WESTERN ENVIRONMENTAL

Lot 10 Wellesley Road

Native Vegetation Clearing Permit - Supporting Document

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Lot 10 Wellesley Road

Native Vegetation Clearing Permit -
Supporting Document

Report No:
A24.238-RPT-NVCP_0_FINAL
Issue Date:
24-Nov-2025
Status
FINAL

Prepared for:
Tonic Group

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Internal Review

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8-Oct-2025	**23-Oct-2025**	**24-Oct-2025**

Distribution Record

Copies	Document ID / Version	Date	Received by
1 (E)	A24.238-RPT-NVCP_A_DRAFT	10-Nov-2025	R.C

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Environmental Conclusions

In accordance with the scope of services, WEPL has conducted environmental field monitoring and/or testing in the preparation of this report. The nature and extent of monitoring and/or testing conducted is described in this report.

On all sites, varying degrees of non-uniformity of vertical and horizontal conditions in media (soil, water, air, waste or other media as described in the report) are encountered. Hence no monitoring, common testing or sampling technique can eliminate the possibility that monitoring or testing results/samples are not totally representative of media conditions encountered. The conclusions are based on the data and the environmental field monitoring and/or testing actually undertaken, and are therefore merely indicative of the environmental condition of the site at the time of preparing this report, including the presence or otherwise of contaminants or emissions. It should be recognised that site conditions, including the extent and concentration of contaminants, can change.

Within the limitations imposed by the scope of services, the monitoring, testing, sampling and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. To the maximum extent permitted by law, no other warranty, express or implied, is made.

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Other Limitations

This report is intended to be read in its entirety, and sections or parts of this report should therefore not be read and relied on out of context.

WEPL will not be liable to update or revise this report to take into account any events or circumstances or facts becoming apparent after the date of this report.

Executive Summary

Western Environmental Approvals Pty Ltd (WEPL) present this Native Vegetation Clearing Permit (NVCP) to support a Development Application (DA) for Lot 10 on Plan P018149 (88.38 ha), Wellesley Road Binningup (the Site) in the Shire of Harvey, for a proposed solar facility. The Site also includes two portions of road reserve intersecting Lot 10, that are in the process of being amalgamated into Lot 10. The Site is located within the Kemerton Strategic Industrial Area (KSIA) and is currently zoned as 'Rural' under the Greater Bunbury Region Scheme and 'Strategic Industry' under the Shire of Harvey Local Planning Scheme No. 2 (LPS No. 2), including Special Control Area No. 2 Restricted Use 3 which is associated with the KSIA buffer area.

The proposed solar facility will require the clearing of 1.67 ha of scattered native vegetation within a 12.46 ha disturbance footprint. The balance of the disturbance footprint comprises cleared land and non-native vegetation associated with a multiple use wetland (MUW). This clearing is proposed only within Lot 10 on Plan P018149, of which Tonic Group is the title holder.

Native vegetation to be cleared includes 1.67 ha of scattered trees, in completely degraded condition due to historic grazing and agricultural activities. The proposed clearing will facilitate construction of the following infrastructure:

- 75 MW of solar photovoltaic (PV) panels.
- 55 MW/440 MWhr battery.
- 50 m x 30 m substation.
- 7 m wide access road via Runnymede Road.
- 10 electric vehicle (EV) charging bays.
- Office operation and management centre area (2 offices, 12 x 6 m each), and general parking.

The clearing extent includes vegetation that is considered to provide low-moderate foraging value for Carnaby's black cockatoo (*Zanda latirostris*) (CBC), forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*) (FRTBC) and Baudin's black cockatoo (*Zanda baudinii*) (BBC), including 42 potential nesting trees, none of which contain suitable nesting hollows. This vegetation also provides 0.56 ha of very low quality supporting habitat for the western ringtail possum (*Pseudocheirus occidentalis*) (WRP).

Clearing across the entire Site was initially considered for the development, to maximise energy output and land availability for solar panels. Following completion of ecological surveys, the design has undergone revision to retain areas of highest quality habitat where possible.

The proposed clearing is not considered at variance with any of the Ten Clearing Principles, due to:

- Having a low level of biological diversity in the context of the surrounding area (with particular reference to values mapped within the Site).

- Having no impact to Threatened or Priority Ecological Communities present within the Site.
- No impact to the maintenance of a vegetation complex.
- No impact to Threatened flora species.
- Having limited habitat values for black cockatoos (1.67 ha of low-moderate foraging value) and western ringtail possum (0.56 ha of low quality supporting habitat).
- No impact to intact mapped native wetland vegetation (due to a 30 m setback from the 2.51 ha patch of mapped native wetland vegetation). Only non-native completely degraded wetland vegetation will be impacted.
- No long-term land degradation being expected.
- No expected impacts to groundwater quality or hydrological regime.
- Supplementary planting is proposed within the retained native wetland vegetation, and within retained areas of fauna habitat, to improve quality of vegetation and fauna habitat.

The solar farm facility will be referred to DCCEEW under the EPBC Act on the basis of potential impacts to threatened species and communities. However initial self-assessment and pre-referral engagement with DCCEEW indicates that these impacts are not considered significant, and the project will be referred as not a controlled action.

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Appendices

1. Introduction

1.1 Project Background

Tonic Group are proposing to undertake clearing associated with the development of a solar facility on Lot 10, Wellesley Road Binningup (the Site), within the Shire of Harvey. The Site also includes two portions of road intersecting Lot 10, that are in the process of being acquired. The lots included within the Site are:

- Lot 10 on Plan P018149.
- Closed Road - Land ID 3088124.
- Closed Road - 3088123.
- Lot 70 on Plan P029152.

The proposed solar facility will require the clearing of up to 1.67 ha of scattered native vegetation within a 12.46 ha disturbance footprint. The balance of the Site comprises cleared completely degraded paddock, retained scattered native vegetation, 2.51 ha of retained native wetland vegetation and non-native vegetation associated with a multiple use wetland (MUW), which provides low (unsuitable) foraging habitat values for black cockatoos and limited fauna habitat values. All native vegetation clearance included within this application is only within Lot 10 on Plan P018149, of which Tonic Group is the title holder.

The Site is located within the Shire of Harvey, approximately 130 km south of Perth Central Business District, and is partially situated within the Kemerton Strategic Industrial Area (SIA) (Figure 1). The purpose of the development is to generate energy, which can be used to support and supply the continued industrial expansion within the Kemerton SIA.

Native vegetation to be cleared includes 1.67 ha of scattered trees, in completely degraded condition due to historic grazing and agricultural activities. The proposed clearing will facilitate construction of the following infrastructure:

- 75 MW of solar photovoltaic (PV) panels.
- 55 MW/440 MWhr battery.
- 50 m x 30 m substation.
- 7 m wide access road via Runnymede Road.
- 10 electric vehicle (EV) charging bays.
- Office operation and management centre area (2 offices, 12 x 6 m each), and general parking.

Clearing across the entire Site was initially considered for the development, to maximise energy output and land availability for solar panels. Following completion of ecological surveys, design has undergone revision to retain areas of highest quality habitat where possible.

The development will be referred to the Department of Climate Change, the Environment and Water (DCCEEW) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for assessment, due to direct impacts to Carnaby's black cockatoo (*Zanda latirostris*) (CBC), forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*) (FRTBC), Baudin's black cockatoo (*Zanda baudinii*) (BBC) and western ringtail possum (*Pseudocheirus occidentalis*) (WRP).

1.2 Objectives

Tonic Group and TBB Planning have commissioned Western Environmental Approvals Pty Ltd (WEPL) to prepare a Native Vegetation Clearing Permit application.

The scope of works include:

- Review of design.
- Review of the previously undertaken reconnaissance flora and vegetation survey, basic fauna survey and targeted black cockatoo and WRP surveys (WEPL, 2025), which included assessments of black cockatoo habitat and WRP habitat in accordance with relevant State Commonwealth guidance.
- Preparation of a supporting technical report including results of the desktop and field surveys ,as well as an assessment against the clearing principles for native vegetation under Schedule 5 of the *Environmental Protection Act 1986* (EP Act).
- Preparation of a geospatial data package prepared in accordance with Index of Biodiversity Surveys for Assessments (IBSA) requirements.
- Preparation of a Native Vegetation Clearing Permit application form.

1.3 Previous Surveys

The assessment presented in this report has been undertaken based on the surveys undertaken across the whole Site by WEPL in 2025. This included:

- Reconnaissance Flora and Vegetation assessment in accordance with the Environmental Protection Authority (EPA) Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessments (EPA, 2016) (The Technical Guidance) including:
    - Desktop assessment.
    - A reconnaissance level vegetation type mapping and statistical analysis.

    - Vegetation condition mapping according to the EPA Guidance condition rating scale.

- A targeted assessment for presence of Threatened and Protected Ecological Communities.
- A Basic fauna survey and likelihood of occurrence for Threatened or Priority fauna in accordance with the Technical Guidance for Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (EPA 2020) (The Technical Guidance).
- Targeted black cockatoo habitat assessment as per Department of Climate Change, Energy, the Environment and Water (DCCEEW) Referral Guideline for 3 WA Threatened Black Cockatoo Species (2022) to identify potential breeding, foraging or roosting habitat.
- A targeted WRP habitat assessment considering Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) 2011 Survey guidelines for Australia's threatened mammals and comprising daytime drey (nest) and scat searches and night-time spotlighting.

Survey effort included:

- Two person days completing reconnaissance flora and vegetation in June 2025.
- Two person days sampling fauna and undertaking daytime black cockatoo and WRP assessment, in June 2025.
- Two evening (non-concurrent nights) of WRP spotlighting transects, in June 2025.

1.4 Limitations

All possible limitations associated with the surveys undertaken by WEPL were considered to be negligible. As a result, no constraints to the survey outcomes were identified. A full description of this is provided in Table 1 of Appendix A.

1.5 Legislation and Guidance

This assessment was conducted in accordance with Commonwealth and State legislation, guidelines and advice, including:

- Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
- *Western Australian Environmental Protection Act 1986* (EP Act).
- *Western Australian Biodiversity Conservation Act 2016* (BC Act).
- *Western Australian Biodiversity Conservation Regulations 2018.*

- Commonwealth Department of the Environment (DotE). (2013). Matters of National Environmental Significance. Significant Impact Guidelines 1.1 - Environment Protection and Biodiversity Conservation Act 1999.

- EPA. (2016). Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment. Known herein as the 'Flora and Vegetation Technical Guidance.'

- Department of Biodiversity Conservation and Attractions [DBCA] (2023) Draft: Methods for survey and identification of Western Australian Threatened Ecological Communities. Communities and Communities Program, DBCA.

- Department of Sustainability Environment Population and Communities (DSEWPaC). (2011). Survey Guidelines for Australia's Threatened Mammals. Canberra, Australia.

- Former Department of Agriculture, Water and the Environment (DAWE) (2022) Referral Guidelines for 3 Threatened Black Cockatoo Species Carnaby's Cockatoo (*Zanda latirostris*), Baudin's Cockatoo (*Zanda baudinii)* and the Forest Red-tailed Black-cockatoo (*Calyptorhynchus banksii naso*).

- WA EPA. (2021). Statement of Environmental Principles, Factors and Objectives.

- Department of Climate Change, Energy, the Environment and Water (DCCEEW). (2021). *EPBC Referral Guidance - Tuart (Eucalyptus gomphocephala) Woodlands and Forest of the Swan Coastal Plain ecological community.*

- Department of Climate Change, Energy, the Environment and Water (DCCEEW). (2009). *EPBC Act policy statement 3.10 Significant impact guidelines for the vulnerable western ringtail possum (Pseudocheirus occidentalis) in the southern Swan Coastal Plain, Western Australia.*

- Department of Climate Change, Energy, the Environment and Water (DCCEEW). (n.d) Habitat Scoring System for WA black cockatoo foraging habitat V1.9

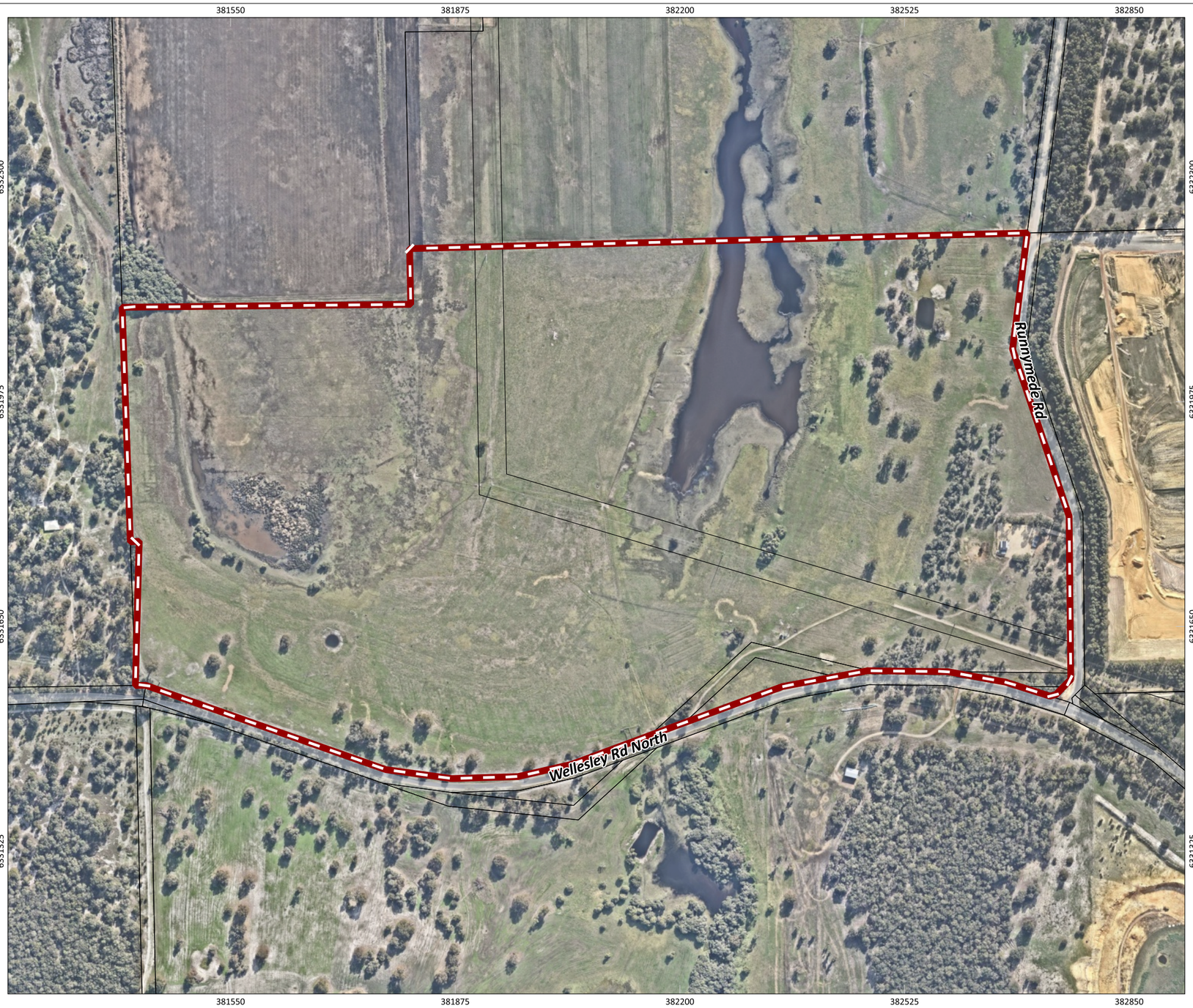
- Department of Climate Change, Energy, the Environment and Water (DCCEEW). (n.d) Habitat Scoring System for Western Ringtail Possum (Pseudocheirus occidentalis)

As well as those listed above, the assessment complied with Environmental Protection Authority (EPA) requirements for terrestrial vertebrate and fauna surveys and flora and vegetation surveys in Western Australia, as outlined in:

- EPA. (2020). Technical Guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment. Known herein as the 'Fauna Technical Guidance'.

- EPA. (2016). Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment. Known herein as the 'Flora and Vegetation Technical Guidance.'

A short description of key legislation is provided in Appendix A. Other definitions, including species and ecological community conservation categories, are provided in Appendix B.



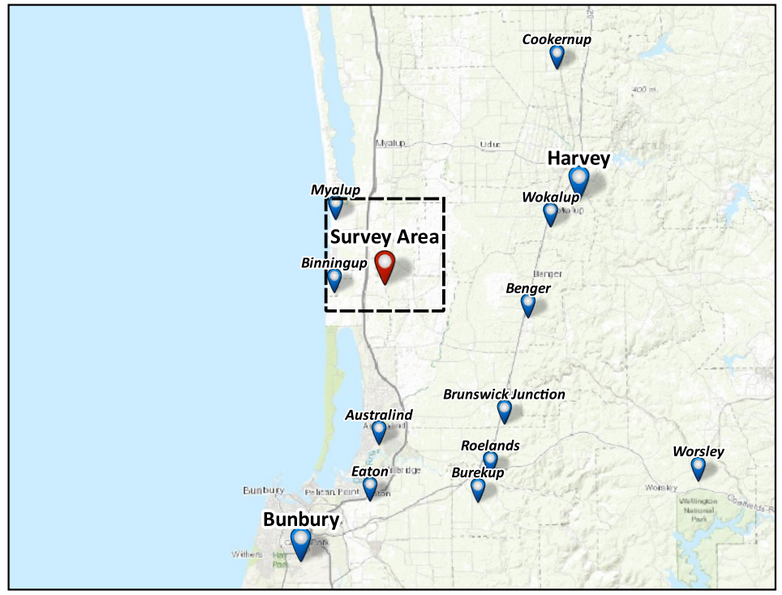


Figure 1: Site Location

0 100 200 300 m

N

SCALE: 1:6,500	SHEET SIZE: A3 COLOUR	
COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50	PROJECT NUMBER: A24.238	VERSION: 0
DATA SOURCE: NEARMAPS	DRAWN BY / REVIEWED BY: JP/ZL	DATE: 17/10/2025

PROJECT/REPORT NAME
Native Vegetation Clearing Permit
Lot 10 Wellesley Road, Binningup

CLIENT
Tonic Group

Legend
- The Site
- Cadastre (No Attributes) (LGATE-001)

No	Description	Drawn	Approved	Date
A	Original issue	JP	ZL	17/10/2025

NOTES:
Cadastral boundary (LGATE-002). Base map ESRI Topo. Townsites (LGATE-248).

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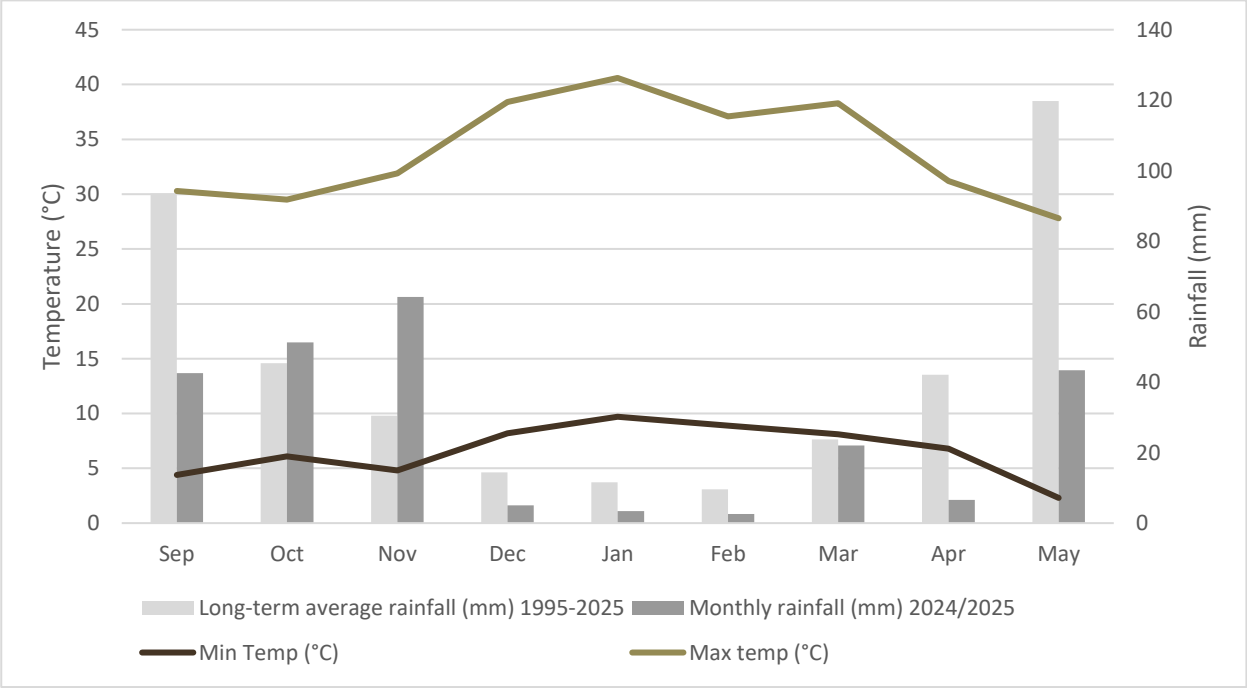
2. Existing Environment

2.1 Climate

The Site is located within the Perth (SWA02) subregion of the Swan Coastal Plain bioregion (Beard 1990). Beard (1990) described the climate of the area as warm Mediterranean, with cool wet winters (May to September) and warm dry summers.

The closest weather station to the Site with a complete dataset is Bunbury WA (Station 009965), located approximately 14 km south-west Project Area. Bunbury weather station recorded 83.00 mm of rain in the six months prior to the survey (Dec 2024 – May 2025), which is 137.79 mm below the long-term average of 220.79 mm in the same period (BoM, 2024). Conditions during autumn 2025 showed below average rainfall in March (22.00 mm in 2025 compared to 23.76 mm), April (6.60 mm in 2025 compared to 42.13 mm), and May (43.4 mm in 2025 mm compared to 119.76 mm) (BoM 2025). In the three months prior to the survey (March to May 2025), 72.0 mm of rainfall was recorded, the 3 months prior to March (Dec 2024 - Feb 2025) recorded 11 mm which was 24.14 mm below the long-term average at 35.14 mm (BoM, 2025).

The long-term mean minimum temperature for Bunbury ranges from 7.3˚C (August) to 16.0˚C (February) (1994 to 2024) and the long-term mean maximum temperature ranges from 17.3˚C (July) to 30.1˚C (February) (Graph 1) (BoM, 2025).



Graph 1: Long Term and Monthly Total Rainfall, Maximum and Minimum Temperatures for Bunbury WA (009965) (BoM, 2025)

2.2 Historic and Current Land Use

Review of historical aerial imagery identified that the Site has been historically cleared prior to 1996 for agricultural purposes, including grazing. This has continued to present. The area immediately north and south of the Site has also been utilised for agricultural purposes. To the east of the Site, clearing has occurred for sand extraction and quarrying. To the west of the Site, intact remnant vegetation is present.

2.3 Geology and Soils

The Site is located within the Perth Coastal Soil-Landscape Zone of the Swan Province, and features:

> *'Coastal sand dunes and calcarenite. Late Pleistocene to Recent (Quindalup and Spearwood Systems). Calcareous and siliceous sands and calcarenite' (Schoknecht et al., 2004).*

The Site is located within the Spearwood System (211Sp) (DPIRD-064), which is described as 'Sand dunes and plains. Yellow deep sands, pale deep sands and yellow/brown shallow sands.' Four soil units have been mapped within the Site (DPIRD-027), as described in Table 2-1 and displayed in Figure 2.

Table 2-1: Soil Landscape Units within the Site

Soil Landscape Unit	Unit Name	Description
211SpW_SWAMP	Spearwood wet, swamp phase	Swamp
211Sp__S4c	Spearwood S4c phase	Flat to gently undulating sandplain with deep, yellow-brown or dark brown siliceous sands that are seasonally inundated
211Sp__S4a	Spearwood S4a phase	Flat to gently undulating sandplain with deep, pale and sometimes bleached, sands with yellow-brown subsoils
211Sp__S2c	Spearwood S2c phase	Lower slopes (1-5%) of dune ridge with bleached or pale sands with a yellow-brown or pale brown subsoil (like S1c). Usually occurs on the eastern edge of the Spearwood Dunes

Acid Sulfate Soils (ASS) mapping by DWER (DWER-055) indicates there is a 'high to moderate risk' of ASS occurring within 3 m of the natural ground surface for the majority of the Site. In the east, there is a portion mapped as 'moderate to low risk' of ASS occurring within 3 m of the natural ground surface but a high to moderate risk of ASS occurring beyond 3 m. The far eastern corner of the Site has no mapped risk of ASS (Figure 3).

A geotechnical investigation undertaken by WML Consulting Engineers (2025) included a preliminary ASS assessment. Following sampling, the results identified a strong indication of potential ASS or ASS presence across the Site, particularly at the soil surface or within 0.5 m of the soil surface. An ASS Management Plan (ASSMP) and additional testing for actual presence of ASS soils was recommended in accordance with DWER guidance, with any planned excavations to be included in the ASSMP. It was also recommended that topsoil should only be removed if necessary, to reduce soil disturbance, and any soil where ASS is present is to be

adequately treated and disposed of. Further analysis will be required to determine if soil can be reused on-site. If ASS is present, no material should be stockpiled or reused (WML Consulting Engineers, 2025). Additional recommendations include establishing roads and foundations on embankments and raised pads in lower lying areas, or the use to suitable pile foundations or screw piles that produce limited spoil.

Overall, it was considered that smart design may be able to minimise risks associated with ASS, particularly in minimising any excavation.

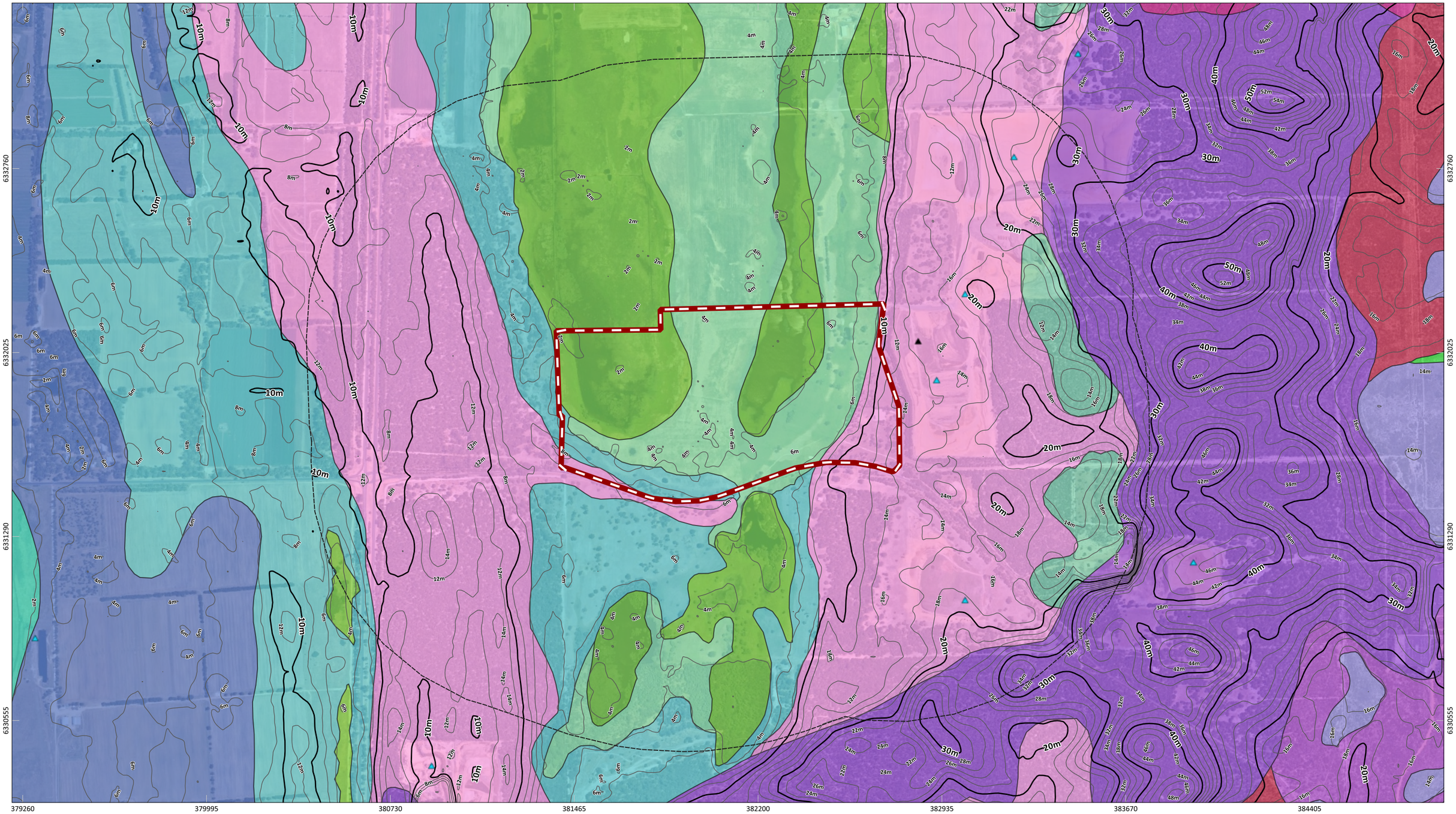


Figure 2: Surface Geology (Soils) and Topography

N 0 200 400 600 800 m	PROJECT/REPORT NAME Native Vegetation Clearing Permit Lot 10 Wellesley Road, Binningup	
SCALE 1:14,700	SHEET SIZE A3 COLOUR	CLIENT Tonic Group
COORDINATE REFERENCE SYSTEM GDA2020 / MGA zone 50	PROJECT NUMBER A24.238	VERSION 0
DATA SOURCE NEARMAPS	DRAWN BY / REVIEWED BY JP / ZL	DATE 17/10/2025

Legend

- The Site
- 1km Buffer

Minedex (DMIRS-001)

- CONSTRUCTION MATERIAL
- ENERGY

2 metre contours (DPIRD-072)

- 2m Contour
- 10m Contour

Soil Landscape Mapping - Best Available (DPIRD-027)

- 211Sp__S1b
- 211Sp__S1c
- 211Sp__S2a
- 211Sp__S2c
- 211Sp__S3
- 211Sp__S4a
- 211Sp__S4b
- 211Sp__S4c
- 211SpW_SWAMP
- 211Va__V10
- 212Bs__B1
- 212Bs__B2
- 212Bs__B3a
- 212Bs__B6

No	Description	Drawn	Approved	Date
A	Original issue	JP	ZL	17/10/2025

NOTES:

Cadastral boundary from LANDGATE 2022. UFID stands for Unique Identifier

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Figure 3: Acid Sulfate Soils Risk

N

0 125 250 375 500 m

SCALE: 1:9,200	SHEET SIZE: A3 COLOUR	CLIENT: Tonic Group	
COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50		PROJECT NUMBER: A24.238	VERSION: 0
DATA SOURCE: NEARMAPS		DRAWN BY / REVIEWED BY: JP/ZL	DATE: 17/10/2025

PROJECT/REPORT NAME
Native Vegetation Clearing Permit
Lot 10 Wellesley Road, Binningup

Legend

The Site

Acid Sulfate Soil Risk Map, Swan Coastal Plain (DWER-055)

1 - High to moderate risk of ASS occurring within 3m of natural soil surface

2 – Moderate to low risk of ASS occurring within 3m of natural soil surface but high to moderate risk of ASS beyond 3m of natural soil surface

No	Description	Drawn	Approved	Date
A	Original issue	JP	ZL	17/10/2025

NOTES:

Cadastral boundary from LANDGATE 2022. Label corresponds to the vegetation association number.

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2.4 Topography

Elevation across the Site ranges from 2 m Australian Height Datum (AHD) within the centre and wetlands, to 14 m in the south-east corner of the Site. An area of higher elevation occurs between the west and east depressions at 4 m. The highest point of the Site is located in the south-east corner near Runnymede Road reserve, at 14 m.

A land contour survey was conducted in 2024 by Thompson Surveying Consultants which ground-truthed desktop elevation levels using a high accuracy real time kinematic (RTK) drone. The true elevation of the west and east depressions was 3.4 m with higher elevation between the two depressions ranging from 4.3 m AHD to 4.8 m. The Site increases in elevation along the southern boundary, ranging from 7.34 m to 9.01 m. Topography along the eastern boundary ranges from 8.69 m to 14.39 m. A geotechnical investigation undertaken by WML Consulting Engineers (2025) identified that the majority of the Site consists of 0.2 to 0.4 m of silty sand/sandy silt and silty clay underlain with a mixture of sand and silty sand to 6 m. This is further underlain with silty sand/sandy silt to over 10 m. The lower lying area of the Site in the west, associated with a mapped conservation category wetland, was considered to have an increased content of peat, silt and clay within the sand compared to the second lower-lying eastern section of the Site, associated with a multiple use wetland. An area to the north-east of the conservation category wetland was considered to have a risk of shallow limestone. It was determined that seasonal waterlogging within the Site is due to underlying clay, and limestone in limited sections.

2.5 Hydrology

2.5.1 Surface Water

The Site is located within the Harvey Surface Water Management Area (DWER-041), the Harvey Diversion Drain subarea (DWER-042) and the Harvey Diversion Drain surface water resource. The Site is not located within a Proclaimed Surface Water Area or Irrigation District (DWER-037).

There are no waterways mapped within the Site. The nearest mapped surface water feature is the coastline, approximately 3.5 km west of the Site.

Flood risk mapping, specifically 1 in 10 Flood Mapping – Floodway and Flood Fringe (DWER-014 and DWER-015) indicates that there is no mapped flood plain or flood fringe within the Site.

Mapping undertaken by the Department of Biodiversity, Conservation and Attractions (DBCA) (DBCA-019) identifies the following geomorphic wetlands as partially mapped within the Site (Table 2-2) (Figure 4)..

Table 2-2: Geomorphic Wetlands mapped within the Site

Unique Feature ID	Landform	Wetland Type	Management Category	Total Wetland Area (ha)
13249	Basin	Dampland	Multiple Use	451.34
1598	Basin	Dampland	Conservation	14.43

Consultation with the Department of Biodiversity, Conservation and Attractions (DBCA) was undertaken on the 30th of May 2025 on-site, to discuss the values associated with the wetlands on site, particularly the 3.58 ha of CCW UFID 1598 within the Site. It was noted that wetlands within the surrounding region were currently under assessment to confirm the most appropriate conservation category. The Conservation Category wetland (CCW) within the Site was noted to likely warrant re-mapping, due to extensive historical agricultural activities impacting the quality and condition of vegetation and habitat present. The condition of vegetation and habitat present within the CCW were considered to have values consistent with a MUW.

Based on results from the site assessment in June 2025 for the Site, characteristic riparian vegetation such as *Melaleuca rhaphiophylla* (swamp paperbark) was recorded in 2.51 ha of the Site, of which 0.66 ha is currently mapped as CCW and the remaining 1.85 ha as MUW. The remaining 2.92 ha of CCW UFID 1598 was considered devoid of vegetation, and consisted only of completely degraded cleared paddock. As a result, a wetland reclassification has been lodged to reclassify the mapped riparian vegetation as REW, and the balance of the CCW as MUW.

2.5.2 Groundwater

Depth to groundwater mapping is not available across the Site. A review of the DWER Water Register (n.d.) identified the following aquifers underlying the Site:

- Perth - Superficial Swan (Level 1) - Kemerton Industrial Park North subarea.
- Perth Leederville (Level 2) - Kemerton North subarea.

The Site is located within the South West Coastal Proclaimed Groundwater Area (DWER-034).

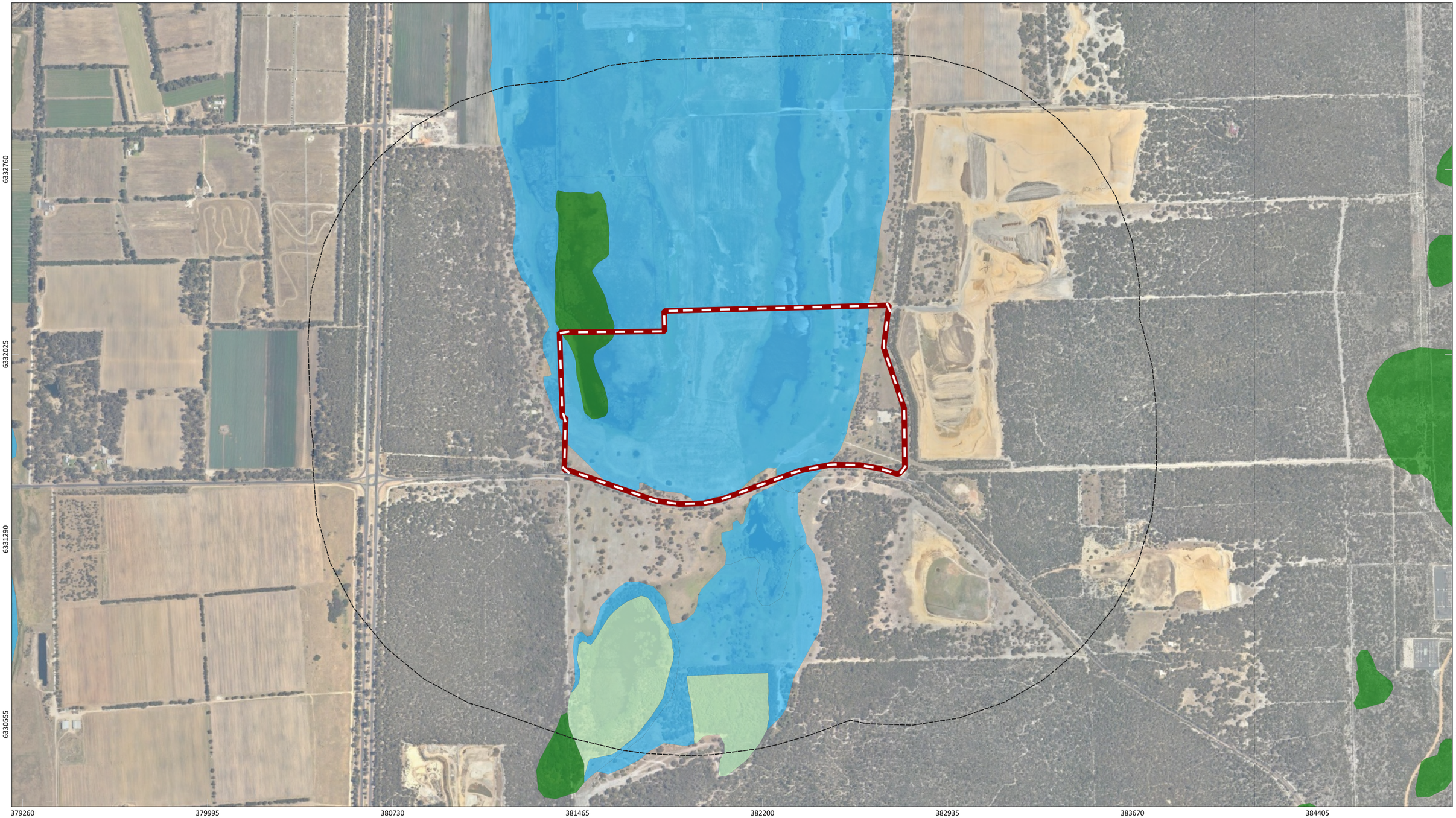

Figure 4: Surface Water Features and Geomorphic Wetlands

N

0 200 400 600 800 m

PROJECT/REPORT NAME	Native Vegetation Clearing Permit Lot 10 Wellesley Road, Binningup
SCALE	1:14,700
SHEET SIZE	A3 COLOUR
CLIENT	Tonic Group
COORDINATE REFERENCE SYSTEM	GDA2020 / MGA zone 50
PROJECT NUMBER	A24.238
VERSION	0
DATA SOURCE	LANDGATE AERIAL IMAGERY NOW
DRAWN BY / REVIEWED BY	JP/ZL
DATE	17/10/2025

Legend

- The Site
- 1km Buffer

Geomorphic Wetlands, Swan Coastal Plain (DBCA-019)

- Conservation
- Multiple Use
- Resource Enhancement

No	Description	Drawn	Approved	Date
A	Original issue	JP	ZL	17/10/2025

NOTES:

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2.6 Conservation Estate, Bush Forever & Environmentally Sensitive Areas

Environmentally Sensitive Areas (ESA) are declared by the Department of Water and Environmental Regulation (DWER) to prevent the degradation of important environmental values such as Threatened Flora, Threatened Ecological Communities (TECs) or significant wetlands.

The Site intersects a mapped ESA, which is associated with the 50 m buffer of the CCW wetland within the Site. Following consultation with DBCA, the extent of this CCW is proposed to be reduced as part of a wetland reclassification application. One small patch of VT01 associated with a single tree is proposed to be cleared within the current ESA extent.

The Site is not intersected by any South West Regional Ecological Linkage axis lines. This is confirmed within Figure 15 of the KSIA EMP, which identifies the Site is located outside of the Leschenault/Kemerton Ecological Linkage (Eco Logical, 2015).

A review of the Shire of Harvey draft endorses Biodiversity Strategy indicates that the east of the Site potentially contains mapped Local Natural Areas (LNAs) prioritised for retention. As a result, areas of native vegetation with highest conservation significance values will be retained within the Site.

The majority of the Site was included within the 1976-1991 EPA Redbook Recommended Conservation Reserves, as recommendation C63 - Myalup Swamp & Mialla Lagoon (DBCA-029). The redbook includes the boundaries of areas recommended for conservation by the EPA. The wetland reclassification has identified that the values associated with the Redbook Recommended Conservation Reserve have been significantly degraded within the Site.

2.7 Flora and Vegetation

A summary of flora and vegetation within the Site and Disturbance footprint is detailed in the following sections, based on the surveys completed by WEPL (2025, Appendix A).

2.7.1 Pre-European Vegetation

During the 1970s, John Beard and associates conducted a systematic survey of native vegetation, describing the vegetation systems in Western Australia at a scale of 1:250 000 in the south-west and at a scale of 1:1,000,000 in less developed areas (Beard, 1981).

This mapping sought to describe the native vegetation presumed to occur prior to European settlement and, as such, is referred to as pre-European vegetation associations. These vegetation maps are maintained in digital form by DPIRD (DPIRD-006). Extents are updated periodically by Department of Biodiversity, Conservation and Attractions (DBCA) (Government of Western Australia, 2019a).

The pre-European vegetation association identified within the Site and its pre-European and current extents within the Swan Coastal Plain (SCP) are described below in Table 2-3.

Table 2-3: Pre-European Vegetation Associations within the Site

Vegetation Association	Description	Original Extent (ha)	Current Extent (ha)	% Remaining
Spearwood_998	Woodland southwest. Jarrah, marri and wandoo Eucalyptus marginata, Corymbia calophylla, E. wandoo.	48441.77	17667.16	36.47
Spearwood_37	Thicket. Wattle, casuarina and teatree acacia-allocasuarina-melaleuca alliance.	4946.28	1,163.58	23.52
Spearwood_6	Woodland southwest. Jarrah, marri and wandoo Eucalyptus marginata, Corymbia calophylla, E. wandoo.	54427.13	13287.64	24.41

Regional vegetation for the SCP was mapped at vegetation complex level by Heddle et al. (1980) at a scale of 1:250,000 and are maintained in digital form by DBCA (DBCA-046; Government of Western Australia, 2019b). Pre-European regional vegetation complexes (DBCA-046) intersected by the Site (Figure 5), including:

- Vasse Complex (57): Mixture of the closed scrub of Melaleuca species fringing woodland of Eucalyptus rudis (Flooded Gum) - Melaleuca species and open forest of Eucalyptus gomphocephala (Tuart) - Eucalyptus marginata (Jarrah) - Corymbia calophylla (Marri). Will include areas dominated by Tecticornia and Sarcocornia species (Samphire) near Mandurah and south of the Capel River.

- Yoongarillup Complex (56): Woodland to tall woodland of Eucalyptus gomphocephala (Tuart) with Agonis flexuosa in the second storey. Less consistently an open forest of Eucalyptus gomphocephala (Tuart) - Eucalyptus marginata (Jarrah) - Corymbia calophylla (Marri). South of Bunbury is characterized by Eucalyptus rudis (Flooded Gum)-Melaleuca species open forests.

- Karrakatta Complex - Central and South (49): Predominantly open forest of Eucalyptus gomphocephala (Tuart) - Eucalyptus marginata (Jarrah) - Corymbia calophylla (Marri) and woodland of Eucalyptus marginata (Jarrah) - Banksia species. Agonis flexuosa (Peppermint) is co-dominant south of the Capel River.

The estimated pre-European and current extent of each vegetation complex within the Site is provided in Table 2-4, together with the percentage remaining within conservation reserves and within the Shire of Harvey.

