



City of Cockburn

Ordinary Council Meeting **Attachment Under Separate Cover**

Item 13.1 - Proposed Initiation- Scheme Amendment
152 to LPS3 – Various Lots Comprising the Closed
Glen Iris Golf Course

Attachment 1 – Draft Scheme Amendment Proposal

For Thursday, 9 December 2021

CITY OF COCKBURN

Attachment – Under Separate Cover
Ordinary Council Meeting
Thursday, 9 December 2021

Page

13. BUILT AND NATURAL ENVIRONMENT
- 13.1 PROPOSED INITIATION - SCHEME AMENDMENT 152 TO LOCAL
PLANNING SCHEME 3 - VARIOUS LOTS COMPRISING THE FORMER
GLEN IRIS GOLF COURSE
- Attachment 1 Draft Scheme Amendment Proposal..... 3

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TOWN PLANNING SCHEME NO. 3

AMENDMENT NO. 152

Document date

**PLANNING AND DEVELOPMENT ACT, 2005
RESOLUTION TO AMEND A TOWN PLANNING SCHEME**

**CITY OF COCKBURN
TOWN PLANNING SCHEME NO 3
AMENDMENT NO. 152**

RESOLVED that the Council, in pursuance of Section 75 of the *Planning and Development Act 2005*, amend the City of Cockburn Town Planning Scheme No. 3 by:

1. Rezoning Lot 3 on Diagram 30047, Lot 6 on Diagram 91027, Lot 7 on Plan 21402, Lot 139 on Plan 18946, and Lot 509 on Diagram 91028 in the locality of Jandakot from 'Special Use' to 'Development'.
2. Rezoning Lot 512 on Diagram 94292 from 'Residential R40' to 'Development'.
3. Including the following new provisions in Table 9 – Development Areas:

REF. NO.	AREA	PROVISIONS
DA 45	Glen Iris Estate, Jandakot	1. An approved Structure Plan together with all approved amendments shall be given due regard in the assessment of applications for subdivision and development in accordance with clause 27(1) of the Deemed Provisions. 2. The Structure Plan is to provide an appropriate mix of residential and compatible land uses.

4. Deleting 'Special Use 1' and 'Special Use 6' from Table 8.
5. Amending the Scheme map accordingly.

The Amendment is complex under the provisions of the *Planning and Development (Local Planning Schemes) Regulations 2015* for the following reason(s):

1. *an amendment that is not addressed by any local planning strategy;*
2. *an amendment relating to development that is of a scale, or will have an impact, that is significant relative to development in the locality.*

Dated this day of 2021.

CHIEF EXECUTIVE OFFICER

FILE NO. xxxxxxxx

REPORT

- | | | |
|----|--------------------------------------|--|
| 1. | LOCAL AUTHORITY | City of Cockburn |
| 2. | DESCRIPTION OF TOWN PLANNING SCHEME: | Town Planning Scheme No. 3 |
| 3. | TYPE OF SCHEME: | District Zoning Scheme |
| 4. | SERIAL NO. OF AMENDMENT: | Amendment No. 152 |
| 5. | PROPOSAL: | Amend Town Planning Scheme No. 3 by rezoning various landholdings comprising the former Glen Iris Golf Course in Jandakot, from the 'Special Use' and 'Residential R40' Zones to the 'Development' Zone. |

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AMENDMENT REPORT

1.0 Introduction / Executive Summary

This Amendment proposes to rezone the land comprising the former Glen Iris Golf Course located on Berrigan Drive, Jandakot (the 'subject site') from the 'Special Use' and 'Residential R40' Zones, to the 'Development' Zone under the provisions of the City of Cockburn Town Planning Scheme No. 3 ('TPS3'). The Amendment will facilitate the redevelopment of the subject site for urban (residential) purposes. Comprehensive planning of the site will be undertaken through the preparation of a Local Structure Plan.

The key elements of the Scheme Amendment proposal are summarised as follows:

- It is understood that the former use of the site as a golf course was not financially sustainable. The previous owners of the land were negotiating to sell the land for over 5 years. There was unsustainable revenue to run the course and there was no capital re-invested in infrastructure, which eventually led to closure of the golf course prior to land being transferred to the existing landowner.
- The previous use of the land as a golf course did not equate to public open space. Only fee-paying golfers could access the privately owned land.
- The current landowner will not be reinstating the former use of the site as a golf course.
- The current zoning of Lot 512 (comprising the former golf driving range) does not allow use of Lot 512 as a golf course.
- Under the provisions of the current zoning, the landowner can pursue development in accordance with a range of different land uses including residential development. Redevelopment under the existing zoning could produce in aggregate, over 1,150 dwellings (subject to the form of residential development – i.e. single dwelling/grouped dwelling/multiple dwelling and the use of a portion of the land for some form of golf course use). The consultation undertaken to date has indicated that this is not the preferred outcome of the community if the golf course is not retained in its current configuration, and that a comprehensive master-planned community is a superior outcome.
- In the event that the landowner chose to pursue development of the portion of the land currently zoned 'Special Use Zone 1', this would require residential development to (say) an R30 density together with a form of golf course use. The type and size of the golf course component is not defined.
- Lot 512 can be developed under the current zoning to a residential density of R40 with no golf course component.

- The landowner has undertaken significant community consultation for 12 months to inform the preparation of a respectful and balanced residential development approach, providing for the retention of mature trees, 22.9% open space in a linear design creating buffers to existing properties, a connected community with extensive public open space, improved environmental outcomes and a range of community facilities and amenity, addressing many of the key concerns raised by residents in the design consultation process.
- The proposed Amendment will have the effect of rationalising the site's existing zoning and broad land use permissibility into a single 'Development' Zone that enables the site to be comprehensively planned in a coordinated manner. This represents an improved planning outcome in the sense that it enables the site to be developed in a site-specific and integrated fashion that addresses key local issues and is consistent with strategic planning strategies.
- The approach to seek rezoning to 'Development' Zone and proposing a high-quality residential development, with a balanced distribution of large residential lots and smaller density nodes, amongst true open space via a high quality parkland setting is considered to represent a positive outcome particularly when set against the development outcome that is possible under the current zoning of the land.

2.0 Background – Historic Land Use and Zoning

The subject site has previously operated as a privately owned golf course operated as a commercial business for fee paying players. The central portion of the subject site was developed as a golf course in the early 1960s whilst the northern and southern extensions of the golf course were cleared and developed to its current extent during different periods in the early 1990s, alongside the residential development of the area between the former golf course and the Kwinana Freeway.

The golf course was eventually closed by the previous owners in March 2020 prior to being acquired by the current owner. Since its closure, the site has remained generally vacant and unused. The current owner is not a golf course operator and it is their intention to redevelop the site for urban (primarily residential) purposes.

The subject site has had a varied history of zonings and amendments and has not always been zoned in a manner that facilitated use as a golf course. Indeed a portion of the site can no longer be used as a golf course given expiry of its non-conforming use rights.

The site has previously been zoned for commercial, hotel, private recreation and light industrial zonings, which are understood to have been rationalised in the 1990s through various local scheme amendments. Rezoning proposals were also progressed during this period to increase residential densities in some surrounding areas from R12.5/15 to R20, R30 and R40.

2.1 Development Potential Under the Current Zoning

The entirety of the subject site is contained within the 'Urban' zone of the Metropolitan Region Scheme. There are three different zonings applicable under the provisions of the City of Cockburn Town Planning Scheme No. 3 (TPS3).

Lot 512 comprising the former golf driving range is currently zoned 'Residential' under the provisions of TPS3 and is assigned a residential density coding of R40 on the Scheme Maps. Lot 509 comprising the former golf club house is located within Special Use Zone 6 ('SU6'), whilst the remaining landholdings comprising Lots 3, 6, 7 and 139 are located within Special Use Zone 1 ('SU1'). Lots 6 and 7 are depicted on online mapping as being assigned a residential density coding of R20 on the Scheme Maps under the provisions of TPS3 however following advice from technical officers at the City of Cockburn, this is understood to be an error as is evidenced when the zoning is referenced against the printed maps. As such, determination of the residential density applicable to Lots 6 and 7 would follow the same approach as that which is applicable to Lots 3 and 139 which would be that the residential density is determined through a Structure Planning process, likely to a base residential density of R30.

The existing development potential applicable to each of the three areas is considered below.

2.1.1 Lot 512 – Former Golf Driving Range

Lot 512 comprises the former golf driving range. This land is currently predominantly zoned 'Residential (R40)' under the provisions of TPS3 and could be redeveloped immediately for residential land uses in the form of single, grouped and multiple dwellings.

The R40 area applies to most of Lot 512 and covers an area of approximately 2.5 hectares. Based on the average lot size requirement under the R40 density code of 220m² per dwelling and a minimum lot size of 180m² per dwelling, an 'as of right' grouped dwelling yield over 100 dwellings would be possible. The R40 area could alternately be developed with multiple dwellings (apartments) with a plot ratio of 0.6:1 equating to 15,000m² of plot ratio area. Assuming an apartment size in the order of 85m², an 'as of right' multiple dwelling yield of approximately 176 dwellings would be possible.

The existing 'Residential' zoning also enables the subject site to be used and developed for a number of non-residential land uses including:

- *Child Care Centre;*
- *Educational Establishment;*
- *Institutional Building;*
- *Place of Worship;*
- *Tourist Accommodation;*
- *Bank;*
- *Office;*
- *Motel;*
- *Reception Centre;*
- *Restaurant;*

- Consulting Rooms;
- Medical Centre;
- Hospital; and
- Commercial Vehicle Parking.

The above list is not exhaustive and some of the land uses listed would require discretionary approval from the City. However, the list is provided to demonstrate that this part of the site area can be developed under its existing zoning for a variety of purposes.

It is also relevant to note that under the existing zoning, this part of the site can no longer be used as a golf course or a golf driving range given expiry of its non-conforming use rights.

2.1.2 Lot 509 – Former Golf Club House

Lot 509 comprises the former golf club house. This lot is contained within 'Special Use Zone 6' (SU6) of TPS3. The permissible land uses for this lot are listed in SU6 as:

'Private Recreation, Hotel, Convention Centre and Associated Uses'.

The conditions for use are stated as :

'Structure Plan adopted to guide Subdivision, land use and Development - Glen Iris Golf Course Estate.'

The land uses permitted on this lot are defined in TPS3 as follows:

Private Recreation: "means premises used for indoor or outdoor leisure, recreation or sport which are not usually open to the public without charge."

Hotel: "means premises providing accommodation the subject of a hotel licence under the Liquor Control Act 1988 and may include a betting agency on those premises."

Convention Centre: "means land and buildings used and designed for the conduct of conferences, seminars and other similar uses for the dissemination of information and educational purposes."

Lot 509 contains an existing building being the former golf club house. The landowner could retain and refurbish the existing building so that it could accommodate one of the above mentioned uses or could seek approval to demolish the existing building and construct a new purpose built building to accommodate one of the above mentioned uses and uses that may be associated with the listed uses.

2.1.3 Lot 509 – Lots 3, 6, 7 and 139 – Former Golf Course

Lot 3, 6, 7 and 139 comprise the former golf course. These lots are contained within 'Special Use Zone 1' (SU1) of TPS3. The residential density applicable to

these lots would be determined through a Structure Planning process. The permissible land uses for these lots are listed in SU1 as (emphasis added):

'Golf Course Estate, Private Recreation, Hotel, Convention Centre and associated uses - means land used and designed for a golf course, integrated with residential development and associated commercial and community facilities.'

The conditions for use are stated as :

'Structure Plan adopted to guide Subdivision, land use and Development - Glen Iris Golf Course Estate.'

The 'Private Recreation', 'Hotel', and 'Convention Centre' uses are defined as identified above.

As noted above, the residential density applied to these lots is determined by a Structure Plan, however the former golf course did not incorporate an integrated residential development component.

The land use term 'Golf Course Estate' is not specifically defined under the provisions of TPS3 but as stated in the above mentioned SU1 schedule, is understood to mean land used and designed for a golf course, integrated with residential development and associated commercial and community facilities. The residential development requirement is reinforced by the reference to integration with residential development. The land use 'Associated Uses' is similarly not defined under TPS3 but is, again, understood to include land uses that are directly associated with golf course, private recreation, hotel and convention centre uses.

It is also relevant to note that the term 'golf course' is not defined. There are no guidelines as to the type of golf course (mini golf, supa golf, disc golf etc) or any guidelines as to the size of the golf course such as the number and nature of golf holes. By way of example, the land could comprise a mini putt-putt facility, a two storey virtual reality golf driving range attached to a convention centre, with three par 3 holes, and the balance developed as residential, under the existing zoning.

Residential land uses are currently capable of being developed on the SU1 zoned portion of the site. The residential density applicable to Lots 3, 6, 7 and 139 would be determined through a Structure Planning process. The new development areas within the City of Cockburn typically have a base residential density coding of R30 which facilitates meeting the density targets sought by the WAPC. It is noted that there are a number of substantial R30 and R40 coded areas throughout the exiting developed Glen Iris residential area. An R30 density could therefore reasonably be adopted for these lots. Under this density coding, a minimum lot size of 260m² and an average lot size of 300m² is applicable.

