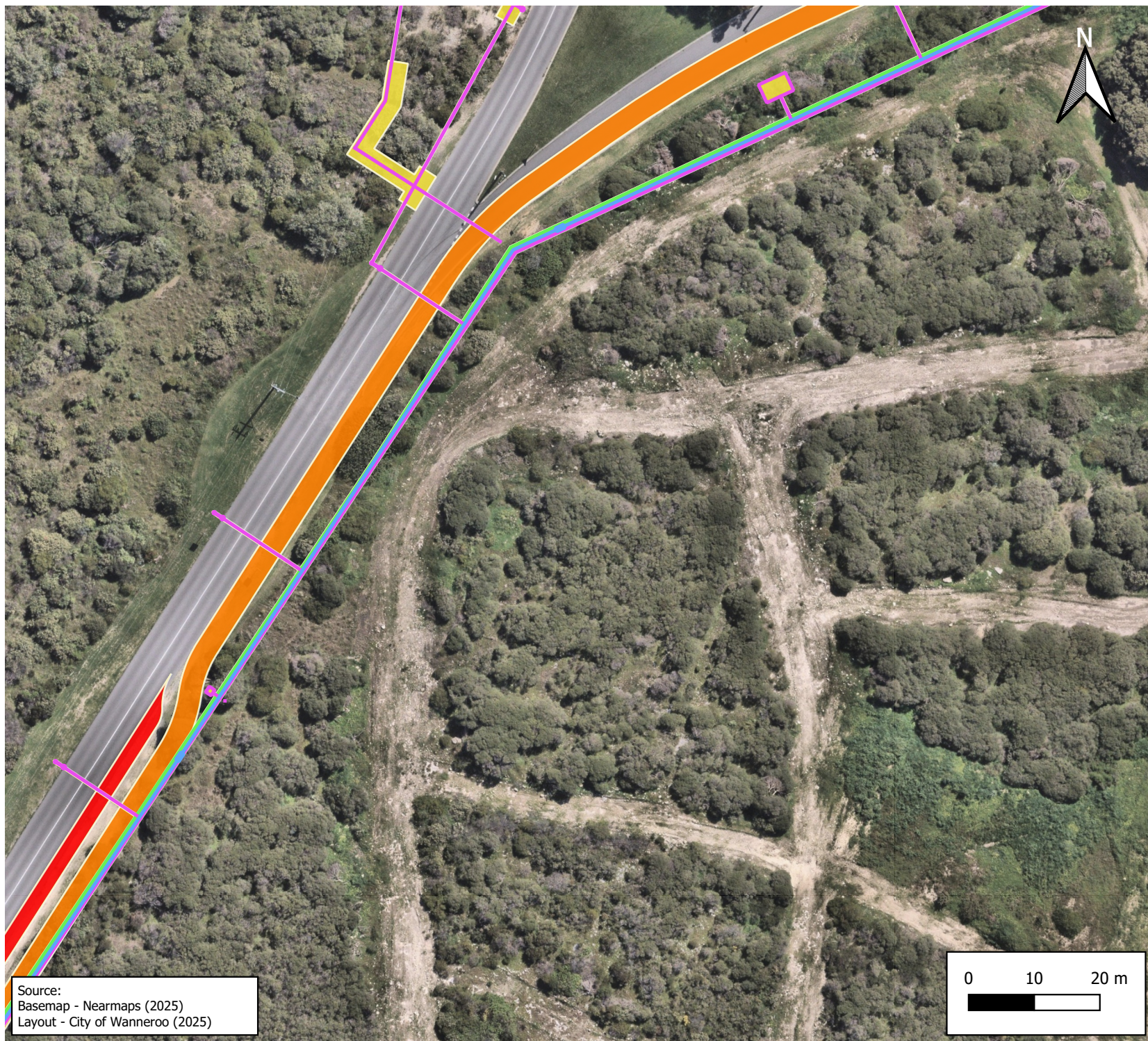
Source:
Basemap - Nearmaps (2025)
Layout - City of Wanneroo (2025)

Legend

- NBN
- Western Power
- Atco Gas
- Project footprint
 - Proposed parking bay
 - Proposed path
 - Proposed utilities

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Figure 2-1: Project Footprint
(Part 1 of 3)