Table 2-4: Extent of Pre-European Regional Vegetation Complexes within the Site

Vegetation Complex Name	Original Extent (ha)	Current Extent (ha)	% Remaining	% Managed for Conservation
Vasse Complex				
IBRA Region	15,691.63	4,926.97	31.40	13.12
LGA (Shire of Harvey)	1,613.74	505.98	41.35	-
Yoongarillup Complex				

Vegetation Complex Name	Original Extent (ha)	Current Extent (ha)	% Remaining	% Managed for Conservation
IBRA Region	27,977.93	10,018.14	35.81	13.95%
LGA (Shire of Harvey)	10,952.59	3,264.29	29.80	-
Karrakatta Complex - Central and South				
IBRA Region	53,080.99	12,467.20	23.49	3.87
LGA (Shire of Harvey)	5,113.94	1,852.93	36.23	-

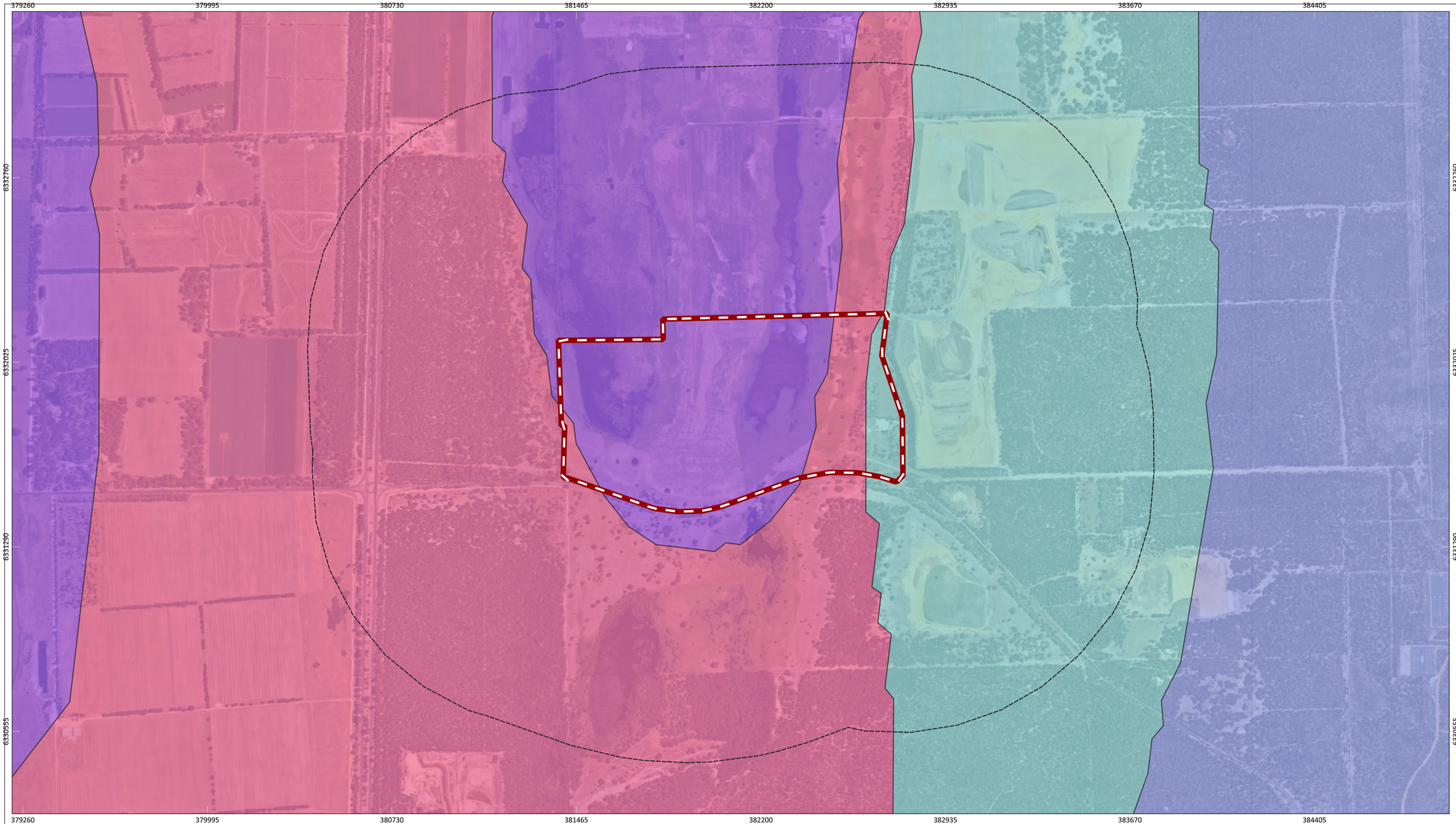

Figure 5: Pre-European Vegetation Type

N 0 200 400 600 800 m	PROJECT/REPORT NAME: Lot 10 Wellesley Road, Binningup	
SCALE: 1:14,700	SHEET SIZE: A3 COLOUR	CLIENT: Tonic Group
COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50	PROJECT NUMBER: A24.238	VERSION: 0
DATA SOURCE: LANDGATE AERIAL IMAGERY NOW	DRAWN BY / REVIEWED BY: JP/ZL	DATE: 17/10/2025

Legend

- The Site
- 1km Buffer

Pre-European Vegetation (DPIRD-006)

- BASSENDEAN_1000
- SPEARWOOD_37
- SPEARWOOD_6
- SPEARWOOD_998

No	Description	Drawn	Approved	Date
A	Original issue	JP	ZL	17/10/2025

NOTES:

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2.7.2 Survey Effort

A Reconnaissance flora and vegetation survey was undertaken across the Site by WEPL in June 2025. The survey was conducted by two suitable experienced environmental scientists in accordance with Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016), and was deemed an appropriate level of survey effort given the degraded to completely degraded condition of vegetation present within the Site. A summary of the results of the survey is provided in the following sections. See Appendix A for full survey report.

2.7.3 Vegetation Condition

Vegetation within the Site ranges from Degraded to Completely Degraded condition, as per as per EPA (2016) vegetation condition scale. The majority of the Site is in Completely Degraded condition, as detailed in Table 2-5 and Figure 6.

The Site has been affected by degrading factors including clearing, grazing cattle and weed invasion. Vegetation condition is reduced within the northern portion of the Site, where more intensive historical clearing and agriculture grazing has occurred.

Table 2-5: Vegetation Condition Extents of the Survey Area (as per EPA, 2016 condition scale)

Vegetation Condition	Extent (ha)	Extent (%)
Excellent	-	-
Very Good	-	-
Good	-	-
Degraded	2.51	2.84
Completely Degraded	85.87	97.16
Total	88.38	100

2.7.4 Introduced Flora

The majority of weeds species recorded during the survey were common and widespread.

Three significant weed species (Declared Pest under the BAM Act) were recorded; Narrowleaf Cottonbush (**Gomphocarpus fruticosus*), Arum Lily (**Zantedeschia aethiopica*) and Apples of Sodom (**Solanum linnaeanum*). Ten individuals were recorded in the eastern and lower western portion of the Site within areas of cleared paddock, as shown in Figure 6.

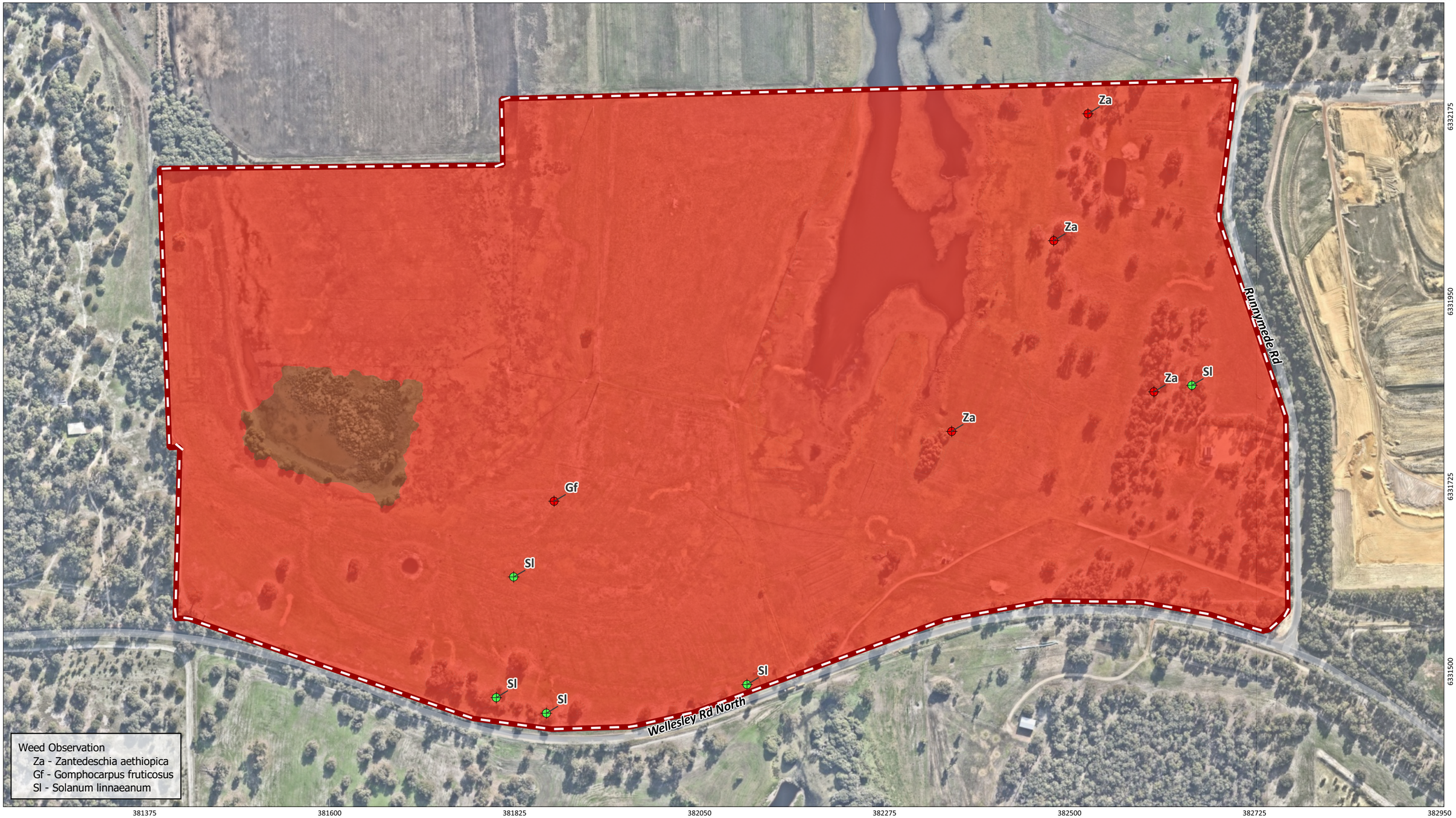

Figure 6: Vegetation Conditions and Significant Weeds Locations

N

0 50 100 150 200 m

PROJECT/REPORT NAME: Lot 10 Wellesley Road, Binningup		
SCALE: 1:4,500	SHEET SIZE: A3 COLOUR	CLIENT: Tonic Group
COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50	PROJECT NUMBER: A24.238	VERSION: 0
DATA SOURCE: NEARMAPS	DRAWN BY / REVIEWED BY: JP/ZL	DATE: 20/10/2025

Legend

- The Site
- Declared Pest
- WONS

Vegetation Condition

- Completely Degraded
- Degraded

No	Description	Drawn	Approved	Date
A	Original issue	JP	ZL	20/10/2025

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2.7.5 Vegetation Type

Four vegetation types were identified within the Site, covering a total area of 17.86 ha. Only two vegetation types (VT01 and VT04) were comprised of native vegetation, however VT01 also included some planted vegetation. Vegetation types are described in Table 2-6 and Figure 7.

The riparian vegetation within the mapped CCW (VT03) contained the best condition (Degraded) native vegetation (relative to the rest of the Site), comprising of *Melaleuca rhaphiophylla* over native sedges and rushes. This vegetation type is associated with the CCW, which will be re-mapped and re-classified as part of a wetland reclassification. No clearing of mapped remnant native wetland vegetation (VT03) is proposed.

Table 2-6: Vegetation Types and Descriptions

Vegetation Unit Description	Total Area, Proportion (%) of the Survey Area	Sites	Vegetation Condition	Photograph
VT01 - Upland Vegetation and trees **Combination of planted and remnant vegetation. Woodlands of *Agonis flexuosa, Corymbia calophylla* and *Eucalyptus rudis.*** **Understorey consists of grassy paddock and weeds.**	4.54 ha 5.13 %	-	Completely Degraded	
VT02 - Non-native wetland **Sparse upper storey of individual *Melaleuca rhaphiophylla*. No mid storey. Sparse and weedy understorey of juncus species.**	10.78 ha 12.20 %	Rel-02	Completely Degraded	

Vegetation Unit Description	Total Area, Proportion (%) of the Survey Area	Sites	Vegetation Condition	Photograph
VT03 - Wetland with Native Vegetation **Upper storey of *Melaleuca rhaphiophylla*. No midstory. Ground storey of native sedges and rushes.**	2.51 ha 2.84 %	Rel-01	Degraded	
VT04 - Tuart Woodland (*Eucalyptus gomphocephala* Woodland) **One isolated *Eucalyptus gomphocephala* within paddock. Ground stratum dominated by weeds. Not representative of intact native vegetation.** **The tree is connected to a larger community outside of the Survey Area.**	0.03 ha 0.03 %	-	Completely Degraded	

Vegetation Unit Description	Total Area, Proportion (%) of the Survey Area	Sites	Vegetation Condition	Photograph
Cleared - Paddock, Access tracks, firebreaks, infrastructure and bare sand.	70.52 ha 79.79 %	-	Cleared	
Total	88.38 ha			

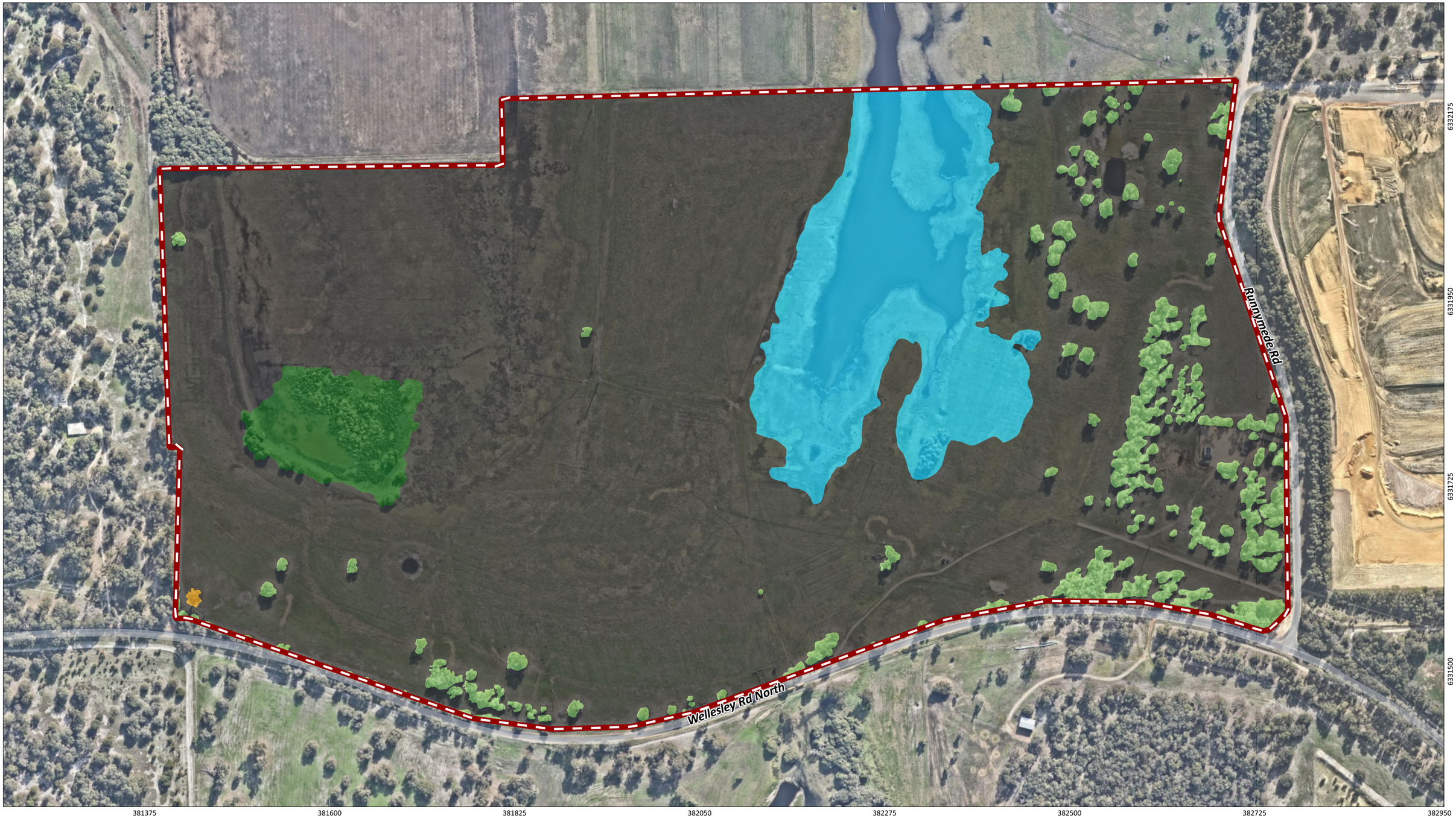

Figure 7: Vegetation Types

N 0 50 100 150 200 m	PROJECT/REPORT NAME: Lot 10 Wellesley Road, Binningup	
SCALE: 1:4,500	SHEET SIZE: A3 COLOUR	CLIENT: Tonic Group
COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50	PROJECT NUMBER: A24.238	VERSION: 0
DATA SOURCE: NEARMAPS	DRAWN BY / REVIEWED BY: JP/ZL	DATE: 17/10/2025

Legend

The Site

Vegetation Type
- Cleared/paddock
- VT01 - Upland vegetation and trees
- VT02 - Non-native wetland
- VT03 - Wetland with Native Vegetation
- VT04 - Tuart Woodland

No	Description	Drawn	Approved	Date
A	Original issue	JP	ZL	17/10/2025

NOTES:

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2.7.6 Conservation Significant Flora

Prior to the survey, desktop DBCA database and Commonwealth PMST searches identified 59 conservation listed flora species as occurring within 20 km of the Survey Area or with suitable habitat potentially occurring in the region. This included 15 with a medium to high likelihood of occurrence. No previous records occurs within the Site.

No conservation significant flora were recorded during the Site survey. No species were identified as representing range extensions or flora of other significance. All 15 conservation significant flora with a medium to high likelihood of occurrence pre-survey were considered to have a low post-survey likelihood of occurrence.

2.7.7 Threatened and Priority Ecological Communities

The desktop assessment pre-survey identified 10 Threatened Ecological Communities (TECs) and Priority Ecological Communities (PECs) occurred within 10 km of the Site. The pre survey assessment identified that of the 10 communities:

- Two communities were indicated by DBCA buffered occurrence mapping as likely present within the Survey Area and were assessed as having a high likelihood of occurrence.
- Eight considered to have a low likelihood of occurrence.

Communities with a high likelihood of occurrence are discussed below in Table 2-7 .

Table 2-7: TECs and PECs with a High or Medium Likelihood of Occurrence.

Floristic Community Type/ Comm ID	Community Name	Conservation Status		Likelihood of Occurrence
		State	EPBC	
Banksia WL SCP	Banksia Woodlands of the Swan Coastal Plain ecological community.	P3	EN	DBCA provided dataset displays portion of Survey Area intersecting with eastern edge of Survey Area. Suitable soil association is present.
Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain.	P3	CR	DBCA provided dataset intersect with southwestern portion of Survey Area. Suitable soil association and pre-European vegetation associations (Spearwood)

One State or Commonwealth listed Threatened Ecological Community (TEC) was identified within the Site, listed as Tuart (*Eucalyptus gomphocephala*) Woodlands and Forest of the Swan Coastal Plain. No banksia species or vegetation representative of banksia woodland was recorded within the Site.

Tuart Woodland TEC

Within the Site, vegetation type VT04 *Eucalyptus gomphocephala* (tuart) woodlands was identified as aligning with Tuart Woodland TEC. The TEC community presence was assessed as per DBCA guidance (2023a) and in accordance with the listing in the Priority Ecological Communities for Western Australia version 35 by DBCA, (2023b). Where applicable, Commonwealth Approved Conservation Advice including Listing Advice was applied.

VT05 occurs at the western end of the Site on the Spearwood and Quindalup dunes system. The Tuart Woodland TEC was mapped as "patches" with a patch defined by presence of two or more mature tuart trees with a canopy separation of less than 60m.

The Site was assessed to contain one patches of Tuart TEC (Patch 1), covering a combined total of 0.03 ha, including canopy mapping and 30 m buffer, with a Habitat Quality Score of 3.91 out of a possible 10. See Appendix A for full assessment process. During the survey, an estimated 9.41 ha of connective Tuart TEC was found to be present beyond the boundary of the Site. A complete TEC extent assessment outside of the Site boundary was not carried out by WEPL as it was not included within the scope of works. See Figure 8 for extent mapping of the Tuart TEC.

Figure 8: Mapped Tuart TEC Extent

N

0 50 100 150 200 m

PROJECT/REPORT NAME	Lot 10 Wellesley Road, Binningup
SCALE	1:5,500
SHEET SIZE	A3 COLOUR
CLIENT	Tonic Group
COORDINATE REFERENCE SYSTEM	GDA2020 / MGA zone 50
PROJECT NUMBER	A24.238
VERSION	0
DATA SOURCE	NEARMAPS
DRAWN BY / REVIEWED BY	JP/ZL
DATE	17/10/2025

Legend

- The Site
- Tuart TEC - 30m Buffer
- Tuart TEC - 60m Buffer

No	Description	Drawn	Approved	Date
A	Original issue	JP	ZL	17/10/2025

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2.8 Fauna

A basic fauna survey was undertaken by WEPL in June 2025. This survey was completed in accordance with Terrestrial Fauna Technical Guidance (EPA, 2020). A basic survey is a low-intensity survey, conducted at the local scale to gather broad fauna and habitat information. The primary objectives are to verify the overall adequacy of the desktop study, and to map and describe habitats, with a focus on habitat for conservation listed fauna.

Fauna species were identified by active searches, secondary evidence such as scats, tracks, calls, remains, diggings and other signs. A fauna inventory was not compiled as part of this survey (not required under basic level survey) however observations were used to inform the fauna habitat type assessment.

Potential habitats for conservation listed species were identified and evaluated and the likelihood of occurrence assessed.

In addition to a basic fauna survey, a targeted black cockatoo assessment and targeted WRP survey were also completed. Survey effort overall included:

- Two days sampling fauna and undertaking daytime black cockatoo and WRP assessments.
- Two evening (non-concurrent nights) of WRP spotlighting transects.

The full biological report is attached in Appendix A (WEPL, 2025).

2.8.1 Fauna Habitat

Desktop database searches of DBCA database records and the Commonwealth PMST search identified 63 conservation listed fauna species potentially occurring within a 20 km radius of the Site. A likelihood of occurrence assessment was undertaken to determine how likely each species is to occur within the Site based on suitable habitat present and the species' known distribution. The following likelihood of occurrence ratings have been allocated:

- High: Preferred habitat is present on the Site; the Site is in the species' known distribution and the species has been recorded on more than one occasion within the vicinity (<5 km of the site).
- Medium: Limited or no suitable habitat occurs in the Site but is nearby and the species has good dispersal abilities and is known from the general area or preferred habitat occurs.
- Low: No suitable habitat is present in the Site, or the Site is outside the species known distribution, or the species is known from the general area but has poor dispersal abilities.

This assessment was undertaken pre-survey and post-survey (as detailed in Appendix A). The post-survey likelihood of occurrence found that:

- Two species of conservation significance had a high likelihood of occurrence, and were recorded within the Site:
    - *Calyptorhynchus banksia naso* (forest red-tailed black cockatoo) – VU.
    - *Pseudocheirus occidentalis* (western ringtail possum) - CR
    - Specific targeted assessments for black cockatoo species and WRP were undertaken.
- Nine species were not recorded within the Site, but were considered to have a medium to high likelihood of occurrence within the Site:
    - *Phascogale tapoatafu wambenger* (South-western brush-tailed phascogale) - CR.
    - *Ctenotus ora* (Coastal Plains skink) - P3.
    - *Dasyurus geoffroii* (Chuditch, western quoll) - VU.
    - *Tyto novaehollandiae novaehollandiae* (masked owl (southwest)) - P3.
    - *Notamacropus irma* (Western brush wallaby) - P4.
    - *Isoodon fusciventer* (Quenda) - P4.
    - *Falco peregrinus* (peregrine falcon) - OS.
    - *Zanda baudinii* (Baudin's black cockatoo) - EN.
    - *Zanda latirostris* (Carnaby's black cockatoo) - EN.
- Several conservation significant wading birds were considered to potentially utilise habitat within the Site, including:
    - *Calidris ferruginea* (curlew sandpiper) - CR.
    - *Botaurus poiciloptilus* (Australasian bittern) - EN.
    - *Calidris canutus* (Red Knot, Knot) - EN.
    - *Charadrius mongolus* (Lesser Sand Plover, Mongolian Plover) - EN.
    - *Charadrius leschenaultii* (greater sand plover, large sand plover) - VU.
    - *Oxyura australis* (Blue-billed duck) - P4.
    - *Actitis hypoleucos* (common sandpiper) - MI.
    - *Calidris acuminata* (sharp-tailed sandpiper) - VU & MI.

- Plegadis falcinellus (Glossy ibis) - MI.

The remaining species were considered to have a low likelihood of occurrence within the Site. See Appendix A for the full assessment of likelihood of occurrence and justifications.

Four fauna habitat types were identified within the Site. These are described in Table 2-8 below.

Table 2-8: Fauna Habitat Types Identified within the Site (WEPL, 2025)

Fauna Habitat Type	Habitat Description	Photo	Total Area, Proportion of the Survey Area
FHT-01 Isolated trees and groves over paddock	Woodland of Agonis flexuosa, Corymbia calophylla and Eucalyptus rudis. Areas of connective canopy are present around road verge and eastern portion. Few large trees have hollows developed. No mid storey. Ground consists of open weedy grasses. Core habitat for: (only in southwest corner) • WRP. Supporting habitat for: • WRP. • BBC. • CBC • FRTBC. • peregrine falcon. • south-western brush-tailed phascogale. • western false pipistrelle. • masked owl (southwest). Non-significant habitat for: • chuditch. • Perth slider. • quenda. • western brush wallaby. • glossy ibis.		4.57 ha 5.17 %

Fauna Habitat Type	Habitat Description	Photo	Total Area, Proportion of the Survey Area
FHT-02 Non-native wetland	Few individual Melaleuca rhaphiophylla. No mid storey. Sparse and weedy understorey of juncus and grass. Supporting habitat: • Peregrine falcon • glossy ibis • blue billed duck Non-significant habitat for all other fauna species		10.78 ha 12.20 %

Fauna Habitat Type	Habitat Description	Photo	Total Area, Proportion of the Survey Area
FHT-03 Native wetland	Upper storey of separated Melaleuca rhaphiophylla. No midstory. Ground storey of native sedges and rushes providing cover for wading birds. Supporting habitat for: • peregrine falcon • glossy ibis • blue billed duck • wading birds Non-significant habitat for: all other fauna species.		2.51 ha 2.84 %

Fauna Habitat Type	Habitat Description	Photo	Total Area, Proportion of the Survey Area
FHT-04 Cleared, Paddocks, Firebreaks, Tracks	Cleared areas and paddocks. Non-significant habitat for all species.		70.52 ha 79.79 %
Total			88.38 ha

Based on the recorded habitat values present within the Site, each fauna habitats were either identified as core, supporting or non-significant for species with a medium, high or recorded likelihood of occurrence post-survey. The fauna habitat values are summarised in Table 2-9 below, where NS = Non-significant habitat, S=Supporting habitat and C=Core habitat.

Table 2-9: Fauna Habitat Value Summary within the Site (WEPL, 2025)

Species Identified as Recorded, Medium or High Likelihood of Occurrence within the Site	FHT-01: Upland Vegetation and Trees	FHT-02 Non-native Wetland	FHT-03: Native Wetland	FHT-04 Cleared Paddock
Birds				
Curlew sandpiper	NS	NS	S	NS
Baudin's cockatoo	S	NS	NS	NS
Carnaby's cockatoo	S	NS	NS	NS
Australasian bittern	NS	NS	S	NS
Red knot, knot	NS	NS	S	NS
Lesser sand plover, mongolian plover	NS	NS	S	NS
Forest red-tailed black cockatoo	S	NS	NS	NS
Greater sand plover, large sand plover	NS	NS	S	NS
Grey falcon	S	NS	S	NS
Masked owl (southwest)	S	NS	S	NS
Blue-billed duck	NS	NS	S	NS
Common sandpiper	NS	NS	S	NS
Sharp-tailed sandpiper	NS	NS	S	NS
Glossy ibis	NS	NS	S	NS
Peregrine falcon	S	NS	S	NS
Mammals				
South-western brush-tailed phascogale, wambenger	S	NS	NS	NS
Western ringtail possum, ngwayir	C, NS	NS	NS	NS
Chuditch, western quoll	NS	NS	NS	NS
Quenda, southwestern brown bandicoot	S	NS	NS	NS
Western brush wallaby	NS	NS	NS	NS
Reptiles				
Coastal Plains skink	NS	NS	NS	NS

2.8.2 Black Cockatoos

The Site falls within the modelled distribution and breeding range for BBC, CBC and FRTBC (DCCEEW, 2022). Numerous observation records for all three species were recorded in the DBCA database search results within 5 km of the Site.

A confirmed CBC breeding location is present approximately 30 km north of the Site in the Lake Preston area (DBCA-054). The Site does not overlap with the (12 km) key foraging area buffer of this confirmed breeding location. Three mapped black cockatoo roosting sites are present within 6 km, with two to the northeast and one to the south of the Site (DBCA-64). All are confirmed CBC roost sites (no specific ID code supplied) (DBCA-64).

Breeding Habitat Assessment

Fauna habitats type one (FHT-01) contains species which provide potentially suitable breeding and nesting habitat for black cockatoos.

DAWE (2022) defines breeding habitat is defined as that which contains known, suitable or potential nesting trees (DEECCW, 2022). Breeding typically occurs in native eucalypt species particularly marri, karri, wandoo and tuart however many species of eucalypt including non-endemic species may develop suitable nesting hollows (DEECCW, 2022). Terminology used in this report for breeding habitat trees follows that defined in glossary of DAWE (2022) as shown in Table 2-10.

Table 2-10: Breeding Habitat Terminology

Breeding Habitat Term	Definition (DAWE, 2022)
Known nesting trees	Trees (live or dead but still standing) which contains a hollow where black cockatoo breeding has been recorded or which demonstrates evidence of breeding (i.e. showing evidence of use through scratches, chew marks or feathers).
Suitable nesting trees	Trees with suitable nesting hollows present, although no evidence of use.
Suitable nesting hollows	Any hollow with dimensions suitable for use for nesting by black cockatoos. See Appendix I for further discussion on nesting hollow characteristics.
Potential nesting trees	Trees that have a suitable Diameter at Brest Height (DBH) to develop a nest hollow, but do not currently have hollows. For most species of trees, suitable nest hollows are only found in live trees with a DBH of at least 500 mm.
Potential future nesting trees	Trees suitable to develop a nest hollow in the future are 300-500 mm DBH.

For the trees recorded within the Site, a scoring system developed by Dr Mike Bamford (referred to as Bamford Class) was applied to class breeding habitat trees in additional to the Commonwealth guidelines for assessed breeding habitat trees. This system and the Bamford Class alignment with DCCEEW (2022) breeding habitat terminology are shown in Table 2-11.

Table 2-11: Black Cockatoo Habitat Terminology and Bamford Class Description

Bamford Class	Description of Tree and Hollows/Activity	Alignment with DAWE (2022) Breeding Habitat Terminology
1	Active nest observed; adult (or immature) bird seen entering or emerging from hollow, eggs present.	Known nesting tree
2	Hollow of suitable size and angle visible with chew marks attributed to black cockatoo nesting activity around entrance.	Known nesting tree
3	Potentially suitable hollow visible but no chew marks present; or potentially suitable hollow present if from ground-based assessment only (as suggested by structure of tree, such as large, vertical trunk broken off at a height of >10m with thin rim).	Suitable nesting tree
4	Tree with hollows or broken branches that might or do contain hollows, but hollows or potential hollows are not of a suitable size, or are aligned or obstructed so as to prevent access	Potential nesting tree
5	Tree lacking large hollows or broken branches that might have large hollows; a tree with more or less intact branches and a spreading crown.	Potential nesting tree

Breeding typically occurs in native eucalypt species particularly marri, jarrah, wandoo and tuart, however many species of eucalypt including non-endemic species may develop suitable hollows for breeding (DAWE, 2022). A summary of understood suitable nesting hollow characteristics for the three species is provided below in Table 2-12.

Table 2-12: Black Cockatoo Nesting Hollow Characteristics

Species	Baudin's Black cockatoo	Carnaby's Black cockatoo	Forest Red-tailed Black cockatoo
Tree species and hollow characteristic	Nesting mainly in karri, marri, jarrah, wandoo, bullich, and tuart Preferred hollow dimensions have not been specifically studies but are considered likely to be similar to that of the CBC.	Nesting mainly in salmon gum, wandoo, tuart, jarrah, flooded gum, karri and marri. Utilise hollows from 10-65 cm diameter (average 26 cm) and >1 m deep	Nesting mainly in jarrah, marri, karri, wandoo, bullich, blackbutt and tuart Utilise hollow from 12-150 cm diameter (average 34 cm) and >1 m depth
Sources	DCCEEW, 2022.	DCCEEW, 2022, Saunders et al., 2014a, Saunders et al., 2014b.	DCCEEW, 2022, Johnstone et al., 2013.

Trees identified as having potentially suitable hollows present were inspected using a pole camera or small drone to inspect hollow internal dimensions.

- Species.
- Diameter at breast height (DBH) (at approximately 1.3 m) ≥ 500 mm (≥ 300 mm for Wandoo and Salmon Gum) regardless of the presence or absence of hollows.
- All hollows observed within trees were recorded and categorised as follows:
- Hollows = Total number of hollows observed within the tree, or 'no' if none were observed.
- Hollows > 12 cm diameter = Number of hollows within the tree that are observed to contain an opening diameter > 12 cm, which has the potential of being used by black cockatoo species (DAWE, 2022). This also included recording any evidence of chewing around the hollow opening.
- Bamford Class.

Based on results from the Survey, a total of 115 breeding habitat trees were recorded, as summarised in Table 2-13 and shown in Figure 10. A total of 114 trees were assessed as Class 4 and Class 5 potential nesting trees, either with small hollows that are too small to support nesting (<10 cm entrance), with an entrance of >10 cm but the internal dimensions are not suitable, with a hollow that is not accessible or sufficient age and growth form to be developing hollows.

One Class 3 suitable nesting tree was recorded (Tree number 11) which contains a hollow of suitable dimensions for use by black cockatoos. The tree is in good condition, see Table 2-14 for description of hollow. No evidence of current or previous nesting behaviour, such as chew marks at hollow entrance attributed to black cockatoos, or flushed individuals were recorded.

Table 2-13: Summary of Breeding Trees (WEPL, 2025)

Bamford Class	Class 1	Class 2	Class 3	Class 4 or 5	Totals (Trees)
DCCEEW, 2022 Terminology	Known Nesting Tree		Suitable Nesting Tree	Potential Nesting Tree	
Tree Species					
Dead (Eucalyptus. sp)	-	-	-	7	7
Eucalyptus sp. (unknown)	-	-	-	2	2
Flooded Gum (E. rudis)	-	-	-	67	67
Marri (Corymbia calophylla)	-	-	1	35	36
Tuart (E. gomphocephala)	-	-	-	1	1
Jarrah (E. marginata)	-	-	-	2	2
Total	0	0	1	114	115

Table 2-14: Class 3 (Tree 11) Hollow Description (WEPL, 2025)

Merge Tree Number	Species	DBH (cm)	Hollow Comments
11	Marri	125	One upward facing know with 10 cm opening at approximately 10 m. Appears to have Galah chew and wear consistent with use. Hollow was drone inspected. Hollow appears to reach suitable dimensions with over 80 cm depth, 15 -20 cm diameter.

The large majority of breeding habitat trees (114 trees) did not show signs of potential nesting hollow development (Class 5 trees) or were assessed as possessing small hollows which are of an insufficient size to support nesting (<10cm entrance); or which have an entrance of >10cm but the internal dimensions are not suitable, or the hollow is not accessible (Class 4 trees). These Class 4 trees are however of sufficient age and growth form to be developing hollows.

Foraging Habitat Assessment

Fauna habitat one (FHT-01) contains species that provide suitable foraging habitats for all three black cockatoo species. The remainder of the Site comprised cleared areas, scattered/planted eucalypts in degraded areas or melaleuca dominated wetlands which have low to no foraging habitat value. Four habitat types were described within the Site to classify black cockatoo foraging habitat values.

The Commonwealth referral guidelines provide a foraging quality scoring tool to guide referral information (DCCEEW, 2022), see Attachment A for the full detailed scoring process.

Scores of 5-10 are identified as representing high value foraging habitat. Areas with a site condition score of 2 or lower (shaded cells in Table 2-16) are "extremely unlikely to be considered as suitable habitat". These areas are therefore classified as not comprising suitable foraging habitat in this assessment.

The Site Condition habitat quality score for each species, and the total area of that score present within the Site are listed in Table 2-15 below and shown in Figure 11, Figure 13 and Figure 15. The scores were calculated as per the criteria listed in Appendix G of Attachment A.

Table 2-15: Habitat Quality Scoring Tool- Site Condition Extent

Site Condition	Baudin's black cockatoo (ha)	Carnaby's black cockatoo (ha)	Forest red-tailed black cockatoo (ha)
7- Very High	1.10	1.10	-
6- High	0.03	0.03	1.10
5-Moderate-High	-	-	0.03
4-Moderate	-	-	0.01
3-Low-Moderate	2.64	2.64	2.63
2-Low	0.65	0.65	0.65
1-Negligable to Low	0.30	0.30	0.30
0-None	83.66	83.66	83.66
Total	88.38	88.38	88.38

* shaded cells are classified as not comprising suitable foraging habitat

The calculated final foraging habitat quality score with the site context score applied is shown below in Table 2-16. A total of 3.77 ha of suitable habitat was recorded within the Site during the survey for all three species, and 84.61 ha was found to be unsuitable foraging habitat for all three species. Suitable habitat for each species is shown in Figure 12, Figure 14 and Figure 16.

Table 2-16: Final Black Cockatoo Foraging Habitat within the Site (WEPL, 2025)

Site Condition	Baudin's black cockatoo (ha)	Carnaby's black cockatoo (ha)	Forest red-tailed black cockatoo (ha)
10	1.10	1.10	-
9	0.03	0.03	1.10
8	-	-	0.03
7	-	-	0.01
6	2.64	2.64	2.63
5	-	-	-
4	-	-	-
3	-	-	-
2	0.65	0.65	0.65
1	0.30	0.30	0.30
0	83.66	83.66	83.66

Site Condition	Baudin's black cockatoo (ha)	Carnaby's black cockatoo (ha)	Forest red-tailed black cockatoo (ha)
Total	88.38	88.38	88.38

*As per the Habitat Quality Scoring Tool areas with a site condition score of 2 or lower (shaded cells) are "extremely unlikely to be considered as suitable habitat". These areas are therefore classified as not comprising suitable foraging habitat in this assessment.

Roosting Habitat Assessment

Night roosting locations are typically in proximity to foraging habitat (black cockatoos mainly foraging within 20 km of night roosts) and with access to water points <2 km from roosting location (DCCEEW, 2022). Any groups of tall trees, particularly large native eucalypts in proximity to water sources may provide night roosting habitat (DCCEEW, 2022). FHT-01 is considered to provide the most suitable roosting habitat given it consists predominantly of tall trees. Access to permanent water was present from wetlands and farm dams within 2 km.

Roosting habitat was assessed based on observation of roosting or roosting evidence recorded during survey and based on habitat suitability (generally tall trees in the landscape in proximity to a water source). During the field survey, searches were conducted for evidence of roosting (e.g. piles of scats, feeding debris or chewed trees). There are known roost sites present <3 km from the Survey Areas (DBCA-064). No evidence of roosting within the Site was recorded.

Regional Foraging Habitat Assessment

Assessment of the estimated foraging habitat extent within the local area was undertaken to provide further context. The estimated extent of foraging habitat is calculated for a buffer of 12 km around and including the Site. This buffer is selected as recommended in the Commonwealth referral guidelines due to black cockatoos mainly foraging within 12 km of their nest site during the breeding season and their reliance on this proximity of foraging resources to successfully raise chicks (DCCEEW, 2022).

The regional assessment undertaken considers Remnant Native Vegetation Extent mapping (DPIRD-005) and Vegetation Complexes- Swan Coastal Plain and Southwest Forest region (DBCA-046 and DBCA-047), as summarised in Table 2-17 and shown in Figure 17

Analysis indicates there is 14,909 ha of remnant native vegetation mapped within a 12 km buffer of the Site. It is expected that the majority of this vegetation would contain suitable foraging species at the same or greater rate than that present within the Site. Much of this regional remnant native vegetation occurs within the Kalgalup Regional Park and the Kemerton Strategic Industrial Area buffer zone.

Within the Site there is 3.77 ha of foraging habitat scoring between 3 and 7 on the Habitat Quality Scoring Tool -Site Condition scale, scores of <3 are not considered to comprise suitable foraging habitat. This represents 0.03 % of the estimated regional habitat extent. The habitat quality within the Site is considered likely to be of similar quality than much of the regional foraging habitat.

Table 2-17: Regional Foraging Habitat Extent (WEPL, 2025)

Vegetation Complex	Remnant Extent (ha)
Bassendean Complex-Central and South	6,765.84
Cannington Complex	127.22
Dardanup Complex	17.79
Darling Scarp, DS2	278.61
Dwellingup, D1	2.77
Guildford Complex	296.99
Karrakatta Complex-Central and South	1,579.02
Lowdon, Lo	41.27
Quindalup Complex	2,276.64
Serpentine River Complex	800.16
Southern River Complex	43.11
Swan Complex	73.27
Vasse Complex	361.65
Yoongarillup Complex	2,245.22
Grand Total	14,909

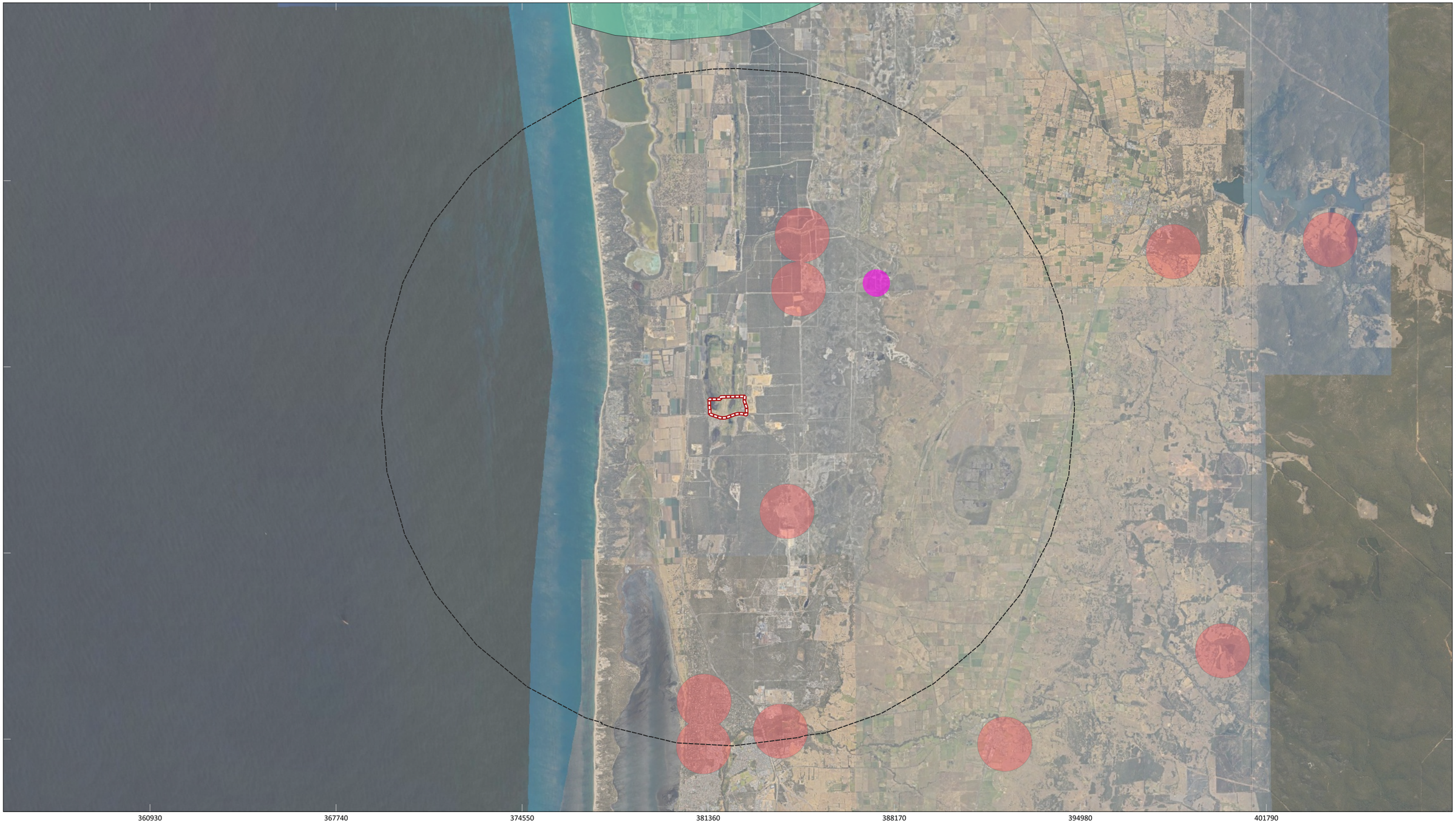

Figure 9: Known Black Cockatoo Roosting and Breeding Sites within 12 km Buffer

N

0 2 4 6 km

PROJECT/REPORT NAME	Lot 10 Wellesley Road, Binningup
SCALE	1:136,200
SHEET SIZE	A3 COLOUR
CLIENT	Tonic Group
COORDINATE REFERENCE SYSTEM	GDA2020 / MGA zone 50
PROJECT NUMBER	A24.238
VERSION	0
DATA SOURCE	LANDGATE AERIAL IMAGERY NOW
DRAWN BY / REVIEWED BY	JP/ZL
DATE	17/10/2025

Legend

- The Site
- 12km Buffer
- Carnabys Cockatoo Confirmed Roost Sites (DBCA-050)
- Black Cockatoo Roosting Sites - Buffered (DBCA-064)
- Carnabys Cockatoo Confirmed Breeding Areas within the Swan Coastal Plain and Jarrah Forest IBRA Regions (DBCA-054)

No	Description	Drawn	Approved	Date
A	Original issue	JP	ZL	17/10/2025

NOTES:

Cadastral boundary from LANDGATE 2022. Label corresponds to the vegetation association number.

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Figure 10: Black Cockatoo Potential Breeding Habitat

N 0 50 100 150 200 m		PROJECT/REPORT NAME: Lot 10 Wellesley Road, Binningup	
SCALE: 1:4,500	SHEET SIZE: A3 COLOUR	CLIENT: Tonic Group	
COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50		PROJECT NUMBER: A24.238	VERSION: 0
DATA SOURCE: NEARMAPS		DRAWN BY / REVIEWED BY: JP/ZL	DATE: 20/10/2025

Legend

- The Site

Bamford Tree Class

- 3
- 4
- 5

Tree Species

- Dead
- Eucalyptus
- Flooded Gum
- Marri
- Tuart

No	Description	Drawn	Approved	Date
A	Original issue	JP	ZL	20/10/2025

NOTES:

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Figure 11: Carnaby's Black Cockatoo Potential Foraging Habitat within the Site

N

0 50 100 150 200 m

PROJECT/REPORT NAME	Lot 10 Wellesley Road, Binningup
SCALE	1:4,500
SHEET SIZE	A3 COLOUR
CLIENT	Tonic Group
COORDINATE REFERENCE SYSTEM	GDA2020 / MGA zone 50
PROJECT NUMBER	A24.238
VERSION	0
DATA SOURCE	NEARMAPS
DRAWN BY / REVIEWED BY	JP/ZL
DATE	17/10/2025

Legend

The Site

Site Condition Score (Habitat Quality Score Tool)

- 0 - None
- 1 - Negligible
- 2 - Low
- 3 - Low to Moderate
- 4 - Moderate
- 6 to 7 - High

No	Description	Drawn	Approved	Date
A	Original issue	JP	ZL	17/10/2025

NOTES:

Cadastral boundary from LANDGATE 2022. Label corresponds to the vegetation association number.

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Figure 12: Carnaby's Black Cockatoo Foraging Habitat within the Site

N

0 50 100 150 200 m

PROJECT/REPORT NAME	Lot 10 Wellesley Road, Binningup
SCALE	1:4,500
SHEET SIZE	A3 COLOUR
CLIENT	Tonic Group
COORDINATE REFERENCE SYSTEM	GDA2020 / MGA zone 50
PROJECT NUMBER	A24.238
VERSION	0
DATA SOURCE	NEARMAPS
DRAWN BY / REVIEWED BY	JP/ZL
DATE	17/10/2025

Legend

The Site

Site Condition Score (Habitat Quality Score Tool)

- 2 - Low
- 3 - Low to Moderate
- 4 - Moderate
- 6 to 7 - High

No	Description	Drawn	Approved	Date
A	Original issue	JP	ZL	17/10/2025

NOTES:

Cadastral boundary from LANDGATE 2022. Label corresponds to the vegetation association number.