The form of development under the current zoning of the land could comprise new future housing directly abutting existing surrounding residential properties

with a 10% public open space provision and a significantly smaller (possibly private) golf course component provided within the site.

Lots 3, 6, 7 and 139 have a combined land area of 49.6ha. In considering a hypothetical development outcome, a notional area equating to 25% of the site area would need to be deducted for roads and drainage and a further deduction of 10% of the site area would be required for public open space, leaving a developable area of 32.24ha. At an average lot size of 300m², this would yield approximately 1,074 lots on this part of the landholding, noting however that some land would also be required for a golf facility.

2.2 Ongoing Use as a Golf Course

The former golf course was not membership based. Rather the golf course was operated on a fee per use basis.

The previous owners had sought to sell the property for more than 5 years. Whilst the previous owner's intentions during the period while they were trying to sell the land cannot be stated with certainty, it is understood that due to falling trade and reduced revenue from golf operations, and in light of their intention to sell the land for its highest and best use, the previous owners had allocated little or no budget for the long term maintenance of the golf course. It is understood there was unsustainable revenue to run the course and there was no capital re-invested in infrastructure, which eventually led to closure of the golf course prior to land being transferred to the existing landowner.

As a result, at the time of its closure by the previous owners, the golf course was in a poor state of repair and in need of extensive capital expenditure.

Again whilst the intentions of the previous landowners cannot be stated with certainty, it is understood that major capital expenditure was needed for:

- Replacement of the golf course maintenance machinery fleet,
- Replacement of the entire irrigation system,
- Club house major refurbishment, and
- On-course replacements including all greens.

Given the continuation of the golf course is not an option for the land, alternate uses under the MRS Urban zoning need to be considered.

3.0 Amendment Type

Pursuant to Part 5, Division 1 of the *Planning and Development (Local Planning Schemes) Regulations 2015* ('Planning Regulations'), there are three amendment types: 'basic', 'standard' and 'complex'. These are defined under Clause 34 of the Planning Regulations.

Clause 35(2) of the Planning Regulations requires the local government to specify in their resolutions to prepare or adopt an amendment what type of amendment it is, as well as the explanation for forming that opinion.

The proposed Amendment is considered to be a complex amendment which, under Clause 34 of the Planning Regulations, is described as follows:

complex amendment means any of the following amendments to a local planning scheme —

- a) an amendment that is not consistent with a local planning strategy for the scheme that has been endorsed by the Commission;*
- b) an amendment that is not addressed by any local planning strategy;*
- c) an amendment relating to development that is of a scale, or will have an impact, that is significant relative to development in the locality;*
- d) an amendment made to comply with an order made by the Minister under section 76 or 77A of the Act; or*
- e) an amendment to identify or amend a development contribution area or to prepare or amend a development contribution plan.*

The proposed Amendment satisfies **b)** and **c)** of the above criteria and is not considered to fall within the definition of either a 'basic' or a 'standard' amendment.

4.0 Site Description

4.1 Location

The subject site constitutes privately owned land located within the municipality of the City of Cockburn, within the locality of Jandakot. It is situated approximately 16 kilometres south of the Perth Central Area and is accessible via the Kwinana Freeway (via Berrigan Drive). The Cockburn Central passenger railway station is located approximately 1.5 kilometres south west of the subject site and the Cockburn Gateway Shopping Centre is located approximately 2.5 kilometres south west of the site.

The subject site is elongated in shape, extending approximately 2.1 kilometres from Glen Iris Drive in the north to Imlah Court in the south. East to west, the site extends approximately from Glen Iris Drive, Hartwell Parade and The Lakes Boulevard to Dean Road and Prinsep Road. A proportion of the subject site boundary abuts the rear of existing residential dwellings, comprising 220 residences in the overall 780 residences in the Glen Iris precinct.

Berrigan Drive extends east to west through the southern part of the subject site effectively dividing the site into a northern and southern cell.

The subject site's elongated and irregular configuration and location abutting residential dwellings is characteristic of its former use as a golf course.

Refer to **Figure 1** – Regional Location and **Figure 2** – Local Location.

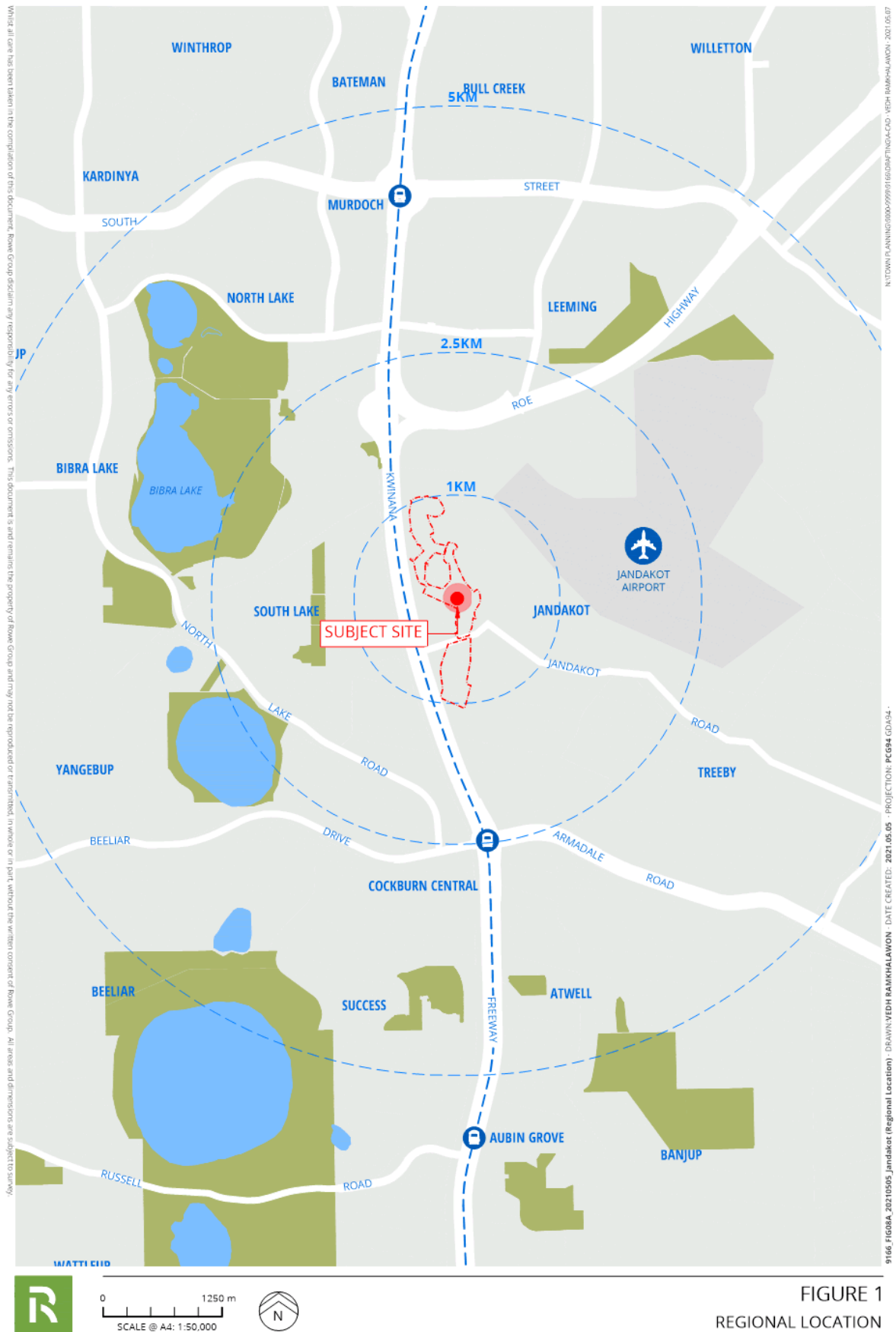
4.2 Existing Land Uses and Improvements

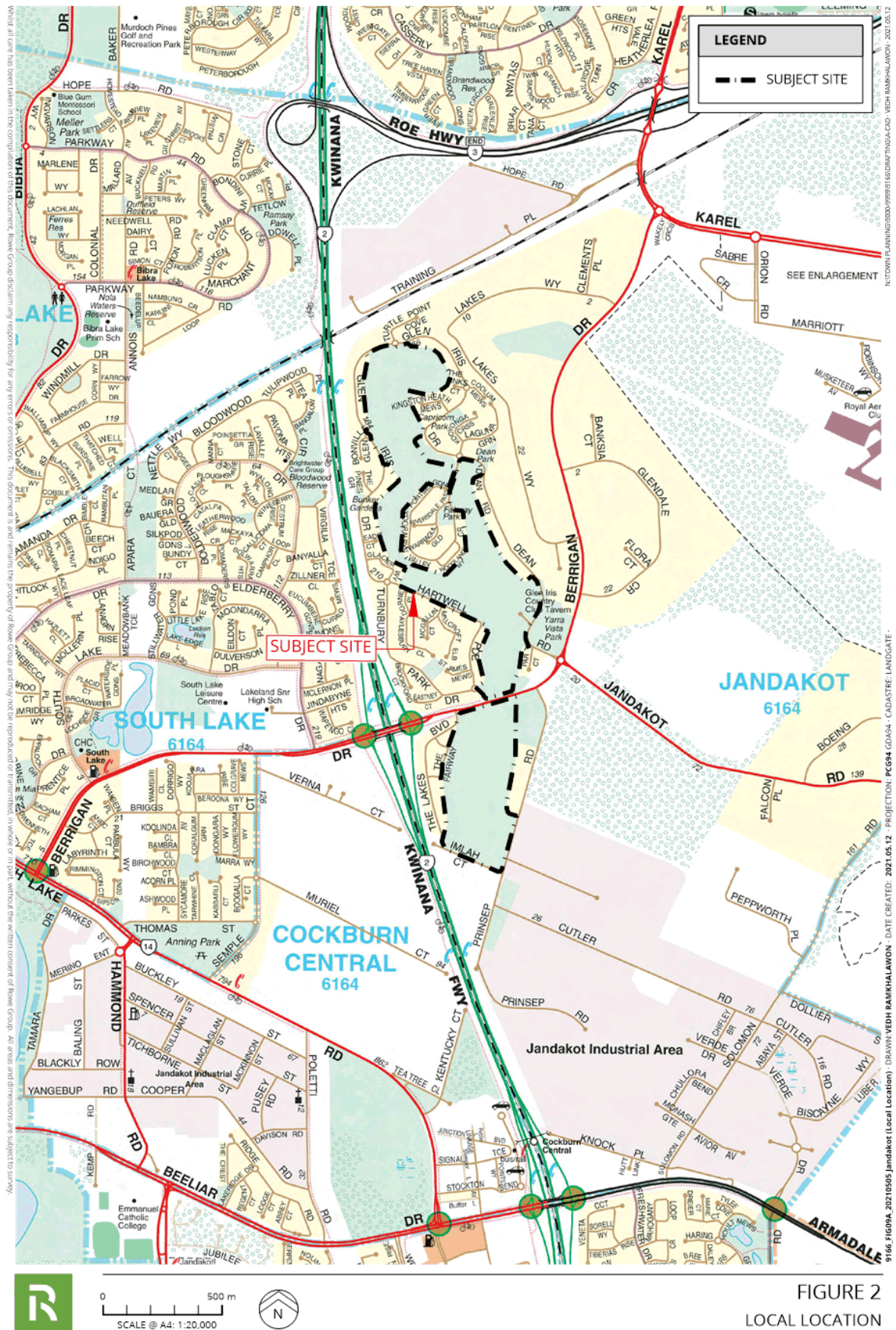
The subject site was previously utilised as a privately run golf course, comprising the Glen Iris Golf Course Estate. The golf course ceased operation in March 2020, and the land currently remains generally vacant and unused.