Legend

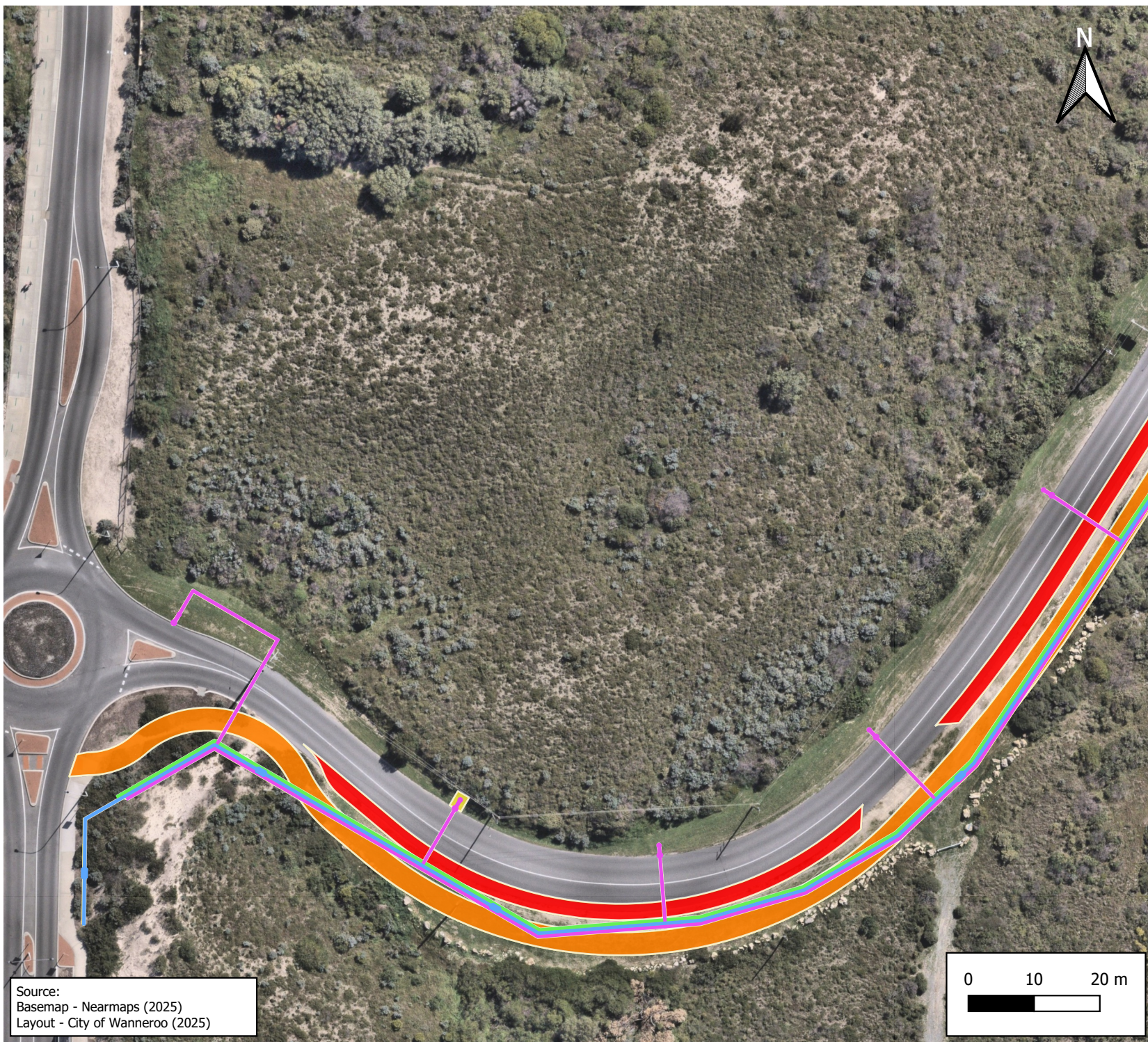
- NBN
 - Western Power
 - Atco Gas
- Project footprint
- Proposed parking bay
 - Proposed path
 - Proposed utilities

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Figure 2-2: Project Footprint
(Part 2 of 3)

Source:
Basemap - Nearmaps (2025)
Layout - City of Wanneroo (2025)

0 10 20 m



Source:
Basemap - Nearmaps (2025)
Layout - City of Wanneroo (2025)

Legend

- NBN
- Western Power
- Atco Gas

Project footprint

- Proposed parking bay
- Proposed path
- Proposed utilities

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Figure 2-3: Project Footprint
(Part 3 of 3)

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1.3 Proposed Onsite Revegetation

To mitigate the impacts of construction works, the City proposes to **revegetate a total of 0.211 ha** upon project completion. The 0.211 ha encapsulates the temporary cleared area and areas currently in a degraded condition and/or dominated by weeds. The proposed onsite revegetation area (Onsite Revegetation Area) is displayed within Figure 3 below.