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Figure 13: Baudin's Black Cockatoo Potential Foraging Habitat within the Site

N

0 50 100 150 200 m

SCALE	1:4,500
SHEET SIZE	A3 COLOUR
COORDINATE REFERENCE SYSTEM	GDA2020 / MGA zone 50
DATA SOURCE	NEARMAPS

PROJECT/REPORT NAME	Lot 10 Wellesley Road, Binningup
CLIENT	Tonic Group
PROJECT NUMBER	A24.238
VERSION	0
DRAWN BY / REVIEWED BY	JP/ZL
DATE	17/10/2025

Legend

The Site

Site Condition Score (Habitat Quality Score Tool)

- 0 - None
- 1 - Negligible
- 2 - Low
- 3 - Low to Moderate
- 4 - Moderate
- 6 to 7 - High

No	Description	Drawn	Approved	Date
A	Original issue	JP	ZL	17/10/2025

NOTES:

Cadastral boundary from LANDGATE 2022. Label corresponds to the vegetation association number.

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Figure 14: Baudin's Black Cockatoo Foraging Habitat within the Site

N

0 50 100 150 200 m

PROJECT/REPORT NAME	Lot 10 Wellesley Road, Binningup
SCALE	1:4,500
SHEET SIZE	A3 COLOUR
CLIENT	Tonic Group
COORDINATE REFERENCE SYSTEM	GDA2020 / MGA zone 50
PROJECT NUMBER	A24.238
VERSION	0
DATA SOURCE	NEARMAPS
DRAWN BY / REVIEWED BY	JP/ZL
DATE	17/10/2025

Legend

The Site

Site Condition Score (Habitat Quality Score Tool)

- 2 - Low
- 3 - Low to Moderate
- 4 - Moderate
- 6 to 7 - High

No	Description	Drawn	Approved	Date
A	Original issue	JP	ZL	17/10/2025

NOTES:

Cadastral boundary from LANDGATE 2022. Label corresponds to the vegetation association number.

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Figure 15: Forest red-tailed Black Cockatoo Potential Foraging Habitat within the Site

N

0 50 100 150 200 m

SCALE	1:4,500
SHEET SIZE	A3 COLOUR
PROJECT/REPORT NAME	Lot 10 Wellesley Road, Binningup
CLIENT	Tonic Group
COORDINATE REFERENCE SYSTEM	GDA2020 / MGA zone 50
PROJECT NUMBER	A24.238
VERSION	0
DATA SOURCE	NEARMAPS
DRAWN BY / REVIEWED BY	JP/ZL
DATE	17/10/2025

Legend

- The Site

Site Condition Score (Habitat Quality Score Tool)

- 0 - None
- 1 - Negligible
- 2 - Low
- 4 - Moderate
- 5 - Moderate to High
- 6 - High

No	Description	Drawn	Approved	Date
A	Original issue	JP	ZL	17/10/2025

NOTES:

Cadastral boundary from LANDGATE 2022. Label corresponds to the vegetation association number.

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Figure 17: Forest red-tailed Black Cockatoo Foraging Habitat within the Site

N

0 50 100 150 200 m

PROJECT/REPORT NAME	Lot 10 Wellesley Road, Binningup
SCALE	1:4,500
SHEET SIZE	A3 COLOUR
CLIENT	Tonic Group
COORDINATE REFERENCE SYSTEM	GDA2020 / MGA zone 50
PROJECT NUMBER	A24.238
VERSION	0
DATA SOURCE	NEARMAPS
DRAWN BY / REVIEWED BY	JP/ZL
DATE	17/10/2025

Legend

The Site

Site Condition Score (Habitat Quality Score Tool)

- 2 - Low
- 4 - Moderate
- 5 - Moderate to High
- 6 - High

No	Description	Drawn	Approved	Date
A	Original issue	JP	ZL	17/10/2025

NOTES:

Cadastral boundary from LANDGATE 2022. Label corresponds to the vegetation association number.

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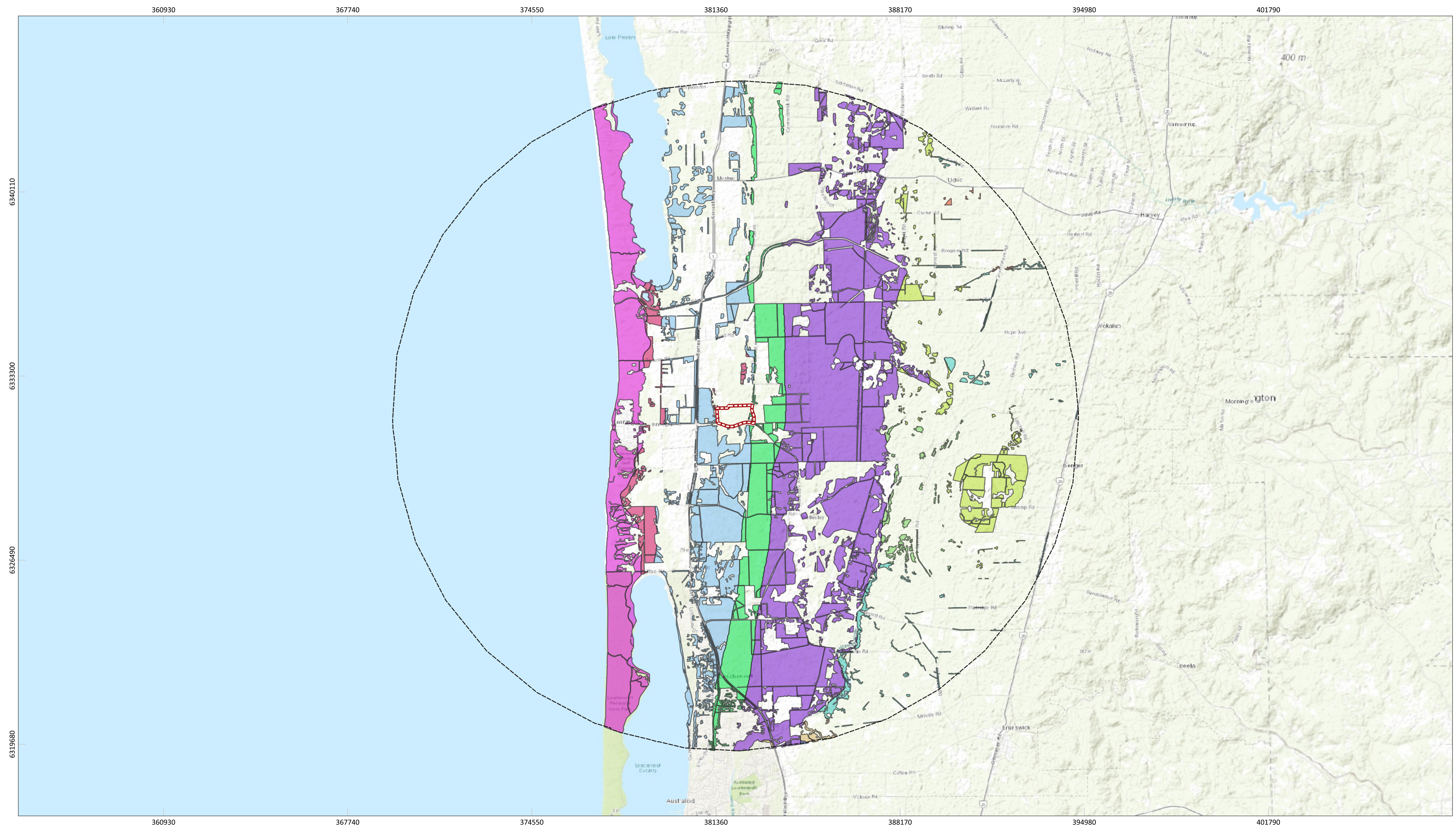

Figure 8: Black Cockatoo Foraging Habitat Extent 12 km Buffer

N

0 2 4 6 km

PROJECT/REPORT NAME

Lot 10 Wellesley Road, Binningup

SCALE	SHEET SIZE
1:136,200	A3 COLOUR

CLIENT

Tonic Group

COORDINATE REFERENCE SYSTEM

GDA2020 / MGA zone 50

PROJECT NUMBER	VERSION
A24.238	0

DATA SOURCE

ESRI Topographic Map

DRAWN BY / REVIEWED BY	DATE
JP/TC	12/8/2025

Legend

- Project Area
- 12km Buffer

Native Vegetation (DPIRD-005) Intersect with Vegetation Complexes (DBCA-046)

- Bassendean Complex-Central and South
- Cannington Complex
- Dardanup Complex
- Guildford Complex
- Karrakatta Complex-Central and South
- Quindalup Complex
- Serpentine River Complex
- Southern River Complex
- Swan Complex
- Vasse Complex
- Yoongarillup Complex

No	Description	Drawn	Approved	Date
A	Original issue	JP	TC	12/8/2025

NOTES:

Cadastral boundary from LANDGATE 2022. Label corresponds to the vegetation association number.

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2.8.3 Western Ringtail Possum

The WRP (*Pseudocheirus occidentalis*) is listed as Critically Endangered under the EPBC Act and BC Act. On the Swan Coastal Plain the species is present from north of Bunbury to Augusta, with greatest populations around Busselton (DPaW, 2017). Targeted searches were undertaken due to the potential presence of the species during the survey.

Observations and Previous Records

During the survey, one location of fresh scats from WRP was recorded in FHT-01 within a peppermint grove in the southwestern corner of the Site. Scats were recorded few in number, compared to where possums are resident, scat numbers are typically high. No dreys were observed during searches.

Targeted spotlighting searches were undertaken on two separate nights in June. The searches covered all suitable habitat at approximately 50-60m spacing. The spotlighting surveys recorded one individual, congruent with the location scats were observed.

The species is well reported from the Leschenault area to the south and from Binningup to the west with multiple recent record in DBCA database search results. Few existing records are present from the Kemerton Industrial Estate despite several regional surveys. It is concluded that some habitat present is suitable for WRP but is infrequently used.

Habitat Assessment

The WRP is an arboreal species whose known diet comprises almost exclusively myrtaceous plants primarily peppermint, marri and jarrah (DPaW, 2017). In the Bunbury region, WRP habitat typically has a dominant or co-dominant upper or mid stratum of peppermint trees. In other regions the species also utilises marri and jarrah woodlands, coastal heath, riparian vegetation and thickets of myrtaceous species (DPAW, 2017). The WRP recovery plan identified that habitat critical for survival of the species is not well understood and as such habitat where WRPs are commonly recorded may be considered critical and worthy of protection (DPAW, 2017).

The survey found a small portion in the southeastern corner of FHT-01 (Isolated trees over paddock) was assessed as core habitat. Connected canopies and portions of FHT-01 on the southern boundary were assessed as comprising supporting habitat, which is used for dispersal and foraging. FHT-02, FHT-03 and Cleared areas were assessed as non-significant habitat for the species.

Habitat quality was assessed using the Commonwealth unpublished guidelines, Habitat Scoring System for Western Ringtail Possum (the Habitat Scoring System). The Habitat Scoring System mainly comprised of three components:

1. Site Condition - score of canopy and mid story connectivity, fire age and evidence of dreys.
2. Site Context- connectivity of vegetation within Survey Area with other areas of suitable habitat
3. Species Stocking Rate- frequency of current or historical observations

See Attachment A for full assessment details, steps and guidelines.

The assessment found 3.12 ha of suitable habitat types for WRP and 85.26 ha of unsuitable habitat within the Site (Figure 18). Noting that habitat with a score of 0.5 or 0 is unlikely to be considered as suitable habitat (DCCEEW, n.d.). The full result summary is provided in Table 2-18 below, and the suitable habitat extent is shown in Figure 19.

Table 2-18: Final Habitat Scoring for Western Ringtail Possum (WEPL, 2025)

Final Score	Site Condition Starting Score Detail	Extent (ha)	% of Survey Area
7	Low – Some canopy (50-69%) continuity	0.15	0.17
6.5	Very Low – Little canopy (30-49%)	2.97	3.12
0.5	Marginal – Less than 30% canopy continuity	1.60	1.82
0	Absent, no vegetation and/or suitable habitat on site	83.66	94.89
Total		88.38	100.00%

*Shaded cells have score of 0.5 or 0 and are unlikely to be suitable habitat

Regional Context

To provide further context, an analysis of habitat extent within the local area (defined as a 5 km buffer of the Site) as per Shedley and Williams (2014) mapping was undertaken.

The analysis identified that:

- A combined 4,798.11 ha of Class B (high) and Class C (medium) habitat is mapped within 5 km of the Site.
- No Class A (very high) is mapped with 5 km of the Site. The majority within 5 km is Class C (medium) with 3,976.01 ha.
- The combined 3.12 ha of FHT-01, which broadly aligns with the Shedley and Williams 2014 mapping as Class C (medium) represents 0.08 % of the combined Class B (high) and Class C (medium) habitat mapped within 5 km.
- The habitat within the Site is contiguous with extensive areas of habitat within the Kemerton Strategic Industrial Area and buffer areas.

Figure 18: Potential Western Ringtail Possum Habitat

N

0 50 100 150 200 m

PROJECT/REPORT NAME: Lot 10 Wellesley Road, Binningup		
SCALE: 1:4,500	SHEET SIZE: A3 COLOUR	CLIENT: Tonic Group
COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50	PROJECT NUMBER: A24.238	VERSION: 0
DATA SOURCE: NEARMAPS	DRAWN BY / REVIEWED BY: JP/ZL	DATE: 17/10/2025

Legend

- The Site

WRP Habitat Quality Score

- 0
- 0.5
- 1
- 1.5

No	Description	Drawn	Approved	Date
A	Original issue	JP	ZL	17/10/2025

NOTES:

Cadastral boundary from LANDGATE 2022. Label corresponds to the vegetation association number.

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Figure 19: Western Ringtail Possum Habitat

N

0 50 100 150 200 m

PROJECT/REPORT NAME	Environmental Assessment Report Lot 10 Wellesley Road, Binningup
SCALE	1:4,500
SHEET SIZE	A3 COLOUR
CLIENT	Tonic Group
COORDINATE REFERENCE SYSTEM	GDA2020 / MGA zone 50
PROJECT NUMBER	A24.238
VERSION	0
DATA SOURCE	NEARMAPS
DRAWN BY / REVIEWED BY	JP/ZL
DATE	17/10/2025

Legend

The Site

WRP Habitat Quality Score

1

1.5

No	Description	Drawn	Approved	Date
A	Original issue	JP	ZL	17/10/2025

NOTES:

Cadastral boundary from LANDGATE 2022. Label corresponds to the vegetation association number.

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3. Summary of Proposed Impacts

3.1 Direct Impacts

3.1.1 Flora and Vegetation

The development will require the clearing of 1.67 ha of native vegetation pursuant to section V of the EP Act. This vegetation is comprised of:

- 1.67 ha of upland vegetation and trees; combination of planted and remnant vegetation. Woodlands of Agonis flexuosa, Corymbia calophylla and Eucalyptus rudis. Understorey consists of grassy paddock and weeds. All of which is in Completely Degraded condition.

No priority flora species was observed within the Site; none will be impacted. The patch of Tuart Woodland TEC within the Site is proposed to be retained, and is not included within the disturbance footprint. Similarly, the entire 2.51 ha patch of native wetland vegetation is proposed to be retained within the Site.

3.1.2 Fauna

The disturbance footprint will necessitate the clearing of habitat for WRP, CBC, BBC and FRTBC, including:

- 1.14 ha of suitable low-moderate quality foraging habitat for all three black cockatoo species, (quality score 3).
- 42 potential black cockatoo nesting trees, none of which contain suitable nesting hollows, which include:
    - 7 Bamford Class 4 trees (flooded gum).
    - 35 Bamford Class 5 trees (2 Eucalyptus sp., 33 flooded gum).
- 0.56 ha of very low quality suitable habitat (quality score 1) for WRP.

The disturbance footprint has sought to retain vegetation adjacent outside of the disturbance footprint, to reduce fragmentation of habitat as a result of the proposed clearing. This includes retention of all mapped native wetland vegetation and higher quality fauna habitat.

3.2 Indirect and Consequential Impacts

Clearing within the disturbance footprint could potentially lead to the following indirect impacts to Tuart Woodland TEC/PEC patches if left unmitigated:

- Unintentional clearing of TEC/PEC vegetation.
- Introduction of weed species and/or pathogens.

- Indirect impacts to groundwater and consequential impacts to groundwater dependent vegetation.
- Erosion and dust development.
- Stormwater run-off and nutrient loading.

Mitigation measures are outlined in section 4.3.

4. Impact Avoidance and Mitigation

4.1 Consideration of Alternatives

The Site was strategically selected, due to its location within the Kemerton SIA buffer and 'Strategic Industry' zoning which allows for the proposed land use. The proximity of the Site to other industrial developments and the intersection of existing transmission lines across the Site has removed the requirement for additional environmental impact and clearing that would be associated with connecting the development to the grid. The Site was also selected due to its current agricultural land use, which has resulted in a predominately cleared, completely degraded Site with limited environmental values. As a result, limited clearing is required for the proposed infrastructure, particularly the solar panels, which require large cleared areas. As a result, no alternatives have been considered.

4.2 Avoidance Measures

Since initial concept design, several design iterations have occurred. These have primarily been in response to completed ecological surveys. Following the identification of fauna habitat with most value to both WRP and black cockatoo species, the design has been updated to significantly reduce environmental impacts. This includes:

- Relocation of the access/egress point and EV charging station north, from the area of highest quality black cockatoo foraging habitat, to a predominantly cleared area of paddock.
- Relocation of the substation to the north-west, into a predominantly cleared area of paddock. This avoided impacts to the area of highest quality BC foraging habitat.
- Retention of highest quality BC foraging habitat and core and supporting WRP habitat along the southern site boundary, which will also provide visual screening from Runnymede Road and Wellesley Road.

The avoidance measures have resulted in the retention of 2.89 ha of isolated trees (VT01) and 2.51 ha of native wetland vegetation, which include:

- 2.63 ha of suitable BC foraging habitat, including:
    - 1.13 ha of high to very high quality foraging habitat for BBC and CBC and moderate-high to high quality habitat for FRTBC.
    - 72 BC potential nesting trees, and one suitable nesting tree (Bamford Class 3).
- 2.56 ha of suitable WRP habitat, including 2.41 ha of supporting habitat and all core habitat (0.15 ha).
- All mapped remnant native wetland vegetation (2.51 ha), which provides supporting habitat for several wading and migratory bird species which potentially occur within the Site.

4.3 Mitigation Measures

In addition to the proposed avoidance measures, several mitigation measures are proposed. This includes:

- A 30 m setback and conservation fencing from the remnant native wetland vegetation.
- Elevated solar panels to be used if possible, which will allow for inundation to continue within the Site, reduce the requirement for fill, and minimise impacts to any waterbirds or fauna potentially infrequently utilising the inundated paddocks. The elevated panels will allow for fauna to utilise the inundated paddocks despite the panels being established.
- Clearing to occur outside of black cockatoo and WRP breeding season, to reduce the potential for impacts to any breeding individuals. Pre-clearing checks to be undertaken, to avoid fauna mortalities during clearing.
- Construction to occur during dry season, to avoid disturbance to any wading or migratory birds that may infrequently utilise the Site.

4.4 Rehabilitation

Given that all vegetation mapped within the Site is in degraded to completely degraded condition, rehabilitation is proposed within retained areas of vegetation to improve the vegetation condition and fauna habitat values. This includes revegetation of the remnant wetland vegetation with suitable wetland species, and weed management to improve the overall quality of this vegetation and habitat for any waterbirds or other fauna.

Supplementary planting is proposed within retained areas of vegetation, to improve the condition of vegetation and fauna habitat. This may include planting of understorey species and additional native trees such as *Corymbia calophylla* and *Agonis flexuosa*, to improve canopy cover and connectivity along the Wellesley Road and Runnymede Road reserves for WRP, black cockatoos and any other native fauna utilising the road reserve and adjacent vegetation to move throughout the landscape. Vegetation along the boundary of the Site has been classified as 'Forest' within the BMP, and therefore revegetation is not anticipated to impact bushfire setbacks and the current concept design.

4.5 Offsets

No offsets are proposed at this stage. The impacts are not considered significant, and avoidance measures and rehabilitation are proposed to retain areas of highest quality, and improve vegetation and fauna habitat quality.

5. Assessment against Ten Clearing Principles

An assessment of the 1.67 ha of native vegetation clearing against the Ten Native Vegetation Clearing Principles under Schedule 5 of the EP Act is provided in Table 5-1.

The proposed clearing is not considered likely to be at variance with any of the clearing principles.

Table 5-1: Assessment Against 10 Clearing Principles

Principle	Data Source/Tools for Assessment	Conclusion
Principle (a) - Native vegetation should not be cleared if it comprises a high level of biological diversity		
The disturbance footprint occurs within the Swan Coastal Plain (SCP) bioregion. A Reconnaissance Flora, Vegetation and Targeted Fauna Survey was undertaken within the Site in June of 2025 by Western Environmental Approvals (WEPL, 2025) (see Appendix A for full report). The desktop assessment included a search of the DBCA databases and Commonwealth PMST search tool. The assessment identified a total of 59 conservation significant flora species as potentially occurring within 20 km of the disturbance footprint. However, no previous records were present within the Site. A search of the DBCA TEC spatial dataset identified two TECs/PECs listed under the EPBC Act had the potential to occur within the Site. The field survey by WEPL (2025) confirmed the presence of one TEC (Tuart woodlands and Forest of the Swan Coastal Plain ecological community (Tuart TEC)) patch in western end of the Site, which is proposed to be retained. A total of 20 flora species were recorded from within the Survey Area from two relevés. Of these, only six species were native. No flora of conservation significance was recorded within the Site (WEPL, 2025). The majority of land within the Site has been historically cleared, with current vegetation condition varying between degraded to completely degraded. Poor vegetation condition was evident due to weed invasion, agricultural grazing and infrastructure installation (powerlines). The Site survey identified four vegetation types within the Site, of which only two vegetation types (VT01 and VT02) are included within the disturbance footprint, and both in completely degraded condition. One vegetation type (VT03) was found be to representative of riparian vegetation associated with the mapped Conservation Category Wetland (CCW) in the western portion of the Site. This vegetation is proposed to be retained and not assessed within the disturbance footprint. A total of **1.67** ha of native vegetation is proposed to be cleared, **all of which is mapped a**s VT01**.** Based on the degraded vegetation condition of vegetation within the disturbance footprint, the vegetation does not represent a high level of biological biodiversity, thus the proposed clearing is unlikely to be at variance.	Australia's Bioregions (DCCEEW, 2021) Reconnaissance Flora, Vegetation and Targeted Fauna Report (WEPL, 2025) Protected Matter Search Tool (DCCEEW, 2023) Western Australia Herbarium (WAH, 1998) records Priority ecological communities List for WA (2023)	Unlikely to be at variance
Principle (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		
A basic fauna and targeted searches for the three species of black cockatoos and WRP was undertaken by WEPL in June of 2025 (WEPL, 2025). Within the eastern and southern portion of vegetation in the Site, two (2) conservation significant fauna species from two different families were recorded during the field survey:		Unlikely to be at variance

Principle	Data Source/Tools for Assessment	Conclusion

- *Calyptorhynchus banksia naso* (forest red-tailed black cockatoo)
- *Pseudocheirus occidentalis* (western ring-tailed possum).

Overall, the assemblage of vertebrate fauna expected to occur within the Site post survey, is typical of degraded and fragmented vegetation that occurs on farmland. The disturbance footprint is comprised of degraded to completely degraded habitat, which consists primarily of scattered trees over paddock that lacks the required habitat to support majority of the species listed. As a result, the Site is considered overall as unlikely to be of significant value to fauna**.** Apart from a small area of core habitat mapped within the Site for WRP which will be retained, only supporting habitat and non-significant for conservation significant species is present within the disturbance footprint. This includes supporting for WRP, **BBC**, C**BC**, FRTBC, peregrine falcon, south-western brush-tailed phascogale, western false pipistrelle, masked owl (southwest) and glossy ibis. The disturbance footprint includes only non-significant habitat for other species.

All migratory or conservation significant birds considered to potentially occur within the seasonally inundated parts of the Site are considered infrequent visitors, with no species considered likely to solely rely on the habitat present within the Site or disturbance footprint. No core or breeding habitat for these species was recorded, and extensive habitat of better quality is present to the south of the Site, associated with the Leschenault estuary.

The proposed clearing within the disturbance footprint will include impacts to **1.67 ha of native vegetation, of which**:

- **1.14 ha represents low-moderate quality foraging habitat for CBC, BBC and FRTBC.**
- **42 potential nesting trees for black cockatoos included within the above foraging habitat, none of which include suitable nesting hollows.**
- **0.56 ha of suitable supporting habitat for WRP.**

Given that the areas of highest quality foraging habitat for black cockatoos will be retained within the Site, and that the overall quality of foraging habitat to be impacted is **low-moderate**, the disturbance footprint is considered unlikely to impact significant foraging habitat for black cockatoos. Therefore, the proposed clearing is unlikely to have the potential to be at variance with this principle.

The disturbance footprint is within the modelled distribution of the **WRP** (*Psedocheirus occidentalis*), currently listed as Critically Endangered under the EPBC Act and the BC Act. The survey found one location of fresh scat from **WRPs** in FHT-01 in the southwestern corner of the Site. The habitat assessment identified a small portion of core habitat in the south-east of the Site, with connective canopies of FHT-01 in the southern boundary identified as supporting habitat that is used for dispersal and foraging. All other fauna habitats were concluded as non-significant habitat for the species. The disturbance footprint includes

Principle	Data Source/Tools for Assessment	Conclusion
proposed clearing of **0.56 ha** of suitable WRP habitat with a quality score of 1 - **very low quality supporting** habitat. Fauna habitat with a score of 0.5 quality for WRP is not considered suitable for the species, in accordance with the **Habitat Quality Scoring Tool (DCCEEW, n.d.)**. Due to the small extent of the proposed clearing (**0.56 ha total**) in comparison to the retained higher quality habitat **(2.56 ha)**, and the fragmented nature of habitat within the disturbance footprint, this removal of supporting habitat is unlikely to represent a significant habitat for **WRPs**. Therefore, the proposed clearing is unlikely to have the potential to be at variance with this principle.		
Principle (c) - Native vegetation should not be cleared if it includes or is necessary for the continued existence of, rare flora		
WEPL 2025 undertook a pre-survey desktop assessment using the DBCA flora database which identified a total of 59 significant flora species as potentially occurring within 20 km of the disturbance footprint. • 3 were considered to have a high likelihood of occurrence. • 12 considered to have a medium likelihood of occurrence. • 44 were considered to have a low likelihood of occurrence Following the survey, the likelihood of occurrence was re-evaluated and identified that all 59 conservation listed flora species had a low likelihood of occurrence. Due to the degraded to completely degraded condition of the Site and the absence of suitable habitat, no conservation significant flora was recorded during the reconnaissance field survey, or were identified as representing range extensions or flora of other significance (WEPL, 2025). The native vegetation proposed to be cleared within the disturbance footprint does not contain any Threatened or Priority species and is unlikely to be at variance with this principle.	Reconnaissance Flora, Vegetation and Targeted Fauna Report (WEPL, 2025)	Unlikely to be at variance
Principle (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		
WEPL 2025 undertook a desktop search of the DBCA TEC Database which identified two Threatened or Priority Ecological Communities (TEC/PEC) that were likely to occur within the Site. The field survey (WEPL, 2025) recorded one patch of TEC (Tuart woodlands and forest of the Swan Coastal Plain ecological community (Tuart TEC)) within the western end of the Site, which is proposed to be retained and is not included within the disturbance footprint. The native vegetation present within the disturbance footprint does not comprise whole or part of, nor is it likely to be necessary for the maintenance of a TEC. Therefore, the proposed clearing is not likely to be at variance with this principle.	Reconnaissance Flora, Vegetation and Targeted Fauna Report (WEPL, 2025)	Unlikely to be at variance
Principle (e) - Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an		

Principle	Data Source/Tools for Assessment	Conclusion
area that has been significantly cleared		
The **disturbance footprint** is within a constrained area (Greater Bunbury Region Constrained Area within the Swan Coastal Plain). The high-level vegetation association in the Site has been mapped by **B**eard (1990) as Vegetation Complex 57, 56 and 49 within System 6 Region. The status of the remaining pre-European vegetation and description is shown in the table below. **Beard et al. (1990) Vegetation Complex and Percentage Remaining within the Swan Coastal Plain (SCP)(Govt. of WA, 2019)** **Vasse Complex** — System 6 Mapping Unit Number: 57; Original Extent (ha): 15,691.63; Current Extent (ha): 4,926.97; % Remaining: 31.40 **Yoongarillup Complex** — System 6 Mapping Unit Number: 56; Original Extent (ha): 27,977.93; Current Extent (ha): 10,018.14; % Remaining: 35.81 **Karrakatta Complex-Central and South** — System 6 Mapping Unit Number: 49; Original Extent (ha): 53,080.99; Current Extent (ha): 12,467.20; % Remaining: 23.49 The National Objectives and Targets for Biodiversity Conservation 2001-2005 (Commonwealth of Australia, 2001) recognised the retention of 30% or more of the pre-clearing extent of each ecological community is necessary at a state level to protect Australia's biodiversity. According to figures obtained the Government of Western Australia (2019), Vasse Complex and Yoongarillup Complex exceeds the acceptable minimal 30 % retention objective of existing pre-European vegetation at a state level. Comparatively, Karrakatta Complex-Central and South is below the minimal 30 % state retention objective, however, the local target of 10% retention is satisfied with 23.49 % of the pre-European vegetation remaining in the 'Greater Bunbury Region Constrained Area of the SCP. The EPA Position Statement No.9 identifies vegetation with a 30 % or less or their pre-clearing extent remaining in the SCP bioregion, or 10 % or less of their pre-clearing extent remaining in constrained areas on the SCP to be critical assets. Clearing of critical assets would generally be at variance to this principle. The disturbance footprint includes the clearing of up to: • **0.61** ha of **vegetation associated with the Karakatta Complex - Central and South, which is a constrained vegetation complex. This vegetation is in completely degraded condition.**	• Beard (1990) • Reconnaissance Flora, Vegetation and Targeted Fauna Report (WEPL, 2025) • EPA Guidance No.10 (2006)	Unlikely to be at Variance

Principle	Data Source/Tools for Assessment	Conclusion
The clearing of **1.67** ha of native vegetation within the disturbance footprint, **including 0.61 ha of constrained vegetation complex** 'Karrakatta Complex Central and South', will not reduce the remaining extent **of any vegetation complex** below the trigger level at a local level (<10%). Therefore, the proposed clearing within the disturbance footprint is not at variance with this principle.		
Principle (f) - Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or a wetland		
The Site contains a known Conservation Category Wetland (CCW) (ID 1598) in the western portion of the Site and a Multiple Use Wetland (MUW) (ID 13249) in the eastern portion of the Site (WEPL, 2025). Based on results from the Reconnaissance Flora, Vegetation and Targeted Fauna Survey (WEPL, 2025), the Site contains native riparian vegetation in association with the CCW. A wetland reclassification is currently being prepared, to reclassify this wetland to align with the findings of the site assessment. However for the purpose of this assessment, all remnant native wetland vegetation associated with the current CCW is proposed be retained, and is not included within the disturbance footprint. Vegetation identified within the extent of the MUW is mapped as completely non-native and in completely degraded condition. The proposed clearing within the disturbance footprint includes 10.78 ha of non-native wetland species. The proposed clearing within the disturbance footprint is not at variance with this principle.		Not at variance
Principle (g) - Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation		
The Department of Water and Environment Regulation (DWER) has defined land degradation as including the following: • The clearing of vegetation that cause land degradation • Soil erosion and soil acidity caused by wind and water erosion due to vegetation clearing • Soil salinity • Waterlogging/flooding Given the disturbance footprint intersects with the Multiple use Wetland (MUW) (ID 13249), the soils are expected to have a low permeability, high waterlogging potential and high subsurface acidification susceptibility from the extensive seasonal inundation. However, due to the disturbance footprint having been historically cleared and currently comprised of completely degraded vegetation and non-native vegetation, additional clearing of scattered paddock trees and non-native wetland vegetation is unlikely to result in appreciable land degradation or expose large amounts of land to erosion considering its current condition. Given that part of the Site is mapped as an area of high to moderate risk of ASS occurring within 3 m of the	DPIRD-064 Australian Soil Resource Information System (ASRIS, 2014).	Unlikely to be at variance

Principle	Data Source/Tools for Assessment	Conclusion
natural ground surface, an ASS management plan will be prepared for construction. However this risk can be managed through appropriate management measures. Therefore, the proposed clearing within the disturbance footprint is unlikely to be at variance with this principle.		
Principle (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		
The disturbance footprint intersects a mapped Environmentally Sensitive Area (ESA), which is associated with the 50 m buffer of the Conservation Category Wetland (CCW) within the Site (ID 3994). The Site does not intersect any drainage lines. **Approximately one paddock tree (0.023 ha) is proposed to be removed within the existing ESA.** The native vegetation associated with the CCW is proposed to be retained and is not within the disturbance footprint. A 30 m buffer is proposed to be established around remnant native wetland vegetation, to reduce the potential for further degradation of the wetland values. The land adjacent to the ESA is comprised of completely degraded pastoral paddock and is not ecologically connected to the ESA. The removal of vegetation within the disturbance footprint will not narrow, disjunct, impact or otherwise alter the habitat linkage and ecological connectivity to the ESA. Given the vegetation within the disturbance **footprint only includes one isolated tree (0.023 ha), and the remaining clearing within the disturbance footprint is in areas** not ecologically connected to the ESA, the proposed clearing is unlikely to be at variance to this principle.	DWER-046 DBCA-019 DWER-031	Unlikely to be at Variance
Principle (i) - 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		
The Site is not within any Public Drinking Water Source Area (PDWSA), Proclaimed Surface Water Area or Irrigation District. The Survey results from WEPL (2025) confirm that vegetation within the disturbance footprint is comprised of non-native species and is not representative or associated with remnant native wetland vegetation. The disturbance footprint will not impact any vegetation representative of those found associated with the CCW and is outside of the proposed 30 m buffer from this remnant native wetland vegetation. Considering the extensive clearing and historical grazing that has occurred across the Site, it is likely that ground water recharge and surface hydrology has already been altered. The additional clearing of a small extent of native vegetation (**1.67** ha) mainly comprised of scattered paddock trees is considered unlikely to result in material changes to ground water levels and surface water features. Therefore, the proposed clearing is unlikely to be at variance with this principle.	• Reconnaissance Flora, Vegetation and Targeted Fauna Report (WEPL, 2025) • Public Drinking Water Source Area Map • DWER-041	Unlikely to be at variance
Principle (j) - Native vegetation should not be cleared if the clearing of the vegetation is likely to cause or exacerbate the incidence or intensity of flooding.		

Principle	Data Source/Tools for Assessment	Conclusion
The Site is mapped as containing a MUW and a CCW, underlined by soils with high waterlogging potentials. Seasonal inundation across the Site is evident given the low topography and nature of the wetlands. Given the Site has been historically cleared and extensively grazed, the hydrological regime has likely already been somewhat modified. The disturbance footprint primarily includes scattered trees across the Site, the majority of which are outside of the mapped wetland extends. Given vegetation condition across the Site is completely degraded to degraded, and is limited to scattered trees, the limited clearing of **1.67** ha is considered unlikely to increase waterlogging or cause localised flooding. The Department of Environment and Regulations document "a guide to the assessment of applications to clear native vegetation" states the following for Principle (j): "Consideration of this principle may require extensive modelling of the whole catchment and should only be considered for large clearing projects. For smaller applications, clearing should not cause waterlogging (localised flooding)." Clearing of **1.67** ha of vegetation within the disturbance footprint is considered a smaller clearing project, and is therefore unlikely to cause localised flooding. As a result, the proposed clearing is unlikely to be at variance with this principle.		

6. Conclusion

This supporting document has identified that the proposed solar facility requires a Native Vegetation Clearing Permit under Part V of the EP Act for the clearing of 1.67 ha of native vegetation. This vegetation is comprised of:

- 1.67 ha of upland and vegetation and trees, which includes a combination of planted and remnant vegetation. Woodlands of *Agonis flexuosa*, *Corymbia calophylla* and *Eucalyptus rudis*. Of this, all is in completely degraded condition.

  This vegetation type is considered to provide low-moderate foraging value for all three black cockatoo species, and includes 42 potential nesting trees, none of which contain suitable nesting hollows. This vegetation type also provides 0.56 ha of very low quality supporting habitat for western ringtail possum.

The proposed clearing is not considered at variance with any of the Ten Clearing Principles, due to:

- Having a low level of biological diversity in the context of the surrounding area (with particular reference to values mapped within the Site).
- Having no Threatened or Priority Ecological Communities present within the Site.
- implemented between excavations and TEC/PEC patches.
- No impact to the maintenance of a vegetation complex.
- • No impact to Threatened flora species.
- Having limited habitat values for black cockatoos (1.67 ha of low-moderate foraging value) and western ringtail possum (0.56 ha of low quality supporting habitat).
- No impact to mapped native wetland vegetation (due to a 30 m setback from the 2.51 ha patch of mapped native wetland vegetation).
- No long-term land degradation being expected.
- No expected impacts to groundwater quality or hydrological regime.

The solar farm facility will be referred to DCCEEW under the EPBC Act on the basis of potential impacts to threatened species and communities. However initial self-assessment indicates that these impacts are not considered significant, and the project will be referred as not a controlled action.

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Appendix A
Reconnaissance Flora and Vegetation, and Targeted Fauna Survey (WEPL, 2025)

WESTERN ENVIRONMENTAL

Lot 10 Wellesley Road, Binningup Biological Surveys 2025

Reconnaissance Flora and Vegetation, and Targeted Fauna

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Lot 10 Wellesley Road, Binningup
Biological Surveys 2025

Reconnaissance Flora and Vegetation, and Targeted Fauna

Report No:
A24.238-RPT-FVSR_0_FINAL
Issue Date:
20-Aug-2025
Status
FINAL

Prepared for:
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7-Aug-2025	**12-Aug-2025**	**20-Aug-2025**

Distribution Record

Copies	Document ID / Version	Date	Received by
1	A24.238-RPT-FVSR_0_DRAFT	25-Aug-2025	Rob Clements

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In accordance with the scope of services, WEPL has conducted environmental field monitoring and/or testing in the preparation of this report. The nature and extent of monitoring and/or testing conducted is described in this report.

On all sites, varying degrees of non-uniformity of vertical and horizontal conditions in media (soil, water, air, waste or other media as described in the report) are encountered. Hence no monitoring, common testing or sampling technique can eliminate the possibility that monitoring or testing results/samples are not totally representative of media conditions encountered. The conclusions are based on the data and the environmental field monitoring and/or testing actually undertaken, and are therefore merely indicative of the environmental condition of the site at the time of preparing this report, including the presence or otherwise of contaminants or emissions. It should be recognised that site conditions, including the extent and concentration of contaminants, can change.

Within the limitations imposed by the scope of services, the monitoring, testing, sampling and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. To the maximum extent permitted by law, no other warranty, express or implied, is made.

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WEPL will not be liable to update or revise this report to take into account any events or circumstances or facts becoming apparent after the date of this report.

Executive Summary

Tonic Group commissioned Western Environmental Approvals Pty Ltd (WEPL) to undertake biological surveys across a portion of Lot 10 Wellesley Road, Binningup (the Survey Area) to determine environmental values present. The Survey Area covers approximately 88.39 ha. Tonic Group is considering the development of a solar farm.

The biological surveys comprised a reconnaissance level flora and vegetation survey, basic fauna survey and targeted black cockatoo and western ringtail possum assessments. Field surveys were conducted in June2025 with a total of four person days survey effort applied.

Flora and Vegetation

No conservation significant flora species were observed and were assessed as having a low likelihood of occurrence post survey.

Five vegetation types were identified. The Survey Area comprised of Degraded to Completely Degraded vegetation.

One vegetation type, VT03-Native wetland of *Melaleuca rhaphiophylla* over *Machaerina articulata* and weeds comprises wetland vegetation and is associated with an unnamed Conservation Category mapped wetland (ID 1598).

Of the two TECs and PECs identified by the desktop assessment as being potentially present, one (Tuart Woodland TEC) was identified as present. The Survey Area contains one patch of Tuart TEC covering a total of 0.03 ha within the Survey Area and an estimated 9.41 ha, beyond the landholdings of the Survey Area.

Fauna

Two species of conservation significance were recorded in the Survey Area. These are:

- *Calyptorhynchus banksia naso* (forest red-tailed black cockatoo) – VU.
- *Pseudocheirus occidentalis* (western ringtail possum) - CR

Eighteen species were assessed as having a high or medium likelihood of occurrence:

- *Falco peregrinus* (peregrine falcon)-OS
- *Tyto novaehollandiae novaehollandiae* (masked owl (southwest)) – P3
- *Phascogale tapoatafa wambenger* (south-west brush-tailed phascogale)-CR
- *Ctenotus ora* (Coastal Plains skink)-P3
- *Zanda baudinii* (Baudin's cockatoo) - CR

- *Zanda latirostris* (Carnaby's cockatoo) - CR
- *Botaurus poiciloptilus* (Australasian bittern) - EN
- *Calidris canutus* (Red Knot, Knot) - EN
- *Charadrius mongolus* (Lesser Sand Plover, Mongolian Plover) -EN
- *Charadrius leschenaultii* (greater sand plover, large sand plover) - VU
- *Falco hypoleucos* (Grey Falcon) -VU
- *Oxyura australis* (blue-billed duck) - P4
- *Actitis hypoleucos* (common sandpiper) - MI
- *Calidris acuminata* (sharp-tailed sandpiper) - MI
- *Plegadis falcinellus* (glossy ibis) - MI
- *Dasyurus geoffroii* (chuditch, western quoll) - VU
- *Isoodon fusciventer* (quenda, southwestern brown bandicoot) - P4
- *Notamacropus irma* (western brush wallaby) - P4

One species *Dasyurus geoffroii* (chuditch) - VU was initially considered to have a medium likelihood of occurrence. Following habitat and predator presence assessment the habitats present were determined to be non-significant for the species, with species likely only an infrequent visitor to the Survey Area.

Four habitat types were described. These broadly align with the mapped vegetation type boundaries.

Black Cockatoos

The Survey Area falls within the modelled distribution and breeding range for Baudin's black cockatoo, Carnaby's black cockatoo and the forest red-tailed black cockatoo (DCCEEW, 2022). No known breeding or roosting sites are present within or immediately adjacent to the Survey Area.

A total of 115 trees were recorded. Most of the breeding habitat trees (114 trees) were recorded as Class 4 and 5 potential nesting trees. One tree (Tree 11) was identified as containing a suitable hollow to allow black cockatoo nesting, and is therefore considered a suitable nesting tree (Class 3 tree).

Foraging habitat quality was primarily rated using the Commonwealth Habitat Quality Scoring Tool (DCCEEW, n.d.). Foraging habitat quality extents within the Survey Area out of ten are:

- Baudin's black cockatoo: 1.10 ha (7/10), 0.03 ha (6/10), 2.64 ha (3/10), 0.65 ha (2/10), 0.03 ha (1/10), 83.66 (0/10).

- Carnaby's black cockatoo: 1.10 ha (7/10), 0.03 ha (6/10), 2.64 ha (3/10), 0.65 ha (2/10), 0.03 ha (1/10), 83.66 (0/10).
- Forest red-tailed black cockatoo: 1.10 ha (6/10), 0.03 (5/10), 0.01 ha (4/10), 2.63 ha (3/10), 0.65 ha (2/10), 0.30 ha (1/10), 83.66 (0/10).

No evidence of roosting within the Survey Area was recorded. FHT-01 is considered to provide the most suitable roosting habitat as it consists predominantly of tall trees. Access to permanent water was present from wetlands and farm dams within 2km.

Western Ringtail Possum

One location of fresh scats from western ringtail possum was recorded in FHT-01 within a peppermint grove in the southeastern corner of the Survey Area. Scats were few in number, where possums are resident scat numbers are typically high. One individual was recorded in adjacent vegetation and is considered to use the western corner of the Survey Area. No dreys were observed during searches.

A small portion in the southeastern corner of FHT-01 (Isolated trees over paddock) was assessed as core habitat. Connected canopies and portions of FHT-01 on the southern boundary were assessed as comprising supporting habitat, which is used for dispersal and foraging. FHT-02, FHT-03 and cleared areas were assessed as non-significant habitat for the species.

The Commonwealth unpublished guideline, the Habitat Scoring System for Western Ringtail Possum was applied to determine habitat quality scores out for 10 for habitat types. This assessment identified as present within the Survey Area:

- 0.15 ha - 7/10
- 2.87 ha - 6.5/10
- 1.60 ha-0.5/10
- 83.66 ha-0/10

Note that habitat with a score of 0.5 or 0 is unlikely to be considered as suitable habitat (DCCEEW, n.d.).

An analysis of habitat extent within the local area identified that combined 4798.11 ha of Class B (high) and Class C (medium) habitat is mapped within 5 km. No Class A (very high) is mapped with 5 km of the Survey Area. The majority of this is Class C (medium) with 3976.01 ha. The combined 3.15 ha of FHT-01, which broadly aligns with the Shedley and Williams 2014 mapping as Class C (medium) represents 0.08 % of the combined Class B (high) and Class C (medium) habitat mapped within 5 km. The habitat within the Survey Area is contiguous with extensive areas of habitat within the Kemerton Strategic Industrial Area and buffer areas.

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1. Introduction

1.1 Project Background

Tonic Group is considering the development of a solar farm within Lot 10 Wellesley Road, Binningup (the Survey Area). Tonic Group commissioned Western Environmental Approvals Pty Ltd (WEPL) to undertake biological surveys across the Survey Area to determine environmental values present and to inform a formal Development Application (DA).

1.2 Location

The Survey Area comprises of Lot 10 Wellesley Road within the Kemerton Strategic Industrial Area, located 15 km north of Bunbury. See Figure 1. The Survey Area covers approximately 88.38 ha.

1.3 Objectives and Scope of Work

Scope of work consisted of:

- Reconnaissance flora and vegetation assessment in accordance with the Environmental Protection Authority (EPA) Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessments (EPA, 2016) (The Technical Guidance) including:
    - Desktop assessment.
    - A reconnaissance level vegetation type mapping and statistical analysis.
    - Vegetation condition mapping according to the EPA Guidance condition rating scale.
- A targeted assessment for presence of threatened and priority ecological communities.
- A basic fauna survey and likelihood of occurrence for threatened or priority fauna in accordance with the Technical Guidance for Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (EPA 2020) (The Technical Guidance).
- Targeted black cockatoo habitat assessment as per Department of Climate Change, Energy, the Environment and Water (DCCEEW) Referral Guideline for 3 WA Threatened Black Cockatoo Species (2022) to identify potential breeding, foraging or roosting habitat.
- A targeted western ringtail possum habitat assessment considering Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) 2011 Survey guidelines for Australia's threatened mammals and comprising daytime drey (nest) and scat searches and night-time spotlighting.