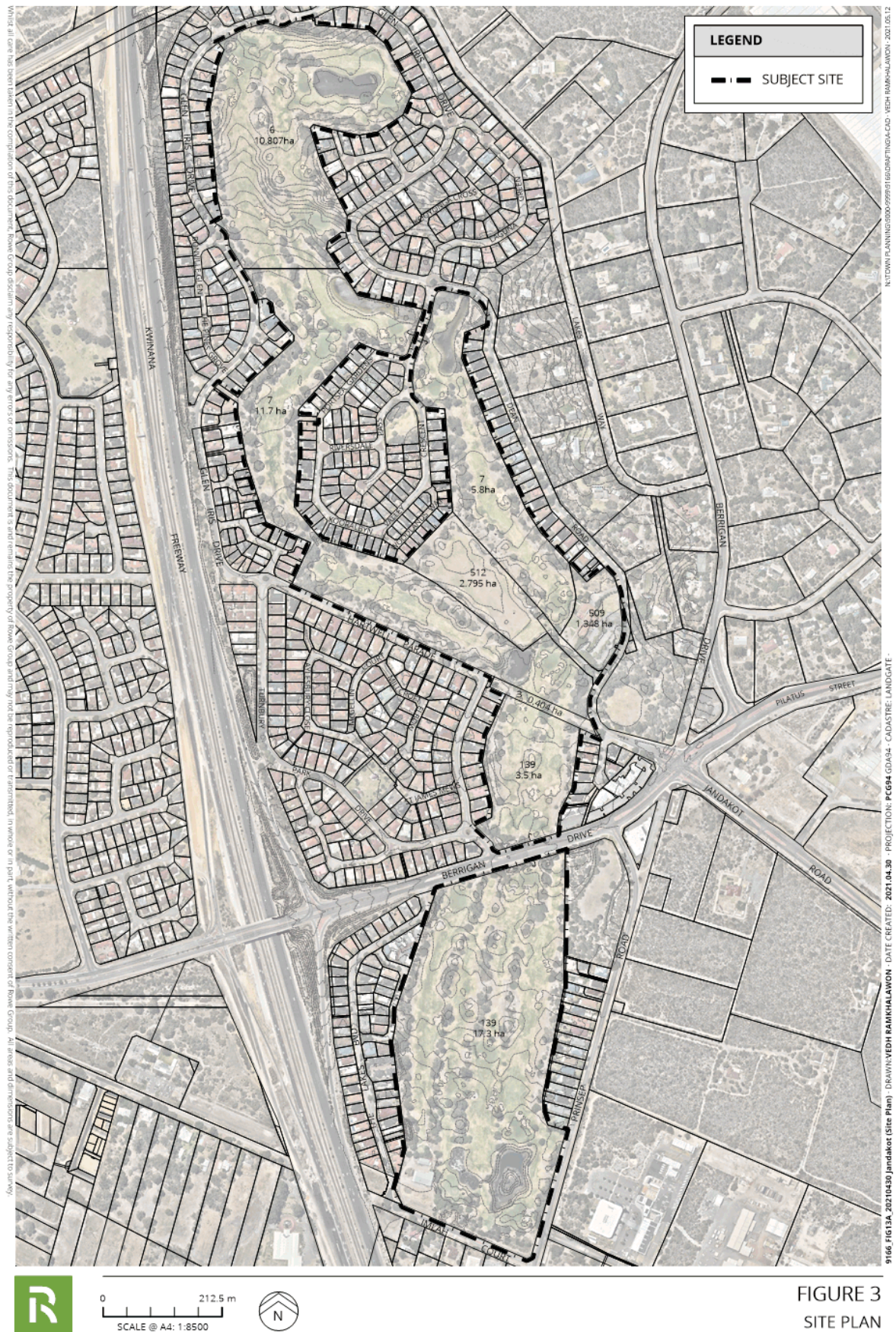
Characteristic of its most recent use, the subject site contains large open grassed areas with existing vegetation predominantly limited to the periphery.

The subject site is surrounded by low to medium density housing and associated land uses. A small commercial precinct comprising shops, restaurants and medical uses is located along Berrigan Drive, central to the site. The land further east of the subject site is predominantly used for semi-rural purposes and the land to the south comprises mixed business and industrial land uses.

Refer **Figure 3** – Site Plan.







4.3 Cadastral Information

The subject site comprises approximately 53.74 hectares of land across six (6) lots, legally described as follows:

Lot No.	Deposited Plan / Diagram	Volume / Folio	Area (approx.)	Proprietor/s
3	D 30047	2190 / 500	0.40 ha	ECP Acquisitions 7 Pty Ltd
6	D 91027	2765 / 992	10.81 ha	ECP Acquisitions 9 Pty Ltd
7	P 21402	2195 / 189	17.58 ha	ECP Acquisitions 7 Pty Ltd
512	D 94292	2183 / 872	2.79 ha	ECP Acquisitions 7 Pty Ltd
139	P 18946	1947 / 547	20.81 ha	ECP Acquisitions 8 Pty Ltd
509 (No. 76 Dean Road)	D 91028	2183 / 871	1.35 ha	ECP Acquisitions 7 Pty Ltd

Refer **Appendix 1** - Certificates of Title.

5.0 Town Planning Context

5.1 Metropolitan Region Scheme

The subject site and surrounds are zoned 'Urban' under the provisions of the Metropolitan Region Scheme ('MRS').

The Western Australian Planning Commission ('WAPC') defines the 'Urban' Zone as:

"Areas in which a range of activities are undertaken, including residential, commercial, recreational and light industry."

The proposed Amendment is consistent with the site's zoning under the MRS.

Refer to **Figure 4** – Metropolitan Region Scheme Zoning.

5.2 City of Cockburn Town Planning Scheme No. 3

Part of the subject site comprising Lot 512 is currently zoned 'Residential' under the provisions of the City of Cockburn Town Planning Scheme No. 3 ('TPS3') and is assigned a residential density coding of R40 on the Scheme Maps. The balance of the site is zoned 'Special Use'.

The purpose of the 'Residential' Zone is as follows:

- i) *"To provide for a range of housing and a choice of residential densities to meet the needs of the community."*
- ii) *"To facilitate and encourage high quality design, built form and streetscapes throughout residential areas."*
- iii) *"To provide for a range of non-residential uses, which are compatible with and complementary to residential development."*

The purpose of the 'Special Use' Zone is as follows:

"To provide for uses which have unique development requirements that cannot be easily accommodated by the objectives of any of the other zones included in the Scheme."

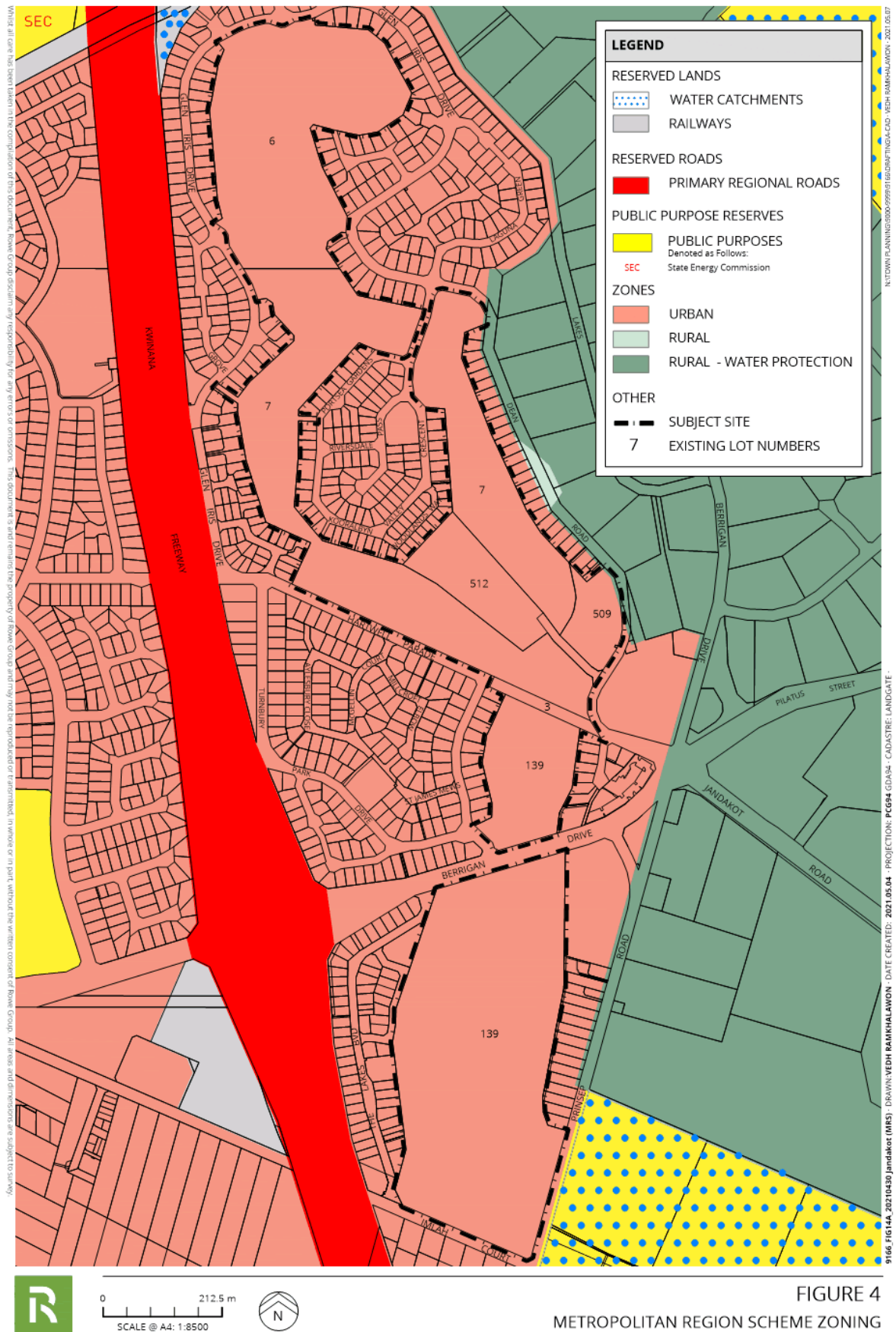
Lots 3, 6, 7 and 139 are located within Special Use Zone 1 ('SU1') under TPS3 and Lot 509 is located within Special Use Zone 6 ('SU6').

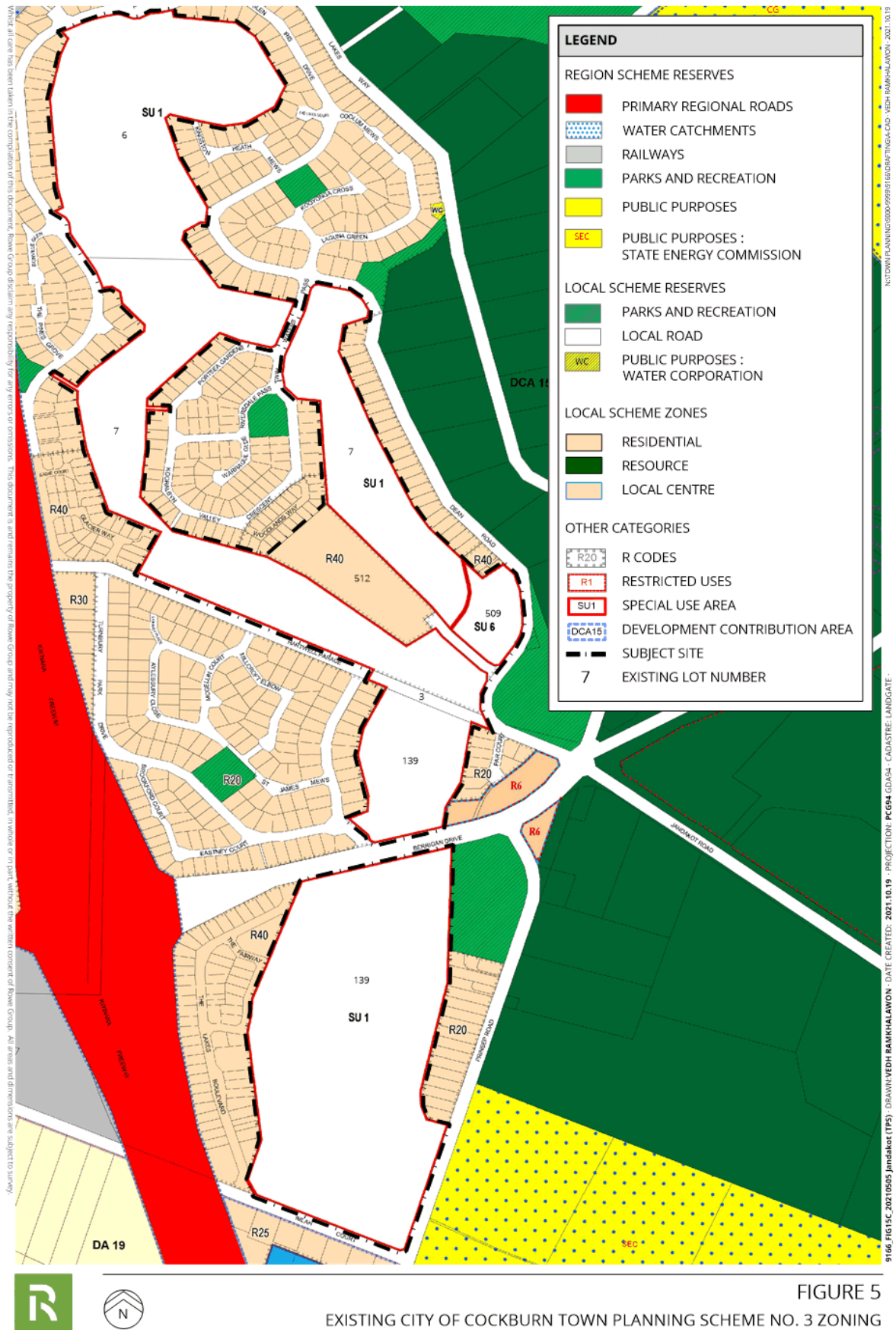
The provisions applying to each Special Use Zone are set out in Table 8 of TPS 3 as follows:

No.	Description of Land	Special Use	Conditions
SU1	Berrigan Drive, Jandakot, the Glen Iris Golf Course Estate	Golf Course Estate, Private Recreation, Hotel, Convention Centre and associated uses - means land used and designed for a golf course, integrated with residential development and associated commercial and community facilities.	Structure Plan adopted to guide Subdivision, land use and Development - Glen Iris Golf Course Estate.
SU6	Dean Road, Jandakot, the Glen Iris Golf Course Estate Commercial Area	Private Recreation, Hotel, Convention Centre and Associated Uses.	Structure Plan adopted to guide Subdivision, land use and Development - Glen Iris Golf Course Estate.