Legend

- Onsite Revegetation Area
- Project Footprint Outline

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Figure 3: Onsite Revegetation

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1.4 Clearing Permit Number

This revegetation plan has been drafted as a supporting document to CPS 10868/2 clearing permit amendment application.

1.5 Contact and Details

This plan has been developed on behalf of the City of Wanneroo by Karlia Allan, who is employed as the Environmental Asset Planner at the City of Wanneroo. This Rehabilitation and Revegetation Plan was based on the Rehabilitation and Revegetation Plan previously submitted by the City as part of CPS 10868/2. Details and qualifications of Karlia Allan are as listed in Table 2 below.

Table 2 Key contacts and details of person who developed the plan

Contact Person – Karlia Allan (City of Wanneroo)	
Position	Environmental Asset Planner, City of Wanneroo
Contact Details	Phone: (08) 9405 5519 Email: AssetsEnvironmentalMailbox@wanneroo.wa.gov.au
Level of Qualification	Bachelor of Science (Environmental Management) 5 years working experience

2 Background of Revegetation Site

2.1 Site History

Brazier Road has been used as a transport route since 1965, the surrounding environment showing minimal impact at the time. However, the vegetation has experienced various forms of human disturbance over the years, including the construction of an access track through the dunes and the development of the lagoon area late 1985 (see Plate 1 below). Due to its proximity to the Yanchep Lagoon, the historic land use of the surrounding has been identified as being complicated (One Tree Botanical, 2020).

Plate 1 Brazier Road, Historical Aerial Photography 1965-2024 (Landgate, 2025)



The area proposed for revegetation has been in a degraded condition since the establishment of the road in 1965. The ongoing degradation is primarily attributed to the presence of the road and periodic clearing activities required to maintain a trafficable road verge in addition to informal parking and traffic (pedestrian or otherwise). An example of both informal parking and traffic occurring in February of 2025 within aerial imagery is depicted in Plate 2 below.

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Plate 2 Informal parking and traffic (pedestrian) on Brazier Road February 2025 (Nearmap, 2025)



2.2 Existing Land Use and Adjacent Tenure

As detailed within Section 2.1 above, land use has been a road reserve since 1965, depicted by the earliest Landgate photos provided in Plate 1.

The land tenure of the adjacent land north and south of Brazier Road is mapped as Crown Reserve within Landgate Map Viewer Plus (2025) – see Figure 4 below. These Crown Reserves are a Class A Reserve under the management by the City and is also a bush forever site (Bush Forever Site 397).