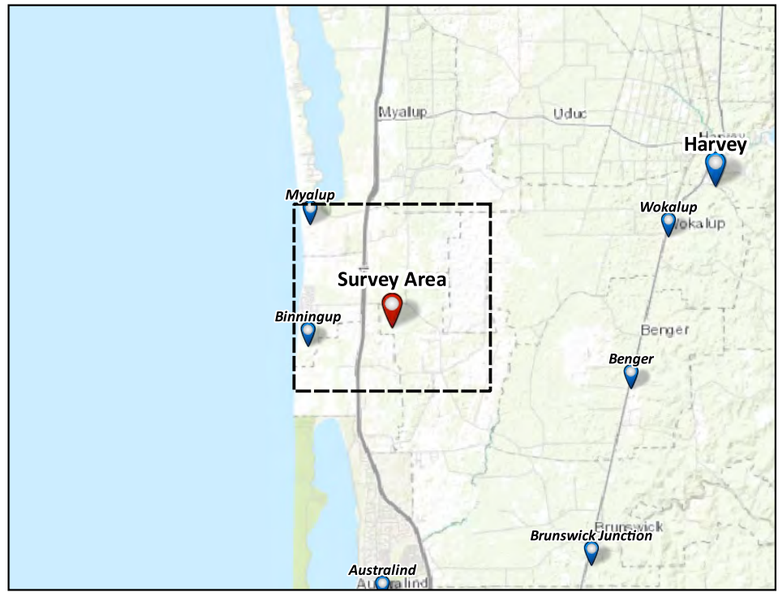

Figure 1: Survey Area

N

0 75 150 225 300 m

PROJECT/REPORT NAME	Lot 10 Wellesley Road Ecological Surveys Report Lot 10 Wellesley Road, Binningup
SCALE	1:6,500
SHEET SIZE	A3 COLOUR
CLIENT	Tonic Group
COORDINATE REFERENCE SYSTEM	GDA2020 / MGA zone 50
PROJECT NUMBER	A24.238
VERSION	0
DATA SOURCE	NEARMAPS
DRAWN BY / REVIEWED BY	JP/TC
DATE	12/8/2025

Legend

- Survey Area
- Cadastre (No Attributes) (LGATE-001)

No	Description	Drawn	Approved	Date
A	Original issue	JP	TC	12/8/2025

NOTES:

Cadastral boundary (LGATE-002). Base map ESRI Topo. Townsites (LGATE-248).

WESTERN ENVIRONMENTAL

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1.4 Survey Limitations and Constraints

Limitations and constraints of the fauna, flora and vegetation survey as outlined in the Flora and Vegetation and Fauna Survey Technical Guidance are detailed below in Table 1.

Table 1: Limitations and Constraints of the Fauna, Flora and Vegetation Survey

Possible Limitation	Degree of Limitation (Significant, Moderate or Negligible)	Potential Constraints on Survey Outcomes
Survey Level/ Scope	Negligible	The reconnaissance flora and vegetation survey, basic fauna survey and targeted assessment of black cockatoo and western ringtail possum habitat is considered suitable based on species expected to be present and the extent and condition of vegetation/habitat present within the Survey Area. The level of information collect is suitable to provide information required to inform the development of the infrastructure footprint and support approvals and referrals.
Availability of contextual information at a regional and local scale	Negligible	All data required to complete the scope of works including regional and local contextual information was available. Department of Biodiversity Conservation and Attractions (DBCA) data was requested as part of the desktop assessment.
Site Access	Negligible	The Survey Area was readily accessed by vehicle and on foot.
Survey Intensity and Extent	Negligible	Suitable survey effort by experienced ecologists were applied. Survey effort is shown in Figure 2 and included: • Two person days completing reconnaissance flora and vegetation in June 2025. • Two person days sampling fauna and undertaking daytime black cockatoo and western ringtail possum assessment, in June 2025. • Two evening (non-concurrent nights) of western ringtail possum spotlighting transects, in June 2025. All planned Survey Areas were adequately sampled in line with the project scope of works.
Experience	Negligible	The ecologist leading the field survey (Andrew Fry) has been conducting flora and vegetation surveys and fauna habitat assessments in Western Australia for over 10 years, with over 10 years' experience in the southwest bioregion.
Timing, weather, season	Negligible	**Flora and Vegetation** In the three months prior to survey rainfall was 113.65 mm below average (185.65 mm) of long-term average. The seasonal conditions were not considered to be optimal but are not considered a constraint due to scope of survey and completely degraded/cleared paddocks and degraded wetland present. The seasonal timing was considered appropriate considering the objectives of the survey.

Possible Limitation	Degree of Limitation (Significant, Moderate or Negligible)	Potential Constraints on Survey Outcomes
		Fauna Winter is also the optimal survey period for the main faunal groups sampled (birds and mammals) as per EPA Technical Guidance. Primary survey was undertaken in June. The survey was undertaken within the recommended timing for both foraging and breeding habitat for forest red-tailed black cockatoo (year-round) and Baudin's cockatoo (foraging March to September, breeding all year) and close to optimal for Carnaby's black cockatoo (year-round foraging, July to December breeding) (DCCEEW, 2022). Targeted searches were undertaken for secondary evidence of the species presence (i.e. foraging evidence which can be done at any time of year) and to evaluate the potential suitability of the habitat. Western ringtail possum spotlighting searches were undertaken in optimal condition in still and clear conditions on cool nights. Seasonal timing (June) does not coincide with September to November breeding peak for coastal populations but was still considered optimal for establishing population estimates due to cool conditions (DPaW, 2017). The temperatures and weather experienced during both field surveys were not considered a limitation to the survey and did not affect the ability to record fauna or habitats.
Proportion of the flora and fauna recorded and/or collected, and any identification issues	Negligible	Species sampling was in line with the technical guidance for reconnaissance flora and vegetation and basic fauna surveys.
Mapping Reliability	Negligible	The entire Survey Areas was traversed by foot and mapping reliability is considered high.
Disturbances (fire, flood etc.)	Negligible	Areas of disturbance associated with historic clearing for agricultural and industrial purposes and weeds were recorded but were not a constraint on the results of the survey.

1.5 Legislation and Guidance

This assessment was conducted in accordance with Commonwealth and State legislation, guidelines and advice:

- Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).
- Western Australian Environmental Protection Act 1986 (EP Act).
- Western Australian Biodiversity Conservation Act 2016 (BC Act).
- Western Australian Biodiversity Conservation Regulations 2018.
- Commonwealth Department of the Environment (DotE). (2013). Matters of National Environmental Significance. Significant Impact Guidelines 1.1 - Environment Protection and Biodiversity Conservation Act 1999.
- Commonwealth Department of the Environment and Energy (DotEE). (2016). Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain ecological community.
- WA EPA. (2016). Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment. Known herein as the 'Flora and Vegetation Technical Guidance.
- Department of Biodiversity Conservation and Attractions [DBCA] (2023) Draft: Methods for survey and identification of Western Australian Threatened Ecological Communities. Communities and Communities Program, DBCA.
- Former Department of Agriculture, Water and the Environment (DAWE) (2022) Referral Guidelines for 3 Threatened Black Cockatoo Species Carnaby's Cockatoo *(Zanda latirostris*), Baudin's Cockatoo (*Zanda baudinii*) and the Forest Red-tailed Black-cockatoo (*Calyptorhynchus banksii naso*).

As well as those listed above, the assessment complied with Environmental Protection Authority (EPA) requirements for terrestrial vertebrate fauna surveys in Western Australia, as outlined in:

- EPA. (2020). Technical Guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment. Known herein as the 'Fauna Technical Guidance'.
- WA EPA. (2016). Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment. Known herein as the 'Flora and Vegetation Technical Guidance.'

A short description of key legislation is provided in Appendix A. Other definitions, including species and ecological community conservation categories, are provided in Appendix B.

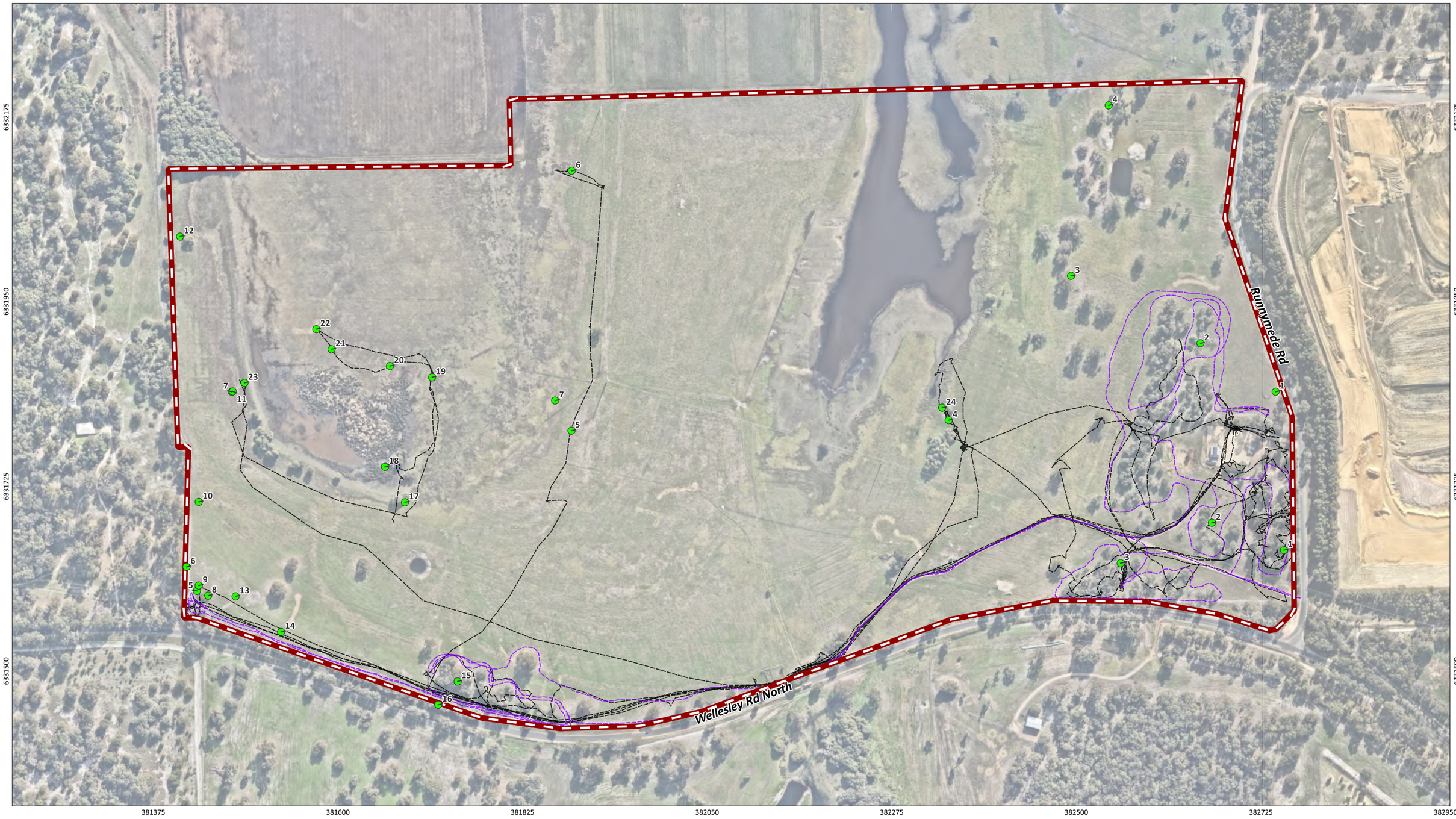

Figure 2: Survey Effort

N 0 50 100 150 200 m		PROJECT/REPORT NAME: Lot 10 Wellesley Road Ecological Surveys Report Lot 10 Wellesley Road, Binningup	
SCALE: 1:4,500	SHEET SIZE: A3 COLOUR	CLIENT: Tonic Group	
COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50		PROJECT NUMBER: A24.238	VERSION: 0
DATA SOURCE: NEARMAPS		DRAWN BY / REVIEWED BY: JP/TC	DATE: 12/8/2025

Legend

- Survey Area
- Mapping Note

Tracklog

- Night 1
- Night 2

No	Description	Drawn	Approved	Date
A	Original issue	JP	TC	12/8/2025

NOTES:

Cadastral boundary from LANDGATE 2022. Label corresponds to the vegetation association number.

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2. Existing Environment

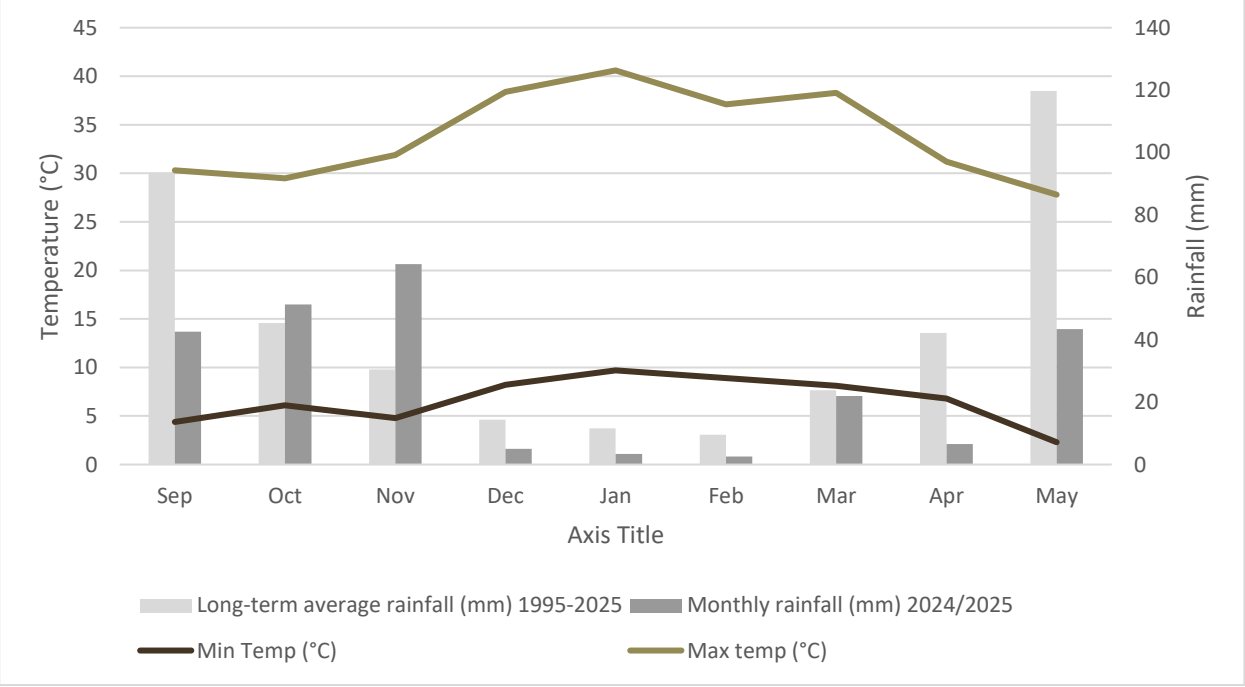
2.1 Climate and Pre-Survey Rainfall

The closest long-term Bureau of Meteorology (BoM) weather station with a complete dataset is Bunbury WA (Station 009965), located approximately 14 km south-west of the Survey Area.

Climate statistics were calculated utilising data from the most current climate normal, which is defined as a 30-year interval (BoM, 2007), where possible. A climate normal is a period long enough to include year-to-year variations while avoiding the influence of longer-term changes in climate

The long-term mean minimum temperature for Bunbury ranges from 7.3˚C (August) to 16.0˚C (February) (1994 to 2024) and the long-term mean maximum temperature ranges from 17.3˚C (July) to 30.1˚C (February) (Graph 1) (BoM, 2025).

Bunbury weather station recorded 83.00 mm of rain in the six months prior to the survey (Dec 2024 – May 2025), which is 137.79 mm below the long-term average of 220.79 mm in the same period (BoM, 2024). Conditions during autumn 2025 showed below average rainfall in March (22.00 mm in 2025 compared to 23.76 mm), April (6.60 mm in 2025 compared to 42.13 mm), and May (43.4 mm in 2025 mm compared to 119.76 mm) (BoM 2025). In the three months prior to the survey (March to May 2025), 72.0 mm of rainfall was recorded, the 3 months prior to March (Dec 2024 - Feb 2025) recorded 11 mm which was 24.14 mm below the long-term average at 35.14 mm (BoM, 2025).



Graph 1: Long Term and Monthly Total Rainfall, Maximum and Minimum Temperatures for Bunbury WA (009965) (BoM, 2025)

2.2 Interim Biogeographic Regionalisation for Australia

The Interim Biogeographic Regionalisation of Australia (IBRA) divides Australia into 89 bioregions based on major biological, geographical, and geological attributes. These bioregions are subdivided into 419 subregions as part of a refinement of the IBRA framework (Commonwealth of Australia, 2012). The Survey Area is situated within the Swan Coastal Plain bioregion and the Perth (SWA02) subregion.

2.3 Geology and Soil

The Survey Area is located within the Spearwood Soil Landscape Mapping System (DPIRD-064). The system is described as "Sand dunes and plains. Yellow deep sands, pale deep sands and yellow/brown shallow sands". The Survey Area is also located within the Quindalup Soil Landscape Mapping System (DPIRD-064). The system is described as "Coastal sand dunes and calcarenite. Late Pleistocene to Recent age. Calcareous and siliceous sands and calcarenite."

2.4 Pre-European Vegetation

During the 1970s, John Beard and associates conducted a systematic survey of native vegetation, describing the vegetation systems in Western Australia at a scale of 1:250 000 in the south-west and at a scale of 1:1,000,000 in less developed areas (Beard, 1981).

This mapping sought to describe the native vegetation presumed to occur prior to European settlement and, as such, is referred to as pre-European vegetation associations. These vegetation maps are maintained in digital form by DPIRD (DPIRD-006). Extents are updated periodically by Department of Biodiversity, Conservation and Attractions (DBCA) (Government of Western Australia, 2019a).

The pre-European vegetation association identified within the Survey Area and its pre-European and current extents within the Swan Coastal Plain (SCP) are described below in Table 2 and Figure 3

Table 2. Pre-European Vegetation Associations within the Survey Area

Vegetation Association	Description	Original Extent (ha)	Current Extent (ha)	% Remaining
Spearwood_998	Woodland southwest. Jarrah, marri and wandoo *Eucalyptus marginata, Corymbia calophylla, E. wandoo*.	48441.77	17667.16	36.47
Spearwood_37	Thicket. Wattle, *casuarina* and teatree *acacia-allocasuarina-melaleuca alliance.*	4946.28	1,163.58	23.52
Spearwood_6	Woodland southwest. Jarrah, marri and wandoo *Eucalyptus marginata, Corymbia calophylla, E. wandoo.*	54427.13	13287.64	24.41

2.4.1 Vegetation Complex Mapping

Regional vegetation for the SCP was mapped at vegetation complex level by Heddle et al. (1980) at a scale of 1:250,000 and are maintained in digital form by DBCA (DBCA-046; Government of Western Australia, 2019b). Pre-European regional vegetation complexes (DBCA-046) intersected by the Survey Area, include:

- Vasse Complex (57): Mixture of the closed scrub of *Melaleuca* species fringing woodland of *Eucalyptus rudis* (Flooded Gum) - *Melaleuca* species and open forest of *Eucalyptus gomphocephala* (Tuart) - *Eucalyptus marginata* (Jarrah) - *Corymbia calophylla* (Marri). Will include areas dominated by *Tecticornia* and *Sarcocornia* species (Samphire) near Mandurah and south of the Capel River.

- Yoongarillup Complex (56): Woodland to tall woodland of *Eucalyptus gomphocephala* (Tuart) with *Agonis flexuosa* in the second storey. Less consistently an open forest of *Eucalyptus gomphocephala* (Tuart) - *Eucalyptus marginata* (Jarrah) - *Corymbia calophylla* (Marri). South of Bunbury is characterized by *Eucalyptus rudis* (Flooded Gum*)-Melaleuca* species open forests.

- Karrakatta Complex - Central and South (49): Predominantly open forest of *Eucalyptus gomphocephala* (Tuart) - *Eucalyptus marginata* (Jarrah) - *Corymbia calophylla* (Marri) and woodland of *Eucalyptus marginata* (Jarrah) - *Banksia* species. *Agonis flexuosa* (Peppermint) is co-dominant south of the Capel River.

The vegetation complexes identified from the Survey Area (Heddle et al, 1980) and the pre-European and current extents are listed in Table 3 (DBCA, 2018) and shown in Figure 4.

Table 3: Pre-European Regional Vegetation Complexes

Vegetation Complex Name	System 6 Mapping Unit Number	Original Extent (ha)	Current Extent (ha)	% Remaining	% Managed for Conservation
Vasse Complex	57	15,691.63	4,926.97	31.40	13.12
Yoongarillup Complex	56	27,977.93	10,018.14	35.81	13.95
Karrakatta Complex-Central and South	49	53,080.99	12,467.20	23.49	3.87

2.5 Environmental Sensitive Areas

Environmentally Sensitive Areas (ESA) are declared by the Department of Water and Environmental Regulation (DWER) to prevent the degradation of important environmental values such as threatened flora, threatened ecological communities (TECs) or significant wetlands.

The Survey Area intersects a mapped ESA, which is associated with the 50 m buffer of a Conservation Category wetland within the Survey Area (Object ID: 3994) (DWER-046). See Figure 5.

2.6 Wetlands and Hydrology

The Survey Area intersects with a Conservation Category wetland (UFI 1598) and a Multiple Use wetland (UFI 13249) (DBCA-19). See Table 4 and Figure 6.

Table 4: Geomorphic Wetlands

Unique Feature ID	Landform	Wetland Type	Management Category	Total Wetland Area (ha)
13249	Basin	Dampland	Multiple Use	451.34
1598	Basin	Dampland	Conservation	14.43

No other surface water features intersect the Survey Area, such as waterways or drainage lines including natural and man-made (DWER-031).

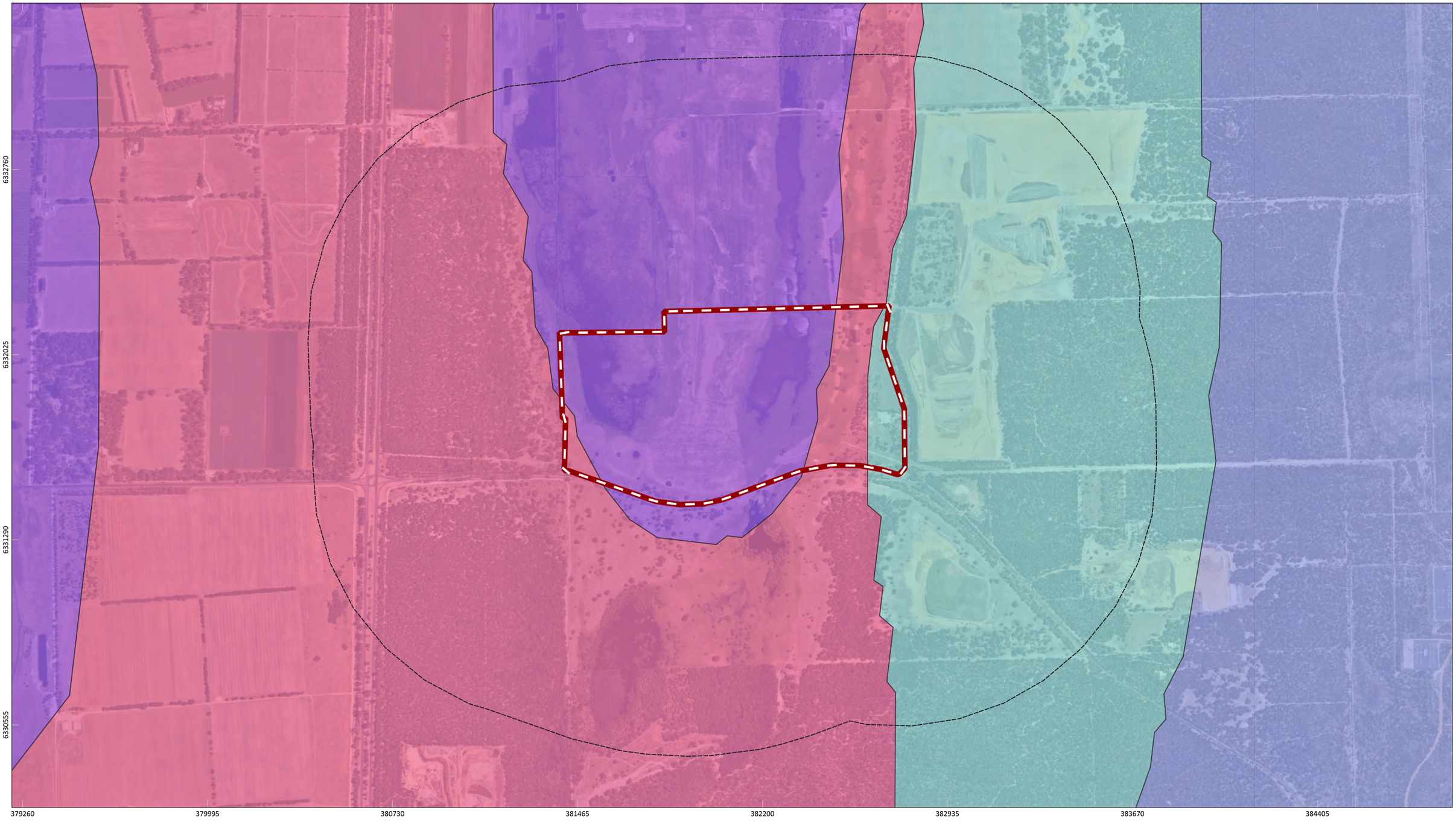


Figure 3: Pre-European Vegetation Type

N

0 200 400 600 800 m

PROJECT/REPORT NAME	Lot 10 Wellesley Road Ecological Surveys Report Lot 10 Wellesley Road, Binningup
SCALE	1:14,700
SHEET SIZE	A3 COLOUR
CLIENT	Tonic Group
COORDINATE REFERENCE SYSTEM	GDA2020 / MGA zone 50
PROJECT NUMBER	A24.238
VERSION	0
DATA SOURCE	LANDGATE AERIAL IMAGERY NOW
DRAWN BY / REVIEWED BY	JP/TC
DATE	12/8/2025

Legend

- Survey Area
- 1km Buffer

Pre-European Vegetation (DPIRD-006)

- BASSENDEAN_1000
- SPEARWOOD_37
- SPEARWOOD_6
- SPEARWOOD_998

No	Description	Drawn	Approved	Date
A	Original issue	JP	TC	12/8/2025

NOTES:

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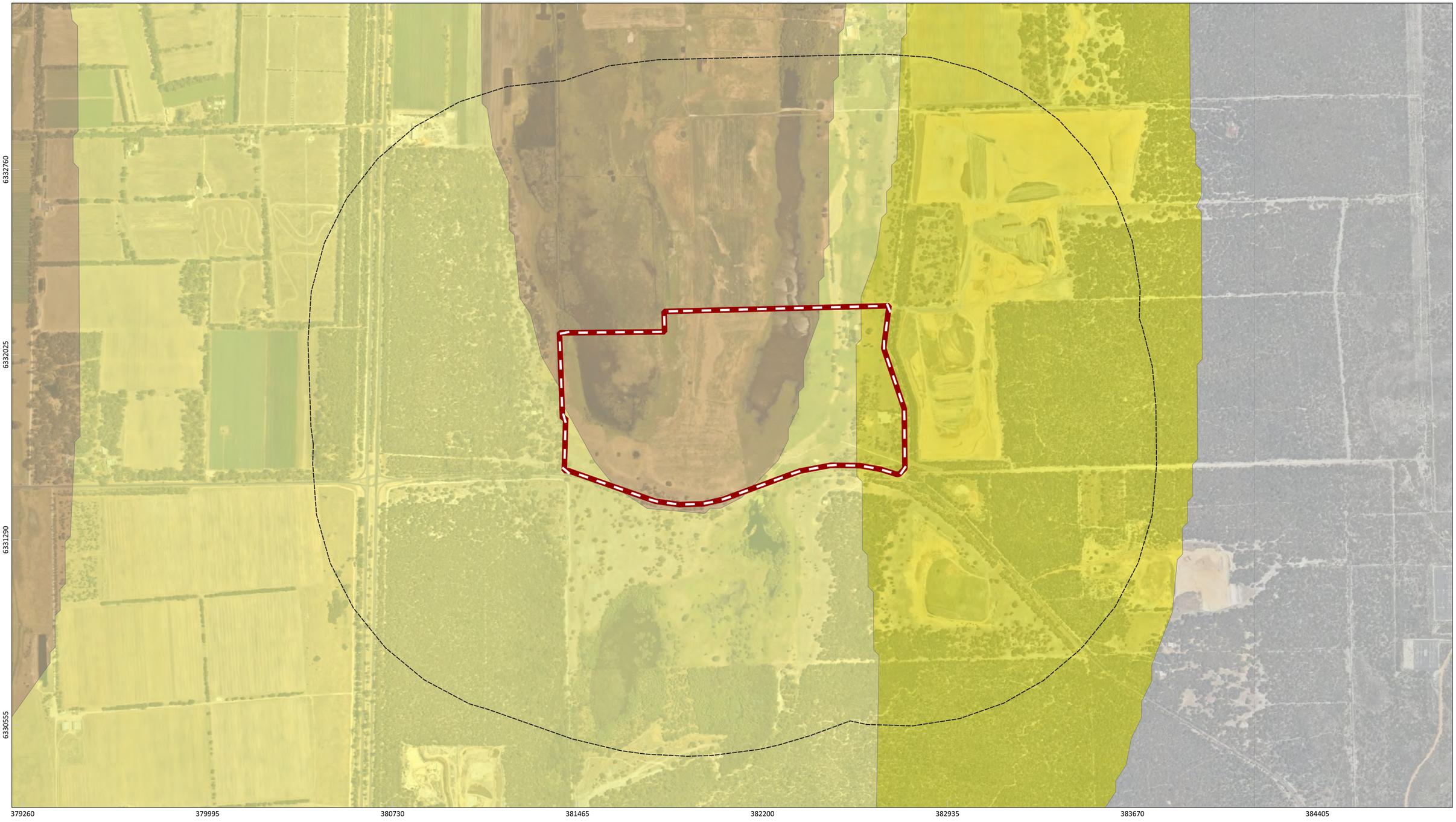

Figure 4: Vegetation Complexes

N; 0 200 400 600 800 m	PROJECT/REPORT NAME: Lot 10 Wellesley Road Ecological Surveys Report Lot 10 Wellesley Road, Binningup	
SCALE: 1:14,700	SHEET SIZE: A3 COLOUR	CLIENT: Tonic Group
COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50	PROJECT NUMBER: A24.238	VERSION: 0
DATA SOURCE: LANDGATE AERIAL IMAGERY NOW	DRAWN BY / REVIEWED BY: JP/TC	DATE: 12/8/2025

Legend

- Survey Area
- 1km Buffer

Vegetation Complexes - Swan Coastal Plain (DBCA-046)

- Bassendean Complex-Central and South
- Karrakatta Complex-Central and South
- Vasse Complex
- Yoongarillup Complex

No	Description	Drawn	Approved	Date
A	Original issue	JP	TC	12/8/2025

NOTES:

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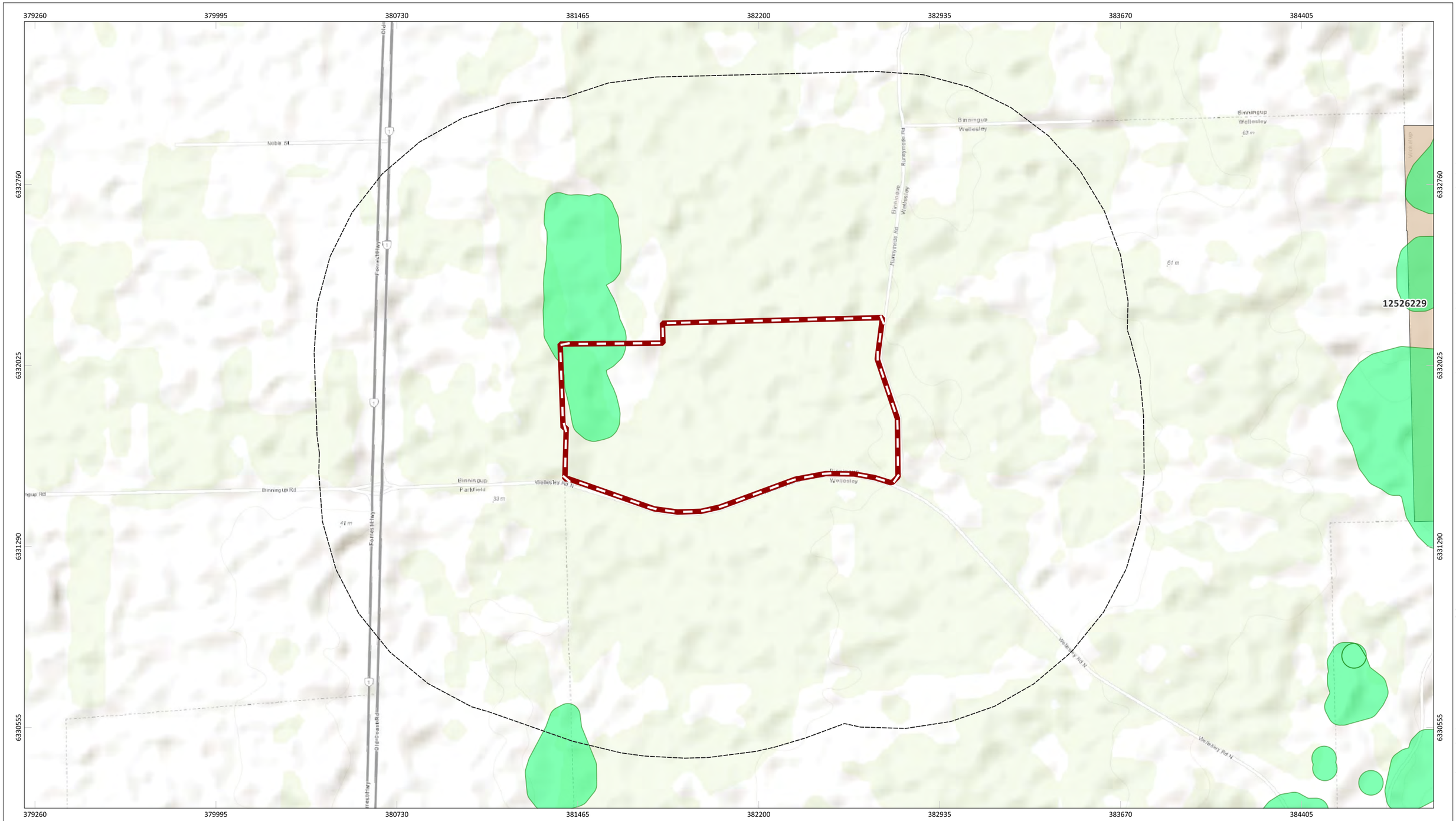

Figure 5: Environmentally Sensitive Areas, Conservation Estate and Bush Forever

N

0 200 400 600 800 m

PROJECT/REPORT NAME: Lot 10 Wellesley Road Ecological Surveys Report Lot 10 Wellesley Road, Binningup		
SCALE: 1:14,700	SHEET SIZE: A3 COLOUR	CLIENT: Tonic Group
COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50	PROJECT NUMBER: A24.238	VERSION: 0
DATA SOURCE: ESRI Topographic Map	DRAWN BY / REVIEWED BY: JP/TC	DATE: 12/8/2025

Legend

- Survey Area
- 1km Buffer
- Clearing Regulations - Environmentally Sensitive Areas (DWER-046)

DBCA - Legislated Lands and Waters (DBCA-011)

- Nature Reserve

No	Description	Drawn	Approved	Date
A	Original issue	JP	TC	12/8/2025

NOTES:

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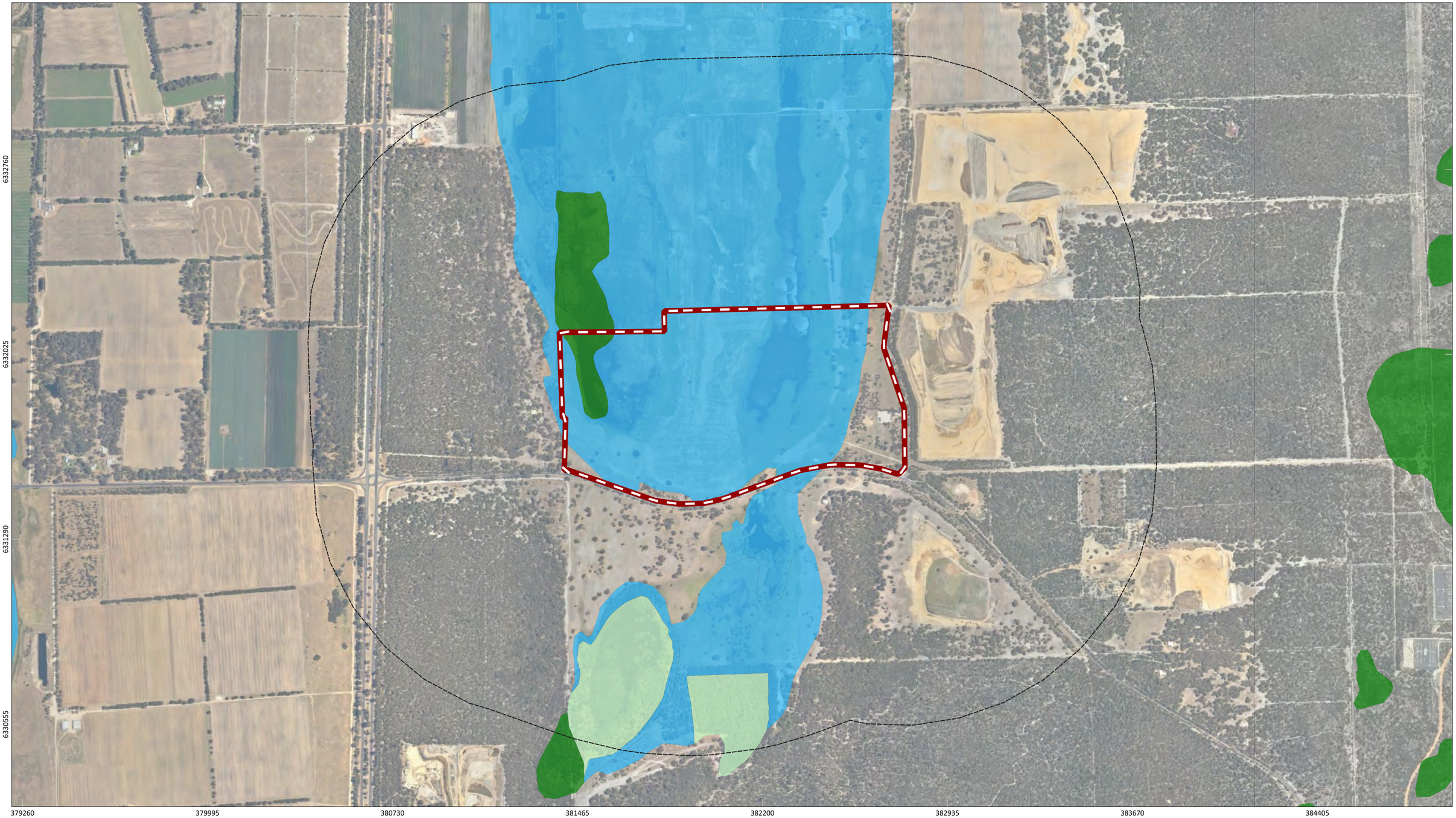

Figure 6: Surface Water Features and Geomorphic Wetlands

N

0 200 400 600 800 m

SCALE	1:14,700
SHEET SIZE	A3 COLOUR
COORDINATE REFERENCE SYSTEM	GDA2020 / MGA zone 50
DATA SOURCE	LANDGATE AERIAL IMAGERY NOW

PROJECT/REPORT NAME	Lot 10 Wellesley Road Ecological Surveys Report Lot 10 Wellesley Road, Binningup
CLIENT	Tonic Group
PROJECT NUMBER	A24.238
VERSION	0
DRAWN BY / REVIEWED BY	JP/TC
DATE	12/8/2025

Legend

- Survey Area
- 1km Buffer

Geomorphic Wetlands, Swan Coastal Plain (DBCA-019)

- Conservation
- Multiple Use
- Resource Enhancement

No	Description	Drawn	Approved	Date
A	Original issue	JP	TC	12/8/2025

NOTES:

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3. Methodology

3.1 Desktop Assessment

3.1.1 Database Searches

Database searches were undertaken to compile a list of potential conservation significant flora and ecological communities within or surrounding the Survey Area (see Table 5). In addition, an EPBC Protected Matters Search Tool (PMST) was undertaken to identify the potential for Matters of National Environmental Significance (MNES) to occur within or surrounding the Survey Area (DEECCW, 2024).

Table 5: Database Searches of the Survey Area

Database Name	Date Received and Reference Number	Search Type	Search Area
Threatened and Priority Ecological Communities database search (Department of Biodiversity Conservation and Attractions)	18/07/2025 34-0725EC	TECs and PECs	10 km buffer around the Survey Area
Threatened and Priority Flora (TPFL) database search (Department of Biodiversity Conservation and Attractions)	18/07/2025 56-0725FL	Threatened and Priority Flora	20 km buffer around the Survey Area
Western Australian Herbarium (WAHerb) flora database search (Department of Biodiversity Conservation and Attractions)	18/07/2025 56-0725FL	Threatened and Priority Flora	20 km buffer around the Survey Area
DBCA Threatened and Priority Fauna database search (Department of Biodiversity Conservation and Attractions)	17/07/2025 59-0725FA	Threatened and Priority Fauna	10 km buffer around the Survey Area
Protected Matters Search Tool Department of Agriculture Water and the Environment, 2022a)	17/07/2025	Commonwealth listed Threatened Flora and fauna and TECs	10 km buffer around the Survey Area

3.1.2 Likelihood of Occurrence

Conservation listed flora communities identified from the desktop assessment were assessed to determine the likelihood of their occurrence within the Survey Area, both prior to and post field survey. The assessment was completed based on the likelihood of occurrence criteria presented in Table 6.

Only species either recorded within the Survey Area or considered as having a high-medium likelihood of occurrence in post field survey assessment will be discussed in detail. Species classified as having a low likelihood of occurrence will not be discussed unless a justification for this classification is required.

Table 6: Likelihood of Occurrence Criteria

Likelihood	Criteria
Recorded	Recorded in the Survey Area from database searches, previous survey by others or by current survey.
High	Records of flora species <1 km from the Survey Area. With record <20 years old. Records of fauna species <5 km from the Survey Area. With record <20 years old; or For species with well understood and specific habitat preference/ requirements, when specific habitat is present in the Survey Area, and records present <10 km from the Survey Area. Species with general habitat preference, which is present in the Survey Area, and records present <5 km from the Survey Area.
Medium	There are records <10 km from the Survey Area, however: The species is strongly linked to a specific habitat, which is marginally suitable or small in extent in the Survey Area; or Species has a general habitat preference, but small extent of suitable habitat is present. There is suitable habitat in the Survey Area, but records are >10 km from Survey Area.
Low	Records are historical only, or are pre mapping procedures (e.g. records assigned to towns or place names). The species has a well understood and specific habitat preference/ requirements, which is absent from the Survey Area; or Suitable habitat is present, however there are no existing records of the species from the region despite reasonable previous search effort; or There is some suitable habitat in the Survey Area, however the species is very infrequently recorded in the locality (e.g. migratory bird species).

3.2 Biological Surveys

3.2.1 Field Survey Timing and Survey Team

Biological surveys were undertaken by the survey team listed in Table 7, as per the below schedule.

- Two person days completing reconnaissance flora and vegetation in June 2025.
- Two person days sampling fauna and undertaking daytime black cockatoo and western ringtail possum assessment, in June 2025.
- Two evening (non-concurrent nights) of western ringtail possum spotlighting transects, in June 2025.

Table 7: Survey Team

Name	Position and Years of Experience	DBCA Licence No.
Andrew Fry	Associate Environmental Scientist - 12 years	FB62000002-2; TFL 2223-0086
Taya Cherry	Environmental Scientist - 1.5 years	FB62000675

3.3 Flora and Vegetation Survey

3.3.1 Floristic Sampling

Two relevés were sampled in the Survey Area. The following information was collected from within the quadrat (approximately 10 x 10 m).:

- Observer.
- Date.
- Quadrat/site number.
- Global Position System (GPS) location (GDA2020) of the north-west corner.
- Digital photograph (spatially referenced with a reference number), taken from the north-west corner, looking diagonally across the quadrat.
- Broad soil type and colour.
- Topography.
- List of flora species recorded with total foliar cover within the quadrat for each species.
- National Vegetation Information System (NVIS) Vegetation description (as per below).
- Vegetation condition.

Mapping notes were also used to record changes in vegetation and condition.

Data collected from relevés is provided in Appendix D. Survey effort, including the location of the mapping notes and track logs, is presented in Figure 2.

3.3.2 Vegetation Condition Assessment

Vegetation condition was assessed at each releve and during traverses of the Survey Area using the Vegetation Condition Scale for the appropriate bioregion as per the Flora and Vegetation Technical Guidance (EPA, 2016). As relevés were deliberately located in the best condition parts of a vegetation type, the condition rating of the releve may not match that of the broader vegetation type due to the scale of mapping.

3.3.3 Vegetation Description and Classification

Vegetation was described from releves and mapping notes, using the height and estimated cover of dominant and characteristic species of each stratum based on NVIS, recorded at Level V (NVIS Technical Working Group, 2017). Up to three species per stratum from each stratum (upper, mid and ground) were used to formulate vegetation descriptions for vegetation type. Reconnaissance level scope and completely degraded condition

of vegetation meant no quadrats were recorded. Vegetation types were defined by observation of species dominance and structural composition by the field survey team.

3.3.4 TEC and PEC Determination

Threatened and Priority communities' presence were assessed as per guidance in:

- Methods for survey and identification of Western Australian threatened ecological communities by DBCA, (2023a) and
- Via comparison of species to the Gibson et al. (1994) report and Keighery et al. (2012) reports, particularly the list of taxa presented in Appendix 1 of Gibson et al. (1994).
- Listing in the Priority Ecological Communities for Western Australia version 35 by DBCA, (2023b).
- Where applicable Commonwealth Approved Conservation Advice including Listing Advice is also applied for EPBC Act listed communities.

3.3.5 Flora Taxonomy

Field identification of plant taxa was possible. The finalised species list was checked against FloraBase (Western Australian Herbarium 2022) to determine the conservation status and known distribution of each taxon. Introduced species were compared against the current Biosecurity and Agriculture Management Act 2007 (BAM Act) Declared Pest list to determine their control status (Department of Agriculture, Water and the Environment 2022b; Department of Primary Industries and Regional Development, 2022).

3.4 Fauna Survey

The basic fauna survey incorporated a number of survey techniques as per the Terrestrial Fauna Technical Guidance (EPA, 2020). A basic survey is a low-intensity survey, conducted at the local scale to gather broad fauna and habitat information. The primary objectives are to verify the overall adequacy of the desktop study, and to map and describe habitats, with a focus on habitat for conservation listed fauna.

Fauna species were identified by active searches, secondary evidence such as scats, tracks, calls, remains, diggings and other signs. A fauna inventory was not compiled as part of this survey (not required under basic level survey) however observations are used to inform the fauna habitat type assessment.