The subject site is also included within Development Contribution Areas ('DCA') 13 and 15 under TPS3. The DCA designation will continue to apply following endorsement of the proposed Amendment.

Refer **Figure 5** – City of Cockburn Town Planning Scheme No. 3 Zoning.





5.3 Regional Planning Strategies

5.3.1 Perth and Peel @3.5 million and South Metropolitan Peel Sub-Regional Planning Framework

Perth and Peel @ 3.5 Million seeks to meet the residential dwelling targets established under *Directions 2031 and Beyond* ('Directions 2031') and the *State Planning Strategy 2050*. It notes that some 800,000 new homes are required to accommodate the projected population growth of 3.5 million by 2050 and that this will be delivered through a mix of infill and greenfield development with targets of 47% and 53% respectively.

The suite of documents associated with *Perth and Peel @ 3.5 million* includes four sub-regional planning frameworks for the Central, North-West, North-East and South Metropolitan Peel sub-regions. The four sub-regional planning frameworks detail where future homes and employment should be located, and where important environmental assets should be avoided and protected.

The subject site is located within the *South Metropolitan Peel Sub-Regional Planning Framework* (the 'Framework'). Both *Perth and Peel @ 3.5 Million* and the Framework identify the subject site as 'Urban', consistent with the site's existing zoning under the MRS.

The Framework represents a whole of State Government approach to managing the future urban form within the sub-region and builds upon the principles of *Directions 2031*. One of the key principles fundamental to the development of the Framework is to:

"Develop a consolidated urban form that limits the identification of new greenfield areas to where they provide a logical extension to the urban form, and that places a greater emphasis on urban infill and increased residential density".

The Framework identifies minimum new dwelling targets for each local government area. Under the Framework the City of Cockburn is expected to require an additional 30,120 dwellings by 2050. Of these 30,120 new dwellings, a minimum of 14,680 are expected to be provided through infill development.

The proposed Amendment will assist in contributing towards achieving the City's residential dwelling targets under *Perth and Peel @ 3.5 Million* and the Framework.

5.3.2 Jandakot Airport Master Plan (2014) and Draft (2021)

The Jandakot Airport Master Plan ('Airport Master Plan') was endorsed in 2014 to guide the development of the Jandakot Airport over a 20-year period. It sets out the strategic direction for the efficient and economic development of the Airport and considers a range of on-site and off-site issues relating to both aviation and

non-aviation matters. A draft Master Plan was prepared in 2020 and is currently being advertised for public comment. Once finalised and endorsed, the draft Master Plan will replace the current 2014 Plan.

The subject site is not located within the boundaries of Jandakot Airport but is indirectly affected by the Airport through off-site impacts associated with aircraft noise. The 2014 and draft 2021 Master Plans forecast noise predictions in and around the Airport using the *Australian Noise Exposure Forecast* ('ANEF') system and map noise contours on a Chart plotted at 20, 25, 30, 35 and 40 ANEF units. The contour plot is the calculated total noise energy at that given point on the ground on an annual average day. The higher the ANEF value, the greater the expected exposure to aircraft noise in that area. The ANEF contours contained in the ANEF Chart are calculated on the theoretical maximum movement capacity of the airfield and in this regard, represent maximum noise exposure levels.

The southern 'half' of the subject site comprising part of Lots 7, 512, 509 and 139 is identified on the ANEF Chart as being located between the 20 ANEF and 25 ANEF contours. The balance of the Site is located below the 20 ANEF contour.

The proposed Amendment has been considered in relation to its proximity to Jandakot Airport. Residential uses are acceptable in proximity to the Airport however it is expected that some noise attenuation measures will be required in the southern part of the subject site which is located within the 20 to 25 ANEF contour zone.

An acoustic assessment has been undertaken in support of the proposed Local Structure Plan to examine the potential noise impacts from Jandakot Airport in further detail. The assessment recommends appropriate noise mitigation measures where required. These measures will be incorporated into the Local Structure Plan and implemented through Local Development Plans and/or conditions of subdivision approval.

A copy of the acoustic assessment is contained within the Local Structure Plan Report submitted concurrently with the proposed Scheme Amendment request.

5.4 Local Planning Strategies

5.4.1 City of Cockburn Local Planning Strategy (1999)

The City of Cockburn Local Planning Strategy ('Planning Strategy') sets out the long-term planning direction for the City and covers a 10-15 year timeframe. The Planning Strategy contains an 'Ultimate Strategic District Plan' which provides a guide as to the ultimate land use pattern for the district and a context for planning and development under both the MRS and the local scheme. The subject site is identified as 'Urban' on the Ultimate Strategic District Plan, based on its zoning under the MRS. The proposed Amendment is consistent with the site's designation under the Ultimate Strategic District Plan.

The Planning Strategy does not specifically consider the subject site in isolation but rather deals more broadly with a range of district-wide issues relating to matters such as housing, employment, shopping and transport.

In relation to housing, the Planning Strategy notes that the opportunity for infill development within the City is limited due to the small size of existing lots and observes that, as a consequence, these areas are likely to be redeveloped on a lot-by-lot basis. The Planning Strategy observes that this has a subsequent effect on the timeframe for delivery of infill development.

Unlike these 'typical' infill opportunity sites, the subject site is held under a single ownership and comprises a significant land area (in terms of traditional infill sites). It is also largely cleared and generally unconstrained from an environmental perspective. As such, the subject site is not constrained by existing built form, small lot sizes, and fragmented land ownership and provides a unique opportunity for infill redevelopment. Rezoning the subject site to accommodate additional residential and complimentary land uses via the 'Development' Zone, will facilitate additional infill development, in line with the objectives of the Planning Strategy.

5.4.2 City of Cockburn Draft Local Planning Strategy (2020)

The City has prepared a draft Local Planning Strategy ('draft Planning Strategy') to replace the current Planning Strategy and inform the preparation of a new Local Planning Scheme. The draft Planning Strategy was endorsed by Council at its meeting on 8 October 2020 and is currently with the WAPC awaiting consent to advertise.

The draft Planning Strategy sets out a vision for the City *"to create a sustainable, healthy, connected and prosperous Cockburn community"*. In achieving this vision, the draft Strategy follows five key themes of Environment, Urban Growth and Housing, Economy and Employment, Infrastructure, and Governance. Strategies and Actions are provided for each theme.

The proposed Amendment has been considered in relation to the Strategies and Actions contained in the draft Planning Strategy. Having regard to the five key themes of the draft Planning Strategy, the proposed Amendment satisfies the following key Strategies and Actions:

- Focus development intensity in areas that are well-connected to infrastructure and best meet the needs of Cockburn's community whilst protecting and enhancing the City's natural setting and environmental values, including ecological corridors (*Urban Growth and Housing*);
- Promote employment self-sufficiency for Cockburn's residents, and encourage new development and employment opportunities within proximity to centres and in areas accessible to where people live (*Economy and Employment*);

- Create a high quality and liveable urban environment that supports a thriving City that attracts more people to live, work and invest (*Economy and Employment*);
- Support and promote a transition to sustainable transport mode choices, and improve the efficiency of the City's movement network through integrated transport planning (*Infrastructure*);
- Prioritise co-location of services, facilities, housing and jobs to reduce trip distances, travel times and reliance on private motor vehicles (*Economy and Employment*);
- An evidence-based approach to land use planning and decision-making that responds to the local planning framework and considers community benefit (*Governance*); and
- Appropriate flexibility in the planning framework to respond to changes over time while ensuring the intent of this Strategy and the community's needs are considered (*Governance*).

The draft Planning Strategy identifies the subject site as 'Residential - Garden Character Area'. This designation is provided across most of the existing residential areas within the City and is characterised by elements such as open front setbacks; dwellings set amongst landscaping and open space; and dwellings with a form, scale, bulk, style and roof line that generally does not detract from the open, landscape character.

The proposed Amendment is consistent with the site's designation under the draft Planning Strategy as it proposes (via a Local Structure Plan) low to medium residential density development, consistent with the key elements of the Garden Character Area.

In relation to urban infill, the draft Planning Strategy notes that urban infill in the form of development of larger sites presents greater opportunities to integrate with the surrounding area; manage appropriate interfaces (streetscape and adjoining properties); rationalise access points and crossovers; and design for increases in traffic and parking that may be generated. Larger infill sites can also provide for a more coordinated outcome as they allow for greater design flexibility.

The subject site presents a unique opportunity for infill development as it is a large, unused and predominantly cleared area that is not constrained in the 'typical' manner by existing developed lots and fragmented land ownership (noting that the site is held under a single ownership). In this regard, the proposed Amendment can facilitate a quality urban infill outcome consistent with the Strategies and Actions contained within the draft Planning Strategy.

5.4.3 Age Friendly Strategy (2016)

The City's 'Age Friendly Strategy' was adopted by the City in 2016 and identified that many older residents within the City had spent most of their lives in the area and wished to continue to live in Cockburn.

The Age Friendly Strategy identifies Jandakot as a suburb that has a high concentration of people over the age of 55 years (30% of the population) which is expected to rise by 2025 (38% of the population). The Age Friendly Strategy notes that the provision of improved services and accommodation for older people in this area will become critically important and observes that the provision of appropriate housing options is a key necessity.

The proposed Amendment will facilitate additional undeveloped land suitable for residential land uses that is of sufficient size to ensure it is developed in a comprehensively planned and coordinated manner. This will ensure the site provides for a diversity of housing needs that takes advantage of its proximity to the existing public transport network and established community facilities and services. In this regard, the proposed Amendment is consistent with the strategies and recommendations contained within the Age Friendly Strategy.

5.4.4 Housing Affordability and Diversity Strategy (2018)

In 2018, the City adopted its Housing Affordability and Diversity Strategy ('Housing Strategy'). The Housing Strategy builds upon the findings and recommendations contained within an earlier Strategy adopted in 2014. The key objectives of the Housing Strategy are:

- To provide households with access to housing that is appropriate to their needs in terms of size, physical attributes and location;
- To provide housing that is affordable to households of varying financial capacity;
- To provide a variety of housing types in locations that have good accessibility to public transport, and essential services; and
- To promote affordable living, taking into consideration the total cost of living in a dwelling, including energy and water consumption, the price of transport to access employment and essential services, and other daily needs impacted by location.

The proposed Amendment will facilitate the provision of additional undeveloped land suitable for residential land uses that is of sufficient size to ensure it is developed in a comprehensively planned and coordinated manner. The proposed 'Development' zoning will enable the site to be developed through a local structure planning process that addresses key housing issues such as the provision of greater housing choice through lot and dwelling diversity and the

strategic placement of higher density housing close to areas of high amenity, existing public transport services and/or shopping facilities.

In this regard, the proposed Amendment is consistent with the objectives and recommended actions contained within the Housing Strategy.

5.4.5 Urban Forest Plan (2018)

The City's Urban Forest Plan was adopted by the City in 2018. The Plan sets out a vision for the future management and expansion of the City's urban forest and directs the management of streetscapes and public open space to improve liveability and wellbeing. Whilst the proposed Amendment does not, in itself, propose the clearing of land or address issues such as tree retention and public open space provision, it will facilitate a 'Development' zoning which, under the provisions of TPS3, will require the preparation and adoption of a local structure plan before development can be undertaken.

The local structure planning process provides an opportunity within which to respond to the objectives and provisions of the Urban Forest Plan and in doing so, ensures development is undertaken in a coordinated and considered manner.

5.4.6 Strategic Community Plan (2020)

The City of Cockburn Strategic Community Plan ('Community Plan') was adopted in 2020. The Plan sets out the City's vision and outlines how the vision will be achieved. The Community Plan has five (5) broad strategic themes covering the Local Economy; Environmental Responsibility; Community, Lifestyle and Security; City Growth and Moving Around; and Listening and Leading. For each theme, the Community Plan identifies a list of Objectives based on feedback provided through consultation with the community.

The proposed Amendment has been considered in relation to the Community Plan and satisfies the following specific *Objectives*:

- Sustainably revitalise urban areas to deliver high levels of amenity and to cater for population growth.
- Plan and facilitate diverse and affordable housing choices for residents and vulnerable communities.

By rezoning an unused parcel of land and providing additional dwellings within an established residential community that is close to public transport and employment opportunities, the proposed Amendment will assist in delivering key objectives of the Community Plan.