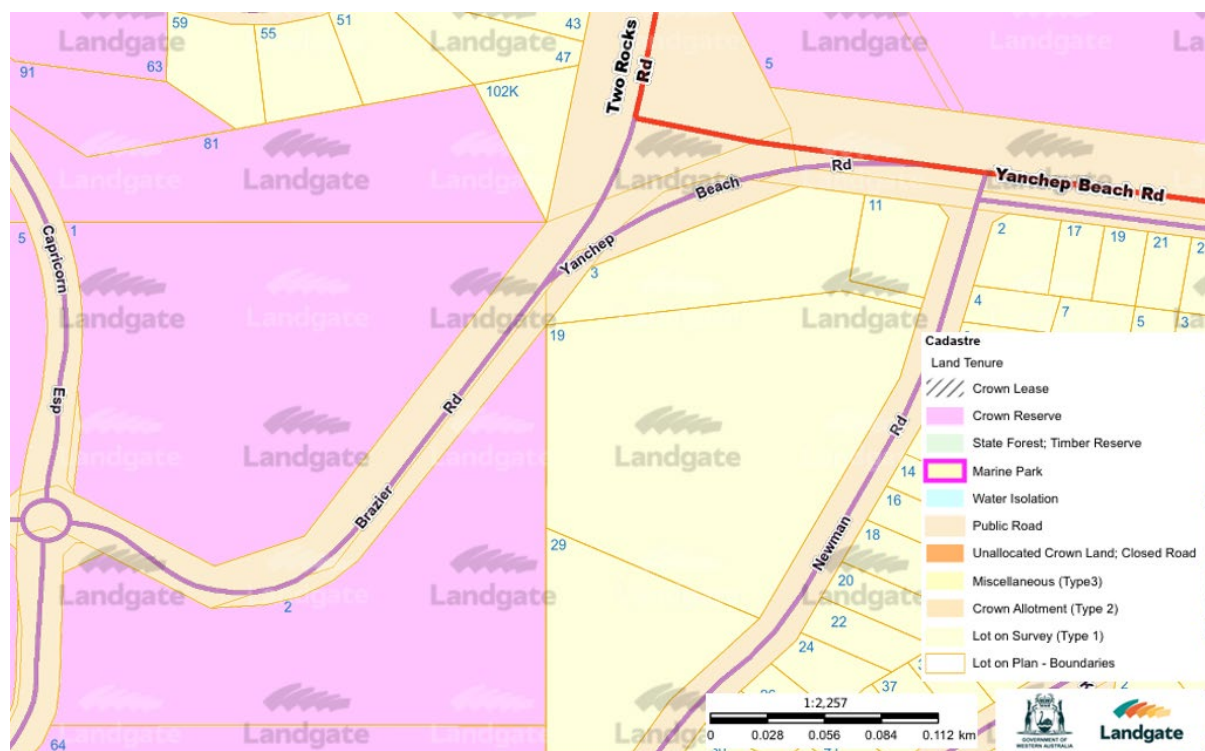


Figure 4 Land Tenure (Landgate, 2025)

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2.3 Geology and Soils

The Project and Onsite Revegetation are located on the Swan Coastal Plain. Department of Primary Industries and Regional Development (DPIRD) Natural Resource Information (WA) mapping indicates the Project and Onsite Revegetation are located within the Quindalup South shallow sand flat phase (mapping unit 211Qu__Qs), Quindalup South oldest dune phase (mapping unit 211Qu__Q1), Quindalup South second dune phase (mapping unit 211Qu__Q2), and Karrakatta Sand Yellow phase (mapping unit 211Sp__Ky) soil landscape mapping units (DPIRD, 2025). The soil landscape descriptions are detailed in Table 3. The topography of the site is generally flat averaging between 20 metres (m) Australian Height Datum (mAHD) (at the south-western end of site) and 6mAHD (at the north-eastern end of the site) (DPIRD, 2025).

Table 3 Soil Landscape Unit descriptions

Soil Landscape Mapping Unit Name	Soil Landscape Map Unit Symbol	Soil Landscape Summary Map Unit Description (from Natural Resource Information (WA))
Quindalup South shallow sand flat phase	211Qu__Qs	Undulating landscapes with shallow calcareous sands over limestone and much rock outcrop.
Quindalup South oldest dune phase	211Qu__Q1	The oldest phase. Dunes or remnants with low relief. Calcareous sands have organic staining to about 30 centimetres (cm), overlying pale brown sand with definite cementation below 1 m.
Quindalup South second dune phase	211Qu__Q2	The second phase. A complex pattern of dunes with moderate relief. Calcareous sands have organic staining to about 20 cm, passing into pale brown sand; some cementation below 1 m.
Karrakatta Sand Yellow phase	211Sp__Ky	Low hilly to gently undulating terrain. Yellow sand over limestone at 1-2 m. <i>Banksia</i> spp. woodland with scattered emergent <i>E. gomphocephala</i> and <i>E. marginata</i> and a dense shrub layer.

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2.4 Climate

The nearest Bureau of Meteorology (BoM) weather station with climate statistic capabilities is Gingin Aero (weather station site number 009178), located approximately 24 km northeast of the Onsite Revegetation Area (Bureau of Meteorology, 2025).

The station's annual mean maximum temperature is 25.7 Celsius (°C) with the warmest months being January and February. The annual mean minimum temperature is 11.2 °C with the coldest months being July and August. The mean annual rainfall is 636.4 millimetres (mm) and the most rainfall is typically recorded within the month of July (Bureau of Meteorology, 2025).

2.5 Hydrology

The depth from ground level to groundwater across the site ranges from a maximum of approximately 6.75 m to 20.15 m and a minimum of approximately 6.93 m to 20.33 m. The groundwater salinity levels range between 500-1000 Total Dissolved Solids (TDS) (DWER, 2025). At its closest point, the Onsite Revegetation Area is approximately 180 m to the coastal waterline (DPIRD, 2025).

2.6 Remnant Vegetation

The One Tree Botanical report (2020) noted that the surveyed vegetation types within the Onsite Revegetation Area and Project Footprint are either 'historically disturbed areas' or 'cultivated or managed areas' and classified the area as degraded to completely degraded with the adjacent vegetation classified as good to very good condition.