Potential habitats for conservation listed species were identified and evaluated and the likelihood of occurrence assessed.

3.4.1 Fauna Habitat Type Assessment

The fauna habitat types present within the Survey Area were defined considering landform, vegetation, structure such as rockpiles and logs and fauna assemblage occupying the area.

The following information was used to define and map all fauna habitat types within the Survey Area at specific fauna habitat assessment points and during traverses of the Survey Area:

- Land systems and landform.
- Vegetation type and condition mapping.
- Soil characteristics.
- Structure such as rockpiles and logs.
- Fauna assemblage information from desktop assessment and field observations.
- Aerial imagery and historic imagery.

Each fauna habitat type is described considering suitability for various fauna species groups or conservation-listed species. In addition, each fauna habitat type's likelihood to harbour specialised fauna species which are not found in adjacent areas was taken into consideration. Habitat types were delineated in the field and digitised upon return from the field survey.

3.4.2 Fauna Taxonomy

Terrestrial vertebrate fauna taxa were identified in the field by an experienced ecologist.

Taxonomy and nomenclature follow the WA Museum checklist 2022 (Western Australian Museum, 2022). Conservation status follows the DBCA Threatened and Priority fauna list (DBCA, 2022b). Where required verification of identification of secondary evidence (tracks, scats, diggings) may be undertaken by a relevant species group expert.

3.4.3 Black Cockatoo Habitat Assessment

The Survey Area falls within the modelled distribution and breeding range of the Carnaby's black cockatoo (*Zanda latirostris*), forest red-tailed black cockatoo (*Calyptorhynchus banksii*) and Baudin's black cockatoo (*Zanda baudinii*) (DCCEEW, 2022).

The Swan Coastal Plain is used by Carnaby's black cockatoos for foraging, with some patches of breeding habitat. Vegetation used by Carnaby's is dominated by Banksia spp. and Tuart (*Eucalyptus gomphocephala*) woodlands, as well as Marri (*Corymbia calophylla*), with Jarrah (*E. marginata*) in the east. (DCCEEW, 2022).

In the Swan Coastal Plain, Carnaby's are present at any time of year, most commonly from January through to July, some individuals being present all year round. The timing of the survey in November provided good opportunity to record foraging individuals and nesting for Carnaby's black cockatoo. If no individuals are present, searching for foraging evidence is a reliable alternative as it will generally persist in the landscape (particularly marri nut chews) (DCCEEW, 2022).

The black cockatoo habitat field survey followed the Commonwealth referral guidelines for threatened black cockatoos (DCCEEW, 2022) for identifying breeding, foraging and roosting habitat.

Breeding Habitat Assessment

The Commonwealth defines breeding habitat as that which contains known, suitable or potential nesting trees, and which occurs within the range of the species. Terminology used in this report for breeding habitat trees follows that defined in glossary of DCCEEW (2022) as shown in Table 8.

Table 8: Breeding Habitat Terminology

Breeding Habitat Term	Definition (DCCEEW, 2022)
Known nesting trees	Trees (live or dead but still standing) which contains a hollow where black cockatoo breeding has been recorded or which demonstrates evidence of breeding (i.e. showing evidence of use through scratches, chew marks or feathers).
Suitable nesting trees	Trees with suitable nesting hollows present, although no evidence of use.
Suitable nesting hollows	Any hollow with dimensions suitable for use for nesting by black cockatoos. See Table 9 for further discussion on nesting hollow characteristics.
Potential nesting trees	Trees that have a suitable Diameter at Brest Height (DBH) to develop a nest hollow, but do not currently have hollows. For most species of trees, suitable nest hollows are only found in live trees with a DBH of at least 500 mm.
Potential future nesting trees	Trees suitable to develop a nest hollow in the future are 300-500 mm DBH.

In addition to Commonwealth guidelines for assessing breeding habitat trees, a scoring system based on that developed by Dr Mike Bamford (referred to as Bamford Class) was applied to class breeding habitat trees. This system and the Bamford Class alignment with DCCEEW (2022) breeding habitat terminology are shown in Table 9.

Table 9: Black Cockatoo Breeding Habitat Trees- Bamford Class

Bamford Class	Description of Tree and Hollows/Activity	Alignment with DAWE (2022) Breeding Habitat Terminology
1	Active nest observed; adult (or immature) bird seen entering or emerging from hollow, eggs present.	Known nesting tree
2	Hollow of suitable size and angle visible with chew marks attributed to black cockatoo nesting activity around entrance.	Known nesting tree
3	Potentially suitable hollow visible but no chew marks present; or potentially suitable hollow present if from ground-based assessment only (as suggested by structure of tree, such as large, vertical trunk broken off at a height of >10m with thin rim).	Suitable nesting tree
4	Tree with hollows or broken branches that might or do contain hollows, but hollows or potential hollows are	Potential nesting tree

Bamford Class	Description of Tree and Hollows/Activity	Alignment with DAWE (2022) Breeding Habitat Terminology
	not of a suitable size, or are aligned or obstructed so as to prevent access	
5	Tree lacking large hollows or broken branches that might have large hollows; a tree with more or less intact branches and a spreading crown.	Potential nesting tree
No Class	No description. Potential future nesting trees were not considered in the Bamford Class scale.	Potential future nesting trees

All breeding habitat trees were recorded using a mobile GIS field data collector platform. The following was recorded for each tree:

- Species
- DBH (approximately 1.3 m from the ground)
- Coordinates
- Presence of hollows (as observable from the ground).
- Bamford Class (see below)

Trees identified as potentially having suitable hollows present were inspected using a pole camera to determine the hollows internal dimensions. Hollow information recorded included:

- Size of entry.
- Estimated depth.
- Hollow type (knot, fissure, spout, vertical/chimney.
- Suitability for use.
- Evidence of use.
- Presence of other birds or bees.

Foraging Habitat Assessment

The Commonwealth defines foraging habitat as areas including plants of species known to support foraging within the range of each black cockatoo species. Marri and jarrah woodlands are particularly important to Baudin's and the forest red-tailed black cockatoo, while proteaceous heaths (shrublands dominated by *Banksia, Hakea* and *Grevillea* species) are also utilised by Carnaby's black cockatoo (DCCEEW, 2022).

The potential of the habitat within the Survey Area to support foraging was described, and any evidence was recorded, along with opportunistic sightings of any individual black cockatoos.

Habitat mapping of the Survey Area was used in conjunction with the site assessment to determine the foraging quality using the Foraging Habitat Scoring Tool (DCCEEW, 2022). The Foraging Habitat Scoring Tool (DCCEEW, 2022) is applied once only for an entire site. A secondary assessment was undertaken using the ' Habitat Scoring System for WA black cockatoo foraging habitat' (the Habitat Quality Scoring Tool) provided by DCCEEW in 2023 as an unpublished source. The Habitat Quality Scoring Tool produces a score of 0-7 for site condition and may be applied to each identified fauna habitat type. An overall site context score of 0-3 is then added. See Appendix G for detailed scoring tool methodologies.

As per the Habitat Quality Scoring Tool areas with a site condition score of 2 or lower (foraging condition low, negligible or none) are "extremely unlikely to be considered as suitable habitat". These areas are therefore classified as not comprising suitable foraging habitat in this assessment.

Roosting Habitat Assessment

Roosting habitat was assessed based on observation of roosting or roosting evidence recorded during survey and based on habitat suitability (generally tall trees in the landscape in proximity to a water source). During the field survey, searches were conducted for evidence of roosting (e.g. piles of scats, feeding debris or chewed trees).

3.4.4 Targeted Western Ringtail Possum Habitat Assessment

Searching was carried out for presence or signs of occurrence of western ringtail possum and for suitable habitat. This involved searching potentially suitable habitat for scats and dreys (possum nests). A nocturnal survey of identified habitat was also undertaken on two separate nights through approximate 50 - 60m spaced spotlighting traverses following suitable habitat.

An assessment of habitat quality was undertaken utilising the Habitat Scoring System for Western Ringtail Possum (DCCEEW, n.d.) methodology. See Appendix H for method details.

4. Results

4.1 Flora and Vegetation Desktop Assessment

Conservation Significant Flora

DBCA database and Commonwealth PMST searches identified 59 conservation listed flora species as occurring within 20 km of the Survey Area or with suitable habitat potentially occurring in the region (Figure 7). No previous records are present within the Survey Area.

See Appendix C for database search results and likelihood of occurrence assessment table.

Flora Likelihood of Occurrence

The pre-survey likelihood of occurrence assessment identified that of the 59 conservation listed flora species:

- None had previously been recorded within the Survey Area.
- Three were considered to have a high likelihood of occurrence.
- Twelve considered to have a medium likelihood of occurrence.
- Forty-four were considered to have a low likelihood of occurrence.

Species with high or medium likelihood of occurrence are discussed below in Table 10.

Table 10: Flora with High or Medium Likelihood of Occurrence

Species	Conservation Status		Likelihood of Occurrence Justification
	State	EPBC	
Acacia flagelliformis	P4		Medium, recorded 3 km from Survey Area.
Acacia semitrullata	P4		Medium, recorded 4.5 km from Survey Area. Habitat unlikely to be present.
Acacia sp. Binningup (G. Cockerton et al. WB 37784)	P1		High, <1 km from Survey Area.
Austrostipa bronweniae	EN	EN	Medium, recorded 4.5 km from Survey Area. Habitat unlikely to be present.
Boronia capitata subsp. gracilis	P3		Medium, recorded 4.6 km from Survey Area. Habitat unlikely to be present.
Boronia juncea subsp. juncea	P1		High, 50 m from Survey Area.
Caladenia procera	CR	CR	Medium, recorded 4 km from Survey Area. Habitat unlikely to be present.
Caladenia speciosa	P4		Medium, recorded 4.2 km from Survey Area. Habitat unlikely to be present.
Caladenia swartsiorum	P2		Medium, recorded 2.5 km from Survey Area. Habitat unlikely to be present.
Dillwynia dillwynioides	P3		Medium, recorded 2.4 km from Survey Area. Habitat unlikely to be present.
Diuris drummondii	EN	VU	Medium, recorded 3.3 km from Survey Area. Habitat unlikely to be present.
Drakaea elastica	CR	EN	Medium, recorded 1.6 km from Survey Area. Found in grey soils, unlikely to be present.
Drakaea micrantha	EN	VU	Medium, recorded 1.8 km from Survey Area. Found in grey soils, unlikely to be present.
Lasiopetalum membranaceum	P3		High, <1 km from Survey Area.
Tripterococcus sp. Brachylobus (A.S. George 14234)	P4		Medium, recorded 4 km from Survey Area. Habitat unlikely to be present.

Following the survey, the likelihood of occurrence was re-evaluated and identified that all 59 conservation listed flora species had low likelihood of occurrence. This is due to the completely degraded condition of the Survey Area and the absence of suitable habitat.

Conservation Significant Communities

The desktop assessment identified that 10 Threatened Ecological Communities (TECs) and Priority Ecological Communities (PECs) occurred within 10 km of the Survey Area. The pre survey assessment identified that of the 10 communities:

- Two communities were indicated by DBCA buffered occurrence mapping as likely present within the Survey Area and were assessed as having a high likelihood of occurrence.
- Eight considered to have a low likelihood of occurrence.

Communities with a high likelihood of occurrence are discussed below in Table 11 . DBCA mapping of buffered potential occurrences of these communities within the locality is presented on Figure 7.

Table 11: TECs and PECs with a High or Medium Likelihood of Occurrence.

Floristic Community Type/ Comm ID	Community Name	Conservation Status		Likelihood of Occurrence
		State	EPBC	
Banksia WL SCP	Banksia Woodlands of the Swan Coastal Plain ecological community.	P3	EN	DBCA provided dataset displays portion of Survey Area intersecting with eastern edge of Survey Area. Suitable soil association is present.
Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain.	P3	CR	DBCA provided dataset intersect with southwestern portion of Survey Area. Suitable soil association and pre-European vegetation associations (Spearwood)

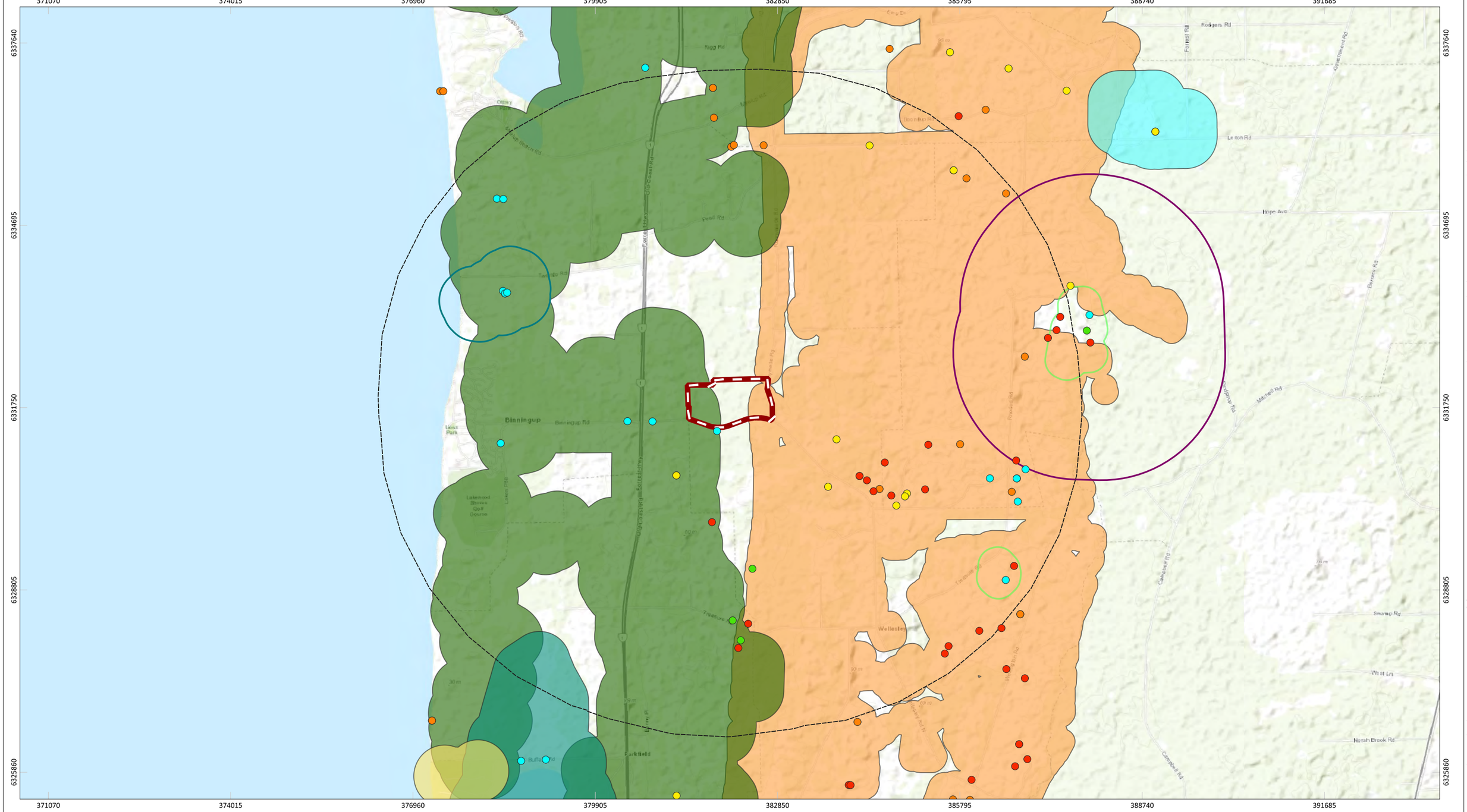

Figure 7: DBCA Database Search Results Flora and Communities

N

0 1.5 3 km

SCALE: 1:58,900	SHEET SIZE: A3 COLOUR	
COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50	PROJECT NUMBER: A24.238	VERSION: 0
DATA SOURCE: ESRI Topographic Map	DRAWN BY / REVIEWED BY: JP/TC	DATE: 12/8/2025

PROJECT/REPORT NAME: Lot 10 Wellesley Road Ecological Surveys Report
Lot 10 Wellesley Road, Binningup

CLIENT: Tonic Group

Legend

- Survey Area
- 5km Buffer

DBCA Threatened and Priority Flora
- Threatened
- Priority 1
- Priority 2
- Priority 3
- Priority 4

DBCA TEC PEC (Comm_Categ, State Categ)
- Banksia WL SCP (Endangered, Priority 3)
- Coastal Saltmarsh (Vulnerable, Priority 3)
- Muchea Limestone (Endangered, BCA Endangered)
- SCP08 (Critically Endangered, BCA Endangered)
- SCP09 (Critically Endangered, BCA Endangered)
- SCP24 (Endangered, Priority 3)
- SCP30b (Critically Endangered, Priority 3)
- Tuart woodlands (Critically Endangered, Priority 3)

No	Description	Drawn	Approved	Date
A	Original issue	JP	TC	12/8/2025

NOTES:

Cadastral boundary from LANDGATE 2022. Label corresponds to the vegetation association number.

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4.2 Flora and Vegetation Field Survey

4.2.1 Flora

A total of 20 flora species were recorded from within the Survey Area from two relevés, only six species were native. A comprehensive inventory of native and introduced species was not required as majority of the Survey Area is cleared paddocks in completely degraded condition.

Relevé data sheets are provided in Appendix D.

4.2.2 Flora of Other Significance

Flora may be considered of other conservation significance if it is a novel taxon or represents a range extension.

No species were identified as representing range extensions or flora of other significance.

4.2.3 Introduced Flora

A total of 14 introduced taxa were recorded within the Survey Area, see Table 12. A comprehensive weed inventory was not collected from cleared areas and agricultural lands. Recorded species are common/widespread. Locations of significant weed species are shown in Figure 9.

Table 12: Introduced Flora Recorded in the Survey Area

Family	Species	Status Under BAM Act and WONS List
Apocynaceae	*Gomphocarpus fruticosus*	Declared Pest
Amaranthaceae	*Chenopodium album*	
Araceae	*Zantedeschia aethiopica*	Declared Pest
Araliaceae	*Hydrocotyle bonariensis*	
Asteraceae	*Cotula coronopifolia*	
Fabaceae	*Lotus subbiflorus*	
Fabaceae	*Trifolium campestre*	
Iridaceae	*Romulea rosea*	
Juncaceae	*Juncus articulatus*	
Juncaceae	*Juncus microcephalus*	
Lamiaceae	*Mentha pulegium*	
Poaceae	*Cynodon dactylon*	
Poaceae	*Holcus lanatus*	
Polygonaceae	*Rumex crispus*	
Solanaceae	*Solanum linnaeanum*	Declared Pest

Family	Species	Status Under BAM Act and WONS List
Solanaceae	*Solanum nigrum*	

4.2.4 Vegetation

Five vegetation types were identified within the Survey Area. The majority of the Survey Area comprised completely degraded vegetation and paddock. There are several areas of maintained infrastructure corridors primarily for east to west running powerline corridor, access tracks and firebreaks.

The vegetation types are described below in Table 13 and shown in Figure 9.

Table 13: Vegetation Types

Vegetation Unit Description	Total Area, Proportion (%) of the Survey Area	Sites	Vegetation Condition	Photograph
VT01 - Upland Vegetation and trees Combination of planted and remnant vegetation. Woodlands of *Agonis flexuosa, Corymbia calophylla and Eucalyptus rudis*. Understorey consists of grassy paddock and weeds.	4.54 ha 5.13 %	-	Completely Degraded	

Vegetation Unit Description	Total Area, Proportion (%) of the Survey Area	Sites	Vegetation Condition	Photograph
VT02 - Non-native wetland Sparse upper storey of individual *Melaleuca rhaphiophylla*. No mid storey. Sparse and weedy understorey of non-native *Juncus* species and paddock grassland, mainly **Cenchrus clandestinus* and **Cynodon dactylon*.	10.78 ha 12.20 %	Rel-02	Completely Degraded	

Vegetation Unit Description	Total Area, Proportion (%) of the Survey Area	Sites	Vegetation Condition	Photograph
VT03 - Wetland with Native Vegetation Upper storey of *Melaleuca rhaphiophylla*. No midstory. Ground storey of *Machaerina articulata, *Cynodon dactylon* and **Mentha pulegium*. Other native species include *Typha orientalis*. All other species recorded were introduced.	2.51 ha 2.84 %	Rel-01	Degraded	

Vegetation Unit Description	Total Area, Proportion (%) of the Survey Area	Sites	Vegetation Condition	Photograph
VT04 - Tuart Woodland (*Eucalyptus gomphocephala* Woodland) One isolated *Eucalyptus gomphocephala* within paddock. Ground stratum dominated by weeds. Not representative of intact native vegetation. The tree is connected to a larger occurrence of tuart woodland outside of the Survey Area.	0.03 ha 0.03 %	-	Completely Degraded	

Vegetation Unit Description	Total Area, Proportion (%) of the Survey Area	Sites	Vegetation Condition	Photograph
Cleared - Paddock, Access tracks, firebreaks, infrastructure and bare sand.	70.52 ha 79.79 %	-	Cleared	
Total	88.38 ha			

4.2.5 Vegetation Condition

The vegetation of the Survey Area ranged from Degraded to Completely Degraded with the majority in Completely Degraded condition. See Table 14 and Figure 9.

Table 14: Vegetation Condition Extents of the Survey Area (as per EPA, 2016 condition scale)

Vegetation Condition	Extent (ha)	Extent (%)
Excellent	-	-
Very Good	-	-
Good	-	-
Degraded	2.51	2.84
Completely Degraded	85.87	97.16
Total	**88.38 ha**	**100 %**

The vegetation of the Survey Area has been and continues to be degraded by grazing livestock and agricultural purposes.

4.2.6 Threatened and Priority Ecological Communities

Of the two TECs and PECs identified by the desktop assessment as having a high or medium likelihood of occurrence one, Tuart Woodland TEC, was identified as present. Results of a presence/absence assessment are provided below in Table 15. Threatened and Priority community presence was assessed as per guidance in methods for survey and identification of Western Australian threatened ecological communities by DBCA, (2023a) and as per listing in the Priority Ecological Communities for Western Australia version 35 by DBCA, (2023b). Where applicable Commonwealth Approved Conservation Advice including Listing Advice is also applied for EPBC Act listed communities.

Table 15: Assessment of TEC PEC Presence or Absence

Floristic Community Type/ Comm ID	Community Name	Conservation Status		Presence/Absence	Justification
		State	EPBC		
Banksia WL SCP	Banksia Woodlands of the Swan Coastal Plain ecological community.	P3	EN	Absent	State listed Priority 3 PEC and EPBC listed Endangered TEC share the same name and description, area/condition thresholds and determination criteria. Assessment undertaken as per the Approved Conservation Advice for the Banksia Woodlands of the Swan Coastal Plain ecological community (DotEE, 2016) (the Conservation Advice). No Banksia species were recorded (or comprised of more than 2 % of the

Floristic Community Type/ Comm ID	Community Name	Conservation Status		Presence/Absence	Justification
		State	EPBC		
					vegetation.), therefore absent from Survey Area.
Tuart Woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain.	P3	CR	Present	Assessment as per Approved Conservation Advice (incorporating listing advice) for the Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain ecological community (DotEE, 2019). One *Eucalyptus gomphocephala* in Completely Degraded condition, is considered likely to represent an occurrence of the TEC, as the occurrence forms part of a larger continuous patch. Meeting the minimum size and condition thresholds as per the Approved Conservation Advice (DotEE, 2019).

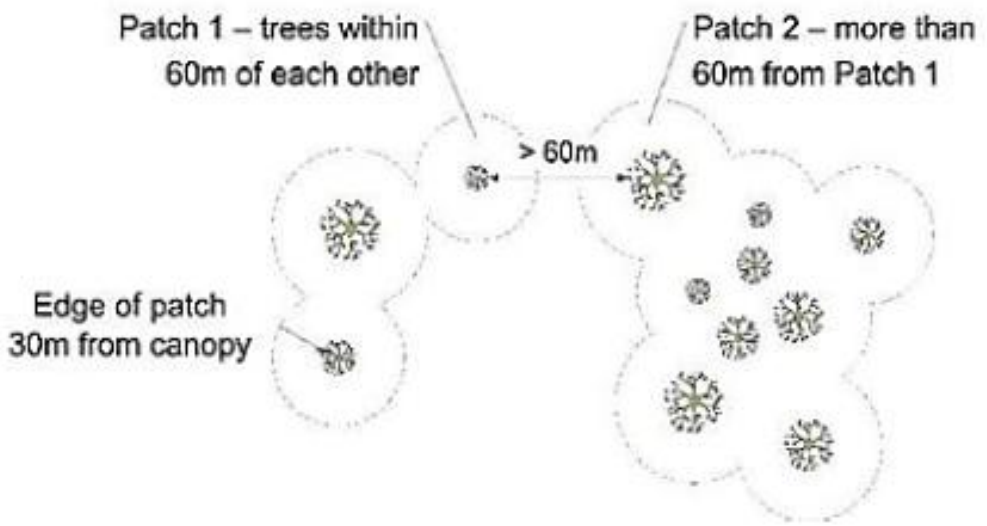
Banksia Woodlands of the Swan Coastal Plain TEC Assessment

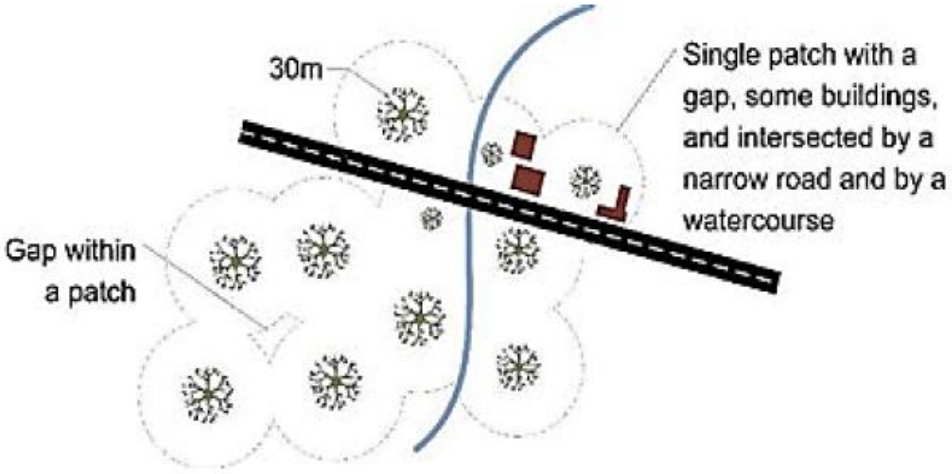
The pre survey desktop assessment identified that DBCA database mapping indicates the potential presence of the Banksia Woodlands of the Swan Coastal Plain TEC (The Banksia Woodland TEC). The field survey recorded the vegetation as absent. No banksia species were recorded during the field survey.

Tuart TEC assessment

The Tuart woodlands and forest of the Swan Coastal Plain ecological community (the Tuart TEC) was listed as a threatened ecological community (TEC) under the Environmental Protection and Biodiversity Conservation Act (EPBC Act) in 2019. The community was also listed as a Priority 3 community under State acts.

The Tuart Woodland TEC aligns with the vegetation type VT04 *Eucalyptus gomphocephala* (tuart) woodlands. The vegetation unit occurs at the western end of the Survey Area on the Spearwood and Quindalup dunes system. Tuart Woodland TEC is mapped as "patches" with a patch defined by presence of two or more mature tuart trees with a canopy separation of less than 60m. See example of patch mapping from approved conservation advice below.





As per the approved conservation advice (DotEE, 2019) a patch meets the criteria to be defined as an occurrence of the TEC/ he State Priority 3 community if it meets the following criteria:

- Occurring on the Swan Coastal Plain.
- Comprising a patch with two or more mature tuart trees.
- The size and condition of the patch as per extract below form the approved conservation advice:

a. If the patch that meets key diagnostic characteristics is 5 ha or greater - and is of any condition - it is part of the nationally protected ecological community.
b. If the patch that meets key diagnostic characteristics is smaller than 0.5 ha - and is of any condition - it is not part of the nationally protected ecological community.

c. If the patch that meets key diagnostic characteristics is 0.5 up to 5 ha in size - conduct an on ground survey to determine its condition and whether it is part of the nationally protected ecological community (refer to Sector 3.3.1 in the Conservation Advice for condition categories).

A "buffer zone" is also defined in the approved conservation advice. The recommended minimum buffer zone is 30 m from the outer edge of the patch (the patch boundary being defined as 30 m past the canopy of established tuart trees, so the minimum buffer is 60 m past the canopy). This distance accounts for likely influences upon the root zone (DotEE, 2019).

The buffer zone is not itself part of the ecological community, so while having a buffer zone is recommended under the conservation advice, it is not formally protected as part of the TEC (TSSC, 2019). However, for Federal approvals, changes in use of the land that falls within the buffer zone must not have a significant impact on the ecological community (DotEE, 2019).

Specifically following the Approved Conservation Advice mapping criteria tuart canopy extent was mapped and potential "patches" occurring of the community were assessed. No patches were identified as present.

Table 16: TEC requirements and criteria summary within the Survey Area

Patch ID	Relevant biotic thresholds criteria	Relevant patch size criteria	Outcome
Patch 01	Occurring on the Swan Coastal Plain. Comprising a patch with two or more mature tuart trees.	>5 ha	Occurrence of Tuart TEC

The Survey Area contains one patch of Tuart TEC covering a combined total of 0.03 ha, including canopy mapping and 30 m buffer. An estimated 9.41 ha of Tuart TEC is present beyond the boundary of the Survey Area. See Figure 10. The habitat quality of the patch was assessed within the Survey Area. As the Tuart TEC outside of the Survey Area is held by a separate land holder, a complete assessment was not carried out.

Patch 1 of Tuart TEC was assessed to have a HQS of 3.91 (out of a possible 10). The full assessment is provided as Table 17.

Table 17: Tuart TEC Habitat Quality Scoring Assessment

Habitat Quality Scoring Framework			Potential score	Patch 01	Justification
	Component	Sub-Component			
Site Condition (70%)	Native Understory Cover	Very high condition ≥80% OR ≥12 native species per plot	60		-
		High condition ≥60% and <80% OR ≥8 native species per plot	40		-
		Moderate condition ≥50% and <60% OR ≥4 native species per plot	20		-
		Poor condition <50% OR <4 native species per plot	0	0	Quadrats were unable to be taken based on size of the accessible Tuart TEC. (One tree). Completely Degraded condition, surrounded by paddock and grassy weeds.
	Contains a Habitat Role	Site has habitat role (2 or more large trees per 0.5 ha)	15		
		Site doesn't have a habitat role	0	0	Patch 1: One 'Habitat Role' tree (defined as having DBH >50cm) within 0.03 ha extent of accessible Tuart Woodland TEC extent.
	Site shows regeneration	Site shows regeneration (15 or more seedlings and/or saplings per 0.5 ha)	15		
		Site doesn't show regeneration	0	0	Patch 1: No saplings recorded.

Habitat Quality Scoring Framework			Potential score	Patch 01	Justification
	Component	Sub-Component			
	Presence of Key Fauna Species	Entire site hosts key fauna	10	10	Key species likely present including brush tailed phascogale, western grey kangaroo, quenda as well as bat species and a range of birds, including black cockatoo species.
		Minor presence	0		
	Presence of Dieback	Site has no evidence of dieback	15		
		Site had signs of dieback	5	5	Site is considered to have patches of dieback present.
		Dieback is widespread on site	0		
	Condition total (out of 115)			15	
	Condition Score (Condition total/115*70)			9.13	
Site Context (30%)	Patch Size	≥5 hectares	100	100	Patch 1: 9.44 ha
		≥2 hectares and <5 hectares	50		-
		≥0.5 hectares and <2 hectares. Patches smaller than 0.5 ha will not be accepted.	0		
	Landscape Role	Site has a landscape role	15	15	Site occurs <100m from other occurrences of Tuart Woodland TEC of at least 1 ha in size.
		Site does not have a landscape role	0		-

Habitat Quality Scoring Framework			Potential score	Patch 01	Justification
	Component	Sub-Component			
	Buffer Zone	Site has an appropriate buffer zone	15	15	Site is buffered by vegetation to the eastern and northern extents. The majority of the southern and western extent is grazed pasture.
		Site does not have an appropriate buffer zone	0		-
	Context total (out of 130)			130	
	Context score (Context total /130 * 30			30	
Quality total: Condition Score + Context Score (out of 100)				39.13	
Final Site Habitat Quality Score: Quality total/10 (out of 10)				3.91	

4.2.7 Vegetation of Other Significance

As per the Flora and Vegetation Technical Guidance and EPA guidance, vegetation may be considered of significance for a range of reasons, other than a listing as a TEC or a PEC, including:

- Pre-European vegetation extent being below a threshold level.
- Scarcity.
- Unusual species.
- Novel combinations of species.
- A role as a refuge.
- A role as a key habitat for threatened species or large populations representing a significant proportion of the local to regional total population of a species.
- A restricted distribution.

No vegetation of other significance is present within the Survey Area.

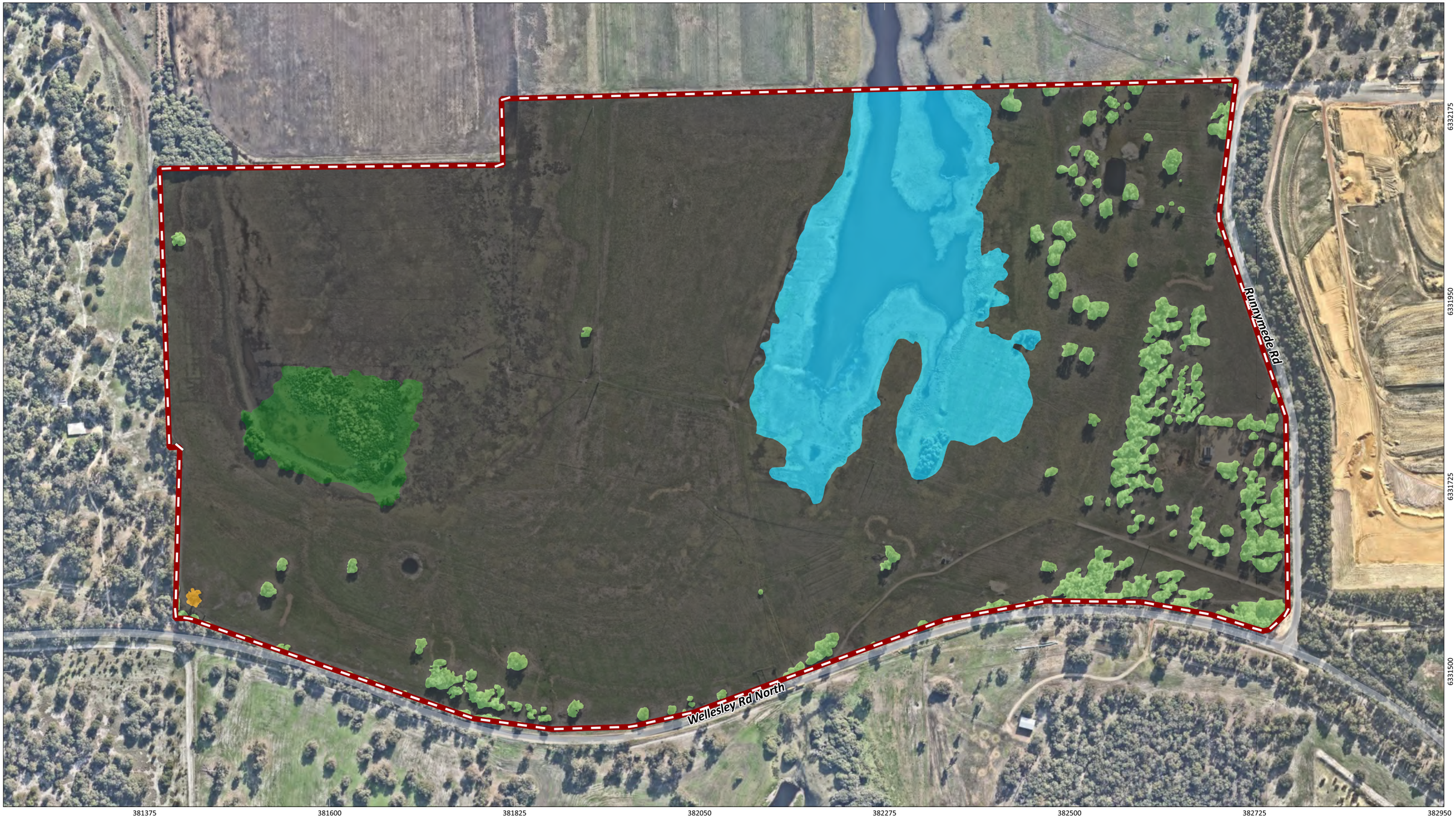


Figure 8: Vegetation Types

N

0 50 100 150 200 m

PROJECT/REPORT NAME	Lot 10 Wellesley Road Ecological Surveys Report Lot 10 Wellesley Road, Binningup
SCALE	1:4,500
SHEET SIZE	A3 COLOUR
CLIENT	Tonic Group
COORDINATE REFERENCE SYSTEM	GDA2020 / MGA zone 50
PROJECT NUMBER	A24.238
VERSION	0
DATA SOURCE	NEARMAPS
DRAWN BY / REVIEWED BY	JP/TC
DATE	12/8/2025

Legend

Survey Area

Vegetation Type

- Cleared/paddock
- VT01 - Upland vegetation and trees
- VT02 - Non-native wetland
- VT03 - Wetland with Native Vegetation
- VT04 - Tuart Woodland

No	Description	Drawn	Approved	Date
A	Original issue	JP	TC	12/8/2025

NOTES:

Cadastral boundary from LANDGATE 2022. Label corresponds to the vegetation association number.

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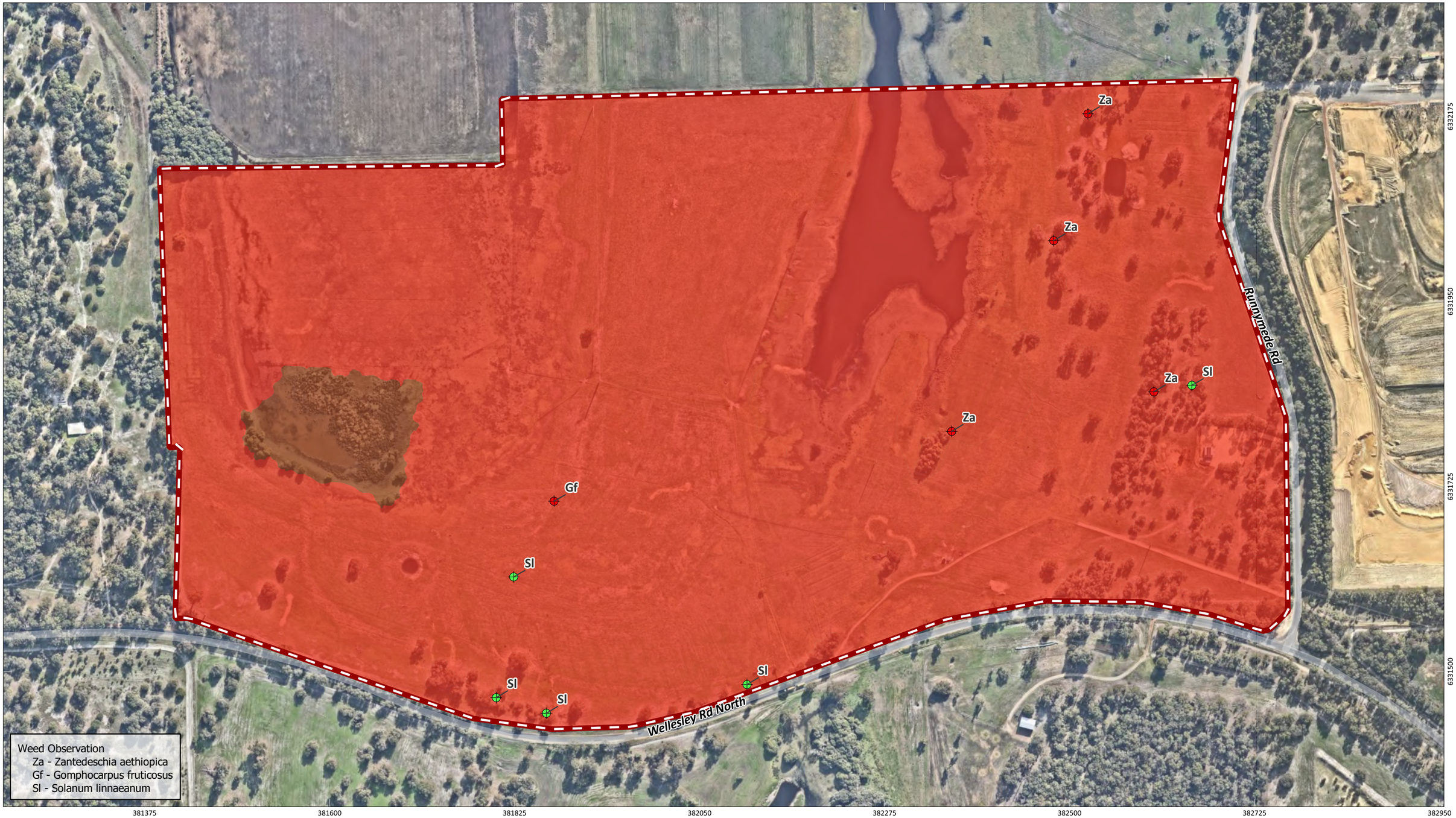

Figure 9: Vegetation Condition and Significant Weeds

N

0 50 100 150 200 m

PROJECT/REPORT NAME	Lot 10 Wellesley Road Ecological Surveys Report Lot 10 Wellesley Road, Binningup
SCALE	1:4,500
SHEET SIZE	A3 COLOUR
CLIENT	Tonic Group
COORDINATE REFERENCE SYSTEM	GDA2020 / MGA zone 50
PROJECT NUMBER	A24.238
VERSION	0
DATA SOURCE	NEARMAPS
DRAWN BY / REVIEWED BY	JP/TC
DATE	12/8/2025

Legend

- Survey Area
- Declared Pest
- WONS

Vegetation Condition

- Completely Degraded
- Degraded

No	Description	Drawn	Approved	Date
A	Original issue	JP	TC	12/8/2025

NOTES:

Cadastral boundary from LANDGATE 2022. Label corresponds to the vegetation association number.

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Figure 10: Tuart TEC Extent

N

0 75 150 225 300 m

PROJECT/REPORT NAME	Lot 10 Wellesley Road Ecological Surveys Report Lot 10 Wellesley Road, Binningup
SCALE	1:5,500
SHEET SIZE	A3 COLOUR
CLIENT	Tonic Group
COORDINATE REFERENCE SYSTEM	GDA2020 / MGA zone 50
PROJECT NUMBER	A24.238
VERSION	0
DATA SOURCE	NEARMAPS
DRAWN BY / REVIEWED BY	JP/TC
DATE	12/8/2025

Legend

- Survey Area
- Tuart TEC - 30m Buffer
- Tuart TEC - 60m Buffer

No	Description	Drawn	Approved	Date
A	Original issue	JP	TC	12/8/2025

NOTES:

Cadastral boundary from LANDGATE 2022. Label corresponds to the vegetation association number.

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4.3 Fauna Desktop Assessment

Database searches identified 63 conservation listed fauna species that potentially occur, or habitat likely occurs within the Survey Area, comprising:

- Forty-nine bird species.
- Nine mammal species.
- Two reptile species.
- Three invertebrate or fish species.

The results of the DBCA Threatened and Priority Fauna database search are shown in Figure 11. Database searches results and likelihood of occurrence assessment are summarised in Appendix E.

Fauna Likelihood of Occurrence

Species listed as Marine only under the EPBC Act (e.g. sharks, whales, turtles) have been excluded from the likelihood of occurrence list as there is no marine habitat present.

The likelihood of occurrence for conservation listed fauna species found that:

- Ten species had a high likelihood of occurrence.
- Eleven species had a medium likelihood of occurrence.
- Forty-two species had a low likelihood of occurrence.

The results of the likelihood of occurrence assessment are presented in Appendix E.

The ten species with a high likelihood of occurrence were:

- Baudin's cockatoo - EN.
- blue-billed duck - P4.
- Carnaby's cockatoo - EN.
- chuditch, western quoll - VU.
- forest red-tailed black cockatoo - VU.
- glossy ibis - MI, MA.
- quenda, southwestern brown bandicoot - P4.

- south-western brush-tailed phascogale, wambenger - CD.
- western brush wallaby - P4.
- western ringtail possum, ngwayir - CR.

A number of migratory or conservation significant listed birds have been identified as potentially occurring within the Survey Area. Due to all having a medium likelihood of occurrence and similar habitat requirements, these birds have been collectively referred to as 'wading birds' in the following sections.

- Curlew sandpiper - CR
- Australasian bittern - EN
- Red Knot, Knot - EN
- Lesser Sand Plover, Mongolian Plover - EN
- greater sand plover, large sand plover - VU
- common sandpiper - MI
- sharp-tailed sandpiper - MI

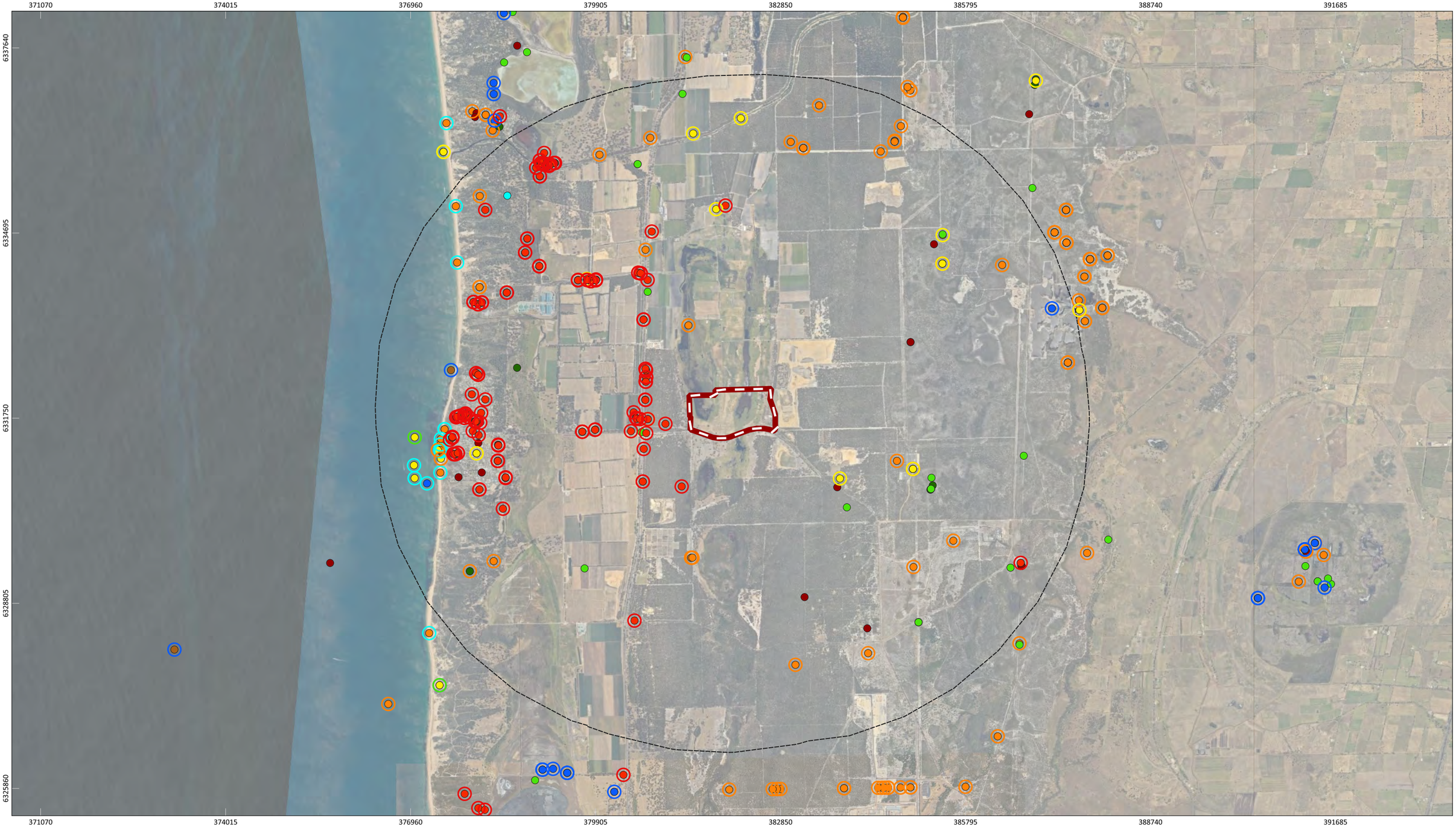

Figure 11: DBCA Database Search Results Fauna

N 0 1.5 3 km	PROJECT/REPORT NAME: Lot 10 Wellesley Road Ecological Surveys Report Lot 10 Wellesley Road, Binningup	
SCALE: 1:58,900	SHEET SIZE: A3 COLOUR	CLIENT: Tonic Group
COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50	PROJECT NUMBER: A24.238	VERSION: 0
DATA SOURCE: LANDGATE AERIAL IMAGERY NOW	DRAWN BY / REVIEWED BY: JP/TC	DATE: 12/8/2025

Legend

Survey Area
5km Buffer

DBCA Threatened and Priority Fauna (WA Status)
- Conservation dependent species
- Conservation dependent and migratory species
- Critically endangered species
- Endangered species
- Vulnerable species
- Priority 3
- Priority 4
- Migratory species
- Other specially protected species

DBCA Threatened and Priority Fauna (EPBC Status)
- Critically endangered species
- Endangered species
- Endangered and migratory species
- Vulnerable species
- Vulnerable and migratory species
- Migratory species

No	Description	Drawn	Approved	Date
A	Original issue	JP	TC	12/8/2025

NOTES:

Cadastral boundary from LANDGATE 2022. Label corresponds to the vegetation association number.