5.5 State Planning Policies

5.5.1 State Planning Policy 2.3 – Jandakot Groundwater Protection

Part of the site is currently classified as a Priority 3 Groundwater Protection Area and is therefore subject to the principles and policy measures contained within the WAPC's State Planning Policy 2.3 – *Jandakot Groundwater Protection* ('SPP 2.3'). SPP 2.3 aims to protect the Jandakot Groundwater Protection Area from development and land uses that may have a detrimental impact on the water resource. The site's location with the Jandakot Groundwater Protection Area does not preclude residential development, although some specific land use and development restrictions/exclusions may apply such as locating a sewer pump station or petrol station in these areas.

SPP 2.3 is to be read in conjunction with the Department of Water's ('DoW') 2016 *Water Quality Protection Note 25: Land Use Compatibility Tables in Public Drinking Water Source Areas* ('Protection Note'). The Protection Note sets out guidelines on appropriate land uses and activities within Public Drinking Water Source Areas ('PDWSA') and represents best management practice to protect water quality and public health based on experience, scientific investigation and risk assessment.

The Protection Note lists urban residential land uses as 'Acceptable' within a Priority 3 PDWSA. In contrast, a golf course is defined as a land use that is 'Compatible subject to Conditions'. These conditions include restrictions on the use of pesticides and fertilisers; licensing of water use; refuse disposal; and nutrient and irrigation management requirements. In this regard, residential land uses are considered more appropriate than a golf course within a Priority 3 PDWSA.

A Local Water Management Strategy ('LWMS') has been prepared in support of the proposed Local Structure Plan to examine the site's hydrological conditions and recommend a strategy for managing existing and future stormwater on-site. The LWMS demonstrates that the subject site can be developed for urban (residential) purposes in accordance with the Objectives of SPP 2.3 and without comprising the SPP's Groundwater Protection Principles.

A copy of the LWMS is contained within the Local Structure Plan Report submitted concurrently with the proposed Scheme Amendment.

5.5.2 State Planning Policy 3 – Urban Growth and Settlement

State Planning Policy 3 – Urban Growth and Settlement ('SPP 3') sets out the principles which apply to planning for urban growth and settlement in WA. The overall aim of SPP 3 is to facilitate sustainable patterns of urban growth and settlement by setting out the requirements of sustainable settlements and communities and the broad policy in accommodating growth and change.

SPP 3 recognises that the orderly planning of urban growth and settlement should be facilitated by structure plans, which should take into account the strategic and physical context of the locality; provide for the development of safe; convenient and attractive neighbourhoods which meet the diverse needs of the community; and facilitate logical and timely provision of infrastructure and services. The proposed Amendment will facilitate a 'Development' zoning over the site which, under the provisions of TPS3, will require the preparation and adoption of a local structure plan before development can be undertaken. By facilitating a structure planning process, the proposed Amendment is consistent with the objectives of SPP 3.

SPP 3 also recognises that more consolidated development is suitable in appropriate locations where consistent with neighbourhood character and where the necessary services are available. The proposed Amendment will facilitate the redevelopment of an unused parcel of land that is well serviced by the existing road network; is accessible to high frequency public transport routes; and is capable of being serviced by existing and/or upgraded services and infrastructure. In this regard, the subject site presents an appropriate location for more consolidated urban development, consistent with the following SPP 3 objectives:

- To build on existing communities with established local and regional economies, concentrate investment in the improvement of services and infrastructure and enhance the quality of life in those communities.
- To promote the development of a sustainable and liveable neighbourhood form which reduces energy, water and travel demand whilst ensuring safe and convenient access to employment and services by all modes, provides choice and affordability of housing and creates an identifiable sense of place for each community.
- To coordinate new development with the efficient, economic and timely provision of infrastructure and services.

The proposed Amendment is also consistent with the following specific Policy Measures under SPP 3:

- Making the most efficient use of land in existing urban areas through the use of vacant and under-utilised land and buildings, and higher densities where these can be achieved without detriment to neighbourhood character and heritage values; the cost-effective use of urban land and buildings, schools and community services, infrastructure systems and established neighbourhoods; and promoting and encouraging urban development that is consistent with the efficient use of energy (*Policy Measure 5.1 Creating Sustainable Communities*).
- Consolidating residential development in existing areas and directing urban expansion into the designated growth areas which are, or will be, well serviced by employment and public transport (*Policy Measure 5.3 Managing Urban Growth in Metropolitan Perth*).

- Giving priority to infill development in established urban areas, particularly through urban regeneration and intensification of development of under-utilised urban land, whilst respecting neighbourhood character (*Policy Measure 5.3 Managing Urban Growth in Metropolitan Perth*).

The proposed Amendment satisfies the overall aim of SPP 3 in terms of accommodating sustainable urban growth by facilitating development of an unused parcel of land within an existing, established area that is well serviced by existing facilities and services.

The Objectives and specific Policy Provisions within SPP 3 will be further reinforced at the local structure planning stage.

5.5.3 State Planning Policy 3.7 – Planning in Bushfire Prone Areas

Part of the site (along the periphery) is identified by the Department of Fire and Emergency Services ('DFES') Map of Bushfire Prone Areas as being "bushfire prone" with the mapped bushfire risk coming from the adjacent areas of remnant vegetation. Accordingly, the WAPC's *State Planning Policy 3.7 – Planning in Bushfire Prone Areas* ('SPP 3.7') is relevant to the subject site. SPP 3.7 seeks to guide the implementation of effective risk-based land use planning and development to preserve life and reduce the impact of bushfire on property and infrastructure.

Whilst the proposed Amendment does not, in itself, result in any physical development on the site, it will facilitate a 'Development' zoning which, under the provisions of TPS3, will require the preparation and adoption of a local structure plan before development can be undertaken. The local structure planning process will include an assessment of bushfire risk and demonstrate compliance with the provisions of SPP 3.7.

Notwithstanding that a detailed assessment of bushfire considerations will be undertaken at the local structure planning process, given the subject site's proximity to existing bush land and partial mapping within the "bushfire prone" designation, a Bushfire Management Plan ('BMP') has been prepared in support of the proposed Amendment and is enclosed at **Appendix 2**.

The BMP demonstrates that the proposed Amendment complies with the relevant policy measures and is consistent with the aim and objectives of SPP 3.7 and associated guidelines. In this regard, the proposed Amendment is acceptable in terms of bushfire risk and management.

5.5.4 State Planning Policy 5.3 – Land Use Planning in the Vicinity of Jandakot Airport Vicinity

The subject site is located approximately 1.5km west of Jandakot Airport and accordingly the provisions of *State Planning Policy 5.3 – Jandakot Airport Vicinity* ('SPP 5.3') are a relevant consideration. SPP 5.3 recognises the strategic

importance of Jandakot Airport, both as an element of transport infrastructure and as a local economic contributor. Its objectives are to protect Jandakot Airport from encroachment by incompatible land use and development whilst also minimising the impact of airport operations on existing and future communities with particular reference to aircraft noise.

SPP 5.3 is predicated upon the Australian Noise Exposure Forecast ('ANEF') system which is used to guide zoning, land use and development proposals. The *Jandakot Airport Ultimate Capacity ANEF Chart 2019* ('ANEF Chart') illustrates noise contours in and around the Airport, plotted at 20, 25, 30, 35 and 40 ANEF units. The contour plot is the calculated total noise energy at that given point on the ground on an annual average day. The higher the ANEF value, the greater the expected exposure to aircraft noise in that area. The ANEF contours contained in the ANEF Chart are calculated on the theoretical maximum movement capacity of the airfield and in this regard, represent maximum noise exposure levels.

The southern 'half' of the subject site comprising part of Lots 3, 7, 512, 509 and 139 is identified on the ANEF Chart as being located between the 20 ANEF and 25 ANEF contours. The balance of the site is located below the 20 ANEF contour.

SPP 5.3 provides guidance on zoning, land use, residential density, subdivision, and development within each of the various ANEF contours based on *AS2021 – Building Site Acceptability Based on ANEF Zone*. Within the 20 to 25 ANEF zone, residential uses are deemed 'Conditionally Acceptable', meaning consideration should be given to the suitability of such uses within this noise exposure zone.

Whilst the proposed Amendment does not, in itself, result in any physical development on the site, it will facilitate a 'Development' zoning which, under the provisions of TPS3, will require the preparation and adoption of a local structure plan before development can be undertaken. The local structure planning process will assess the potential for noise impacts from Jandakot Airport and demonstrate compliance with the provisions of SPP 5.3.

An acoustic assessment has been undertaken in support of the proposed Local Structure Plan to examine the potential noise impacts from Jandakot Airport in further detail and recommend appropriate noise mitigation measures where required. The assessment demonstrates that residential land uses are acceptable on the subject site having regard to the predicted noise impacts from Jandakot Airport. Noise attenuation measures recommended in the acoustic assessment will be incorporated into the Local Structure Plan and implemented through Local Development Plans and/or conditions of subdivision approval.

A copy of the acoustic assessment is contained within the Local Structure Plan Report submitted concurrently with the proposed Scheme Amendment.

5.5.5 State Planning Policy 5.4 – Road and Rail Noise

Given the Kwinana Freeway (Primary Regional Road), Berrigan Drive, the Perth to Mandurah Railway Line, the extension of the Thornlie line passenger rail and the Yangebup Freight Rail Line are located in proximity to the subject site, the provisions of *State Planning Policy 5.4 - Road and Rail Noise* ('SPP 5.4') are a relevant consideration. The general objectives of SPP 5.4 are to ensure people are protected from unreasonable levels of transport noise and to ensure new development is compatible with existing transport corridors and freight operations.

Whilst the proposed Amendment does not, in itself, result in any physical development on the site, it will facilitate a 'Development' zoning which, under the provisions of TPS3, will require the preparation and adoption of a local structure plan before development can be undertaken. The local structure planning process will assess the potential impacts of road and rail noise on the subject site and demonstrate compliance with the provisions of SPP 5.4.

An acoustic assessment has been undertaken in support of the proposed Local Structure Plan to examine the potential noise impacts from road traffic (Kwinana Freeway and Berrigan Drive) and rail traffic (Perth to Mandurah Line, Thornlie to Cockburn Passenger rail line and Yangebup Freight Rail Line) and recommend appropriate noise mitigation measures where required. These measures will be incorporated into the Local Structure Plan and implemented through Local Development Plans and/or conditions of subdivision approval. A copy of the acoustic assessment is contained within the Local Structure Plan Report submitted concurrently with the proposed Scheme Amendment.

The acoustic assessment demonstrates that potential road and rail noise levels at the subject site are not at a sufficient level to require acoustic amelioration but recommends notification be placed on the Titles of lots in proximity to the road and rail line.

6.0 Environmental Context

An Environmental Assessment Report (EAR) has been prepared in support of this Scheme Amendment Request and is enclosed at **Appendix 3**. The following provides a summary of the key findings from the EAR.

6.1 Flora and Vegetation

A detailed Flora and Vegetation Survey was undertaken during Winter and Spring 2021 to support the preparation of the EAR. Additional site visits have occurred in August and September 2021, and the information/data generated from these visits have been used to update the survey report. The Survey recorded four (4) native plant communities present on the site.

Plant community EmB, which is described as “*woodland to open woodland*”, was found to comprise the most intact native vegetation within the site, covering approximately 4% of the site. One small patch of this community was mapped as being in ‘very good’ condition whilst other patches of EmB that were more disturbed with an altered structure, lower native species diversity and higher weed cover, were mapped as being in ‘good’ and ‘good-degraded’ condition.

Plant community TdSt, which is described as “*closed sedge lands*”, covers less than 1% of the site and was identified as being in ‘good – degraded’ condition as it comprises combination of native and non-native species that only exist in the site due to the presence of the artificial lakes.

The two remaining plant communities Planted Trees and Shrubs (25% coverage) and Turf and Bare Ground (66% coverage) were mapped as being in ‘completely degraded’ condition as they were dominated by non-native species or present only as bare non-vegetated areas on the site.

The remainder of the subject site supports multiple artificial lakes, buildings and hardstand. It is noted that the artificial lakes are no longer being maintained.

The EAR demonstrates that the subject site's flora and vegetation characteristics do not present an impediment to the proposed ‘Development’ zoning.

6.1.1 Threatened and Priority Ecological Communities

No threatened or priority flora species (‘TEC’) were recorded within the subject site as part of the Reconnaissance Flora and Vegetation Survey undertaken for the site. Furthermore, there were no locally or regionally significant flora species recorded. Some parts of the site fall within the boundary of the mapped buffer zone for Banksia Woodlands of the Swan Coastal Plain.

The Reconnaissance Flora and Vegetation Survey also noted the structure and composition of plant community EmB indicates that it has the potential to represent Commonwealth listed TEC ‘Banksia Woodland of the Swan Coastal

Plain' ('BWTEC') and the state listed PEC 'banksia dominated woodlands of the Swan Coastal Plain IBRA region'. However, due to the small size of the vegetation patches, it does not satisfy the criteria to be considered a TEC.