Vegetation to the southwest of the Project Footprint was mapped as 'Cultivated or Managed Area' within the One Tree Botanical report (2020). This can be seen within the aerial imagery from June 2017 depicted in Figure 5 below. The City is proposing that the Onsite Revegetation Area includes revegetation of part of this "Cultivated or Managed Areas" (see Figure 3) to ultimately improve the overall vegetation surrounding the Project Footprint.

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Figure 5 Satellite imagery of 'Cultivated or Managed Area' at the junction of Brazier Road and Capricorn Esplanade. Satellite imagery survey captured from June 18th 2017 (Nearmap, 2025)

3 Current Disturbances and Threats

3.1 Human disturbance

The southern portion of Brazier Road currently experiences significant human traffic and is subjected to informal parking due to the proximity to a popular beach access (see Plate 2 in Section 2.1). These disturbances are largely driven by the public’s need to access the lagoon. Over the years, the limited availability of designated parking spaces near the lagoon has led to persistent informal parking practices. This ongoing activity has contributed to the degradation of the project area and encroaching impacts into the adjoining reserve to the south.

3.2 Weeds

Due to previous and ongoing land use and anthropogenic activities the Project Footprint and Onsite Revegetation Area has experienced the introduction of weed species. The 2020 flora and vegetation report determined 56% of the 199 taxa recorded within the study area of Yanchep Lagoon were not native (One Tree Botanical, 2020).

In addition to the One Tree Botanical Flora and Vegetation (2020) identification of weeds, the vegetation assessments conducted in November of 2024 and September 2025 by City of Wanneroo Environmental Officers identified the following species in Table 4 within and adjacent to the Project Footprint and Onsite Revegetation Area (see Plate 3 for examples of identified weeds within the site during the September vegetation assessment).

Table 4 Weed species identified within the November 2024 and September 2025 vegetation assessments

Species	Common name
* <i>Arctotheca calendula</i>	Cape Weed
* <i>Avena barbata</i>	Wild Oats
* <i>Bromus diandrus</i>	Great Brome
* <i>Cynodon dactylon</i>	Couch Grass
* <i>Ehrharta longiflora</i>	Annual Veldt Grass
* <i>Eragrostis curvula</i>	African Love Grass
* <i>Euphorbia terracina</i>	Geraldton Carnation Weed
* <i>Euphorbia peplus</i>	Petty Spurge
* <i>Ferraria crispa</i>	Black Flag

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Species	Common name
<i>*Lagurus ovatus</i>	Hare's Tail Grass
<i>*Leptospermum laevigatum</i>	Eastern States Tea Tree
<i>*Lolium perenne</i>	Perennial Ryegrass
<i>*Medicago polymorpha</i>	Burr Medic
<i>*Oxalis pes-caprae</i>	Soursob
<i>*Pelargonium capitatum</i>	Rose Pelargonium
<i>*Schinus terebinthifolia</i>	Japanese Pepper Tree
<i>*Trachyandra divaricata</i>	Dune Onion Weed

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Plate 3 Examples of weeds identified within vegetation assessment of Project Footprint September 2025



As a result, a targeted weed management strategy is imperative to mitigate the current weed proliferation at the proposed revegetation site.

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3.3 Feral Animals

The Onsite Revegetation Area is highly vulnerable to feral animal intrusions, particularly rabbits, which indiscriminately consume native vegetation, consequently fostering invasive species proliferation and therefore diminishing the quality of native vegetation.

4 Reference Site Floristic Data Collection

In 2019 the City commissioned One Tree Botanical to conduct a baseline survey of vegetation adjacent to the proposed footpath and car park site. This florist data will be used as the baseline data for the purposes of this revegetation plan.

One Tree Botanical conducted a survey of the Yanchep Lagoon, during this survey a number of vegetation types were identified. The vegetation communities that have been identified within the area, and will be used for the purpose of this revegetation works have been listed below:

TALLER INLAND DUNES ON SEMI-CONSOLIDATED SAND

- *C1: Dune Slopes and Swales*: Taller Shrubland (1-2 m) *Acacia cyclops*, *Spyridium globulosum*, *Olearia axillaris*, *Templetonia retusa* and *Rhagodia baccata* subsp. *baccata* over lower Shrubland *Melaleuca systema*, Forbland *Lomandra maritima*, Sparse Tussock Grassland *Poa porphyroclados* and *Austrostipa flavescens*, Sparse Sedgeland *Lepidosperma calcicola* and Sparse Rushland *Desmoclados asper*. Associated with Floristic Community Types (FCT): FCT29a, FCT29b, FCT24, S11.
- *C2: Dune Crests*: Low Shrubland (<0.5 m) species-rich but typically *Melaleuca systema*, *Acacia lasiocarpa* var. *lasiocarpa*, *A. cochlearis*, *Leucopogon parviflorus*, *L. insularis*, *Santalum acuminatum*, *Phyllanthus calycinus*, *Templetonia retusa*, *Olearia axillaris*, *Myoporum insulare* and *Rhagodia baccata* subsp. *baccata*. Forbland also species rich but dominated by *Lomandra maritima*, *Acanthocarpus preissii* and *Conostylis candicans* intergrade *pauciflora*. Sparse Sedgeland *Lepidosperma calcicola*, Sparse Rushland *Desmoclados asper* and Sparse Tussock Grassland *Austrostipa flavescens* and *Poa porphyroclados*. Associated with FCTs: FCT29a, FCT24, S11.
- *C3: Dunes*: Open Forest Tuart *Eucalyptus gomphocephala* (possibly planted or spread from plantings in area) over Shrubland of *Rhagodia baccata* subsp. *baccata*, *Spyridium globulosum*, *Acacia xanthina* and *Exocarpos sparteus* over Tussock Grassland of weeds **Ehrharta longiflora* and **Bromus diandrus*. Associated with FCTs: FCT29a, S11.

SHALLOW SANDS OVER LIMESTONE

- *D1: Slopes with Sparse Limestone Outcrop*: Sparse to Closed Shrubland *Melaleuca cardiophylla* with other typical shrubs *Acacia xanthina*, *Spyridium globulosum*, *Rhagodia baccata* subsp. *baccata*. Sparse Shrubland is more open with diverse understorey of forbs, sedges, rushes and grasses. Often weedy underneath Closed Shrubland with Forbland dominated by **Galium murale*, **Minuartia mediterranea*,

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**Stellaria media* and grass **Ehrharta longiflora*. Associated with FCTs: FCT29a, FCT29b, S11.

Reference data for brazier road will come from the Flora and Vegetation Survey, Yanchep Lagoon in Yanchep by One Tree botanical 2020.

4.1 Flora to be Replanted

Due to the limited size and close proximity of the revegetation area to the road, not all of the flora species listed above are suitable for use. The selected species have been carefully chosen to meet the environmental conditions of the site, complement the surrounding vegetation, and accommodate traffic safety requirements by maintaining low-growing plants to preserve road visibility. The following vegetation will be propagated and planted:

- *Acacia lasiocarpa*
- *Acacia xanthina*
- *Acanthocarpus preissii*
- *Conostylis candicans* intergrade *pauciflora*
- *Dianella revoluta*
- *Ficinia nodosa*
- *Hardenbergia comptoniana*
- *Hemiandra glabra*
- *Kennedia prostrata*
- *Lomandra maritima*
- *Melaleuca cardiophylla*
- *Melaleuca systema*
- *Myoporum insulare*
- *Olearia axillaris*
- *Phyllanthus calycinus*
- *Rhagodia baccata*
- *Spyridium globulosum*
- *Scaevola thesioides*

4.1.1 Salvaging of Flora

The 2020 Flora and Vegetation Survey (One Tree Botanical) noted records of *Conostylis candicans* subsp. *calicicola* intergrade *Conostylis pauciflora* subsp. *euryrhipis* adjacent to the Project Footprint and Onsite Revegetation Area. A possible juvenile example of this species was identified during the vegetation assessment conducted in September 2025 (see Figure 5 below) within the modified vegetation area identified by One Tree Botanical (2020).

The City proposes that before works commence for the Project, applicable individuals of this species are salvaged for replanting where possible once works have been completed.

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Figure 6 Potential juvenile example of *Conostylis candicans* subsp. *calcicola* intergrade *C. pauciflora* subsp. *Euryrhipis* identified within the September 2025 vegetation assessment

5 Revegetation Commitments and Completion Criteria

5.1 Revegetation Commitments

The intent of this plan is to provide a clear description of the techniques and strategies to be utilised to ultimately improve **0.211 ha** of land along Brazier Road. The City acknowledges however that it may not be possible to restore the vegetation to their original state. The revegetation should be similar in structure and content to the comparable naturally occurring vegetation near or adjacent to the proposed revegetation site

5.2 Completion Criteria

The proposed completion criteria of this Revegetation and Rehabilitation Plan is detailed within Table 5 below.