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4.4 Fauna Field Survey

4.4.1 Fauna Assemblage

As per the scope of a basic fauna survey under the Technical Guidance, the primary objectives are to verify the overall adequacy of the desktop study, and to map and describe habitats, with a focus on habitat for conservation listed fauna.

A desktop assessment of expected conservation significant fauna assemblage was undertaken through searches of DBCA database records and the Commonwealth PMST. Results are summarised in Appendix E.

4.4.2 Fauna Habitat Types

Four habitat types were described. These broadly align with the mapped vegetation type boundaries. The fauna habitat types are described below in Table 18 and shown in Figure 12.

For conservation listed fauna species identified as possibly occurring, habitat types are assessed as either core, supporting or non-significant habitat. As per Commonwealth Matters of National Environmental Significance – Significant Impact Guidelines 1.1 “core” habitat is defined as that critical to the survival of the species and considered to contain denning/ breeding sites, primary foraging areas and refuge from drought, fire and other stresses (DotE, 2013). “Supporting” habitat is defined as that which is likely used for foraging and dispersing/ connective purposes but is not essential habitat for the continuation of a local population. “Non-significant” habitat is that which would be used only very infrequently for foraging or dispersing. Discussion of habitat type suitability for species identified as having a high or medium likelihood of occurrence is provided in Table 18 and discussed in Section 4.4.3.

Table 18: Fauna Habitat Types

Fauna Habitat Type	Habitat Description	Total Area, Proportion of the Survey Area	Representative Photo
FHT-01 Isolated trees and groves over paddock	Woodland of *Agonis flexuosa, Corymbia calophylla* and *Eucalyptus rudis*. Areas of connective canopy are present around road verge and eastern portion. Few large trees have hollows developed. No mid storey. Ground consists of open weedy grasses. Core habitat for: (only in southwest corner) • western ringtail possum Supporting habitat for: • western ringtail possum • Baudin's black cockatoo • Carnaby's black cockatoo • forest red-tailed black cockatoo • peregrine falcon • south-western brush-tailed phascogale • western false pipistrelle • masked owl (southwest) Non-significant habitat for: • chuditch • Perth slider • quenda • western brush wallaby • glossy ibis	4.57 ha 5.17 %	

Fauna Habitat Type	Habitat Description	Total Area, Proportion of the Survey Area	Representative Photo
	• blue billed duck • wading birds		
FHT-02 Non-native wetland	Few individual *Melaleuca rhaphiophylla*. No mid storey. Sparse and weedy understorey of *juncus* and grass. Supporting habitat: • Peregrine falcon • glossy ibis • blue billed duck Non-significant habitat for all other fauna species	10.78 ha 12.20 %	

Fauna Habitat Type	Habitat Description	Total Area, Proportion of the Survey Area	Representative Photo
FHT-03 Native wetland	Upper storey of separated *Melaleuca rhaphiophylla.* No midstory. Ground storey of native sedges and rushes providing cover for wading birds. Supporting habitat for: • peregrine falcon • glossy ibis • blue billed duck • wading birds Non-significant habitat for: all other fauna species.	2.51 ha 2.84 %	

Fauna Habitat Type	Habitat Description	Total Area, Proportion of the Survey Area	Representative Photo
FHT-04 Cleared, Paddocks, Firebreaks, Tracks	Cleared areas and paddocks. Non-significant habitat for all species.	70.52 ha 79.79 %	
Total		**88.38 ha**	

Figure 12: Fauna Habitat Types And Conservation Significant Fauna Observations

N

0 50 100 150 200 m

PROJECT/REPORT NAME	Lot 10 Wellesley Road Ecological Surveys Report Lot 10 Wellesley Road, Binningup
SCALE	1:4,500
SHEET SIZE	A3 COLOUR
CLIENT	Tonic Group
COORDINATE REFERENCE SYSTEM	GDA2020 / MGA zone 50
PROJECT NUMBER	A24.238
VERSION	0
DATA SOURCE	NEARMAPS
DRAWN BY / REVIEWED BY	JP/TC
DATE	12/8/2025

Legend

Survey Area

Fauna Observations
- Calyptorhynchus banksii - naso (VU) - Foraging or digging evidence
- Calyptorhynchus banksii - naso (VU) - Observed
- Calyptorhynchus baudinii (EN) - Observed
- Pseudocheirus occidentalis (CR) - Scat
- Pseudocheirus occidentalis (CR) - Spotlight

Fauna Habitat
- Cleared/paddock
- FHT-01 - Isolated trees and groves over paddock
- FHT-02 - Non-native wetland
- FHT-03 - Native Wetland

No	Description	Drawn	Approved	Date
A	Original issue	JP	TC	12/8/2025

NOTES:

Cadastral boundary from LANDGATE 2022. Label corresponds to the vegetation association number.

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4.4.3 Threatened and Priority Fauna

Two species of conservation significance were recorded in the Survey Area. These are:

- *Calyptorhynchus banksia naso* (forest red-tailed black cockatoo) – VU.
- *Pseudocheirus occidentalis* (western ringtail possum) - CR

Specific targeted assessments for black cockatoo species and western ringtail possum were undertaken and are presented in Sections 4.4.4 and 4.4.5.

Other fauna species of conservation significance which were recorded or assessed as having a high or medium likelihood of occurrence are discussed in detail below:

Wading Birds

A number of migratory or conservation significant listed birds have been identified as potentially occurring within the Survey Area:

- *Calidris ferruginea* (curlew sandpiper) - CR
- *Botaurus poiciloptilus* (Australasian bittern) - EN
- *Calidris canutus* (Red Knot, Knot) - EN
- *Charadrius mongolus* (Lesser Sand Plover, Mongolian Plover) - EN
- *Charadrius leschenaultii* (greater sand plover, large sand plover) - VU
- *Oxyura australis* (blue-billed duck) - P4
- *Actitis hypoleucos* (common sandpiper) - MI
- *Calidris acuminata* (sharp-tailed sandpiper) - MI
- *Plegadis falcinellus* (glossy ibis) - MI

The most likely habitat to be utilised is in FHT-02 and FHT03 (Native and non-native wetlands surrounding by paddock) which is seasonally inundated. The seasonal wetlands in the paddocks of the Survey Area may infrequently be utilised by these species, none of the species listed as likely to occur would solely rely on the habitat present in the Survey Area. No core or breeding habitat is present. Extensive habitat of better quality is present to the south associated with the conservation class wetlands and the Leschenault estuary.

Phascogale tapoatafa wambenger (southwestern brush-tailed phascogale)-CR

Found in dry forests and woodlands with connective canopy of large mature trees containing hollows and denning opportunities. An arboreal species foraging is undertaken on trees and large logs and dead trees. The species is well reported in the Kemerton area with several recent records <10km from the Survey Area.

The presence of some connective canopy and larger trees makes FHT-01supporting habitat.

Dasyurus geoffroii (chuditch) - VU.

The chuditch inhabits eucalypt forest (especially jarrah), dry woodland, mallee shrublands, heaths, and desert, particularly in the south coast of WA. They also occur at lower densities in drier woodland and mallee shrubland in the goldfields and wheatbelt, as well as in Kalbarri National Park (translocated). Chuditch require adequate numbers of suitable den and refuge sites (horizontal hollow logs or earth burrows) to survive). The species can travel large distances, and for this reason requires habitats that are of a suitable size and not excessively fragmented.

There is one record from 1997 for the species from 8km south of the Survey Area. The species is very infrequently recorded on the Swan Coastal Plain, with larger populations centred on the jarrah forests of the Darling Scarp. The species may be an infrequent visitor to the Survey Area only. Habitat fragmentation and predation by cats and foxes make a permanent population highly unlikely. All fauna habitats are classified as non-significant for the species.

Tyto novaehollandiae novaehollandiae (masked owl (southwest)) -P3

The masked owl may infrequently utilise the Survey Area for foraging and the large tuart tree in FHT-01 habitats for perching or sheltering. All habitat types of the Survey Area may be used for foraging on occasion with the species an infrequent visitor and are considered non-significant The Survey Area is not considered to provide a significant habitat for this species.

Notamacropus irma (western brush wallaby) – P4

The western brush wallaby is found primarily in open forest and woodlands or seasonally wet flats with thickets. The species is infrequently recorded in bushland in the Bunbury region but is common in larger bushland areas closer to the Darling and Whicher scarps.

Recent records are present for the species within 10 km of the Survey Area located in the Kemerton Industrial Park. The species may on occasion utilise FHT-01 for foraging and dispersal, but is considered non-significant to the species. Due to the open mid story and lack of thickets for shelter no core habitat is considered to be present.

Isoodon fusciventer (quenda, southwestern brown bandicoot) – P4

No records within the Survey Area. Species is likely dispersed across the Survey Area as is expected to be more prevalent in denser vegetation types and fringing wetlands.

Quenda are widely distributed in southwest WA and are associated with wetlands and fringing areas with dense cover of shrubs and sedges adjoining areas of woodland and grassland. Quenda will forage in

grasslands or paddocks when adjacent to dense cover. Quenda are commonly recorded in bushland <5km from the Survey Area.

FHT-01 provides some foraging habitat for the species but due to open understory is not likely suitable for denning and is considered as non-significant for the species.

Falco peregrinus (peregrine falcon) - OS.

The peregrine falcon may infrequently utilise the Survey Area for foraging and the large tuart tree in FHT-01 habitats for perching or sheltering. All habitat types of the Survey Area may be used as supporting habitat for foraging on occasion with the species an infrequent visitor. The Survey Area is not considered to provide a significant habitat for this species.

4.4.4 Black Cockatoo Habitat Assessment

Observations and Previous Records

The Survey Area falls within the modelled distribution and breeding range for Baudin's black cockatoo, Carnaby's black cockatoo and the forest red-tailed black cockatoo (DCCEEW, 2022). Numerous observation records for all three species were present in DBCA database search results within 5 km of the Survey Area.

A confirmed Carnaby's black cockatoo breeding location is present approximately 30 km north of the Survey Area in the Lake Preston area (DBCA-054). The Survey Area does not overlap with the (12 km) key foraging area buffer of this confirmed breeding location. Three mapped black cockatoo roosting sites are present within 6 km, with two to the northeast and one to the south of the Survey Area (DBCA-64). All are confirmed Carnaby's black cockatoo roost sites (no specific ID code supplied) (DBCA-64). See Figure 13.

Breeding Habitat Assessment

Breeding habitat is defined as that which contains known, suitable or potential nesting trees (DEECCW, 2022). Breeding typically occurs in native eucalypt species particularly marri, karri, wandoo and tuart however many species of eucalypt including non-endemic species may develop suitable nesting hollows (DEECCW, 2022). A summary of understood suitable nesting hollow characteristics for the three species is provided below in Table 19.

Table 19: Black Cockatoo Nesting Hollow Characteristics

Species	Baudin's Black cockatoo	Carnaby's Black cockatoo	Forest Red-tailed Black cockatoo
Tree species and hollow characteristic	Nesting mainly in karri, marri, jarrah, wandoo, bullich, and tuart Preferred hollow dimensions have not been specifically studies but are considered likely to be	Nesting mainly in salmon gum, wandoo, tuart, jarrah, flooded gum, karri and marri. Utilise hollows from 10-65 cm diameter (average 26 cm) and >1 m deep	Nesting mainly in jarrah, marri, karri, wandoo, bullich, blackbutt and tuart Utilise hollow from 12-150 cm diameter (average 34 cm) and >1 m depth

Species	Baudin's Black cockatoo	Carnaby's Black cockatoo	Forest Red-tailed Black cockatoo
	similar to that of the Carnaby's Black cockatoo		
Sources	DCCEEW, 2022.	DCCEEW, 2022, Saunders et al., 2014a, Saunders et al., 2014b.	DCCEEW, 2022, Johnstone et al., 2013.

A total of 115 breeding habitat trees were recorded. See Figure 14 for tree locations and Appendix F for summary of tree locations, species and DBH. One suitable nesting tree was recorded; no chew marks were present (Tree number 11) Tree results are shown in Table 20.

Table 20 Summary of Black Cockatoo Breeding Habitat Trees

Bamford Class	Class 1	Class 2	Class 3	Class 4 or 5	Totals (Trees)
DCCEEW, 2022 Terminology	Known Nesting Tree		Suitable Nesting Tree	Potential Nesting Tree	
Tree Species					
Dead (*Eucalyptus. sp*)	-	-	-	7	7
***Eucalyptus sp*. (unknown)**	-	-	-	2	2
Flooded Gum (*E. rudis*)	-	-	-	67	67
Marri (*Corymbia calophylla*)	-	-	1	35	36
Tuart (*E. gomphocephala*)	-	-	-	1	1
Jarrah (*E. marginata*)	-	-	-	2	2
Total	0	0	1	114	115

The large majority of breeding habitat trees (114 trees) did not show signs of potential nesting hollow development (Class 5 trees) or were assessed as possessing small hollows which are of an insufficient size to support nesting (<10cm entrance); or which have an entrance of >10cm but the internal dimensions are not suitable, or the hollow is not accessible (Class 4 trees). These Class 4 trees are however of sufficient age and growth form to be developing hollows.

One tree (Tree 11) was identified as containing a suitable hollow to allow black cockatoo nesting (Class 3 tree), see Image 1.

Image 1: Tree (number 11) with suitable black cockatoo hollow.

Table 21: Summary of Suitable Breeding Habitat Trees.

Merge Tree Number	Species	DBH (cm)	Hollow Comments
11	Marri	125	One upward facing know with 10 cm opening at approximately 10 m. Appears to have Galah chew and wear consistent with use. Hollow was drone inspected. Hollow appears to reach suitable dimensions with over 80 cm depth, 15 -20 cm diameter.

Foraging Habitat Assessment

Habitats within the Survey Area contain species which comprise suitable foraging habitat of variable quality. The marri woodland of FHT-01 are characterised by foraging species for all three black cockatoo species. The remainder of the Survey Area comprised cleared areas, scattered/planted eucalypts in degraded areas or melaleuca dominated wetlands which have low to no foraging habitat value. Four habitat types were described within the Survey Area to classify black cockatoo foraging habitat values. These are shown in Figure 12.

The Commonwealth referral guidelines provide a foraging quality scoring tool to guide referral information (DCCEEW, 2022). The tool advises that if the Survey Area contains native vegetation used for foraging at any time by a black cockatoo species and is >1 ha in size, that it is considered at face value to be of very high quality and assigned a starting score of 10. The tool then allows for subtractions if attributes are present which reduce the functionality of the foraging habitat. The Commonwealth referral guidelines specify that the tool is to be applied once to the entire impact area even if there is more than one type of foraging habitat

present. The calculated foraging habitat quality score is shown below in Table 22. Scores of 5-10 are identified as representing high value foraging habitat.

Table 22: Foraging Quality Scoring Tool (DCCEEW, 2022)

Attribute	Baudin's Black cockatoo	Carnaby's Black cockatoo	Forest Red-tailed Black cockatoo
Starting score	10- contains native eucalypt woodland with marri	10- eucalypt woodland/ paddock trees with marri	10- eucalypt woodland/ paddock trees with marri
Foraging potential (-2 if no foraging evidence)	-2, No foraging evidence present	-2, No foraging evidence present	No change, foraging evidence present
Connectivity (-2 if no other foraging habitat in 12km)	No change, other foraging habitat <12 km away	No change, other foraging habitat <12 km away	No change, other foraging habitat <12 km away
Proximity to breeding habitat (-2 if no breeding habitat in 12km)	No change recorded breeding habitat within 12 km	No change recorded breeding habitat within 12 km	No change recorded breeding habitat within 12 km
Proximity to roosting (-1 if >20km from known night roost)	No change, known roosting site <20 km distant	No change, known roosting site <20 km distant	No change, known roosting site <20 km distant
Impact from significant plant disease (-1 if >50% impact)	No change, impact from plant disease affecting <50% of foraging plants	No change, impact from plant disease affecting <50% of foraging plants	No change, impact from plant disease affecting <50% of foraging plants
Total score	8	8	10

The Commonwealth referral guidance allows for the inclusion of additional information for foraging habitat which may be considered during an assessment, such as the extent and density of recognised foraging plants within a Survey Area. As an additional source of information, WEPL provides an assessment of foraging habitat quality using a more detailed scoring tool developed by DCCEEW (n.d.) referred to as the Habitat Quality Scoring Tool to produce a numerical foraging habitat score. The Habitat Quality Scoring Tool allows for a score of 0 (none) to 7 (very high) for Site Condition. This is assessed based on density of known foraging species and health of vegetation. The 0 - 7 Site Condition score is applied to each mapped polygon of fauna habitat. The Habitat Quality Scoring Tool then applies a Site Context score out of three, this is applied only once to the whole Survey Area.

The Site Condition habitat quality score for each species, and the total area of that score present within the Survey Area are listed in Table 23 below and shown in Figure 15.The score was calculated as per the criteria listed in Appendix G.

Table 23: Habitat Quality Scoring Tool- Site Condition Extent

Site Condition	Baudin's black cockatoo (ha)	Carnaby's black cockatoo (ha)	Forest red-tailed black cockatoo (ha)
7- Very High	1.10	1.10	-
6- High	0.03	0.03	1.10
5-Moderate-High	-	-	0.03
4-Moderate	-	-	0.01
3-Low-Moderate	2.64	2.64	2.63
2-Low	0.65	0.65	0.65
1-Negligable to Low	0.30	0.30	0.30
0-None	83.66	83.66	83.66
Total	**88.38**	**88.38**	**88.38**

* shaded cells are classified as not comprising suitable foraging habitat

The Habitat Quality Scoring Tool then requires the application of a Site Context score out of three (Table 24) which is added to the Site Condition score for a final x/10 score. See Table 25 for final Habitat Quality Scoring Tool score. Note that habitat with a Site Condition starting score of 2 or less are extremely unlikely to be suitable habitat and do not have a Site Context score added.

Table 24: Habitat Quality Scoring Tool-Site Context

Site Context					
Proximity of the site in relation to other habitat	3	Site is within 6 km of known breeding site.	or	Site is within 12 km of other foraging resources with site condition of at least 3.	3
	2	Site is within 12 km of known breeding site.		Site is within 15 km of other foraging resources with site condition of at least 4.	2
	1	Site is within 15 km of known breeding site.		Site is between 15 km and 20 km of other foraging resources with site condition of at least 5.	1
	0	Site is further than 15 km from known breeding site.		Site is further than 20 km from other foraging resources.	0
Totals					3

Table 25: Final Habitat Quality Scoring Tool Score

Site Condition	Baudin's black cockatoo (ha)	Carnaby's black cockatoo (ha)	Forest red-tailed black cockatoo (ha)
10	1.10	1.10	-
9	0.03	0.03	1.10
8	-	-	0.03
7	-	-	0.01
6	2.64	2.64	2.63
5	-	-	-
4	-	-	-
3	-	-	-
2	0.65	0.65	0.65
1	0.30	0.30	0.30
0	83.66	83.66	83.66
Total	88.38	88.38	88.38

As per the Habitat Quality Scoring Tool areas with a site condition score of 2 or lower (shaded cells) are "extremely unlikely to be considered as suitable habitat". These areas are therefore classified as not comprising suitable foraging habitat in this assessment.

Regional Foraging Habitat Assessment

Analysis of estimated foraging habitat extent within the local area was also undertaken to provide further context. The estimated extent of foraging habitat is calculated for a buffer of 12 km around and including the Survey Area. This buffer is selected as recommended in the Commonwealth referral guidelines due to black cockatoos mainly foraging within 12 km of their nest site during the breeding season and their reliance on this proximity of foraging resources to successfully raise chicks (DCCEEW, 2022).

Analysis considers Remnant Native Vegetation Extent mapping (DPIRD-005) and Vegetation Complexes-Swan Coastal Plain and Southwest Forest region (DBCA-046 and DBCA-047). See summary of regional vegetation complexes and extents in Table 26 and displayed in Figure 16.

Analysis indicates there is 14909 ha of remnant native vegetation mapped within a 12 km buffer of the Survey Area. It is expected that the majority of this vegetation would contain suitable foraging species at the same or greater rate than that present within the Survey Area. Much of this regional remnant native vegetation occurs within the Kalgalup Regional Park and the Kemerton Strategic Industrial Area buffer zone.

Within the Survey Area there is 4.48 ha of foraging habitat scoring between 3 and 7 on the Habitat Quality Scoring Tool -Site Condition scale, scores of <3 are not considered to comprise suitable foraging habitat. This represents 0.03 % of the estimated regional habitat extent. The habitat quality within the Survey Area is considered likely to be of similar quality than much of the regional foraging habitat

Table 26: Regional Foraging Habitat Extent

Vegetation Complex	Remnant Extent (ha)
Bassendean Complex-Central and South	6765.84
Cannington Complex	127.22
Dardanup Complex	17.79
Darling Scarp, DS2	278.61
Dwellingup, D1	2.77
Guildford Complex	296.99
Karrakatta Complex-Central and South	1579.02
Lowdon, Lo	41.27
Quindalup Complex	2276.64
Serpentine River Complex	800.16
Southern River Complex	43.11
Swan Complex	73.27
Vasse Complex	361.65
Yoongarillup Complex	2245.22
Grand Total	14,909

Roosting Habitat Assessment

Known roost sites are present <3km from the Survey Areas (DBCA-064). No evidence of roosting within the Survey Area was recorded.

Night roosting locations are typically in proximity to foraging habitat (black cockatoos mainly foraging within 20km of night roosts) and with access to water points <2km from roosting location (DCCEEW, 2022). Any groups of tall trees, particularly large native eucalypts in proximity to water sources may provide night roosting habitat (DCCEEW, 2022). FHT-01 is considered to provide the most suitable roosting habitat as they all consist predominantly of tall trees. Access to permanent water was present from wetlands and farm dams within 2km.

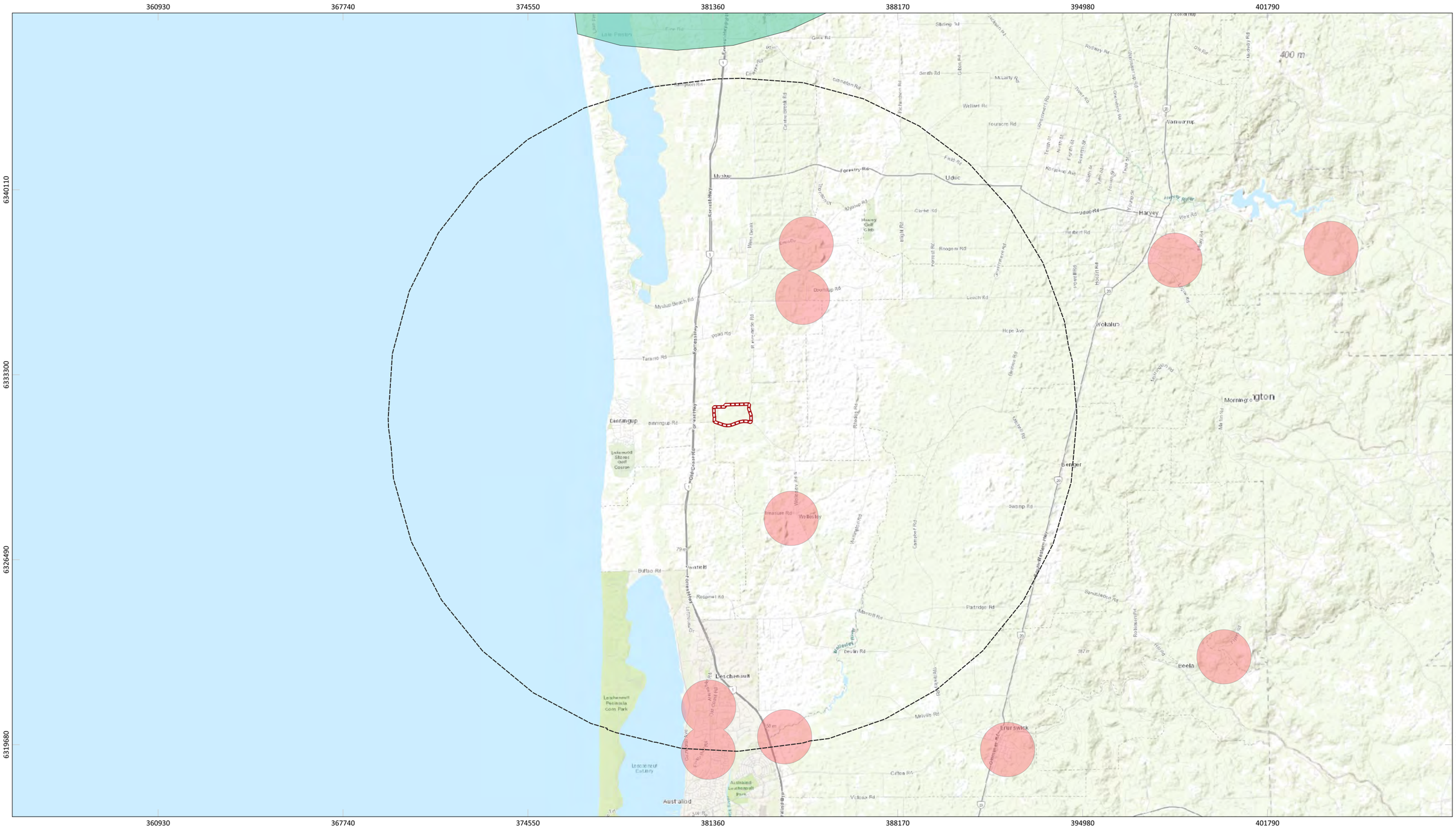

Figure 13: Known Black Cockatoo Roosting and Breeding Sites within 12 km Buffer

N

0 2 4 6 km

PROJECT/REPORT NAME	Lot 10 Wellesley Road Ecological Surveys Report Lot 10 Wellesley Road, Binningup
SCALE	1:136,200
SHEET SIZE	A3 COLOUR
CLIENT	Tonic Group
COORDINATE REFERENCE SYSTEM	GDA2020 / MGA zone 50
PROJECT NUMBER	A24.238
VERSION	0
DATA SOURCE	ESRI Topographic Map
DRAWN BY / REVIEWED BY	JP/TC
DATE	12/8/2025

Legend

- Survey Area
- 12km Buffer
- Black Cockatoo Roosting Sites - Buffered (DBCA-064)
- Carnabys Cockatoo Confirmed Breeding Areas within the Swan Coastal Plain and Jarrah Forest IBRA Regions (DBCA-054)

No	Description	Drawn	Approved	Date
A	Original issue	JP	TC	12/8/2025

NOTES:

Cadastral boundary from LANDGATE 2022. Label corresponds to the vegetation association number.

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Figure 14: Black Cockatoo Potential Breeding Habitat

N

0 50 100 150 200 m

SCALE: 1:4,500	SHEET SIZE: A3 COLOUR	
COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50	PROJECT NUMBER: A24.238	VERSION: 0
DATA SOURCE: NEARMAPS	DRAWN BY / REVIEWED BY: JP/TC	DATE: 5/11/2025

PROJECT/REPORT NAME
Lot 10 Wellesley Road Ecological Surveys Report
Lot 10 Wellesley Road, Binningup

CLIENT
Tonic Group

Legend

Survey Area

Tree Species
- Dead
- Eucalyptus
- Flooded Gum
- Jarrah
- Marri
- Tuart

Bamford Tree Class
- 3
- 4
- 5

No	Description	Drawn	Approved	Date
A	Original issue	JP	TC	5/11/2025

NOTES:

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Figure 15a: Carnaby's Black Cockatoo Foraging Habitat

N

0 50 100 150 200 m

SCALE	1:4,500
SHEET SIZE	A3 COLOUR
PROJECT/REPORT NAME	Lot 10 Wellesley Road Ecological Surveys Report Lot 10 Wellesley Road, Binningup
CLIENT	Tonic Group
COORDINATE REFERENCE SYSTEM	GDA2020 / MGA zone 50
PROJECT NUMBER	A24.238
VERSION	0
DATA SOURCE	NEARMAPS
DRAWN BY / REVIEWED BY	JP/TC
DATE	12/8/2025

Legend

Survey Area

Site Condition Score (Habitat Quality Score Tool)

- 0 - None
- 1 - Negligible
- 2 - Low
- 3 - Low to Moderate
- 4 - Moderate
- 6 to 7 - High

No	Description	Drawn	Approved	Date
A	Original issue	JP	TC	12/8/2025

NOTES:

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Figure 15b: Baudin's Black Cockatoo Foraging Habitat

N

0 50 100 150 200 m

SCALE	1:4,500
SHEET SIZE	A3 COLOUR
PROJECT/REPORT NAME	Lot 10 Wellesley Road Ecological Surveys Report Lot 10 Wellesley Road, Binningup
CLIENT	Tonic Group
COORDINATE REFERENCE SYSTEM	GDA2020 / MGA zone 50
PROJECT NUMBER	A24.238
VERSION	0
DATA SOURCE	NEARMAPS
DRAWN BY / REVIEWED BY	JP/TC
DATE	12/8/2025

Legend

Survey Area

Site Condition Score (Habitat Quality Score Tool)

- 0 - None
- 1 - Negligible
- 2 - Low
- 3 - Low to Moderate
- 4 - Moderate
- 6 to 7 - High

No	Description	Drawn	Approved	Date
A	Original issue	JP	TC	12/8/2025

NOTES:

Cadastral boundary from LANDGATE 2022. Label corresponds to the vegetation association number.

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Figure 15c: Forest Redtail Black Cockatoo Foraging Habitat

N

0 50 100 150 200 m

SCALE	1:4,500
SHEET SIZE	A3 COLOUR
PROJECT/REPORT NAME	Lot 10 Wellesley Road Ecological Surveys Report Lot 10 Wellesley Road, Binningup
CLIENT	Tonic Group
COORDINATE REFERENCE SYSTEM	GDA2020 / MGA zone 50
PROJECT NUMBER	A24.238
VERSION	0
DATA SOURCE	NEARMAPS
DRAWN BY / REVIEWED BY	JP/TC
DATE	12/8/2025

Legend

Survey Area

Site Condition Score (Habitat Quality Score Tool)

- 0 - None
- 1 - Negligible
- 2 - Low
- 4 - Moderate
- 5 - Moderate to High
- 6 - High

No	Description	Drawn	Approved	Date
A	Original issue	JP	TC	12/8/2025

NOTES:

Cadastral boundary from LANDGATE 2022. Label corresponds to the vegetation association number.

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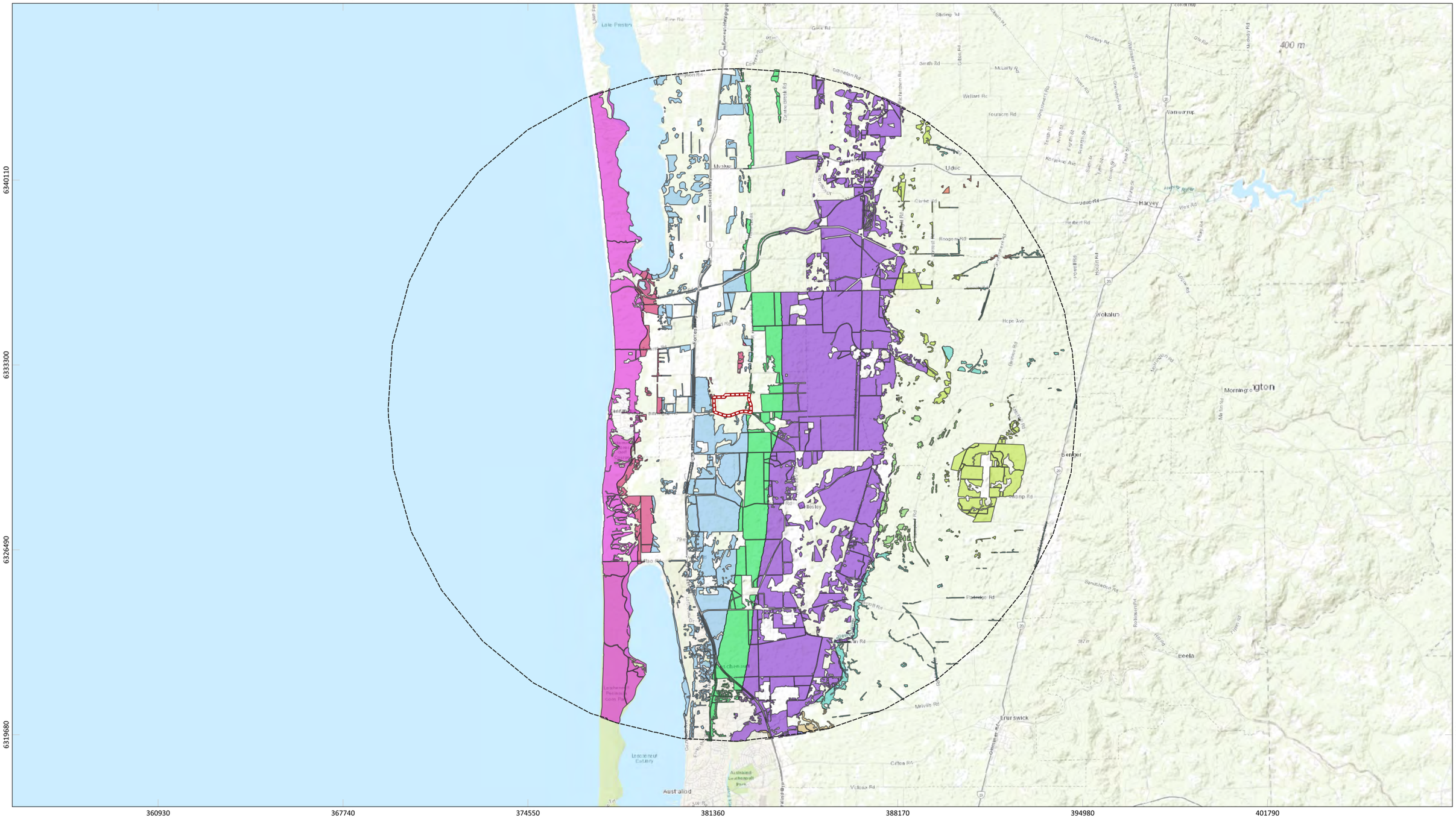

Figure 16: Black Cockatoo Foraging Habitat Extent 12 km Buffer

N

0 2 4 6 km

PROJECT/REPORT NAME	Lot 10 Wellesley Road Ecological Surveys Report Lot 10 Wellesley Road, Binningup
SCALE	1:136,200
SHEET SIZE	A3 COLOUR
CLIENT	Tonic Group
COORDINATE REFERENCE SYSTEM	GDA2020 / MGA zone 50
PROJECT NUMBER	A24.238
VERSION	0
DATA SOURCE	ESRI Topographic Map
DRAWN BY / REVIEWED BY	JP/TC
DATE	12/8/2025

Legend

- Survey Area
- 12km Buffer

Native Vegetation (DPIRD-005) Intersect with Vegetation Complexes (DBCA-046)

- Bassendean Complex-Central and South
- Cannington Complex
- Dardanup Complex
- Guildford Complex
- Karrakatta Complex-Central and South
- Quindalup Complex
- Serpentine River Complex
- Southern River Complex
- Swan Complex
- Vasse Complex
- Yoongarillup Complex

No	Description	Drawn	Approved	Date
A	Original issue	JP	TC	12/8/2025

NOTES:

Cadastral boundary from LANDGATE 2022. Label corresponds to the vegetation association number.

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4.4.5 Western Ringtail Possum Habitat Assessment

The western ringtail possum *(Pseudocheirus occidentalis*) is listed as Critically Endangered under the EPBC Act and BC Act. On the Swan Coastal Plain the species is present from north of Bunbury to Augusta, with greatest populations around Busselton (DPaW, 2017). Targeted searches were undertaken due to the potential presence of the species.

Observations and Previous Records

One location of fresh scats from western ringtail possum was recorded in FHT-01 within a peppermint grove in the southwestern corner of the Survey Area. Scats were few in number, where possums are resident scat numbers are typically high. No dreys were observed during searches.

Targeted spotlighting searches were undertaken on two separate nights in June. The searches covered all suitable habitat at approximately 50-60m spacing. The spotlighting surveys recorded one individual, congruent with the location scats were observed.

The species is well reported from the Leschenault area to the south and from Binningup to the west with multiple recent record in DBCA database search results. Few existing records are present from the Kemerton Industrial Estate despite several regional surveys. It is concluded that some habitat present is suitable for western ringtail possum but is infrequently used.

Habitat Assessment

The western ringtail possum is an arboreal species whose diet comprises almost exclusively myrtaceous plants primarily peppermint, marri and jarrah (DPaW, 2017). In the Bunbury region, western ringtail possum habitat typically has a dominant or co-dominant upper or mid stratum of peppermint trees. In other regions the species also utilises marri and jarrah woodlands, coastal heath, riparian vegetation and thickets of myrtaceous species (DPAW, 2017). The western ringtail possum recovery plan identifies that habitat critical for survival of the species is not well understood and as such habitat where western ringtail possums are commonly recorded may be considered critical and worthy of protection (DPAW, 2017).

A small portion in the southeastern corner of FHT-01 (Isolated trees over paddock) was assessed as core habitat. Connected canopies and portions of FHT-01 on the southern boundary were assessed as comprising supporting habitat, which is used for dispersal and foraging. FHT-02, FHT-03 and Cleared areas were assessed as non-significant habitat for the species.

Habitat quality was assessed using the Commonwealth unpublished guidelines, Habitat Scoring System for Western Ringtail Possum (the Habitat Scoring System), see Appendix H (DCCEEW, n.d). The Habitat Scoring System comprises three components:

1. Site Condition - score of canopy and mid story connectivity, fire age and evidence of dreys.
2. Site Context- connectivity of vegetation within Survey Area with other areas of suitable habitat
3. Species Stocking Rate- frequency of current or historical observations

Step 1- Site Condition allows for scores to be applied to individual polygons. The Site Condition score, which rates habitat from 0 (Absent) to 3 (Very High) is shown in Figure 16 and extent within the Survey Area summarised below in Table 27.

Table 27: Habitat Scoring System for Western Ringtail Possum- Site Condition

Score	Detail	Scores Extent (ha)	Scores % of Survey Area
3	Very High – High canopy (90-100%) continuity	-	-
2.5	High – High canopy (70-89%) continuity	-	-
2	Medium – High canopy (70-89%) continuity	-	-
1.5	Low – Some canopy (50-69%) continuity	0.15	0.17
1.0	Very Low – Little canopy (30-49%)	2.97	3.36
0.5	Marginal – Less than 30% canopy continuity	1.60	1.81
0	Absent, no vegetation and/or suitable habitat on site	83.66	94.66
Total		88.38 ha	100.00 %

The Habitat Scoring System then applies a Site Context Score as per Table 28. As vegetation in the Survey Area is contiguous the Site Context score may be applied once for the entire Survey Area.

Table 28: Habitat Scoring System for Western Ringtail Possum- Site Context

Score	Detail	Score
3	Site is connected by vegetation, including continuous canopy cover, to more than one area of contiguous suitable habitat. Site is within a key management zone.	
2.5	Site is connected by vegetation, including high level of canopy cover (70-89%), to at least one area of contiguous suitable habitat. Site is within a key management zone.	
2	Site is connected by vegetation, including some level of canopy cover (50-69%), to more than one patch of suitable habitat. Site is within a key management zone.	
1.5	Site is connected by vegetation, including limited canopy cover (30-49%), to at least one patch of suitable habitat. Records on or immediately adjacent (within 500 m) to site within last 2 years. Site is located within known species distribution.	1.5
1.0	Site is separated from other known suitable habitat by cleared areas or linear barrier of up to 25 m. Records on site or immediately adjacent (within 500 m) within last 3 years. Site is located within known distribution of species.	

Finally, a Species Stocking Rate out of four is applied as per Table 29. The Stacking Rate score is applied once to the entire Survey Area.

Table 29: Habitat Scoring System for Western Ringtail Possum- Species Stocking Rate

Score	Detail	Score
4	Record of species presence on site in last 12 months (WRP observed on site in last 12 months and scats; evidence of nests/dreys/hollows being used; evidence of breeding); site is within 50-100 m of verified/published records in last 12 months.	4
3	Record of species presence on site in last 2 years (WRP observed on site in last 2 years and scats; evidence of nests/dreys/hollows being used); site is within 100-150 m of verified/published records in last 12 months	
2	Record of species presence on site in last 2 years (WRP observed on site in last 2 years and scats; evidence of nests/dreys/hollows being used); site is within 150-200 m of verified/published records in last 2 years	
1	Record of species presence on site in previous 3 years (WRP observed on site in last 5 years and scats; evidence of nests/dreys/hollows being used); site is within 500 m of verified/published records in last 3 years (minimum required to be considered a suitable offset site for WRP).	
0	No record of species presence on site, or within 500 m in last 3 years	

See Table 30 for final Habitat Scoring System scores and extents present within the Survey Area. Note that habitat with a Site Condition starting score of 0.5 or 0 is unlikely to be suitable habitat and does not have a Site Context or Stocking Rate score added.

Table 30: Habitat Scoring System for Western Ringtail Possum- Final Scores

Final Score	Site Condition Starting Score Detail	Extent (ha)	% of Survey Area
7	Low – Some canopy (50-69%) continuity	0.15	0.17
6.5	Very Low – Little canopy (30-49%)	2.97	3.36
0.5	Marginal – Less than 30% canopy continuity	1.60	1.81
0	Absent, no vegetation and/or suitable habitat on site	83.66	94.66
Total		88.38	100.00%

* shaded cells have score of 0.5 or 0 and are unlikely to be suitable habitat

Regional Context

In order to provide further context, an analysis of habitat extent within the local area (defined as a 5 km buffer of the Survey Area) as per Shedley and Williams (2014) mapping was undertaken. This analysis identifies that a combined 4798.11 ha of Class B (high) and Class C (medium) habitat is mapped within 5 km. No Class A (very high) is mapped with 5 km of the Survey Area. The majority of this is Class C (medium) with 3976.01 ha. The combined 3.15 ha of FHT-01, which broadly aligns with the Shedley and Williams 2014 mapping as Class C (medium) represents 0.08 % of the combined Class B (high) and Class C (medium) habitat mapped within 5 km. The habitat within the Survey Area is contiguous with extensive areas of habitat within the Kemerton Strategic Industrial Area and buffer areas.

Figure 17: Western Ringtail Possum Habitat Quality

N

0 50 100 150 200 m

SCALE	1:4,500
SHEET SIZE	A3 COLOUR
COORDINATE REFERENCE SYSTEM	GDA2020 / MGA zone 50
DATA SOURCE	NEARMAPS

PROJECT/REPORT NAME
Lot 10 Wellesley Road Ecological Surveys Report
Lot 10 Wellesley Road, Binningup

CLIENT: Tonic Group

PROJECT NUMBER	VERSION
A24.238	0

DRAWN BY / REVIEWED BY	DATE
JP/TC	12/8/2025

Legend

- Survey Area
- Habitat site condition score
  - 0
  - 0.5
  - 1
  - 1.5

No	Description	Drawn	Approved	Date
A	Original issue	JP	TC	12/8/2025

NOTES:

Cadastral boundary from LANDGATE 2022. Label corresponds to the vegetation association number.