Notwithstanding, intensive targeted searches were undertaken in August and early September 2021 across the EmB vegetation, confirming none of the identified threatened or priority flora species were recorded. The absence of the larger perennial species such as *Jacksonia gracillima*, *Verticordia lindleyi* subsp. *lindleyi* and *Andersonia gracilis* was relatively easy to confirm. However, due to their size and seasonal lifeform, smaller annual or geophytic species such as *Drakaea elastica*, *Thelymitra variegata* and *Caladenia huegelii* can be more difficult to detect.

The targeted searches in August and September 2021 are considered sufficient to conclude that *Drakaea elastica* and *Thelymitra variegata* do not occur. The searches were conducted during the main growing and flowering period for these species and it is unlikely they would come to be recorded later in the season. August and early September lie within the active growing period and the beginning of the flowering period of *Caladenia huegelii* and so the leaf and potentially the flower of *Caladenia huegelii* would be expected to be visible at this time, if present. Suitable habitat in the site was intensively searched and no evidence to indicate that *C. huegelii* occurs, such as flowering individuals or sterile orchid leaves, was recorded. Therefore, it is very unlikely that *Caladenia huegelii* occurs within the site. Nevertheless, further targeted surveys are planned for the remainder of the flowering period (October and November 2021) to search and confirm the status of *C. huegelii* in the site.

No Bush Forever sites occur within the subject site or immediate surrounds. Furthermore, no Environmentally Sensitive Areas prescribed under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* are present within or in proximity to the site.

The subject site has two local ecological linkages/corridors included in the 'Towards Green Network' (WALGA 2014). One of the linkages primarily comprises the rural residential land to the east of Dean Road with a very small portion of the linkage entering the subject site. The second linkage aligns with the Western Power easement located along the southern edge of the site. The extent to which the site contributes to these linkages is limited by the lack of native remnant vegetation within the site.

The EAR demonstrates that the Amendment does not contain any ecological communities, significant areas of bushland or environmentally sensitive areas that would present an impediment to the proposed 'Development' zoning.

6.2 Fauna

A Level 1 Fauna Survey and targeted Black Cockatoo Habitat Assessment were carried out by Emerge Associates to determine the fauna values associated with the subject site.

Five fauna habitats were recorded on the site. The majority of the site supports turf, bare ground and infrastructure which provides low habitat values for native fauna. The native woodland habitat provides the highest relative value but, as this habitat extends over a small portion of the site (4%) and occurs as scattered patches, the importance of this habitat to native fauna is limited. The remainder of the site supports planted trees and shrubs which provide varying habitat values depending on plant species and density.

11 black cockatoo habitat trees were recorded on the site however none were determined to be suitable for breeding due to the absence of suitable hollows. Approximately 4.9 hectares of Carnaby's Black Cockatoo and Forest Red-tailed Black Cockatoo foraging habitat exists on the site, and extensive areas of foraging habitat for both species occur adjacent to the site and in the wider area. The rezoning of the site to 'development' will not of itself result in an impact to the Black Cockatoo species or to any other fauna given the rezoning does not provide approval for the removal of vegetation.

A preliminary self-assessment against the Matters of National Environmental Significance Significant Impact Guidelines (DotE 2013) was undertaken to determine the likelihood of whether future subdivision or development approval applications will require referral pursuant to the EPBC Act. It was concluded that due to the limited extent of foraging habitat and the absence of any trees with suitable breeding hollows on the site, future development is highly unlikely to significantly impact any species of black cockatoo and a referral pursuant to the EPBC Act is presently unnecessary.

Once the detailed designs have been progressed to subdivision and/or development application stage, there will be sufficient certainty to confirm the extent of any impact to the Black Cockatoo and any other relevant species. Using this design information, a further self-assessment in accordance with DAWE's *Matters of National Environmental Significance Significant Impact Guidelines* will be undertaken to determine if the confirmed impact extent raises any issues that will alter the current view that any impact to the Black Cockatoo and any other relevant species will not be significant. While there is currently no expectation this view will be altered, it is recognised that if the self-assessment raised sufficient doubt, an EPBC Act referral might be required to obtain regulatory certainty.

The EAR demonstrates that the subject site's fauna characteristics do not present an impediment to the proposed 'Development' zoning.

6.3 Wetland

The Department of Biodiversity Conservation and Attractions '(DBCA') Wetland Mapping does not identify any wetlands within the subject site. There are two Multiple Use management category wetlands in close proximity to the site, but these areas do not support any conservation values and have been predominantly already developed over in surrounding areas.

6.4 Landform and Soils

The topography of the subject site ranges from approximately 25 metres Australian Height Datum ('AHD') in the southern portion of the site up to approximately 40 metres AHD in the northern portion of the site.

Regional soil association mapping indicates the subject site is within the Bassendean soil association, which is described as "*sand plains with low dunes and occasional swamps, iron or humus podzols and areas of complex steep dunes*".

The Department of Water and Environmental Regulation ('DWER') Acid Sulphate Soils ('ASS') Mapping identifies the subject site as having a "moderate to low" risk of ASS occurring within 3 metres of natural soil surface, but "high to moderate" risk of ASS beyond 3 metres of the natural soil surface.

The DWER Contaminated Sites Database does not list the subject site as being a known or suspected contaminated site.

The EAR demonstrates that the subject site's landform and soil characteristics do not present an impediment to the proposed 'Development' zoning.

6.5 Groundwater and Surface Water

6.5.1 Groundwater

The DWER Water Register indicates that the site is underlain by a multi-layered aquifer system comprised of the following resources:

- Perth – Superficial Swan (unconfined).
- Perth – Leederville (confined).
- Perth – Yarragadee North (confined).

The DWER Water Information Reporting Tool indicates the current water table in the northern part of the site is 18 metres below surface level with the base of the aquifer 59 metres below surface level. In the southern part of the site, the water table is 4 metres below surface level with the base of the aquifer 47 metres below surface level.

Given the depth to groundwater, it is unlikely that the separation distance between surface levels and groundwater will require further consideration within the site. Notwithstanding, a Local Water Management Strategy will be prepared to support local structure planning for the site.

The EAR demonstrates that the subject site's groundwater characteristics do not present an impediment to the proposed 'Development' zoning.

6.5.2 Surface Water

Although there were previously seven man made lakes that were part of the former golf course use providing an aesthetic, irrigation, and broader drainage function, these lakes have been decommissioned. There are no natural surface water bodies present within the subject site.

The management of surface water runoff will be considered as part of a Local Water Management Strategy, to be prepared in support of local structure planning for the site.

The EAR demonstrates that the subject site's surface water characteristics do not present an impediment to the proposed 'Development' zoning.

6.6 Heritage

A search of the Department of Planning, Lands and Heritage ('DPLH') Aboriginal Heritage Inquiry System identified no registered sites on the subject site or immediate surrounds.

A search of the Heritage Council of Western Australian's ('HCWA') Register of Heritage Places, and the City of Cockburn's Municipal Heritage Inventory, identified no sites of state or local heritage significance within the subject site or immediate surrounds.

6.7 Surrounding Land Uses

The subject site is surrounded by low to medium density housing and associated land uses. A small commercial precinct comprising shops, restaurants and medical uses is located along Berrigan Drive, central to the site. The land further east of the subject site is predominantly used for semi-rural purposes and the land to the south comprises mixed business and industrial land uses. The Jandakot Airport is located further east of the site.

The mixed business and industrial land uses largely comprise depots and storage yards, with the exception being Fremantle Steel Group's steel fabrication facilities being located approximately 200m south from the nearest portion of the site. Whilst not expected to be an issue due to existing noise sensitive premises being located between the subject site and the mixed business/industrial activities, built form responses that are already proposed in response to mitigation of aircraft noise, would further mitigate noise emissions from the industrial uses to the south of the site. Whilst it is understood that industrial emissions from the steel fabrication activities are contained, the existing residential dwellings situated along the southern side of Imlah Court also provide an existing threshold for any industrial emissions to the subject site.

An acoustic barrier wall will be provided along the short section of the site that abuts Prinsep Road providing additional mitigation.

7.0 Servicing Context

7.1 Sewer

The subject site is currently serviced by reticulated sewer, maintained and operated by the Water Corporation.

Advice from the Water Corporation indicates there are number of upgrades required to downstream headworks infrastructure (including collection sewers, pump stations and pressure mains) to facilitate the development of the site for residential purposes. This will be addressed as part of detailed design through the local structure planning and subdivision processes.

It is also noted there are numerous live wastewater lines located within the site, protected by existing easements in favour of the Water Corporation. These have been considered in the indicative concept planning for the site, and will be considered further through detailed design.

7.2 Water

The site is currently serviced by reticulated potable water, owned and operated by the Water Corporation.

Advice from the Water Corporation indicates that upgrades to the existing network will be required to accommodate the development of the site for residential purposes. This includes upgrades to headworks infrastructure, including distribution mains, and will be undertaken by the Water Corporation as development progresses. These upgrades will be addressed as part of detailed design through the local structure planning and subdivision processes.

7.3 Electricity

There are existing High Voltage (HV) overhead power lines in the east of the site along Prinsep Road, with various sections of underground HV located within the vicinity of the site, servicing the existing residential lots. There are also existing Low Voltage (LV) underground services surrounding the site.

Western Power forecasting indicates there is between 10 to 15 MVA of capacity available in the existing surrounding network to the service the locality. Any upgrades required to accommodate the development of the site will be reviewed and determined as part of detailed design through the local structure planning and subdivision processes.

7.4 Gas

There are existing ATCO Gas services in the vicinity of the subject site. ATCO Gas has advised the existing surrounding network has capacity to accommodate the residential development of the site.

There is also an existing DN150 PVC medium pressure gas main running through the portion of the site between the existing Dean Road reserve and the Hartwell Parade reserve. The Thornlie Cockburn Link Project Team are currently installing a DN200 steel high pressure gas main through the site along the same alignment as the existing main. This is to replace existing gas mains which currently run through the proposed rail reserves. These mains will also provide opportunity for connection and have been designed to ensure there are no limitations for development in the future.

7.5 Telecommunications

There are existing Telstra and NBN owned pit and pipe networks in the vicinity of the subject site.

The NBN Rollout Map indicates the wider Glen Iris area is covered by the NBN network and is 'service ready'. Existing properties surrounding the site are covered by a fixed line, Fibre To The Node (FTTN) service.

7.6 Traffic and Access

The subject site is bound by Dean Road, Glen Iris Drive and Prinsep Road on the east, The Lakes Boulevard, The Fairway, Hartwell Parade and Glen Iris Drive on the west and Imlah Court to the south. These roads are all classified as 'Access Roads' under Main Roads WA's *Functional Road Hierarchy* and are subject to the default 50km/h built up speed limit.

Vehicular access to and from the site is possible via intersections at The Lakes Boulevard, Turnbury Park Drive and Prinsep Road as well as a four-way signal-controlled intersection at Dean Road/Jandakot Road/Berrigan Drive.

Whilst the proposed Amendment does not, in itself, result in any physical development on the site, it will facilitate a 'Development' zoning which, under the provisions of TPS3, will require the preparation and adoption of a local structure plan before development can be undertaken. A Transport Impact Assessment ('TIA') has been prepared in support of the proposed Local Structure Plan and demonstrates that redevelopment of the site can be accommodated within the existing road network subject to a number of upgrades and improvements to achieve an acceptable traffic outcome. These upgrades will be the responsibility of the Developer.

A report and modelling has been completed in accordance with Main Roads Western Australia (MRWA) Network Operations Directorates Traffic Signals Approval Policy Stage 1 Approval Process for New Traffic Signals (March 2019) to review a range of options for the new four-way intersection on Berrigan Drive. Ongoing liaison with MRWA and City of Cockburn will occur through the consideration of the proposed Local Structure Plan to determine the best outcome for traffic access at Berrigan Drive.

8.0 Justification for Proposed Amendment

This section of the Report outlines the rationale for the proposed Scheme Amendment and provides justification in support of the request.

8.1 Regional and Local Planning Strategies

The proposed Amendment has been considered in relation to the various local and regional planning strategies relevant to the subject site.

From a regional perspective, it is noted that the proposed Amendment is consistent with its 'Urban' designation under *Perth and Peel @ 3.5 Million* and the *South Metropolitan Peel Sub-Regional Framework*, reflecting its current zoning under the MRS and its location within an established residential community.

The proposed Amendment will facilitate a 'Development' zoning over the subject site and in doing so, enable the preparation of a Local Structure Plan to guide land use and development. Once rezoned, the subject site expected to accommodate approximately 550 - 600 new dwellings.

The proposed Amendment will assist in contributing towards achieving the City's *minimum* infill development target of 14,680 under *Perth and Peel @ 3.5 Million* and the Framework. Importantly, the subject site is 'development ready' in the sense that it is largely vacant of built form; has been extensively cleared of native vegetation on account of its former use; is held in single ownership under the control of a landowner that has the desire and financial ability to implement the proposal; and is largely unconstrained from an environmental perspective. In this regard, the site is capable of contributing towards the City's infill dwelling target within the next 2 to 4 years.