Table 5 Completion Criteria Brazier Road Yanchep

Criterion	Reference area data	Completion Targets	Completion Criteria	Monitoring
A(i) Total Species Richness	Area species richness is 18 (native sp. only).	Minimum of 50% of native species returned, based on reference site data.	Minimum of 10 native species to be present in the revegetation areas.	Years 3, 4 & 5.
B(i) Total Species Density	An average plant density of 2 stems/m ² in dryland environments is used as a baseline measure.	Minimum of 50% of native species returned, based on reference site data.	The revegetation site needs a minimum of 2 stems/m ² .	Years 3, 4 & 5.
C(i) Weed Cover	Weed Cover recorded within quadrats was very low <20% observed	Weed cover to be ≤10%	Weed cover is ≤10%	Years 3, 4 & 5.

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Criterion	Reference area data	Completion Targets	Completion Criteria	Monitoring
C(ii) Declared weeds	No Declared weeds or Weeds of National Significance identified	No declared weeds to be present within the revegetation areas.	0% declared weed cover	Years 3, 4 & 5.
D(i) Survival rate to be achieved	Survival rate to be achieved.	If after year 2 and 3 of planting, a survival rate of at least 50% is not achieved all planted tubestock that have not survived must be replanted within 12 months and monitored for a further 2 years.	The revegetation site needs to ensure a survival rate for trees of at least 50% is achieved after five years and replant any trees within 12 months of dying.	Years 3, 4 & 5.

6 Site Preparation

Prior to planting at the proposed revegetation site will require preparation to ensure that the revegetation is successful. Below describes details of site preparation at both sites.

6.1 Weed Control

Spoil as a result of excavation on site for utilities installation is to be treated appropriately (for example sifting to remove corms) before being reutilised for revegetation.

Prior to tube stock planting, the site will be treated with herbicide to prevent and remove the current weed infestations. Once the herbicide has taken effect and soil conditions are appropriate, the site will be planted using a planting auger. Selective herbicides will be used continuously throughout the revegetation program to target identified weeds, preventing their growth.

Weed control will continue throughout the revegetation program to ensure completion criteria are met.

6.2 Bollards

The revegetation site is directly adjacent to the footpath and parking bays. To distinguish between the revegetation area and newly installed assets, bollards will be installed around the revegetation site to prevent human interference.

6.3 Feral Animal Control

Feral animal activity has been recorded at the site, the City is proposing the release of RHDV and cage trapping as part of their feral animal mitigation project. Feral animals such as rabbits eat the freshly planted vegetation and hinder revegetation progress. The control of feral animals is required to ensure that completion criteria are met.

6.4 Seed Collection, Plant Salvage and Propagation

The City will engage a contractor to collect seeds from the reserve south of the revegetation area and from the area that will be cleared. Plant salvaging will be carried out in winter and spring to secure sufficient diversity and quantity for the project area. As specified in Section 4.1.1, salvaging of *Conostylis candicans* subsp. *calcicola* intergrade *Conostylis pauciflora* subsp. *euryrhipis* where possible will occur with the intention of replanting within the revegetation works.

Plant propagation will involve growing a variety of native species from seeds and cuttings collected at these sites, providing an adequate supply for revegetation efforts.

6.5 Signage

The City will install temporary signage informing the public of the active revegetation activities occurring. The signage will also include information on the benefits of revegetation in the area.

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The information will hopefully increase positive behaviour of the community towards the revegetation areas.

7 Vegetation Establishment

7.1 Tube Stock Installation

Tube stock will be planted by hand with the use of an auger. This method increases the seedlings' survival chances, as they are gently placed into the soil. Release of RHDV is proposed to control rabbit herbivory of new growth in the revegetation area.

7.2 Mulch Application

Mulch will be harvested from the vegetation that is cleared within the area, and stockpiled until application is required. The mulch will be spread across the revegetation sites to aid in moisture retention, which will support successful plant establishment. Additionally, as the mulch composts, it will enrich the soil with nutrients, further benefiting the revegetation efforts.

8 Revegetation Schedule

The City has prepared a detailed schedule of actions, including high-level start times for activities, such as site preparations, vegetation establishment maintenance and reporting. Table 6 below outlines the schedule necessary for the City to meet the completion criteria for the Amendment Application of CPS 10868/2.