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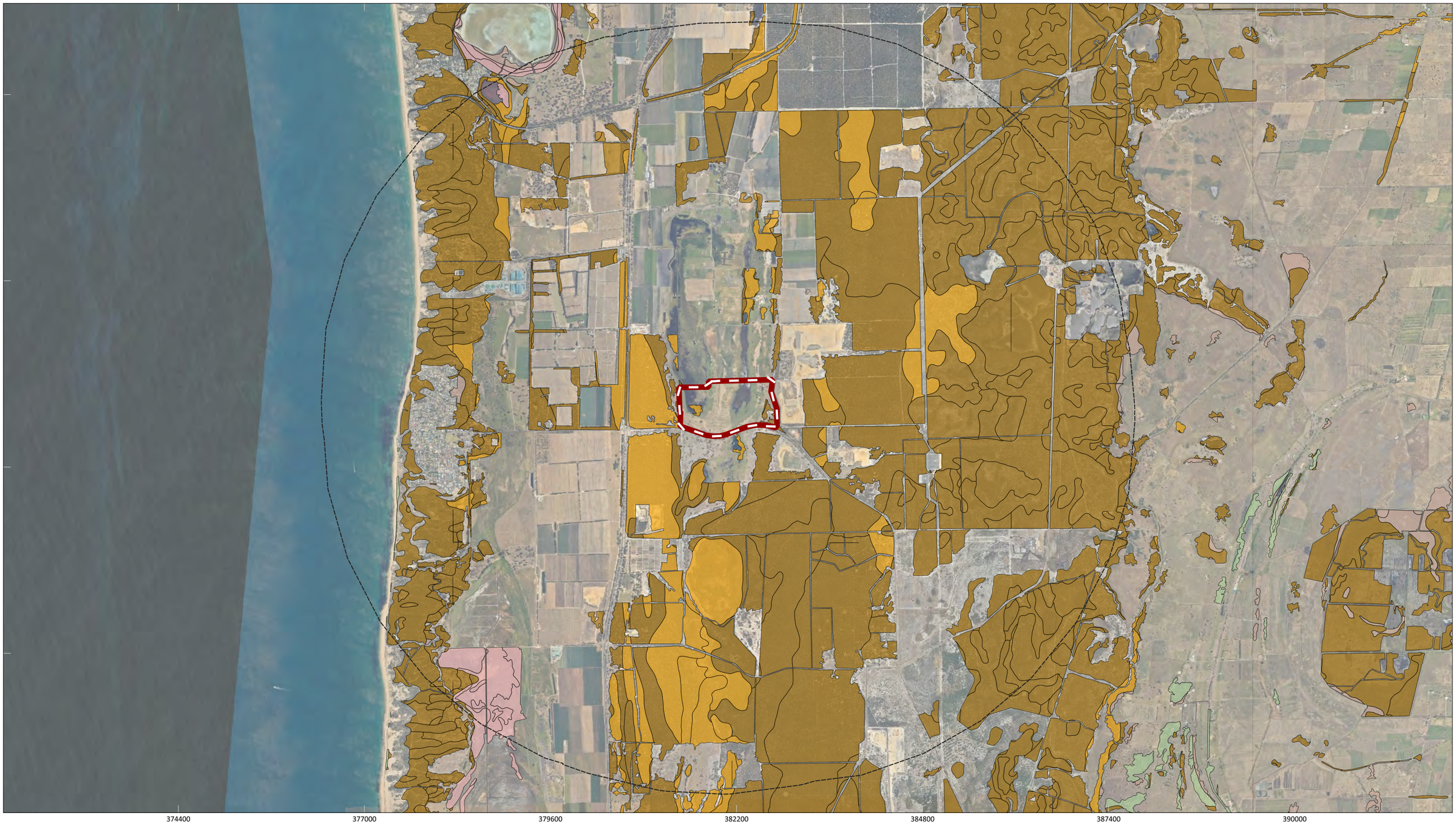

Figure 18: Western Ringtail Possum Habitat Quality

N

0 1.5 3 km

PROJECT/REPORT NAME	Lot 10 Wellesley Road Ecological Surveys Report Lot 10 Wellesley Road, Binningup
SCALE	1:52,000
SHEET SIZE	A3 COLOUR
CLIENT	Tonic Group
COORDINATE REFERENCE SYSTEM	GDA2020 / MGA zone 50
PROJECT NUMBER	A24.238
VERSION	0
DATA SOURCE	LANDGATE AERIAL IMAGERY NOW
DRAWN BY / REVIEWED BY	JP/TC
DATE	12/8/2025

Legend

- Survey Area
- 5km Buffer

Western Ringtail Possum Habitat Suitability (DBCA-049)

- High
- Medium
- Low
- Very Low
- Unsuitable

No	Description	Drawn	Approved	Date
A	Original issue	JP	TC	12/8/2025

NOTES:

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5. Discussion

5.1 Flora of Conservation Significance

No conservation significant flora species were observed, therefore were assessed as having a low likelihood of occurrence post survey.

5.2 Vegetation Significance

Five vegetation types were identified. The Survey Area comprised of Degraded to Completely Degraded vegetation.

One vegetation type, VT03-Native wetland of *Melaleuca rhaphiophylla* over *Machaerina articulata* and weeds comprises wetland vegetation and is associated with an unnamed Conservation Class mapped wetland (ID 1598).

Of the two TECs and PECs identified by the desktop assessment as being potentially present, one (Tuart Woodland TEC) was identified as present.

The Tuart Woodland TEC broadly aligns with the vegetation type VT05 *Eucalyptus gomphocephala* (tuart) woodlands. The vegetation unit occurs at the eastern end of the Survey Area of the Spearwood and Quindalup dunes system. Tuart Woodland TEC is mapped as "patches" with a patch defined by presence of two or more mature tuart trees with a canopy separation of less than 60m. See example of patch mapping from approved conservation advice below. The Survey Area contains one patch of Tuart TEC covering a total of 0.03 ha within the Survey Area and an estimated 9.41 ha, beyond the landholdings of the Survey Area.

5.3 Fauna Habitat Significance

Two species of conservation significance were recorded in the Survey Area. These are:

- *Calyptorhynchus banksia naso* (forest red-tailed black cockatoo) – VU.
- *Pseudocheirus occidentalis* (western ringtail possum) - CR

Eighteen species were assessed as having a high or medium likelihood of occurrence:

- *Falco peregrinus* (peregrine falcon)-OS
- *Tyto novaehollandiae novaehollandiae* (masked owl (southwest)) – P3
- *Phascogale tapoatafa wambenger* (south-west brush-tailed phascogale)-CR
- *Ctenotus ora* (Coastal Plains skink)-P3

- *Zanda baudinii* (Baudin's cockatoo) - CR
- *Zanda latirostris* (Carnaby's cockatoo) - CR
- *Botaurus poiciloptilus* (Australasian bittern) - EN
- *Calidris canutus* (Red Knot, Knot) - EN
- *Charadrius mongolus* (Lesser Sand Plover, Mongolian Plover) -EN
- *Charadrius leschenaultii* (greater sand plover, large sand plover) - VU
- *Falco hypoleucos* (Grey Falcon) -VU
- *Oxyura australis* (blue-billed duck) - P4
- *Actitis hypoleucos* (common sandpiper) - MI
- *Calidris acuminata* (sharp-tailed sandpiper) - MI
- *Plegadis falcinellus* (glossy ibis) - MI
- *Dasyurus geoffroii* (chuditch, western quoll) - VU
- *Isoodon fusciventer* (quenda, southwestern brown bandicoot) - P4
- *Notamacropus irma (*western brush wallaby) - P4

One species *Dasyurus geoffroii* (chuditch) - VU was initially considered to have a medium likelihood of occurrence. Following habitat and predator presence assessment the habitats present were determined to be non-significant for the species, with species likely only an infrequent visitor to the Survey Area.

Four habitat types were described. These broadly align with the mapped vegetation type boundaries. Habitat type assessment as either core, supporting or non-significant habitat is summarised below in Table 31.

Table 31: Fauna Habitat Value Summary

	VT-01: Upland Vegetation and trees	VT-02 Non-native wetland	VT-03: Native Wetland	VT-04: Tuart Woodland	VT-05: Cleared paddock
Birds					
curlew sandpiper	non-significant	non-significant	supporting	non-significant	non-significant
Baudin's cockatoo	supporting	non-significant	non-significant	non-significant	non-significant

	VT-01: Upland Vegetation and trees	VT-02 Non-native wetland	VT-03: Native Wetland	VT-04: Tuart Woodland	VT-05: Cleared paddock
Carnaby's cockatoo	supporting	non-significant	non-significant	non-significant	non-significant
Australasian bittern	non-significant	non-significant	supporting	non-significant	non-significant
Red Knot, Knot	non-significant	non-significant	supporting	non-significant	non-significant
Lesser Sand Plover, Mongolian Plover	non-significant	non-significant	supporting	non-significant	non-significant
forest red-tailed black cockatoo	supporting	non-significant	non-significant	non-significant	non-significant
greater sand plover, large sand plover	non-significant	non-significant	supporting	non-significant	non-significant
Grey Falcon	supporting	non-significant	supporting	supporting	non-significant
masked owl (southwest)	supporting	non-significant	supporting	supporting	non-significant
blue-billed duck	non-significant	non-significant	supporting	non-significant	non-significant
common sandpiper	non-significant	non-significant	supporting	non-significant	non-significant
sharp-tailed sandpiper	non-significant	non-significant	supporting	non-significant	non-significant
glossy ibis	non-significant	non-significant	supporting	non-significant	non-significant
peregrine falcon	supporting	non-significant	supporting	supporting	non-significant
Mammals					
south-western brush-tailed phascogale, wambenger	supporting	non-significant	non-significant	non-significant	non-significant
western ringtail possum, ngwayir	core, supporting	non-significant	non-significant	non-significant	non-significant
chuditch, western quoll	non-significant	non-significant	non-significant	non-significant	non-significant
quenda, southwestern brown bandicoot	supporting	non-significant	non-significant	non-significant	non-significant
western brush wallaby	non-significant	non-significant	non-significant	non-significant	non-significant
Reptiles					

	VT-01: Upland Vegetation and trees	VT-02 Non-native wetland	VT-03: Native Wetland	VT-04: Tuart Woodland	VT-05: Cleared paddock
Coastal Plains skink	non-significant	non-significant	non-significant	non-significant	non-significant

5.4 Black Cockatoos

The Survey Area falls within the modelled distribution and breeding range for Baudin's black cockatoo, Carnaby's black cockatoo and the forest red-tailed black cockatoo (DCCEEW, 2022). No known breeding or roosting sites are present within or immediately adjacent to the Survey Area.

The large majority of breeding habitat trees (95 trees) did not show signs of potential nesting hollow development (Class 5 trees) or were assessed as possessing small hollows which are of an insufficient size to support nesting (<10cm entrance); or which have an entrance of >10cm but the internal dimensions are not suitable, or the hollow is not accessible (Class 4 trees).

One tree (Tree 11) was identified as containing a suitable hollow to allow black cockatoo nesting (Class 3 tree).

Foraging habitat quality was primarily rated using the Commonwealth Habitat Quality Scoring Tool (DCCEEW, n.d.). As per the Habitat Quality Scoring Tool areas with a site condition score of 2 or lower (low, negligible or none value) are "extremely unlikely to be considered as suitable habitat". These areas are therefore classified as not comprising suitable foraging habitat in this assessment. Foraging habitat quality extents within the Survey Area out of ten are:

- Baudin's black cockatoo: 1.10 ha (7/10), 0.03 ha (6/10), 2.64 ha (3/10), 0.65 ha (2/10), 0.03 ha (1/10), 83.66 (0/10). Total of 3.77 ha of suitable foraging habitat and 84.61 ha of unsuitable foraging habitat.
- Carnaby's black cockatoo: 1.10 ha (7/10), 0.03 ha (6/10), 2.64 ha (3/10), 0.65 ha (2/10), 0.03 ha (1/10), 83.66 (0/10). Total of 3.77 ha of suitable foraging habitat and 84.61 ha of unsuitable foraging habitat.
- Forest red-tailed black cockatoo: 1.10 ha (6/10), 0.03 (5/10), 0.01 ha (4/10), 2.63 ha (3/10), 0.65 ha (2/10), 0.30 ha (1/10), 83.66 (0/10). Total of 3.77 ha of suitable foraging habitat and 84.61 ha of unsuitable foraging habitat.

No evidence of roosting within the Survey Area was recorded. FHT-01 is considered to provide the most suitable roosting habitat as they consist predominantly of tall trees. Access to permanent water was present from wetlands and farm dams within 2km.

5.5 Western Ringtail Possum

One location of fresh scats from western ringtail possum was recorded in FHT-01 within a peppermint grove in the southeastern corner of the Survey Area. Scats were few in number. Where possums are resident, scat

numbers are typically high. One individual was recorded in adjacent vegetation and is considered to use the western corner of the Survey Area. No dreys were observed during searches.

A small portion in the southeastern corner of FHT-01 (Isolated trees over paddock) was assessed as core habitat. Connected canopies and portions of FHT-01 on the southern boundary were assessed as comprising supporting habitat, which is used for dispersal and foraging. FHT-02, FHT-03 and Cleared areas were assessed as non-significant habitat for the species.

The Commonwealth unpublished guideline, the Habitat Scoring System for Western Ringtail Possum was applied to determine habitat quality scores out for 10 for habitat types. This assessment identified as present within the Survey Area:

- 0.15 ha - 7/10
- 2.87 ha - 6.5/10
- 1.60 ha-0.5/10
- 83.66 ha-0/10

Note that habitat with a score of 0.5 or 0 is unlikely to be considered as suitable habitat (DCCEEW, n.d.).

An analysis of habitat extent within the local area identified that combined 4798.11 ha of Class B (high) and Class C (medium) habitat is mapped within 5 km. No Class A (very high) is mapped with 5 km of the Survey Area. The majority of this is Class C (medium) with 3976.01 ha. The combined 3.15 ha of FHT-01, which broadly aligns with the Shedley and Williams 2014 mapping as Class C (medium) represents 0.08 % of the combined Class B (high) and Class C (medium) habitat mapped within 5 km. The habitat within the Survey Area is contiguous with extensive areas of habitat within the Kemerton Strategic Industrial Area and buffer areas.

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Appendix A
Legislation

Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act aims to protect matters of national environmental significance (MNES). Under the EPBC Act, the Commonwealth Department of Climate Change, Energy and the Environment lists Threatened species and communities in categories determined by criteria set out in the EPBC Act.

Projects likely to cause a significant impact on MNES should be referred to the DCCEEW for assessment under the EPBC Act.

Biodiversity Conservation Act 2016

The Biodiversity Conservation Act 2016 aims to conserve and protect biodiversity and biodiversity components within the State and to promote ecologically sustainable use of biodiversity components in the State.

Environmental Protection Act 1986

Declared Rare Flora (DRF) and Threatened Ecological Communities (TECs) are given special consideration in environmental impact assessments and have special status as Environmentally Sensitive Areas (ESAs) under the EP Act and the Environmental Protection (Clearing of Native Vegetation) Regulations 2004. Exemptions for a clearing permit do not apply in an ESA. In addition, habitat necessary for the maintenance of indigenous fauna is considered in the clearing principles and assessed during consideration of applications for a clearing permit.

Biosecurity and Agricultural Management Act 2007

Plants may be 'Declared' by the Minister for Agriculture and Food under the BAM Act. The Western Australian Organism List contains information on the area(s) in which a plant is declared and the control and keeping categories to which it has been assigned in Western Australia. A declaration may apply to the whole State, to districts, individual properties or even to single paddocks. If a plant is 'Declared', landholders are obliged to control that plant on their properties.

Weeds of National Significance

The Australian Government along with the State and Territory governments has endorsed 32 WoNS. Four major criteria were used in determining WoNS:

- The invasiveness of a weed species.
- A weed's impacts.
- The potential for spread of a weed.
- Socio-economic and environmental values.

Each WoNS has a national strategy and a national coordinator, responsible for implementing the strategy. WoNS are regarded as the worst weeds in Australia because of their invasiveness, potential for spread, and economic and environmental impacts.

Department of Biodiversity, Conservation and Attractions Priority Lists

DBCA lists 'Priority' flora and fauna that have not been assigned statutory protection as "Threatened" under the BC Act and are under consideration for declaration as Threatened. Flora and fauna assessed as Priority 1-3 are considered to be in urgent need of further survey. Priority 4 flora requires monitoring every 5 -10 years.

DBCA maintains a list of Priority Ecological Communities (PECs) which identifies plant communities that require further investigation before possible nomination for TEC status. Once listed, a community becomes a PEC and, when endorsed by the WA Minister for Environment, becomes a TEC and protected as an ESA under Environmental Protection (Clearing of Native Vegetation) Regulations 2004.

Informal Recognition of Flora and Fauna

Certain populations or communities of flora and/or fauna may be of local significance or interest because of their patterns of distribution and abundance. For example, specific locations of flora and may be locally significant because they are range extensions to the previously known distribution, or are newly discovered taxa (and have the potential to be of more than local significance). In addition, many species are in decline as a result of threatening processes (land clearing, grazing, and changed fire regimes) and relict populations of such species assume local importance for DBCA. It is not uncommon for DBCA to make comment on these species of interest.

Appendix B
Definitions and Criteria

EPBC Act Categories for Flora, Fauna and Ecological Communities

Category	Threatened Species	Threatened Ecological Communities
Extinct	A native species is eligible to be included in the extinct category at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.	N/A.
Extinct in the wild	A native species is eligible to be included in the extinct in the wild category at a particular time if, at that time: (a) it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or (b) it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.	N/A.
Critically Endangered (CE)	A native species is eligible to be included in the critically endangered category at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.	An ecological community is eligible to be included in the critically endangered category at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
Endangered (EN)	A native species is eligible to be included in the endangered category at a particular time if, at that time: (a) it is not critically endangered; and (b) it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.	An ecological community is eligible to be included in the endangered category at a particular time if, at that time: (a) it is not critically endangered; and (b) it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
Vulnerable (VU)	A native species is eligible to be included in the vulnerable category at a particular time if, at that time: (a) it is not critically endangered or endangered; and (b) it is facing a high risk of extinction in the wild in the medium term future, as determined in accordance with the prescribed criteria.	An ecological community is eligible to be included in the vulnerable category at a particular time if, at that time: (a) it is not critically endangered or endangered; and (b) it is facing a high risk of extinction in the wild in the medium term future, as determined in accordance with the prescribed criteria.
Conservation Dependent	A native species is eligible to be included in the conservation dependent category at a particular time if, at that time: (a) the species is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered; or (b) the following subparagraphs are satisfied: (i) the species is a species of fish. (ii) the species is the focus of a plan of management that provides for	N/A.

Category	Threatened Species	Threatened Ecological Communities
	management actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long-term survival in nature are maximised. (iii) the plan of management is in force under a law of the Commonwealth or of a State or Territory. (iv) cessation of the plan of management would adversely affect the conservation status of the species.	

Conservation Codes for Western Australian Flora and Fauna (DBCA)

Conservation Codes for Western Australian Flora and Fauna	
Threatened, Extinct and Specially Protected fauna or flora1 are species2 which have been adequately searched for and are deemed to be, in the wild, Threatened, extinct or in need of special protection, and have been gazetted as such. **The Wildlife Conservation (Specially Protected Fauna) Notice 2018 and the Wildlife Conservation (Rare Flora) Notice 2018 have been transitioned under regulations 170, 171 and 172 of the Biodiversity Conservation Regulations 2018 to be the lists of Threatened, Extinct and Specially Protected species under Part 2 of the Biodiversity Conservation Act 2016.** **Categories of Threatened, Extinct and Specially Protected fauna and flora are:**	
T	Threatened species Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as Threatened species under section 26(2) of the Biodiversity Conservation Act 2016 (BC Act). Threatened fauna is that subset of 'Specially Protected Fauna' listed under schedules 1 to 3 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018 for Threatened Fauna. Threatened flora is that subset of 'Rare Flora' listed under schedules 1 to 3 of the Wildlife Conservation (Rare Flora) Notice 2018 for Threatened Flora. The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using International Union for Conservation of Nature (IUCN) Red List categories and criteria as detailed below.
CR	Critically endangered species Threatened species considered to be "facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines". Listed as critically endangered undersection 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines. Published under schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018 for critically endangered fauna or the Wildlife Conservation (Rare Flora) Notice 2018 for critically endangered flora.
EN	Endangered species Threatened species considered to be "facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines". Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018 for endangered fauna or the Wildlife Conservation (Rare Flora) Notice 2018 for endangered flora.
VU	Vulnerable species

Conservation Codes for Western Australian Flora and Fauna	
	Threatened species considered to be "facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines". Listed as vulnerable undersection 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines. Published under schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018 for vulnerable fauna or the Wildlife Conservation (Rare Flora) Notice 2018 for vulnerable flora.
Extinct species **Listed by order of the Minister as extinct under section 23(1) of the BC Act as extinct or extinct in the wild.**	
EX	Extinct species Species where "there is no reasonable doubt that the last member of the species has died", and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act). Published as presumed extinct under schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018 for extinct fauna or the Wildlife Conservation (Rare Flora) Notice 2018 for extinct flora.
EW	Extinct in the wild species Species that "is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form", and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act). Currently there are no Threatened fauna or Threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice.
Specially protected species **Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection.** **Species that are listed as Threatened species (critically endangered, endangered or vulnerable) or extinct species under the BC Act cannot also be listed as Specially Protected species.**	
MI	Migratory species Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act). Includes birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and fauna subject to the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species. Published as migratory birds protected under an international agreement under schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018.
CD	Species of special conservation interest (conservation dependent fauna) Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as Threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act). Published as conservation dependent fauna under schedule 6 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018.

Conservation Codes for Western Australian Flora and Fauna	
OS	Other specially protected species Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act). Published as other specially protected fauna under schedule 7 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018.
P	Priority species Possibly Threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of Priority for survey and evaluation of conservation status so that consideration can be given to their declaration as Threatened fauna or flora. Species that are adequately known, are rare but not Threatened, or meet criteria for near Threatened, or that have been recently removed from the Threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring. Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.
1	Priority 1: Poorly-known species Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.
2	Priority 2: Poorly-known species Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.
3	Priority 3: Poorly-known species Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.
4	Priority 4: Rare, Near Threatened and other species in need of monitoring (a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently Threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands. (b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent. (c) Species that have been removed from the list of Threatened species during the past five years for reasons other than taxonomy.

1 The definition of flora includes algae, fungi and lichens.

DBCA Definitions and Criteria for TECs and PECs

Criteria	Definition
Threatened Ecological Communities	
Presumed Totally Destroyed (PD)	An ecological community that has been adequately searched for but for which no representative occurrences have been located. The community has been found to be totally destroyed or so extensively modified throughout its range that no occurrence of it is likely to recover its species composition and/or structure in the foreseeable future. An ecological community will be listed as presumed totally destroyed if there are no recent records of the community being extant and either of the following applies (A or B): A. Records within the last 50 years have not been confirmed despite thorough searches of known or likely habitats or B. All occurrences recorded within the last 50 years have since been destroyed.
Critically Endangered (CR)	An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or that was originally of limited distribution and is facing severe modification or destruction throughout its range in the immediate future, or is already severely degraded throughout its range but capable of being substantially restored or rehabilitated. An ecological community will be listed as Critically Endangered when it has been adequately surveyed and is found to be facing an extremely high risk of total destruction in the immediate future. This will be determined on the basis of the best available information, by it meeting any one or more of the following criteria (A, B or C): A. The estimated geographic range, and/or total area occupied, and/or number of discrete occurrences since European settlement have been reduced by at least 90% and either or both of the following apply (i or ii): i. geographic range, and/or total area occupied and/or number of discrete occurrences are continuing to decline such that total destruction of the community is imminent (within approximately 10 years). ii. modification throughout its range is continuing such that in the immediate future (within approximately 10 years) the community is unlikely to be capable of being substantially rehabilitated. B. Current distribution is limited, and one or more of the following apply (i, ii or iii): i. geographic range and/or number of discrete occurrences, and/or area occupied is highly restricted and the community is currently subject to known threatening processes which are likely to result in total destruction throughout its range in the immediate future (within approximately 10 years). ii. there are very few occurrences, each of which is small and/or isolated and extremely vulnerable to known threatening processes. iii. there may be many occurrences but total area is very small and each occurrence is small and/or isolated and extremely vulnerable to known threatening processes. C. The ecological community exists only as highly modified occurrences that may be capable of being rehabilitated if such work begins in the immediate future (within approximately 10 years).
Endangered (EN)	An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or was originally of limited distribution and is in danger of significant modification throughout its range or severe modification or destruction over most of its range in the near future.

Criteria	Definition
	An ecological community will be listed as Endangered when it has been adequately surveyed and is not Critically Endangered but is facing a very high risk of total destruction in the near future. This will be determined on the basis of the best available information by it meeting any one or more of the following criteria (A, B, or C): A. The geographic range, and/or total area occupied, and/or number of discrete occurrences have been reduced by at least 70% since European settlement and either or both of the following apply (i or ii): i. the estimated geographic range, and/or total area occupied and/or number of discrete occurrences are continuing to decline such that total destruction of the community is likely in the short term future (within approximately 20 years). ii. modification throughout its range is continuing such that in the short term future (within approximately 20 years) the community is unlikely to be capable of being substantially restored or rehabilitated. B. Current distribution is limited, and one or more of the following apply (i, ii or iii): i. geographic range and/or number of discrete occurrences, and/or area occupied is highly restricted and the community is currently subject to known threatening processes which are likely to result in total destruction throughout its range in the short term future (within approximately 20 years). ii. there are few occurrences, each of which is small and/or isolated and all or most occurrences are very vulnerable to known threatening processes. iii. there may be many occurrences but total area is small and all or most occurrences are small and/or isolated and very vulnerable to known threatening processes. The ecological community exists only as very modified occurrences that may be capable of being substantially restored or rehabilitated if such work begins in the short-term future (within approximately 20 years).
Vulnerable (VU)	An ecological community that has been adequately surveyed and is found to be declining and/or has declined in distribution and/or condition and whose ultimate security has not yet been assured and/or a community that is still widespread but is believed likely to move into a category of higher threat in the near future if threatening processes continue or begin operating throughout its range. An ecological community will be listed as Vulnerable when it has been adequately surveyed and is not Critically Endangered or Endangered but is facing a high risk of total destruction or significant modification in the medium to long-term future. This will be determined on the basis of the best available information by it meeting any one or more of the following criteria (A, B or C): A. The ecological community exists largely as modified occurrences that are likely to be capable of being substantially restored or rehabilitated. B. The ecological community may already be modified and would be vulnerable to threatening processes, is restricted in area and/or range and/or is only found at a few locations. C. The ecological community may be still widespread but is believed likely to move into a category of higher threat in the medium to long term future because of existing or impending threatening processes.
Priority Ecological Communities	
Priority One	Poorly known ecological communities Ecological communities with apparently few, small occurrences, all or most not actively managed for conservation (e.g. within agricultural or pastoral lands, urban areas, active mineral leases) and for which current threats exist. Communities may be included if they are comparatively well-known from one or more localities but do not meet adequacy of

Criteria	Definition
	survey requirements, and/or are not well defined, and appear to be under immediate threat from known threatening processes across their range.
Priority Two	Poorly known ecological communities Communities that are known from few small occurrences, all or most of which are actively managed for conservation (e.g. within national parks, conservation parks, nature reserves, state forest, unallocated Crown land, water reserves, etc.) and not under imminent threat of destruction or degradation. Communities may be included if they are comparatively well known from one or more localities, but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under threat from known threatening processes.
Priority Three	Poorly known ecological communities i. Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation or. ii. Communities known from a few widespread occurrences, which are either large or within significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat, or. iii. Communities made up of large, and/or widespread occurrences, that may or may not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing by domestic and/or feral stock, and inappropriate fire regimes. Communities may be included if they are comparatively well known from several localities, but do not meet adequacy of survey requirements and / or are not well defined, and known threatening processes exist that could affect them.
Priority Four	Ecological communities that are adequately known, rare but not Threatened or meet criteria for Near Threatened, or that have been recently removed from the Threatened list. These communities require regular monitoring. i. Rare. Ecological communities known from few occurrences that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently Threatened or in need of special protection, but could be if present circumstances change These communities are usually represented on conservation lands. ii. Near Threatened. Ecological communities that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable. iii. Ecological communities that have been removed from the list of Threatened communities during the past five years.
Priority Five	Conservation Dependent Ecological Communities Ecological Communities that are not Threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming Threatened within five years.

Appendix C
Desktop Assessment Results and Likelihood of Occurrence Assessment

Flora Database Search Results (DBCA Database using 10 km Buffer, PMST 10 km buffer), Likelihood of Occurrence Assessment

Species	Conservation Status		Database		Flowering Period	Habitat description	Pre-Survey Likelihood	Post-Survey Likelihood	Justification
	DBCA	EPBC	DBCA	PMST					
Acacia flagelliformis	P4		*		Jul-Sep		Medium, recorded 3 km from Survey Area.	Low	Condition of Survey Area is too degraded.
Acacia horridula	P3		*		May to Aug	Gravelly soils over granite, sand. Rocky hillsides	Low, record 17.5 km from Survey Area, unsuitable geology and soils.	Low	Condition of Survey Area is too degraded.
Acacia semitrullata	P4		*		Jun-Aug	Sandplains, swampy areas.	Medium, recorded 4.5 km from Survey Area. Habitat unlikely to be present.	Low	Condition of Survey Area is too degraded.
Acacia sp. Binningup (G. Cockerton et al. WB 37784)	P1		*		Aug		High, <1 km from Survey Area.	Low	Condition of Survey Area is too degraded.
Alyogyne sp. Rockingham (G.J. Keighery 14463)	P2		*				Low, records 18.9 km from Survey Area. Unlikely to be present.	Low	Condition of Survey Area is too degraded.
Andersonia gracilis	VU	EN		*	Oct-Nov	White/grey sand, sandy clay, gravelly loam. Winter-wet areas, near swamps	Low, no records, Habitat unlikely to be present.	Low	Condition of Survey Area is too degraded.
Angianthus drummondii	P3		*		Oct,Nov		Low, records 15.7 km from Survey Area. Unlikely to be present.	Low	Condition of Survey Area is too degraded.
Aponogeton hexatepalus	P4		*		Jul to Oct	Mud. Freshwater: ponds, rivers, claypans.	Low, records 18.9 km from Survey Area. Unsuitable geology and soils, unlikely to be present	Low	Condition of Survey Area is too degraded.

Species	Conservation Status		Database		Flowering Period	Habitat description	Pre-Survey Likelihood	Post-Survey Likelihood	Justification
	DBCA	EPBC	DBCA	PMST					
Austrostipa bronweniae	EN	EN	*	*	Oct to Feb	Flat low-lying calcareous winter wet habitat type on the extensively cleared Swan Coastal Palin.	Medium, recorded 4.5 km from Survey Area. Habitat unlikely to be present.	Low	Condition of Survey Area is too degraded.
Banksia mimica	VU	EN		*	Dec/Jan-Feb	White or grey sand over laterite, sandy loam. Flat to gentle slopes, on grey and white sand in open woodlands	Low, no records, Habitat unlikely to be present.	Low	Condition of Survey Area is too degraded.
Bolboschoenus medianus	P1		*				Low, records 11.5 km from Survey Area. Unlikely to be present.	Low	Condition of Survey Area is too degraded.
Boronia capitata subsp. gracilis	P3		*		Jun to Nov.	White/grey or black sand. Winter-wet swamps, hillslopes.	Medium, recorded 4.6 km from Survey Area. Habitat unlikely to be present.	Low	Condition of Survey Area is too degraded.
Boronia juncea subsp. juncea	P1		*		Apr		High, 50 m from Survey Area.	Low	Condition of Survey Area is too degraded.
Caladenia huegelii	CR	EN	*	*	Aug to Oct	Grey or brown sand, clay loam.	Low, records 11.9 km from Survey Area. Unsuitable geology and soils, unlikely to be present	Low	Condition of Survey Area is too degraded.
Caladenia procera	CR	CR	*	*	Sep-Oct		Medium, recorded 4 km from Survey Area. Habitat unlikely to be present.	Low	Condition of Survey Area is too degraded.

Species	Conservation Status		Database		Flowering Period	Habitat description	Pre-Survey Likelihood	Post-Survey Likelihood	Justification
	DBCA	EPBC	DBCA	PMST					
Caladenia speciosa	P4		*		Sep to Oct.	White, grey or black sand.	Medium, recorded 4.2 km from Survey Area. Habitat unlikely to be present.	Low	Condition of Survey Area is too degraded.
Caladenia swartsiorum	P2		*		Late Sep - Oct		Medium, recorded 2.5 km from Survey Area. Habitat unlikely to be present.	Low	Condition of Survey Area is too degraded.
Caladenia uliginosa subsp. patulens	P1		*		Sep-Oct		Low, records 16.9 km from Survey Area. Unsuitable geology and soils, unlikely to be present	Low	Condition of Survey Area is too degraded.
Carex tereticaulis	P3		*		Sep to Oct	Black peaty sand.	Low, records 11.3 km from Survey Area. Unsuitable geology and soils, unlikely to be present	Low	Condition of Survey Area is too degraded.
Chamaescilla gibsonii	P3		*		Sep	Winter-wet flats, shallow water-filled claypans.	Low, records 14.1 km from Survey Area. Unlikely to be present.	Low	Condition of Survey Area is too degraded.
Chamelaucium lullfitzii	VU	EN		*	Oct-Nov		Low, no records, Habitat unlikely to be present.	Low	Condition of Survey Area is too degraded.
Cyathochaeta teretifolia	P3		*		Dec	Grey sand, sandy clay. Swamps, creek edges.	Low, records 5.0 km from Survey Area. Unsuitable geology and soils, unlikely to be present	Low	Condition of Survey Area is too degraded.
Dillwynia dillwynioides	P4		*		Aug-Jan	Grey or brown sandy clay, sand, or clay. Winter-wet depressions or flats,	Medium, recorded 2.4 km from Survey Area. Habitat unlikely to be present.	Low	Condition of Survey Area is too degraded.

Species	Conservation Status		Database		Flowering Period	Habitat description	Pre-Survey Likelihood	Post-Survey Likelihood	Justification
	DBCA	EPBC	DBCA	PMST					
						sumpland, lake edge, swamp.			
Dillwynia sp. Capel (P.A. Jurjevich 1771)	P3		*		Aug to Nov		Low, records 16.3 km from Survey Area. Unlikely to be present.	Low	Condition of Survey Area is too degraded.
Diuris drummondii	EN	VU	*	*	Nov to Dec or Jan	Low-lying depressions, swamps. Not likely in lateritic soils.	Medium, recorded 3.3 km from Survey Area. Habitat unlikely to be present.	Low	Condition of Survey Area is too degraded.
Diuris micrantha	VU	VU	*	*	Sep to Oct	Brown loamy clay. Winter-wet swamps, in shallow water. Not likely in lateritic soils.	Low, records 6.8 km from Survey Area. Unsuitable geology and soils, unlikely to be present	Low	Condition of Survey Area is too degraded.
Diuris purdiei	EN	EN	*	*	Sep to Oct.	Grey-black sand, moist. Winter-wet swamps.	Low, records 17.1 km from Survey Area. Unsuitable geology and soils, unlikely to be present	Low	Condition of Survey Area is too degraded.
Drakaea elastica	CR	EN	*	*	Oct-Nov	White or grey sand. Low-lying situations adjoining winter-wet swamps.	Medium, recorded 1.6 km from Survey Area. Found in grey soils, unlikely to be present.	Low	Condition of Survey Area is too degraded.
Drakaea micrantha	EN	VU	*	*	Sep to Oct	White-grey sand.	Medium, recorded 1.8 km from Survey Area. Found in grey soils, unlikely to be present.	Low	Condition of Survey Area is too degraded.
Eleocharis keigheryi	VU	VU		*	Aug to Nov	Substrate of clay or sandy loam. This species is emergent in freshwater creeks,	Low, no records, Habitat unlikely to be present.	Low	Condition of Survey Area is too degraded.

Species	Conservation Status		Database		Flowering Period	Habitat description	Pre-Survey Likelihood	Post-Survey Likelihood	Justification
	DBCA	EPBC	DBCA	PMST					
						and transient waterbodies such as drainage lines and claypans in water to approximately 15 cm deep. Sedge. Clay, sandy loam. Emergent in freshwater: creeks, claypans. Not likely in lateritic soils.			
Eucalyptus foecunda subsp. foecunda	P4		*		Feb-Mar, Sep-Oct (buds)	Yellow, white or red sand. Limestone outcropping/ridge/hill/rise on plain.	Low, records 14.8 km from Survey Area. Unsuitable geology and soils, unlikely to be present	Low	Condition of Survey Area is too degraded.
Eucalyptus rudis subsp. cratyantha	P4		*				Low, records 11.2 km from Survey Area. Unsuitable geology and soils, unlikely to be present	Low	Condition of Survey Area is too degraded.
Euphrasia scabra	P2		*				Low, records 16.6 km from Survey Area. Unlikely to be present.	Low	Condition of Survey Area is too degraded.
Grevillea bipinnatifida subsp. pagna	P1		*		Aug or Oct to Nov	Grey sandy clay and loam, ironstone. Seasonal wetlands, swamps, roadsides.	Low, records older than 30 years, 13.9 km from Survey Area. Unsuitable geology and soils, unlikely to be present	Low	Condition of Survey Area is too degraded.
Haloragis aculeolata	P2		*		Sep or Dec	Black sand or clay over limestone. Winter-wet areas.	Low, records older than 30 years, 14 km from Survey Area. Unsuitable geology	Low	Condition of Survey Area is too degraded.

Species	Conservation Status		Database		Flowering Period	Habitat description	Pre-Survey Likelihood	Post-Survey Likelihood	Justification
	DBCA	EPBC	DBCA	PMST					
							and soils, unlikely to be present		
Hemigenia microphylla	P3		*		Sep to Dec	Sandy clay, peaty clay, granite. Winter-wet depressions.	Low, records older than 30 years, 11.9 km from Survey Area. Unsuitable geology and soils, unlikely to be present	Low	Condition of Survey Area is too degraded.
Lasiopetalum membranaceum	P3		*		Oct-Nov	0	High, <1 km from Survey Area.	Low	Condition of Survey Area is too degraded.
Leucopogon sp. Busselton (D. Cooper 243)	P3		*		Aug-Sep	Grey sand. Seasonally wet areas	Low, records 18 km from Survey Area. Unsuitable geology and soils, unlikely to be present.	Low	Condition of Survey Area is too degraded.
Loricobbia skinneri	P4		*				Low, records older than 20 years, 8.4 km from Survey Area. Unsuitable geology and soils, unlikely to be present	Low	Condition of Survey Area is too degraded.
Meionectes tenuifolia	P3		*		Nov-Dec		Low, records older than 20 years, 12.3 km from Survey Area. Unsuitable geology and soils, unlikely to be present	Low	Condition of Survey Area is too degraded.
Morelotia australiensis	VU	VU		*	Nov and Dec	Winter-wet swampy depressions, drainage lines or rises surrounding swamps	Low, no records, Habitat unlikely to be present.	Low	Condition of Survey Area is too degraded.

Species	Conservation Status		Database		Flowering Period	Habitat description	Pre-Survey Likelihood	Post-Survey Likelihood	Justification
	DBCA	EPBC	DBCA	PMST					
Myriophyllum echinatum	P3		*		Oct-Nov		Low, records older than 40 years, 12.1 km from Survey Area. Unsuitable geology and soils, unlikely to be present	Low	Condition of Survey Area is too degraded.
Ornduffia submersa	P4		*		Sept -Oct	Leaves floating on surface of water. Clay-based ponds and swamps (semi-aquatic)	Low, records older than 40 years, 19.1 km from Survey Area. Unsuitable geology and soils, unlikely to be present	Low	Condition of Survey Area is too degraded.
Pterostylis frenchii	P2		*		Nov-Dec		Low, records between 10 and 20 years old, 8.5 km from Survey Area. Unlikely to be present.	Low	Condition of Survey Area is too degraded.
Puccinellia vassica	P1		*		Nov		Low, records 6 km from Survey Area. Associated with inlet. Unlikely to be present.	Low	Condition of Survey Area is too degraded.
Rumex drummondii	P4		*		Aug-Nov	Black peaty sand, sandy loam, sandy clay. Winter-wet flats/ depressions, adjacent to waterway, creekline.	Low, records 19.4 km from Survey Area. Unlikely to be present.	Low	Condition of Survey Area is too degraded.
Schoenus sp. Waroona (G.J. Keighery 12235)	P3		*		Oct		Low, records older than 30 years, 7.5 km from Survey Area. Unlikely to be present.	Low	Condition of Survey Area is too degraded.

Species	Conservation Status		Database		Flowering Period	Habitat description	Pre-Survey Likelihood	Post-Survey Likelihood	Justification
	DBCA	EPBC	DBCA	PMST					
Senecio leucoglossus	P4		*		Aug-Dec		Low, records 13.3 km from Survey Area. Unlikely to be present.	Low	Condition of Survey Area is too degraded.
Sphaerolobium calcicola	P3		*		Jun/Sep-Nov		Low, records older than 30 years, 13 km from Survey Area. Unlikely to be present.	Low	Condition of Survey Area is too degraded.
Stylidium acuminatum subsp. acuminatum	P2		*		Oct-Nov		Low, records older than 20 years, 18.9 km from Survey Area. Unsuitable geology and soils, unlikely to be present	Low	Condition of Survey Area is too degraded.
Stylidium korijekup	P2		*		Oct		Low, records older than 20 years, 17.7 km from Survey Area. Unsuitable geology and soils, unlikely to be present	Low	Condition of Survey Area is too degraded.
Stylidium paludicola	P3		*		Oct and Dec	Peaty sand over clay. Winter wet habitats. Marri and Melaleuca woodland, Melaleuca shrubland.	Low, records older than 20 years, 16.3 km from Survey Area. Unsuitable geology and soils, unlikely to be present	Low	Condition of Survey Area is too degraded.
Styphelia filifolia	P3		*		Mar and May	Sandy soils of the coastal plain (with one known occurrence from the northern Darling Scarp), usually in Banksia or Jarrah	Low, records older than 20 years, 6.7 km from Survey Area. Unsuitable geology and soils, unlikely to be present	Low	Condition of Survey Area is too degraded.

Species	Conservation Status		Database		Flowering Period	Habitat description	Pre-Survey Likelihood	Post-Survey Likelihood	Justification
	DBCA	EPBC	DBCA	PMST					
						woodland and in low-lying situations.			
Synaphea sp. Fairbridge Farm (D.Papenfus 696)	CR	CR		*			Low, no records, unlikely to be present.	Low	Condition of Survey Area is too degraded.
Synaphea sp. Pinjarra Plain (A.S.George 17182)	CR	EN		*			Low, no records, unlikely to be present.	Low	Condition of Survey Area is too degraded.
Synaphea sp. Serpentine (G.R.Brand 103)	CR	CR		*			Low, no records, unlikely to be present.	Low	Condition of Survey Area is too degraded.
Synaphea stenoloba	EN	EN		*	Aug-Oct		Low, no records, unlikely to be present.	Low	Condition of Survey Area is too degraded.
Tripterococcus sp. Brachylobus (A.S. George 14234)	P4		*		Feb	grey, black or peaty sand winter-wet flats	Medium, recorded 4 km from Survey Area. Habitat unlikely to be present.	Low	Condition of Survey Area is too degraded.
Verticordia attenuata	P3		*		Jan		Low, records 10.7 km from Survey Area. Unlikely to be present	Low	Condition of Survey Area is too degraded.

Threatened Ecological Communities Database Search Results (DBCA Database using 10 km Buffer, PMST 10 km buffer), Likelihood of Occurrence Assessment

Floristic Community Type/ Comm ID	Community Name	Conservation Status		Database		Pre-Survey Likelihood of Occurrence	Post-Survey Likelihood of Occurrence	Justification
		DBCA	EPBC	PMST	DBCA			
Banksia WL SCP (131)	Banksia Woodlands of the Swan Coastal Plain ecological community	P3	EN	*	*	Recorded/High	Low	DBCA provided dataset displays portion of Survey Area intersecting with eastern edge of Survey Area. This was recorded as not present within the Survey Area.
121	Clay Pans of the Swan Coastal Plain		CR	*		Low	Low	Community is defined by clay soils. Incorrect geology and soils, not present in Survey Area.
SCP09	Dense shrublands on clay flats (floristic community type 9 as originally described in Gibson et al. 1994)	EN	CR		*	Low	Low	7.1 km northeast of Survey Area. Incorrect geology and soils.
174	Empodisma peatlands of southwestern Australia		EN	*		Low	Low	Community is defined by peat soils and dense vegetation. Incorrect geology and soils, not present in Survey Area.
SCP08	Herb rich shrublands in clay pans (floristic community type 8 as originally described in Gibson et al. 1994)	EN	CR		*	Low	Low	5.2 km east of Survey Area. Incorrect geology and soils.
182	Honeymyrtle shrubland on limestone ridges of the Swan Coastal Plain Bioregion		CR	*		Low	Low	Community is defined by coastal geology and limestone association. Incorrect geology and soils, not present in Survey Area.
SCP24	Northern Spearwood shrublands and woodlands	P3	EN		*	Low	Low	Nearest recorded community is approximately 3 km away, associated with coastal sand and geology.

Floristic Community Type/ Comm ID	Community Name	Conservation Status		Database		Pre-Survey Likelihood of Occurrence	Post-Survey Likelihood of Occurrence	Justification
		DBCA	EPBC	PMST	DBCA			
Muchea Limestone	Shrublands and woodlands on Muchea Limestone of the Swan Coastal Plain	EN	EN		*	Low	Low	5.3 km east of Survey Area. Incorrect geology and soils.
Coastal Saltmarsh (118)	Subtropical and Temperate Coastal Saltmarsh	P3	VU	*	*	Low	Low	Nearest recorded community is approximately 4.8 km away, associated with Leschenault inlet and estuarine/brackish water. Not present in Survey Area.
Tuart woodlands (153)	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	P3	CR	*	*	Recorded	Recorded	DBCA provided dataset intersect with southwestern portion of Survey Area. TEC was confirmed as present during field survey.

Appendix D
Releve Data Sheets

Releve Number: REL01			
Date: 17/06/2025		**Project Number:** A24.238	
Collector: AF/TC			
Coordinates		Easting: 381681.709033374034334	Northing: 6331705.458830043673515
Slope	Flat		
Aspect	Wetland		
Position	Basin		
Soil Texture	sandy loam		
Soil Colour	Dark brown loam		
Rock Type	-		
Rock Cover	-		
Bare Ground	-		
Litter	-		
Surface Water	50 %		
Vegetation Condition	Degraded		
Weed Cover	75		
Disturbance	Grazing, livestock		

Species	Naturalised	Conservation code	Height	% Cover
Melaleuca rhaphiophylla	0		<10	2
Machaerina articulata	0		<0.1	20
Cynodon dactylon	*		<0.1	60
Mentha pulegium	*		<0.1	10
Hydrocotyle bonariensis	*		<0.1	<1
Chenopodium album	*		<0.1	<1
Cotula coronopifolia	*		<0.1	<1
Rumex crispus	*		<0.1	<1
Solanum nigrum	*		<0.1	<1
Trifolium campestre	*		<0.1	<1
Romulea rosea	*		<0.1	<1
Typha orientalis	0		<0.1	<1

Releve Number: REL02			
Date: 17/06/2025		Project Number: A24.238	
Collector: AF/TC			
Coordinates		Easting: 383391678275075	Northing: 799758349545300
Slope	Flat		
Aspect	Wetland		
Position	Basin		
Soil Texture	sandy loam		
Soil Colour	Dark grey sand		
Rock Type	-		
Rock Cover	-		
Bare Ground	-		
Litter	-		
Surface Water	50		
Vegetation Condition	Completely Degraded		
Weed Cover	85		
Disturbance	Grazing, livestock		

Species	Naturalised	Conservation code	Height	% Cover
Melaleuca rhaphiophylla	0		<10	<1
Cynodon dactylon	*		<0.1	60
Juncus articulatus	*		<0.1	10
Mentha pulegium	*		<0.1	10
Lotus subbiflorus	*		<0.1	<1
Juncus pallidus	0		<0.1	<1
Zantedeschia aethiopica	*	Declared Weed	<0.1	<1
Lemna disperma	0		<0.1	<1
Rumex crispus	*		<0.1	<1
Cotula coronopifolia	*		<0.1	<1
Juncus microcephalus	*		<0.1	<1
Juncus spp.	0		<0.1	<1
Holcus lanatus	*		<0.1	<1

Appendix E Fauna Desktop and Likelihood of Occurrence

Fauna Database Search Results (DBCA Database using 20 km Buffer, PMST 20 km buffer), Likelihood of Occurrence Assessment

Species	Common Name	Conservation Status		Database		Habitat	Pre-survey Likelihood of Occurrence	Post-survey Likelihood of Occurrence	Justification
		State	EPBC	PMST	DBCA				
Aves									
Calidris ferruginea	curlew sandpiper	CR	CR & MI	*	*	This species prefers habitats such as tidal mudflats, saltmarsh, salt fields, fresh, brackish or saline wetlands and sewerage ponds. Lagoons, mangroves, beaches, rocky shores, lakes, dams, floodwaters. This species breeds on offshore marine islands.	Medium	Medium	Marginally suitable habitat present. Infrequent use only.
Calidris tenuirostris	Great Knot	CR	VU & MI	*		Sheltered coastal habitats, with large intertidal mudflats or sandflats. This includes inlets, bays, harbours, estuaries and lagoons.	Low	Low	No suitable habitat present
Diomedea dabbenena	Tristan Albatross	CR	EN & MI	*			Low	Low	No suitable habitat present
Numenius madagascariensis	eastern curlew	CR	CR & MI	*	*	Intertidal mudflats and sandflats, often with beds of seagrass, on sheltered coasts, especially estuaries, mangrove swamps, bays, harbours and lagoons.	Low	Low	No suitable habitat present
Zanda baudinii	Baudin's cockatoo	EN	EN	*	*		High	High	Suitable habitat present. Records 2.2 km from Survey Area
Zanda latirostris	Carnaby's cockatoo	EN	EN	*	*		High	High	Suitable habitat present. Records <1 km from Survey Area
Anous tenuirostris melanops	Australian Lesser Noddy	EN	VU	*			Low	Low	No suitable habitat present. One record from 1994.