At the local level, the proposed Amendment is consistent with its 'Urban' designation under the 'Ultimate Strategic District Plan', which forms part of the City's existing Local Planning Strategy. The Urban designation reflects the subject site's zoning under the MRS and its location within an established residential community.

The City has prepared a draft Planning Strategy to replace the existing Planning Strategy and inform the preparation of a new Local Planning Scheme. The proposed Amendment is consistent with the site's designation as a 'Residential – Garden Character Area' under the draft Planning Strategy as it proposes low to medium residential density development, consistent with the key elements of the Garden Character Area.

The subject site presents a unique opportunity for infill development as it is a large, unused and predominantly cleared area that is not constrained in the 'typical' manner by existing developed lots and fragmented land ownership. In this regard, the proposed Amendment achieves a quality urban infill outcome consistent with the Strategies and Actions contained within the draft Planning Strategy.

Having regard to the above, the proposed Amendment is consistent with, and conforms with, the general objectives and provisions contained within the following regional and local planning strategies:

- Perth and Peel @ 3.5 Million.
- South Metropolitan Peel Sub-Regional Framework.
- City of Cockburn Local Planning Strategy (1999).
- City of Cockburn draft Local Planning Strategy (2020).

8.2 Housing Affordability and Diversity

The provision of affordable and diverse housing, particularly in existing established suburbs, is a key issue reflected in the City's existing and draft Local Planning Strategies and addressed under the City's Age Friendly Strategy (2016) and Housing Affordability and Diversity Strategy (2020).

Jandakot is identified as a suburb that has a high concentration of people over the age of 55 years (30% of the population) which is expected to rise by 2025 (38% of the population). As such, the need to provide a diversity of housing options that include opportunities for 'downsizing' is an important consideration. Although the proposed development of the site will respect and build upon the existing lot typologies in the area, it is also intended that several medium density sites are created.

The subject site is uniquely placed to provide a variety of housing options given it is held under a single ownership, comprises a reasonably large land area, is largely cleared and generally unconstrained from an environmental perspective. These characteristics enable the site to be developed in a comprehensively planned and coordinated manner through the local structure planning process. This will ensure the future development of the site to provide opportunities for the provision of housing that is more appropriately suited to the occupiers needs and hence facilitates more affordable living within vibrant, connected and rejuvenated neighbourhoods.

The City's Housing Strategies recommends that:

"The City should continue with great earnest its programs of revitalisation strategies, which have been very successful in delivering higher residential densities within established communities like Spearwood and Hamilton Hill".

The subject site presents an opportunity for advancing the City's program of revitalising older suburbs, consistent with the recommendations of its Housing Strategy.

In this regard the proposed Amendment is consistent with the recommendations and strategies contained within the following City of Cockburn Housing Strategies:

- Age Friendly Strategy (2016).
- Housing Affordability and Diversity Strategy (2020).
- Strategic Community Plan (2020).

8.3 Airport Noise - Jandakot Airport

The subject site is not located within the boundaries of Jandakot Airport but is indirectly affected by the Airport through off-site impacts associated with aircraft noise. Consideration of forecast noise predictions from Jandakot Airport and the findings of an acoustic assessment prepared in support of the proposed Local Structure Plan confirm that the subject site's proximity to Jandakot Airport does not present an impediment to the proposed 'Development' zoning. Any development within the subject site will be assessed against the provisions of the City of Cockburn Local Planning Policy 1.12 which specifically considers the long term health and amenity of residents from noise sources.

It is anticipated that some noise attenuation measures will need to be incorporated into dwelling construction for those dwellings located in the southern part of the subject site. These measures will be incorporated into the Local Structure Plan and implemented through Local Development Plans and/or conditions of subdivision approval.

8.4 Road and Rail Noise – Kwinana Freeway

The subject site is located in proximity to the Kwinana Freeway (Primary Regional Road), Berrigan Drive, the Perth to Mandurah Railway Line, the Thornlie to Cockburn passenger line and the Yangebup Freight Rail Line.

An assessment of existing and forecast road and rail noise on the subject site has been undertaken and demonstrates that potential road and rail noise levels at the subject site are not at a sufficient level to require acoustic amelioration but recommends notification be placed on the Titles of lots in proximity to the road and rail line.

In this regard, the subject site's proximity to road and rail infrastructure does not present an impediment to the proposed 'Development' zoning.

8.5 Groundwater Protection and Water Usage

The subject site's former use as a private golf course required a significant groundwater allocation for irrigation purposes (325,000 kL annually). Whilst irrigation for new public open space from the groundwater supply will still be required following redevelopment of the site, annual water usage is expected to be reduced by approximately 70% by replacing the golf course with a combination of residential land uses and public open space.

This figure is broadly based on a total combined irrigated POS area of 11ha and represents a reduction of local aquifer groundwater use only, not local domestic use of scheme water. If local domestic use were to be included in post-

development water usage calculations, it is expected that post-development usage would still be significantly less than pre-development usage.

The reduction in groundwater use will provide an overall environmental benefit, in line with the Objectives of SPP 2.3. Further consultation will be required with the Department of Water and Environmental Regulation to agree upon the most appropriate action with respect to any surplus groundwater allocation, once an accurate understanding of the groundwater requirements for maintenance of the POS and other green spaces is determined.

In relation to the Jandakot Groundwater Protection Area, DoW's Protection Note 25 Protection Note lists urban residential land uses as 'Acceptable' within a Priority 3 PDWSA. In contrast, a golf course is defined as a land use that is 'Compatible subject to Conditions'. These conditions include restrictions on the use of pesticides and fertilisers; licensing of water use; refuse disposal; and nutrient and irrigation management requirements. In this regard, residential land uses are considered more appropriate than a golf course within a Priority 3 PDWSA.

Accordingly, the proposed Amendment will have an overall environmental benefit in terms of groundwater protection.

8.6 Environmental Considerations

An Environmental Assessment Report ('EAR') has been prepared in support of the proposed Amendment. It considers the full range of environmental consideration relevant to the site including Flora and Vegetation; Threatened and Priority Ecological Communities; Fauna; Wetlands; Landform and Soils; Groundwater and Surface Water; and Heritage.

The EAR demonstrates that the site does not contain any environmental features that would present an impediment to the proposed 'Development' zoning being supported.

8.7 Site Servicing

A review of existing servicing considerations (water, sewer, power, gas and telecommunications) demonstrates that the site is currently well serviced by existing infrastructure. The review also demonstrates that the redevelopment of the site for urban (residential) purposes can be accommodated without any significant impact on existing services except to the extent that some upgrades may be required. These will be considered further at the detailed design stage and are not an impediment to future development.

In this regard, there are no impediments to the proposed Amendment in terms of servicing.

8.8 Infill Development Potential – Contribution towards timely delivery of infill targets

In relation to achieving its infill dwelling target of 14,680 dwellings by 2050, the City's draft Planning Strategy notes that infill within the 'Revitalisation Strategy Areas' (Hamilton Hill, Spearwood North and Coolbellup) and within established residential areas are projected to deliver approximately 9,966 infill dwellings over the next 15 years. This leaves a shortfall of some 4,714 dwellings which are expected to be provided within the vicinity of the Cockburn Central Activity Centre and, at a later stage, by 'modest upcodings' throughout existing residential areas. Whilst the subject site is not identified as a 'Revitalisation Strategy Area', it does present an excellent opportunity for increasing the overall provision of infill dwellings to meet the City's target earlier than predicted.

The City's existing and draft Planning Strategies note that the opportunity for infill development within the City is limited due to the small size of existing lots and observes that, as a consequence, these areas are likely to be redeveloped on a lot-by-lot basis. This has a subsequent effect on the timeframe for delivery of infill development.

Unlike these 'typical' infill opportunity sites, the subject site is held under a single ownership and comprises a significant land area (in terms of traditional infill sites). The subject site is also 'development ready' in the sense that it is largely vacant of built form; has been extensively cleared of native vegetation on account of its former use; is under the control of a landowner that has the desire and financial ability to implement the proposal; and is largely unconstrained from an environmental perspective. In this regard, the subject site provides an excellent infill opportunity and can start contributing towards achieving the minimum dwelling targets established under *Perth and Peel @ 3.5 million* and the Framework within the next 2 to 4 years.

8.9 Sustainable Urban Growth

The proposed Amendment satisfies the overall aim of the WAPC's SPP 3 in terms of accommodating sustainable urban growth. It achieves this by facilitating development of an unused parcel of land within an existing, established area that is well serviced by the existing road network; is accessible to high frequency public transport routes; and is capable of being serviced by existing and/or upgraded services and infrastructure.

Further, the development of the site will constitute urban infill, addressing the *Perth and Peel @ 3.5 Million* objectives of consolidating urban growth, as well as the City of Cockburn's planning strategies addressing environmental integrity and social community benefit, such as housing choice, liveability, connection to activity centres and services, transport options, and access to public spaces and employment.

Integral to this, the proponent is committed to implement key sustainability initiatives aligned with the UDIA EnviroDevelopment standards. Active Sustainability has undertaken a preliminary analysis of the proposed development to inform the Amendment and subsequent Structure Plan, and determine project initiatives. The results of this preliminary analysis indicate the development is well placed to address the EnviroDevelopment certification requirements in all six categories, being Ecosystems, Community, Waste, Materials, Energy and Water. Further assessment will be undertaken through structure planning and subdivision, as detailed design and development progresses.

The following table summarises the preliminary sustainability analysis undertaken for the proposed Amendment.

EnviroDevelopment Category	Key Project Sustainability Initiatives
Ecosystems	- Water Sensitive Urban Design to manage surface water quality to support ecological health, including a major reduction in the existing long-term groundwater draw, and significant reduction in the use of fertilisers, herbicides and pesticides; - Subject to the final outcome with respect to the Structure Plan and detailed subdivision design, retention of approximately 500 existing mature trees, relocation of some, and planting of local natives species in new parks and the landscaped interface adjoining existing residences, including the planting of some 1,000 new trees; - Protection and/or relocation of native fauna during construction; - Creation of possible fauna habitat opportunities within open space and retention of trees suitable for avian fauna, balanced against the need to minimise fire fuel loads; and - Landscaping of public open spaces in park and bushland corridors, designed to manage fire risk.
Community	- Detailed consultation with existing residents to ensure new areas are strongly integrated with the existing community; - Delivery of a range of housing types and densities to allow greater diversity of residents, including down-sizing for retirees (ageing in place), singles, couples and families;

	- Creating a community hub (local centre) as a connection point for interaction of future and existing residents; - The public open space and movement network has been designed to encourage a safe environment, and encourage positive interaction between residents and other local people using the area; - All dwellings will be within 150 metres of local parks and green spaces; - Public spaces will be designed to provide for multiple uses with safety, comfort and security for community members, including children, the elderly and disabled people, providing shade, seating and quality amenities; and - Pathways for both walking and cycling that are safe, attractive and well-lit, connecting residential areas with public spaces and local facilities.
Water	- Reduction in water use through waterwise landscaping and gardens, water efficient fixtures and appliances; and - Landscape guidelines will be provided to residents to assist in making informed choices around design, aesthetics, plants species selection and productive gardens.
Energy	- Street and lot orientation designed to provide best practice solar access opportunities, as well as ensure buildings and outdoor spaces have solar amenity; - Building design guidelines will be prepared, informing purchasers about energy efficiency and comfort, addressing the following elements: › climate responsive, solar passive design for homes, › renewable energy systems, and › efficient fixtures and appliances. - Use of efficient LED and solar lighting for street lighting and public spaces.
Waste	- All development works are to be guided by a Waste Management Plan during civil works and building construction, targeting > 80% recycling; and

	- Building design guidelines to be prepared, informing purchasers about the waste hierarchy of reduce, reuse and recycle.
Materials	- All civil works and landscape design to incorporate materials with recycled content, reused, and replacement materials; such as for construction of roads and pathways, landscape features, reuse of timber as both nature play elements and in mulch and possible selected public art elements.

8.10 Neighbourhood Character

The subject site is located within a predominantly low density residential area characterised by mainly single residential dwellings on reasonably large lots with wide, landscaped verges. The former golf course located centrally to the locality, was held in private ownership and legally accessible to paying golfers only. Although the former golf course provided a perceived area of open space, public access for non-paying golfers was restricted to only an access path linking Hartwell Parade to Kooralbyn Valley Crescent that is protected by easement. The golf course ceased operation in March 2020, prior to the current landowner purchasing the site.

In considering the area's existing character, it is necessary to not only consider the type and nature of land use and development currently on site but also consider the land uses and form of development that could be accommodated under the site's existing zoning. As documented above, the subject site's existing zoning permits a range of residential, commercial, recreational and entertainment land uses. Whilst the area has, for many years, been characterised by a golf course, it is not the only land use capable of being developed on the site under its existing zoning and this is relevant in the context of considering the impact of the proposed Amendment on existing neighbourhood character.