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Table 6 Revegetation Schedule

Stage	Actions	Timing	Responsibility	Year 1	Year 2	Year 3	Year 4	Year 5
Site Preparation	Weed Control	Initial weed control applications	Project Manager	X	X			
	Bollard/ Bollard repairs and Signs	Ongoing starting Year 1	Project Manager	X	X	X	X	X
	Seed Collection	Ongoing starting Year 1	Project Manager	X	X	X	X	
	Plant Propagation	Ongoing starting Year 1	Project Manager	X	X	X	X	X
	Plant Salvaging	Year 1	Project Manager	X				
Vegetation Establishment	Mulching	Year 1	Project Manager	X				
	Watering	Commencing Year 2, then annually thereafter	Project Manager		X	X	X	X
	Planting and Infill Planting	Ongoing	Project Manager	X	X	X	X	X
	Monitoring of Revegetation Site	Commencing in Year 3 then annually thereafter	Project Manager			X	X	X

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Stage	Actions	Timing	Responsibility	Year 1	Year 2	Year 3	Year 4	Year 5
Maintenance	General Maintenance of Rubbish	Ongoing	Project Manager	X	X	X	X	X
	Weed Control	Ongoing	Project Manager	X	X	X	X	X
	Feral Animal Control	Ongoing	Project Manager	X	X	X	X	X
	Pruning	Ongoing	Project Manager	X	X	X	X	X
Reporting	Annual Compliance Reporting/ Data collection	Annually commencing in Year 3	Project Manager			X	X	X

9 Monitoring and Analysis

Revegetation monitoring will be done in Spring in Years three (3), four (4) and five (5) as illustrated in the completion criteria table and schedule. Monitoring will include the following:

- Monitoring must address the completion criteria targets listed in **Section 5.2**
- The City will engage qualified environmental specialist
- Vegetation and Flora surveys will be conducted in Spring of Year's three (3), four (4) and five (5).
- Environmental specialist will establish monitoring quadrats to collect flora data that includes the following:
 - Species richness of the 0.211 ha
 - Total species density
 - Weed cover percentage (%)
 - Assess presence of declared weeds
 - Measure survival rate percentage (%) achieved

Monitoring will be ongoing from Year three (3) to Year five (5) after project completion to ensure revegetation completion criteria have been met and to implement contingency measure(s) where required.

Monitoring reports for the Spring events will be provided to the City of Wanneroo annually, by 30 May.

The monitoring requirements and environmental data to be collected to measure success, through completion criteria and targets is detailed in Table 7 below.

Table 7 Monitoring requirements

Data Collection Type	Aim of monitoring	Output	Duration
Site- level	A(i) Total Species Richness	Floristic survey data, analysis, and discussions.	For the lifetime of amended clearing permit CPS 10868-2 or until the revegetation is considered successful and met all completion target and criteria.
	B(i) Total Species Density	Floristic survey data, analysis, and discussions.	
	C(i) Weed Cover	Data and mapping.	
	C(ii) Declared weeds	Data and mapping.	
	D(i) Survival rate to be achieved	Floristic survey data, analysis, and discussions.	

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Data Collection Type	Aim of monitoring	Output	Duration
Quadrat-level	C(i) Weed Cover	Floristic survey data, analysis, and discussions.	
	C(ii) Declared weeds	Floristic survey data, analysis, and discussions.	
	D(i) Survival rate to be achieved	Floristic survey data, analysis, and discussions.	

10 Maintenance and contingency measures

10.1 Revegetation Monitoring and Planting

According to the revegetation monitoring plan, the site will be monitored yearly starting from the third year to conduct survival counts. This monitoring will take place early enough to allow for the ordering of infill seedlings in October for planting the following July. Seedlings will be hand-planted using an auger and by hand to replace non-surviving plants. Large or consistently failing areas, identified as inhospitable, will be investigated to determine why plants are not thriving and if the problem cannot be fixed the areas will be avoided in future infill planting.

10.2 Weed Control

As part of the ongoing maintenance, weed control will be conducted starting from the first year and will continue until the completion criteria have been met.

10.3 Bollard Maintenance

Bollards will be maintained, and any necessary repairs will be carried out as needed.

10.4 Maintenance Once Revegetation Completion Criteria Has Been Met

The revegetation site will be handed over to the City's internal Tree's and Conservation Maintenance (TCM) team for ongoing management and maintenance once completion criteria have been satisfied. The TCM team will undertake inspections and the planning and scheduling works (planting, weed management, asset repairs etc) as needed.

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