Species	Common Name	Conservation Status		Database		Habitat	Pre-survey Likelihood of Occurrence	Post-survey Likelihood of Occurrence	Justification
		State	EPBC	PMST	DBCA				
Botaurus poiciloptilus	Australasian bittern	EN	EN	*	*	Occurs mainly in freshwater wetlands and, rarely, in estuaries or tidal wetlands.The species nests adjacent to relatively deep, densely vegetated freshwater swamps and pools, building its nests under dense cover over shallow water. The distribution in WA only occurs on the western coastal plain between Lancelin and Busselton, in the southern coastal region from Augusta to Albany.	Medium	Medium	Limited suitable habitat present. Recent records 8.6 km from survey area.
Calidris canutus	Red Knot, Knot	EN	VU & MI	*		Intertidal mudflats, sandflats and sandy beaches of sheltered coasts, in estuaries, bays, inlets, lagoons and harbours; sometimes on sandy ocean beaches or shallow pools on exposed wave-cut rock platforms or coral reefs. They are occasionally seen on terrestrial saline wetlands near the coast, such as lakes, lagoons, pools and pans, and recorded on sewage ponds and saltworks, but rarely use freshwater swamps. They rarely use inland lakes or swamps. The species does not breed in Australia.	Medium	Medium	Marginally suitable habitat present. Infrequent use only.
Charadrius mongolus	Lesser Sand Plover, Mongolian Plover	EN	EN & MI	*			Medium	Medium	Suitable habitat present, wading bird
Diomedea sanfordi	Northern Royal Albatross	EN	EN & MI	*		Australia is within foraging range, breeds in New Zealand. Dispersal during non-breeding periods includes Western Australia.	Low	Low	No suitable habitat present

Species	Common Name	Conservation Status		Database		Habitat	Pre-survey Likelihood of Occurrence	Post-survey Likelihood of Occurrence	Justification
		State	EPBC	PMST	DBCA				
Phoebetria fusca	Sooty Albatross	EN	VU & MI	*			Low	Low	No suitable habitat present, coastal bird
Rostratula australis	Australian Painted Snipe	EN	EN	*		The Australian Painted Snipe is usually found in shallow inland wetlands, either freshwater or brackish, that are either permanently or temporarily filled. Though some individuals are apparently resident in some areas, other individuals appear to be nomadic, temporarily occupying areas where suitable habitat exists (DCCEEW, 2023c).	Low	Low	No suitable habitat present
Thalassarche carteri	Indian Yellow-nosed Albatross	EN	VU & MI	*			Low	Low	No suitable habitat present
Thalassarche melanophris	Black-browed Albatross	EN	VU & MI	*		Marine species that inhabits Antarctic, subantarctic and temperate waters and occasionally enters the tropics. In the non-breeding season it follows cold water currents north to the continental shelves of Australia	Low	Low	No suitable habitat present
Calyptorhynchus banksii naso	forest red-tailed black cockatoo	VU	VU	*	*		High	Recorded	Multiple recent records <1 km from Survey Area. One record within 400 m of Survey Area, potentially within home range.

Species	Common Name	Conservation Status		Database		Habitat	Pre-survey Likelihood of Occurrence	Post-survey Likelihood of Occurrence	Justification
		State	EPBC	PMST	DBCA				
Charadrius leschenaultii	greater sand plover, large sand plover	VU	VU & MI	*	*	The species is almost entirely coastal, inhabiting littoral and estuarine habitats. They mainly occur on sheltered sandy, shelly or muddy beaches with large intertidal mudflats or sandbanks, as well as sandy estuarine lagoons. The species does not breed in Australia.	Medium	Medium	Suitable habitat present
Diomedea epomophora	Southern Royal Albatross	VU	VU & MI	*		Australia is within foraging range, breeds in New Zealand. Dispersal during non-breeding periods includes Western Australia.	Low	Low	No suitable habitat present
Diomedea exulans	Wandering Albatross	VU	VU & MI	*		Nests on Macquarie island	Low	Low	No suitable habitat present
Falco hypoleucos	Grey Falcon	VU	VU	*		The Grey Falcon is a wide roaming species and prefers habitats such as lightly treed inland plains, gibber deserts, sand ridges, pastoral lands, timbered watercourses. They are seldom in the driest deserts.	Medium	Medium	Suitable habitat present for foraging.
Leipoa ocellata	Malleefowl	VU	VU	*		Semi-arid to arid shrublands and low woodlands, especially those dominated by mallee and/or acacias. A sandy substrate and abundance of leaf litter are required for breeding	Low	Low	Locally Extinct.
Sternula nereis nereis	Australian Fairy Tern	VU	VU	*			Low	Low	No suitable habitat present
Thalassarche cauta	shy albatross	VU	EN & MI	*	*		Low	Low	No suitable habitat present
Thalassarche impavida	Campbell Albatross, Campbell	VU	VU & MI	*		Marine sea bird inhabiting sub-Antarctic and subtropical waters from pelagic to shelf-break water habitats	Low	Low	No suitable habitat present

Species	Common Name	Conservation Status		Database		Habitat	Pre-survey Likelihood of Occurrence	Post-survey Likelihood of Occurrence	Justification
		State	EPBC	PMST	DBCA				
	Black-browed Albatross								
Tyto novaehollandiae novaehollandiae	masked owl (southwest)	P3			*		Medium	Medium	Suitable foraging habitat present.
Botaurus dubius	Australian little bittern	P4			*		Low	Low	No records or suitable habitat present
Oxyura australis	blue-billed duck	P4			*	Found in the temperate wetlands of the south-east and south-west parts of the continent. Wholly aquatic, and is seldom seen on land.	High	High	Suitable habitat present for nesting and foraging.
Actitis hypoleucos	common sandpiper	MI	MI		*	Previously recorded in estuaries and deltas of streams,banks farther upstream; around lakes, pools, billabongs, reservoirs, dams and claypans, and occasionally piers and jetties. The species generally forages in shallow water and on bare soft mud at the edges of wetlands. They sometimes venture into grassy areas adjoining wetlands (Higgins & Davies 1996).	Medium	Medium	Suitable habitat present. Habitat for the species is associated with coastal and interior wetlands. Records 4.6 km from Survey Area.
Ardenna grisea	Sooty Shearwater	MI	VU & MI	*			Low	Low	No suitable habitat present
Arenaria interpres	Ruddy Turnstone	MI	VU & MI	*		This species is found on most coastal regions, with occasional records of inland populations (Higgins & Davies 1996). It strongly prefers rocky shores or beaches where there are large deposits of rotting seaweed.	Low	Low	No suitable habitat present

Species	Common Name	Conservation Status		Database		Habitat	Pre-survey Likelihood of Occurrence	Post-survey Likelihood of Occurrence	Justification
		State	EPBC	PMST	DBCA				
Calidris acuminata	sharp-tailed sandpiper	MI	VU & MI	*	*	Muddy edges of shallow fresh or brackish wetlands with inundated emergent sedges, grass, saltmarsh or low vegetation. Including lagoons, swamps, pools near the coast, dams,waterholes, swamps, saltpans and hypersaline salt lakes inland. They use flooded paddocks, sedgelands, and emphemeral wetlands but leaves when dried.	Medium	Medium	Suitable habitat present. Infrequent visitor, associated with marine habitat. Records associated with marine and estuarine systems.
Calidris ruficollis	red-necked stint	MI	MI		*	The Red-necked Stint is mostly found in coastal areas, including in sheltered inlets, bays, lagoons and estuaries with intertidal mudflats, often near spits, islets and banks and, sometimes, on protected sandy or coralline shores.	Low	Low	No suitable habitat present
Halobaena caerulea	Blue Petrel	MI	VU & MI	*		Coastlines	Low	Low	No suitable habitat present
Limosa lapponica menzbieri	Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit	MI	MI	*			Low	Low	No suitable habitat present
Limosa limosa	Black-tailed Godwit	MI	EN & MI	*		In Australia the Black-tailed Godwit has a primarily coastal habitat environment. The species is commonly found in sheltered bays, estuaries and lagoons with large intertidal mudflats or sandflats, or spits and banks of mud, sand or shell-grit; occasionally recorded on rocky coasts or coral islets. The	Low	Low	No suitable habitat present

Species	Common Name	Conservation Status		Database		Habitat	Pre-survey Likelihood of Occurrence	Post-survey Likelihood of Occurrence	Justification
		State	EPBC	PMST	DBCA				
						use of habitat often depends on the stage of the tide. It is also found in shallow and sparsely vegetated, near-coastal, wetlands; such as saltmarsh, saltflats, river pools, swamps, lagoons and floodplains.			
Macronectes giganteus	southern giant petrel	MI	EN & MI	*	*	Marine bird that occurs in Antarctic to subtropical waters. In summer, it mainly occurs over Antarctic waters	Low	Low	No suitable habitat present
Macronectes halli	Northern Giant Petrel	MI	VU & MI	*		Marine and oceanic. It mainly occurs in sub-Antarctic waters, but regularly occurs in Antarctic waters of the southwestern Indian Ocean	Low	Low	No suitable habitat present
Plegadis falcinellus	glossy ibis	MI	MI		*	Fresh water marshes at the edges of lakes and rivers, lagoons, flood-plains, wet meadows, swamps, reservoirs, sewage ponds, rice-fields and cultivated areas under irrigation.	High	High	Suitable habitat present
Pluvialis fulva	Pacific golden plover	MI	MI		*	Migratory shore bird that does not breed in Australia. Pacific Golden Plovers usually occur on beaches, mudflats and sandflats (sometimes in vegetation such as mangroves, low saltmarsh such as Sarcocornia, or beds of seagrass) in sheltered areas including harbours, estuaries and lagoons, and also in evaporation ponds in saltworks. The species is also sometimes recorded on islands, sand and coral cays and exposed reefs and rocks.	Low	Low	No suitable habitat present
Pluvialis squatarola	grey plover	MI	VU & MI		*	In non-breeding grounds in Australia, Grey Plovers occur almost entirely in coastal	Low	Low	No suitable habitat present

Species	Common Name	Conservation Status		Database		Habitat	Pre-survey Likelihood of Occurrence	Post-survey Likelihood of Occurrence	Justification
		State	EPBC	PMST	DBCA				
						areas, where they usually inhabit sheltered embayments, estuaries and lagoons with mudflats and sandflats, and occasionally on rocky coasts with wave-cut platforms or reef-flats, or on reefs within muddy lagoons. They also occur around terrestrial wetlands such as near-coastal lakes and swamps, or salt-lakes. The species is also very occasionally recorded further inland, where they occur around wetlands or salt-lakes (Marchant & Higgins 1993 and references therein). On their breeding grounds they inhabit tundra (Dement'ev & Gladkov 1951).			
Thalassarche steadi	White-capped Albatross	MI	VU	*		Marine species and occurs in subantarctic and subtropical waters. In non-breeding season it enters inshore and offshore harbours and bays	Low	Low	No suitable habitat present
Thalasseus bergii	crested tern	MI	MI		*		Low	Low	No suitable habitat present
Tringa glareola	wood sandpiper	MI	MI		*	Well-vegetated, shallow, freshwater wetlands, such as swamps, billabongs, lakes, pools and waterholes. Occurs in all areas of national importance located in Western australia.	Low	Low	No suitable habitat present
Tringa nebularia	common greenshank	MI	EN & MI	*	*	Occurs in sheltered coastal habitats, typically with large mudflats and saltmarsh, mangroves or seagrass.	Low	Low	No suitable habitat present
Falco peregrinus	peregrine falcon	OS			*	The Peregrine Falcon inhabits cliffs, gorges, timbered waterways, riverine environments, wetlands, plains and open woodlands. It also	Medium	Medium	Suitable habitat present for foraging.

Species	Common Name	Conservation Status		Database		Habitat	Pre-survey Likelihood of Occurrence	Post-survey Likelihood of Occurrence	Justification
		State	EPBC	PMST	DBCA				
						inhabits pylons, spires and buildings. Nesting habitat includes cliff edges or crevices, large tree hollows, other raptor or corvid nests and ledges of city buildings			
Charadrius cucullatus	hooded plover, hooded dotterel	P4			*		Low	Low	No records or suitable habitat present
Diomedea amsterdamensis	Amsterdam Albatross	CR	EN & MI	*		Marine, pelagic seabird. It nests in open patchy vegetation (among tussocks, ferns or shrubs) near exposed ridges or hillocks (Weimerskirch et al. 1985). It sleeps and rests on ocean waters when not breeding (Marchant & Higgins 1990).	Low	Low	No suitable habitat present
Pachyptila turtur subantarctica	Fairy Prion (southern)		VU	*			Low	Low	No suitable habitat present
Pterodroma mollis	Soft-plumaged Petrel		VU	*			Low	Low	No suitable habitat present
Mammals									
Phascogale tapoatafa wambenger	south-western brush-tailed phascogale, wambenger	CD			*		High	High	Records 1.3 km southeast of Survey Area
Pseudocheirus occidentalis	western ringtail possum, ngwayir	CR	CR	*	*	South-west of Western Australia, lives in coastal peppermint (Agonis flexuosa) woodlands and ludlow tuart (Eucalyptus gomphocephala)	High	Recorded	Mutliple recent records <1 km from Survey Area. Species was

Species	Common Name	Conservation Status		Database		Habitat	Pre-survey Likelihood of Occurrence	Post-survey Likelihood of Occurrence	Justification
		State	EPBC	PMST	DBCA				
						forests, where it mainly feeds on peppermint tree leaves.			recorded during targeted surveys.
Myrmecobius fasciatus	numbat, walpurti	EN	EN		*	Acacia aneura (mulga) woodland and sand plain and sand dune areas dominated by Triodia spp. (spinifex) hummock grassland in the arid zone (Friend et al., 1982; Burbidge et al., 1988) to eucalypt woodlands and forests in south-west Western Australia. Numbats seek overnight refuge in hollow logs, tree hollows and burrows, which provide protection from predators	Low	Low	Locally extinct.
Dasyurus geoffroii	chuditch, western quoll	VU	VU	*	*	Forests, mallee shrublands, woodlands and desert. No records in SCP since 1930s, have been recorded in outer metro areas. Perth to South-west.	High	High	Records 1.3 km southeast of Survey Area
Setonix brachyurus	Quokka	VU	VU	*		Dense riparian vegetation, heath and shrubland on the mainland coast and offshore islands.	Low	Low	Locally extinct.
Falsistrellus mackenziei	western false pipistrelle, western falsistrelle	P4			*	High rainfall forests dominated by Jarrah, Karri, Marri, and Tuart. Colonies of up to 30 animals have been found in hollow logs. It is a specialist of tall, mature forest (Start and McKenzie 2008), however it has also been captured in the past in Banksia woodland on the Swan Coastal Plain	Low	Low	No suitable habitat present. Records 3.8 km from Survey Area.
Hydromys chrysogaster	water-rat, rakali	P4			*	Lives in burrows on low banks of rivers, lakes, wetlands, estuaries and even along	Low	Low	No suitable habitat present. Habitat is

Species	Common Name	Conservation Status		Database		Habitat	Pre-survey Likelihood of Occurrence	Post-survey Likelihood of Occurrence	Justification
		State	EPBC	PMST	DBCA				
						the coast. Intact riparian vegetation and associated bank stability is critical to their survival.			permanent wetlands and rivers. Closest record 2.8 km away from 1964. Records are > 5 km from Survey Area.
Isoodon fusciventer	quenda, southwestern brown bandicoot	P4			*	Scrubby, often swampy, vegetation with dense cover up to 1 m (3 ft 3 in) high, often feeds in adjacent forest and woodland that is burnt on a regular basis and in areas of pasture and cropland lying close to dense cover. Populations inhabiting Jarrah and Wandoo forests are usually associated with watercourses. Quenda will thrive in more open habitat subject to introduced predator control. On the Swan Coastal Plain, Quenda are often associated with wetlands	High	High	Recent records approximately 700 m from Survey Area
Notamacropus irma	western brush wallaby	P4			*	Open forest or woodland, particularly favouring open, seasonally wet flats with low grasses and open scrubby thickets. It is also found in some areas of mallee and heathland, and is uncommon in karri forest.	High	High	Records 1.7 km southeast of Survey Area
Reptiles									
Ctenotus ora	Coastal Plains skink	P3			*		Medium	Medium	Multiple records 2.6 km southeast of Survey Area.
Lerista lineata	Perth slider, lined skink	P3			*	Distribution is southern Swan Coastal Plain, south of the Swan River and mostly near the coast.	Low	Low	Suitable habitat not present

Species	Common Name	Conservation Status		Database		Habitat	Pre-survey Likelihood of Occurrence	Post-survey Likelihood of Occurrence	Justification
		State	EPBC	PMST	DBCA				
Other									
Galaxiella nigrostriata	black-stripe minnow, black-striped dwarf galaxias	EN	EN	*	*		Low	Low	No suitable habitat present
Nannatherina balstoni	Balston's Pygmy Perch	VU	VU	*			Low	Low	No suitable habitat present
Westralunio carteri	Carter's freshwater mussel	VU	VU	*	*	Occurs in coastal freshwater rivers and lakes between Moore River in the north and the Waychinicup River in the south.Greatest abundance in slower flowing waters where sediments are stable and soft enough to allow the species to burrow (<10 cm depth).	Low	Low	No suitable habitat present.

Appendix F Black Cockatoo Potential Breeding Tree Data

Tree Number	Date	Species	Bamford Class	DBH	Hollow Comments	Eastings	Northings	Comments
11	17/06/2025	Marri	3	125	1x upwards facing knot, 10cm opening at 10m. Has Galah chew and wear.	382683.666	6331803.728	Suitable
12	17/06/2025	Marri	4	95	1x 40cm side entry into main trunk k at 12m. May connect to chimney at 15m. Hollow entry well defined. Occupied by bees currently,	382663.5321	6331809.88	Main trunk snapped at 15m.
59	17/06/2025	Marri	4	52	Small hollows	382734.4742	6331760.152	Mini chimney and hollows, unsuitable based on size.
68	17/06/2025	Marri	4	55	Tiny hollows	382758.4545	6331687.398	
78	17/06/2025	Marri	4	55	Developing hollows, all too small	382720.2244	6331725.983	
81	17/06/2025	Marri	4	55	Small spout with 10cm opening. Branch too small. Unsuitable for BC	382720.2488	6331722.538	
114	07/08/2025	Marri	4	55	Small undeveloped hollows.	382687.0562	6331569.7532742	
79	17/06/2025	Marri	4	59	Tiny hollows	382720.5027	6331720.975	
60	17/06/2025	Marri	4	62	Small spouts, unsuitable for Black Cockatoo	382748.7224	6331771.795	High foraging, lots of fruit.
61	17/06/2025	Dead	4	64	Tiny hollows, unsuitable	382755.4386	6331766.61	Observed Red tails using as perch.
65	17/06/2025	Marri	4	65	Tiny hollows developing, unsuitable	382766.6757	6331691.501	
76	17/06/2025	Marri	4	65	Small hollows, developing, unsuitable for Black Cockatoo	382738.0359	6331688.788	
88	17/06/2025	Dead	4	70	Small broken branches with undeveloped hollows.	382580.3767	6331614.999	Marri
70	17/06/2025	Marri	4	75	Tiny hollows	382751.5557	6331659.398	

Tree Number	Date	Species	Bamford Class	DBH	Hollow Comments	Eastings	Northings	Comments
105	17/06/2025	Flooded Gum	4	75	Small hollows, unsuitable	381794.4657	6331470.21	
89	17/06/2025	Dead	4	79	Small Fissure/ knot with chew, think galah hollow. Unsure depth. Think just bottoms out. Smaller side of 10cm	382554.2451	6331615.515	
67	17/06/2025	Marri	4	85	Spout with ridged edges, unsuitable and too small.	382760.4146	6331689.287	
97	17/06/2025	Flooded Gum	4	85	Small hollows, all undeveloped and unsuitable	382166.6739	6331502.392	
101	17/06/2025	Flooded Gum	4	85	Small hollows, unsuitable	382076.6487	6331480.121	
94	17/06/2025	Flooded Gum	4	90	Small hollows, none suitable.	382480.8106	6331747.66	Large nest in middle, unsure species
95	17/06/2025	Flooded Gum	4	90	No sizeable hollows suitable for black cockatoo	382530.9217	6331809.437	Peppy growing in and around the flooded gum
96	17/06/2025	Flooded Gum	4	90	Small hollows, none suitable	382175.7358	6331507.353	
102	17/06/2025	Flooded Gum	4	95	Small hollows, all unsuitable	382005.8689	6331459.755	
109	17/06/2025	Dead	4	100	Small hollows, unsuitable	381484.6151	6331546.471	
54	17/06/2025	Flooded Gum	4	110	One Small hollow, unsuitable	381828.4882	6331510.572	
116	07/08/2025	Marri	4	115	Small unsuitable	382706.1971	6331564.2598	
31	17/06/2025	Flooded Gum	4	120	Snapped branches.	382549.7611	6332064.011	

Tree Number	Date	Species	Bamford Class	DBH	Hollow Comments	Eastings	Northings	Comments
110	17/06/2025	Dead	4	120	No suitable hollows, broken a d rotten branches	381447.485	6331567.523	
126	07/08/2025	Flooded Gum	4	120	Small hollows	381542.9108	6331514.4030	
93	17/06/2025	Flooded Gum	4	125	Small hollows developing, none big enough for black cockatoo.	382479.1788	6331627.85	
17	17/06/2025	Flooded Gum	4	140	Small hollows, unsuitable	382503.7938	6331893.615	
58	17/06/2025	Tuart	4	150	Small	381439.8817	6331586.926	Very healthy mature tree.
19	17/06/2025	Flooded Gum	4	160	Small hollows, unsuitable	382525.6961	6331931.179	
13	17/06/2025	Flooded Gum	4	170	Small hollows, unsuitable	382616.1212	6331943.265	
6	17/06/2025	Dead	4	210	One potential upwards facing knot. 30cm opening. No chew or wear. Drone inspected. Is not a hollow, does not develop past 20cm deep.	382742.796	6331797.563	Was a marri. Dead stag snapped at 12m
10	17/06/2025	Marri	5	50		382710.8879	6331799.449	
84	17/06/2025	Dead	5	50	Rotted branches but no hollows	382731.9565	6331589.74	
107	17/06/2025	Flooded Gum	5	50	No hollows	381539.6134	6331622.042	
21	17/06/2025	Flooded Gum	5	55	No hollows	382487.1018	6331961.337	
57	17/06/2025	Eucalyptus	5	55	No hollows	381911.0857	6331917.576	
120	07/08/2025	Marri	5	55	No hollows	382740.5423	6331582.6790	
63	17/06/2025	Marri	5	55	No hollows	382757.7052	6331697.05	

Tree Number	Date	Species	Bamford Class	DBH	Hollow Comments	Eastings	Northings	Comments
77	17/06/2025	Marri	5	55	No hollows	382730.6585	6331723.523	
62	17/06/2025	Marri	5	57	No hollows	382757.4154	6331700.208	
74	17/06/2025	Marri	5	59	No hollows	382722.7925	6331656.498	
5	17/06/2025	Marri	5	60	No hollows	382752.8332	6331831.936	
35	17/06/2025	Flooded Gum	5	60	No hollows	382533.4081	6332095.961	
40	17/06/2025	Flooded Gum	5	60	No hollows	382432.7492	6332191.077	
122	07/08/2025	Marri	5	60	No hollows	382754.2480	6331566.1251	
127	07/08/2025	Flooded Gum	5	60	No hollows	382266.4254	6331529.1367	
73	17/06/2025	Marri	5	61	No hollows	382735.1144	6331652.276	
15	17/06/2025	Flooded Gum	5	65	No hollows	382613.2865	6331867.854	
22	17/06/2025	Flooded Gum	5	65	No hollows	382491.3012	6331971.016	
23	17/06/2025	Flooded Gum	5	65	No hollows	382491.503	6331978.469	
52	17/06/2025	Flooded Gum	5	65	No hollows	382210.6638	6331537.398	
124	07/08/2025	Flooded Gum	5	65	No hollows	382154.4735	6331487.2825	
69	17/06/2025	Marri	5	67	No hollows	382749.5577	6331665.418	
1	17/06/2025	Marri	5	70	No hollows	382717.7537	6331786.067	

Tree Number	Date	Species	Bamford Class	DBH	Hollow Comments	Eastings	Northings	Comments
27	17/06/2025	Flooded Gum	5	70	No hollows	382492.7007	6332039.825	
34	17/06/2025	Flooded Gum	5	70	No hollows	382528.3766	6332074.143	
53	17/06/2025	Flooded Gum	5	70	No hollows	382203.691	6331534.452	
115	07/08/2025	Jarrah	5	70	No hollows	382695.0905	6331573.0783	
117	07/08/2025	Marri	5	70	No hollows	382710.5604	6331560.1169	
119	07/08/2025	Marri	5	70	No hollows	382714.9905	6331584.7288	
123	07/08/2025	Flooded Gum	5	70	No hollows	382206.4950	6331508.2050	
128	07/08/2025	Flooded Gum	5	70	No hollows	382324.8814	6331552.4068	
129	07/08/2025	Flooded Gum	5	70	No hollows	382427.0011	6331579.2650	
99	17/06/2025	Flooded Gum	5	70	No hollows	382192.1429	6331520.865	
9	17/06/2025	Marri	5	75	No hollows	382710.9803	6331799.313	
32	17/06/2025	Flooded Gum	5	75	No hollows	382546.4235	6332066.343	
104	17/06/2025	Flooded Gum	5	75	No hollows	381897.7928	6331453.388	
130	07/08/2025	Flooded Gum	5	75	No hollows	382409.4211	6331574.1480	
3	17/06/2025	Marri	5	80	No hollows	382751.4538	6331808.869	

Tree Number	Date	Species	Bamford Class	DBH	Hollow Comments	Eastings	Northings	Comments
7	17/06/2025	Marri	5	80	No hollows	382730.5143	6331800.794	
24	17/06/2025	Flooded Gum	5	80	No hollows	382485.8246	6331999.073	
37	17/06/2025	Flooded Gum	5	80	No hollows	382513.2107	6332098.378	
39	17/06/2025	Flooded Gum	5	80	No hollows	382504.9655	6332134.1	
42	17/06/2025	Flooded Gum	5	80	No hollows	382433.4058	6332206.636	
44	17/06/2025	Flooded Gum	5	80	No hollows	382522.2345	6332176.884	
50	17/06/2025	Flooded Gum	5	80	No hollows	382276.4235	6331632.603	
55	17/06/2025	Flooded Gum	5	80	No hollows	381712.8971	6331529.945	
125	07/08/2025	Flooded Gum	5	80	No hollows	381496.0665	6331528.8795	
85	17/06/2025	Marri	5	80	No hollows	382757.2004	6331586.774	
103	17/06/2025	Flooded Gum	5	80	No hollows	381982.8235	6331447.411	
108	17/06/2025	Flooded Gum	5	80	No hollows	381520.4904	6331599.264	
8	17/06/2025	Marri	5	85	No hollows	382715.8871	6331800.849	
18	17/06/2025	Flooded Gum	5	85	No hollows	382446.5728	6331911.678	
87	17/06/2025	Marri	5	85	No hollows	382609.567	6331590.57	

Tree Number	Date	Species	Bamford Class	DBH	Hollow Comments	Eastings	Northings	Comments
106	17/06/2025	Flooded Gum	5	85	No hollows	381641.1351	6331629.11	
2	17/06/2025	Marri	5	90	No hollows	382762.8168	6331801.273	
4	17/06/2025	Marri	5	90	No hollows	382753.6203	6331831.669	
25	17/06/2025	Flooded Gum	5	90	No hollows	382485.6557	6332017.623	
30	17/06/2025	Flooded Gum	5	90	No hollows	382573.9987	6332003.319	
38	17/06/2025	Flooded Gum	5	90	No hollows	382510.9046	6332111.779	
41	17/06/2025	Flooded Gum	5	90	No hollows	382430.9932	6332202.331	
43	17/06/2025	Flooded Gum	5	90	No hollows	382478.827	6332211.38	
48	17/06/2025	Flooded Gum	5	90	No hollows	382681.4771	6332163.491	
49	17/06/2025	Flooded Gum	5	90	No hollows	382285.3724	6331641.509	
56	17/06/2025	Flooded Gum	5	90	No hollows	381746.5988	6331490.936	
113	07/08/2025	Jarrah	5	90	No hollows	382684.6999	6331569.47707	
118	07/08/2025	Marri	5	92	No hollows	382721.8355	6331566.5008	
26	17/06/2025	Flooded Gum	5	95	No hollows	382459.0551	6332030.189	
16	17/06/2025	Flooded Gum	5	100	No hollows	382522.9481	6331894.08	

Tree Number	Date	Species	Bamford Class	DBH	Hollow Comments	Eastings	Northings	Comments
98	17/06/2025	Flooded Gum	5	100	No hollows	382164.6269	6331499.463	
29	17/06/2025	Eucalyptus	5	105	No hollows	382496.5503	6332038.734	
28	17/06/2025	Flooded Gum	5	110	No hollows	382496.4186	6332036.959	
36	17/06/2025	Flooded Gum	5	110	No hollows	382527.7961	6332125.143	
51	17/06/2025	Flooded Gum	5	110	No hollows	382212.8003	6331546.627	
100	17/06/2025	Flooded Gum	5	110	No hollows	382192.3286	6331523.417	
14	17/06/2025	Flooded Gum	5	120	No hollows	382612.067	6331886.591	
45	17/06/2025	Flooded Gum	5	120	No hollows	382583.0335	6332217.868	
46	17/06/2025	Flooded Gum	5	140	No hollows	382626.8774	6332126.128	
33	17/06/2025	Flooded Gum	5	150	No hollows	382574.2161	6332080.798	
131	07/08/2025	Flooded Gum	5	150	No hollows	382465.4367	6331585.0333	
20	17/06/2025	Flooded Gum	5	160	No hollows	382518.6914	6331950.865	
64	17/06/2025	Marri	None	30	No hollows	382759.8562	6331688.043	
72	17/06/2025	Flooded Gum	None	30	No hollows	382733.6255	6331637.023	

Tree Number	Date	Species	Bamford Class	DBH	Hollow Comments	Eastings	Northings	Comments
91	17/06/2025	Marri	None	30	No hollows	382547.8702	6331619.281	
83	17/06/2025	Marri	None	31	No hollows	382717.2617	6331716.989	
80	17/06/2025	Marri	None	32	No hollows	382718.543	6331721.096	
66	17/06/2025	Marri	None	35	No hollows	382762.3998	6331693.948	
82	17/06/2025	Dead	None	40	No hollows	382717.0018	6331718.609	
86	17/06/2025	Dead	None	40	No hollows	382607.7784	6331598.051	
121	07/08/2025	Marri	None	40	No hollows	382749.9310	6331577.3649	
47	17/06/2025	Flooded Gum	None	45	No hollows	382643.4797	6332200.507	
71	17/06/2025	Flooded Gum	None	45	No hollows	382736.3918	6331630.162	
92	17/06/2025	Dead	None	45	No hollows	382527.8097	6331596.582	
111	07/08/2025	Marri	None	45	No hollows	382575.9521	6331582.1978	
132	07/08/2025	Marri	None	45	No hollows	382546.2670	6331581.3450	
75	17/06/2025	Marri	None	48	No hollows	382730.3643	6331664.523	
90	17/06/2025	Marri	None	49	No hollows	382554.2966	6331621.632	
112	07/08/2025	Dead	None	50	No hollows	382596.5536	6331585.4037	

Appendix G Black Cockatoo Habitat Quality Scoring Tool (DCCEEW, n.d)

Habitat Scoring System for WA black cockatoo foraging habitat

This habitat scoring system describes elements indicative of suitable foraging habitat[1] for the three WA black cockatoo species (Carnaby's Black Cockatoo, Baudin's Black Cockatoo and the Forest Red-tailed Black Cockatoo) in WA. Its use must be supported by survey information and reporting, undertaken by suitably qualified and experienced ecologists.

Appropriate scores will best fit a description. Where all components of the 'detail' column description are not met, this must be specified, and justification provided for that score to be accepted by the Department.

For an offset site to be considered by the Department, the offset site must have a start score of 1 for each indicator (e.g., there must be a species stocking rate score of at least 1).

Indicator	Score	Detail	Impact site	Offset start quality	Without offset	With offset
Site Condition						
	Foraging value	Details				
Vegetation condition and structure. Habitat features	**7**	Very High	Carnaby's Black Cockatoo				
			Native kwongan heath and shrubland (>30% projected foliage cover), banksia and eucalypt woodlands with >50% projected foliage cover. Low percentage (< 5%) of tree deaths[2].				
			Baudin's Black Cockatoo				
			Marri-Jarrah Forest and woodlands with >50% projected foliage cover. Low percentage (< 5%) of tree deaths.				
			Forest Red-tailed Black Cockatoo				
			Marri-Jarrah-Karri Forest, other eucalypt woodlands, or allocasuarina woodlands, with >50% projected foliage cover. Low percentage (< 5%) of tree deaths.				
	6	High	Carnaby's Black Cockatoo				
			Native kwongan heath and shrubland (>25% projected foliage cover), banksia and eucalypt woodlands with >40% projected foliage cover. Low percentage (< 10%) of tree deaths.				
			Baudin's Black Cockatoo				
			Marri-Jarrah Forest and woodlands with >40% projected foliage cover. Low percentage (< 10%) of tree deaths.				
			Forest Red-tailed Black Cockatoo				
			Marri-Jarrah-Karri Forest, other eucalypt woodlands, or allocasuarina woodlands, with >40% projected foliage cover. Low percentage (< 10%) of tree deaths.				

[1] In some cases, an impact or offset site may contain or require both foraging and breeding habitat for one or more black cockatoos. Breeding habitat is species of trees known to support breeding within the range of the species which either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow. For most species of trees, suitable DBH is 500 mm. For salmon gum and wandoo, suitable DBH is 300 mm.

[2] No tree deaths indicate robustness of habitat, unlikely for the habitat to decline in the medium-term. Tree deaths may be owing to disease, water stress, fire, etc.

Vegetation condition and structure. Habitat features	**5**	Moderate to high	Carnaby's Black Cockatoo				
			Native kwongan heath and shrubland (>20% projected foliage cover), banksia and eucalypt woodlands with 30-40% projected foliage cover; OR > 60% projected foliage cover but veg. condition reduced due to tree deaths (up to 20%).				
			Baudin's Black Cockatoo				
			Marri-Jarrah Forest or woodlands with 30-40% projected foliage cover; OR > 60% projected foliage cover but veg. condition reduced due to tree deaths (up to 20%).				
			Forest Red-tailed Black Cockatoo				
			Marri-Jarrah-Karri Forest, other eucalypt woodlands, or allocasuarina woodlands, with 30-40% projected foliage cover; OR > 60% projected foliage cover but veg. condition reduced due to tree deaths (up to 20%).				
	4	Moderate	Carnaby's Black Cockatoo				
			Native kwongan heath and shrubland, banksia or eucalypt woodlands with 20-30% projected foliage cover. Moderate percentage of tree deaths (30-40%).				
			Baudin's Black Cockatoo				
			Marri-Jarrah Forest or woodlands with 20-30% projected foliage cover; OR Marri-Jarrah Forest with 40-60% projected foliage cover but vegetation condition reduced due to tree deaths (up to 30-40%).				
			Forest Red-tailed Black Cockatoo				
			Marri-Jarrah-Karri Forest, other eucalypt woodlands, or allocasuarina woodlands with: 20-30% projected foliage cover; OR 40-60% projected foliage cover but veg. condition reduced due to tree deaths (up to 30-40%).				
	3	Low to moderate	Carnaby's Black Cockatoo				
			Native kwongan heath and shrubland, banksia or eucalypt woodlands with 10-20% projected foliage cover.				
			Baudin's Black Cockatoo				
			Marri-Jarrah Forest or woodlands with 5-20% projected foliage cover.				
			Forest Red-tailed Black Cockatoo				
			Marri-Jarrah-Karri Forest, other eucalypt woodlands, or allocasuarina woodlands with 5-20% projected foliage cover.				
	2	Low	Carnaby's Black Cockatoo				
			Native kwongan heath and shrubland, banksia and eucalypt woodlands with <10% projected foliage cover; OR Paddocks and/or urban areas with scattered foraging trees such as banksias, marri.				
			Baudin's Black Cockatoo				
			Marri-Jarrah Forest or woodlands with 1-5% projected foliage cover; OR Paddocks and/or urban areas with scattered foraging trees such as banksia, hakea, dryandra.				

Vegetation condition and structure. Habitat features			Forest Red-tailed Black Cockatoo				
			Marri-Jarrah-Karri Forest, other eucalypt woodlands, or allocasuarina woodlands with 1-5% projected foliage cover; OR Paddocks and/or urban areas with scattered food plants such as Cape Lilac, *Eucalyptus caesia* and *E. erythrocorys*.				
	1	Negligible to low	All species				
			Scattered specimens of known food plants but projected foliage cover of these is <2%. May include: paddocks or urban areas with scattered foraging trees.				
	0	None	All species				
			No Proteaceae, eucalypts or other potential sources of food. May include bare ground or developed sites devoid of vegetation (e.g. infrastructure, roads, gravel pits).				
			Totals				

Site Context								
Proximity of the site in relation to other habitat.	**3**	Site is within 6km of known breeding site.	or	Site is within 12km of other foraging resources with site condition of at least 3.				
	2	Site is within 12km of known breeding site.	or	Site is within 15km of other foraging resources with site condition of at least 4.				
	1	Site is within 15km of known breeding site.	or	Site is between 15km and 20km of other foraging resources with site condition of at least 5.				
	0	Site is further than 15km from known breeding site.	or	Site is further than 20km from other foraging resources.				
				Totals				

Final Totals				

Indicator		**Species Stocking Rate**[3]	**Impact Site**			**Offset Site**		
			CBC	**BBC**	**FRT**	**CBC**	**BBC**	**FRT**
Confirm presence/ absence of species.	**Yes**	Species is seen or reported regularly and/or there is abundant foraging evidence, e.g. chewed nuts can be identified as this species. Regularly is when the species is seen at intervals of every few days or weeks for at least several months of the year.						
	No	Species is recorded or reported very infrequently and there is little or no foraging evidence.						

[3] Species stocking rate is indicated by yes or no to confirm if any of the species is frequently present or not. If yes, the presence must be for the species being impacted by the proposal, not for a species that will not be impacted.

Legend	
	If the site scores between 0-2 (low to no value) for site condition, 0 for the site context score, or is **No** for species stocking rate, it is extremely unlikely to be considered as suitable habitat. This would not be appropriate to use as an offset site.

The metrics used to determine Site Condition, Site Context, and Species Stocking Rate were developed by the Department of Climate Change, Energy, the Environment, and Water in consultation with species experts in WA.

A standard habitat quality scoring system for a species allocates scores out of 3 for both site condition and site context, and out of 4 for species stocking rate. However, as black cockatoos are very mobile, this HQS uses a score out of 7 for site condition and a score out of 3 for site context. Site condition is considered the key factor in determining the quality of habitat for these black cockatoo species. Species stocking rate is considered only in terms of presence or absence of the species and does not add to the total score. Note that the species, or strong indicators of the species, must be present, consistent with the presence/usage description above, for an offset to be considered suitable.

Appendix H Western Ringtail Possum Habitat Quality Scoring System

Habitat Scoring System for Western Ringtail Possum (*Pseudocheirus occidentalis*)

This habitat scoring system describes elements indicative of suitable habitat for Western Ringtail Possum (WRP) in WA, including key management zones (see Figure 2, Recovery Plan 2017). Its use must be supported by survey information and reporting, undertaken by suitably qualified and experienced ecologists, using appropriate survey methods[1].

Appropriate scores will best fit a description. Where all components of the 'detail' column description are not met, this must be specified, and justification provided for that score to be accepted by the Department.

For an offset site to be considered by the Department, the offset site must have a start score of 1 for each indicator (e.g., there must be a species stocking rate score of at least 1).

Indicator	Score	Detail	Scores			
Site Condition			**Impact site**	**OS Start**	**W/o OS**	**With OS**
Vegetation condition and structure. Diversity of habitat species present. Habitat features	3	**Habitat quality**: Very High – High canopy (90-100%) continuity[2] for movement (upper and/or mid-storey layer) and ground cover for shelter, no fire for at least 20 years, evidence of many nests/dreys/hollows, limited evidence of predators				
	2.5	**Habitat quality**: High – High canopy (70-89%) continuity for movement (upper and/or mid storey layer) and ground cover for shelter, no fire for at least 15 years, evidence of many nests/dreys/hollows, limited evidence of predators				
	2	**Habitat quality**: Medium – High canopy (70-89%) continuity for movement (upper and/or mid-storey layer), some ground cover for shelter, no fire for at least 10 years, evidence of some nests/dreys/hollows, some evidence of predators				
	1.5	**Habitat quality**: Low – Some canopy (50-69%) continuity for movement (upper and/or mid-storey layer), some ground cover for shelter, fire within last 10 years, evidence of few nests/dreys/hollows, substantial evidence of predators				
	1.0	**Habitat quality**: Very Low – Little canopy (30-49%) continuity for movement (upper and/or mid-storey layer), little ground cover for shelter, fire within last 5 years, little evidence of nests/dreys/hollows, substantial evidence of predators				
	0.5	**Habitat quality**: Marginal – Less than 30% canopy continuity for movement (upper and/or mid-storey layer), no ground cover for shelter, fire within last 5 years, no evidence of nests/dreys/hollows				
	0	**Habitat quality**: Absent, no vegetation and/or suitable habitat on site				
Site Context						
Movement patterns of the species. Proximity of the site in relation to other areas of suitable habitat. Overall population or extent of a species.	3	Site is connected by vegetation, including continuous canopy cover, to more than one area of contiguous[3] suitable habitat. Site is within a key management zone				
	2.5	Site is connected by vegetation, including high level of canopy cover (70-89%), to at least one area of contiguous suitable habitat. Site is within a key management zone				
	2	Site is connected by vegetation, including some level of canopy cover (50-69%), to more than one patch[4] of suitable habitat. Site is within a key management zone				
	1.5	Site is connected by vegetation, including limited canopy cover (30-49%), to at least one patch of suitable habitat. Records on or immediately adjacent (within 500 m) to site within last 2 years. Site is located within known species distribution				
	1	Site is separated from other known suitable habitat by cleared areas or linear barrier of up to 25 m. Records on site or immediately adjacent (within 500 m) within last 3 years. Site is located within known distribution of species				

[1] Surveys must be able to demonstrate presence/absence of WRP, presence/absence of predators and presence/absence of dreys/nests/suitable hollows, and use of these.

[2] Continuity means canopy at mid and/or upper storey where tree or shrub branches are touching each other, allowing for WRP to move from one tree to another while staying under cover. High canopy continuity is demonstrated where high percentage of trees or shrubs touch each other; low canopy continuity is when few or no trees or shrubs touch each other.

[3] Contiguous suitable habitat means multiple patches of native vegetation sharing borders, next to each other in sequence, comprising a larger, continuous area.

[4] A patch of suitable habitat may or may not be connected to other patches of native vegetation. Patch size is not defined, and should be considered in relation to site condition and species stocking rate as indicators of patch viability for WRP.

	0.5	Site is separated from other suitable habitat by cleared areas or linear barrier of up to 50 m. Records on site or adjacent (within 1 km) within last 10 years. Site is not located within known distribution of species				
	0	Site is separated from other suitable habitat by cleared areas of more than 50 m. No records on site or adjacent (within 1 km) within last 10 years. Site is not located within known distribution of species				

Species Stocking Rate						
Usage and/or density of a species. Role of the site population in regard to overall species population viability.	4	Record of species presence on site in last 12 months (WRP observed on site in last 12 months and scats; evidence of nests/dreys/hollows being used; evidence of breeding); site is within 50-100 m of verified/published records in last 12 months				
	3	Record of species presence on site in last 2 years (WRP observed on site in last 2 years and scats; evidence of nests/dreys/hollows being used); site is within 100-150 m of verified/published records in last 12 months				
	2	Record of species presence on site in last 2 years (WRP observed on site in last 2 years and scats; evidence of nests/dreys/hollows being used); site is within 150-200 m of verified/published records in last 2 years				
	1	Record of species presence on site in previous 3 years (WRP observed on site in last 5 years and scats; evidence of nests/dreys/hollows being used); site is within 500 m of verified/published records in last 3 years (minimum required to be considered a suitable offset site for WRP)				
	0	No record of species presence on site, or within 500 m in last 3 years				

		Totals	Impact site	OS Start	W/O Offset	With Offset

Legend	
	Unlikely to be considered suitable habitat/offset site.

The metrics used to determine Site Condition, Site Context, and Species Stocking Rate were developed by the Department of Climate Change, Energy, the Environment, and Water in consultation with WA DBCA. This HQS uses a standard habitat quality scoring system for a species, with scores allocated out of 3 for both site condition and site context, and out of 4 for species stocking rate.

Appendix B Certificate of Title - Lot 10

WESTERN AUSTRALIA

TITLE NUMBER	
Volume	Folio
1936	**181**

RECORD OF CERTIFICATE OF TITLE

UNDER THE TRANSFER OF LAND ACT 1893

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

BGRoberts

REGISTRAR OF TITLES

REGISTRAR OF TITLES WESTERN AUSTRALIA

LAND DESCRIPTION:

LOT 10 ON PLAN 18149

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

TONIC RENEWABLES PTY LTD OF 33 WHISTLER WAY HARVEY WA 6220

(T Q047877) REGISTERED 28/6/2024

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. L706145 EASEMENT TO ELECTRICITY NETWORKS CORPORATION FOR ELECTRICITY TRANSMISSION PURPOSES. SEE SKETCH ON DEPOSITED PLAN 66175 REGISTERED 12/8/2011.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required. Lot as described in the land description may be a lot or location.

----------END OF CERTIFICATE OF TITLE----------

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND:	1936-181 (10/P18149)
PREVIOUS TITLE:	1150-530
PROPERTY STREET ADDRESS:	NO STREET ADDRESS INFORMATION AVAILABLE.
LOCAL GOVERNMENT AUTHORITY:	SHIRE OF HARVEY