The 'Development' Zone is considered the most suitable and appropriate zoning for the site given it requires the preparation and adoption of a local structure plan before development can be undertaken. The local structure planning process ensures that future land uses and development on the site are designed and planned in a comprehensive, cohesive and coordinated manner that considers a range of issues including the elements that combine to form the character of an area. This includes elements such as the interface between new and existing residential dwellings; the placement of residential densities; tree retention; vehicle movement and accessibility; and the distribution of public open space.

The proposed 'Development' zoning ensures these elements are appropriately and sensitively addressed through the subsequent local structure planning process.

8.11 Orderly and Proper Planning

The Amendment proposes a 'Development' zoning over the entire site, including the part of the site currently zoned 'Residential (R40)'. The 'Development' zoning will necessitate the preparation and adoption of a local structure plan pursuant to the provisions of TPS 3, before development can be undertaken. This will ensure the subject site is developed in a comprehensively planned and coordinated manner and, importantly, ensures that the ultimate form of development responds to important local issues.

9.0 Conclusion

This Amendment proposes to rezone the land comprising the former Glen Iris Golf Course located on Berrigan Drive, Jandakot from the 'Special Use' and 'Residential R40' Zones, to the 'Development' Zone under the provisions of TPS3. Whilst the land has considerable existing development potential, the Amendment will facilitate the redevelopment of the subject site for urban (residential) purposes in a cohesive and coordinated manner with comprehensive planning of the site to be undertaken through the preparation of a Local Structure Plan.

The proposed Amendment provides an improved outcome over the continuation of the former golf course use, and these benefits can be categorised as being of a social, economic and environmental nature.

Social Benefits	
-	Contributes to housing diversity and responds to ongoing changing demographics and community aspirations, including opportunities for 'downsizing' to facilitate ageing in place noting that Jandakot is a suburb that has a high concentration of people over the age of 55 years (30% of the population) which is expected to rise by 2025 (38% of the population).
-	Provides opportunities for the creation of more housing options for homebuyers, including ageing in place.
-	Revitalises the area by bringing in new residents and businesses, and increases opportunities for social interaction, exercise and public recreation.
-	Upgrades and improves existing services and infrastructure such as road and intersections.
-	The 'Development' zoning under TPS3 requires the preparation and adoption of a Local Structure Plan before development can proceed ensuring land use and built form responds appropriately to key local issues such as the protection of neighbourhood character and amenity; interface with existing residential dwellings; streetscape; privacy; tree retention; traffic; and access.

Economic Benefits	
-	Supports the economic development and vitality of the existing Local Centre through population growth and critical mass of retail uses.
-	Increases financial contributions to regional infrastructure and services through the provision of additional Developer Contribution payments at the subdivision stage.
-	Ensures the more efficient use of existing infrastructure and services.
-	Represents a more efficient use of vacant and under-utilised land.
-	Provides additional housing in proximity to existing employment nodes (Jandakot Airport, industrial land to the south)
-	Will contribute to employment in the construction sector.

- Encourages the concentration of further investment in the improvement of existing local services and infrastructure.

Environmental Benefits
- Co-location of housing with existing services, facilities, and employment opportunities reduces trip distances, travel times and reliance on private motor vehicles.
- Ensures a more efficient use of existing and planned infrastructure to achieve a more sustainable urban environment.
- Improves the efficiency of existing public transport and may justify improved public transport services to the area.
- Provides for sustainable urban growth by facilitating development of a vacant and unused parcel of land.
- Will reduce annual ground water usage on the site by approximately 70% by replacing the former golf course with a combination of residential land uses and public open space.
- Provides for urban residential land uses which present a more environmentally acceptable use than a golf course within a Priority 3 PDWSA, reducing fertilizer and pesticide use.

Aside from generating a range of community, economic and environmental benefits, the proposed Amendment is acceptable from a land use planning view point given it:

- Is consistent with the site's 'Urban' zoning under the MRS.
- Will contribute towards achieving the City's residential dwelling target under *Perth and Peel @ 3.5 Million* and the Framework, specifically the minimum infill dwelling target of 14,680 dwellings by 2050.
- Will generate additional infill development, in line with the objectives for housing and growth under the current and draft Local Planning Strategies.
- Is consistent with the objectives, strategies and/or recommendations contained within local strategic planning documents such as the Age Friendly Strategy (2016), Housing Affordability and Diversity Strategy (2018), and Strategic Community Plan (2020); and
- Satisfies the objectives, principles and policy measures contained within relevant WAPC State Planning Policies including SPP 2.3 - Jandakot Groundwater Protection; SPP 3 - Urban Growth and Settlement; SPP 3.7 - Planning in Bushfire Prone Areas; SPP 5.3 - Jandakot Airport Vicinity; and SPP 5.4 - Road and Rail Noise.

Having regard to the above, the proposed Amendment is considered a reasonable and appropriate proposal and it is requested that the City resolves to initiate the proposed Amendment and forward a copy to the EPA for review and the WAPC with a request that consent to advertise be granted.

Appendix 1
Certificates of Title

 WESTERN AUSTRALIA		REGISTER NUMBER 6/D91027	
		DUPLICATE EDITION 1	DATE DUPLICATE ISSUED 12/4/2011
RECORD OF CERTIFICATE OF TITLE UNDER THE TRANSFER OF LAND ACT 1893		VOLUME 2765	FOLIO 992

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.


 REGISTRAR OF TITLES
 

LAND DESCRIPTION:

LOT 6 ON DIAGRAM 91027

REGISTERED PROPRIETOR: (FIRST SCHEDULE)

THE LAKES HOLDINGS PTY LTD OF LOT 169 JANDAKOT ROAD, JANDAKOT
(A L581816) REGISTERED 22/3/2011

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

1. G289136 EASEMENT TO CITY OF COCKBURN. SEE SKETCH ON VOL 2078 FOL 282. REGISTERED 25/9/1996.

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.
 * Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
 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:	D91027
PREVIOUS TITLE:	2078-282
PROPERTY STREET ADDRESS:	NO STREET ADDRESS INFORMATION AVAILABLE.
LOCAL GOVERNMENT AUTHORITY:	CITY OF COCKBURN

LANDGATE COPY OF ORIGINAL NOT TO SCALE Mon Apr 1 13:32:08 2019 JOB 58988721


Landgate
 www.landgate.wa.gov.au

REGISTER NUMBER 7/P21402	
DUPLICATE EDITION 2	DATE DUPLICATE ISSUED 10/2/2014



WESTERN AUSTRALIA

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME
2195

FOLIO
189

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.


 REGISTRAR OF TITLES
 

LAND DESCRIPTION:

LOT 7 ON PLAN 21402

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

THE LAKES GOLF LINKS (WA) PTY LTD OF LOT 169 JANDAKOT ROAD, JANDAKOT
(A H482384) REGISTERED 23/6/2000

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

1. THE LAND THE SUBJECT OF THIS CERTIFICATE OF TITLE EXCLUDES ALL PORTIONS OF THE LOT DESCRIBED ABOVE EXCEPT THAT PORTION SHOWN IN THE SKETCH OF THE SUPERSEDED PAPER VERSION OF THIS TITLE. VOL 2195 FOL 189.
2. G004044 EASEMENT TO CITY OF COCKBURN. SEE SKETCH ON VOL 2195 FOL 189. REGISTERED 12/10/1995.
3. G289135 EASEMENT TO CITY OF COCKBURN. SEE SKETCH ON VOL 2195 FOL 189. REGISTERED 25/9/1996.
4. G394840 EASEMENT TO CITY OF COCKBURN. SEE SKETCH ON VOL 2195 FOL 189. REGISTERED 11/2/1997.
5. G523659 EASEMENT TO CITY OF COCKBURN. SEE SKETCH ON VOL 2195 FOL 189. REGISTERED 7/7/1997.
6. G523660 EASEMENT TO CITY OF COCKBURN. SEE SKETCH ON VOL 2195 FOL 189. REGISTERED 7/7/1997.
7. EASEMENT BURDEN CREATED UNDER SECTION 167 P. & D. ACT FOR WATER, SEWERAGE OR DRAINAGE PURPOSES TO WATER AUTHORITY OF WA SEE PLAN 21402.
8. EASEMENT BURDEN CREATED UNDER SECTION 167 P. & D. ACT FOR GAS PURPOSES TO GAS CORPORATION SEE PLAN 21402.
9. EASEMENT BURDEN - SEE PLAN 21402.

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.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

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

STATEMENTS:

END OF PAGE 1 - CONTINUED OVER

LANDGATE COPY OF ORIGINAL NOT TO SCALE Mon Apr 1 13:31:59 2019 JOB 58988721


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RECORD OF CERTIFICATE OF TITLE

REGISTER NUMBER: 7/P21402

VOLUME/FOLIO: 2195-189

PAGE 2

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: 2195-189 (7/P21402)
PREVIOUS TITLE: 2183-870
PROPERTY STREET ADDRESS: NO STREET ADDRESS INFORMATION AVAILABLE.
LOCAL GOVERNMENT AUTHORITY: CITY OF COCKBURN

LANDGATE COPY OF ORIGINAL NOT TO SCALE Mon Apr 1 13:31:59 2019 JOB 58988721



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LT.175

ORIGINAL: Not to be removed from the Department of Land Administration.

Application H482384

Volume 2183 Folio 870

WESTERN



AUSTRALIA

VOLUME FOLIO

2195 189

IN THE REGISTER

**CERTIFICATE OF TITLE**

UNDER THE "TRANSFER OF LAND ACT, 1893" AS AMENDED

The person described in the First Schedule hereto is the registered proprietor of the undermentioned estate in the undermentioned land subject to the easements, encumbrances and notices shown in the Second Schedule hereto.

Dated 23rd June, 2000

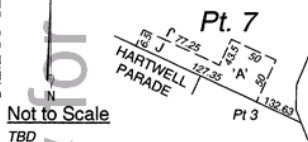
REGISTRAR OF TITLES

**ESTATE AND LAND REFERRED TO**

Estate in fee simple in portion of Jandakot Agricultural Area Lot 169 and being part of Lot 7 on Plan 21402, delineated on the map in the Third Schedule hereto.

FIRST SCHEDULE (continued overleaf)

The Lakes Golf Links (W.A.) Pty. Ltd. of Lot 169 Jandakot Road, Jandakot.

SECOND SCHEDULE (continued overleaf)

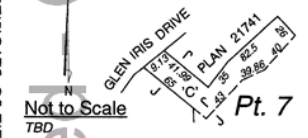
Not to Scale
TBD

1. TRANSFER G4044. The right to enter upon the portion of the within land marked 'A' on the map in the margin for the purpose of exercising certain drainage rights as set out in the said Transfer is granted to the **City of Cockburn**. Registered 12.10.95 at 15.09 hrs.



Not to Scale
TBD

2. TRANSFER G289135. The right to enter upon the portion of the within land marked 'B' on the map in the margin for the purpose of exercising certain drainage rights as set out in the said Transfer is granted to the **City of Cockburn**. Registered 25.9.96 at 15.07 hrs.



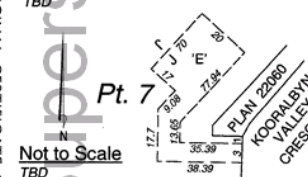
Not to Scale
TBD

3. TRANSFER G394840. The right to enter upon the portion of the within land marked 'C' on the map in the margin for the purpose of exercising certain drainage rights as set out in the said Transfer is granted to the **City of Cockburn**. Registered 11.2.97 at 12.58 hrs.



Not to Scale
TBD

4. TRANSFER G523659. The right to enter upon the portion of the within land marked 'D' on the map in the margin for the purpose of exercising certain drainage rights as set out in the said Transfer is granted to the **City of Cockburn**. Registered 7.7.97 at 9.00 hrs.



Not to Scale
TBD

5. TRANSFER G523660. The right to enter upon the portion of the within land marked 'E' on the map in the margin for the purpose of exercising certain drainage rights as set out in the said Transfer is granted to the **City of Cockburn**. Registered 7.7.97 at 9.00 hrs.

THIRD SCHEDULE (see overleaf)**NOTE: Entries may be affected by subsequent endorsements.**

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VOLUME FOLIO
2195 189
IN THE REGISTER

FIRST SCHEDULE (continued)		NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS			
PARTICULARS	INSTRUMENT		REGISTERED	TIME	SEAL & INITIAL
	NATURE	NUMBER			

SECOND SCHEDULE (continued)		REGISTERED or LODGED	TIME	SEAL & INITIAL	CANCELLATION NATURE	NUMBER	REGISTERED or LODGED	SEAL & INITIAL
EASEMENT for Sewerage purposes created on Plan 21402 under Section 27A TP&D Act.								
EASEMENT for Water Supply purposes created on Plan 21402 under Section 27A TP&D Act.								
EASEMENT for Gas Pipeline purposes created on Plan 21402 under Section 27A TP&D Act.								
EASEMENT for Right of Footway created on Plan 21402 under Section 136C TLA.								
MORTGAGE H353006 to National Australia Bank Ltd.		22.3.00	13.32					

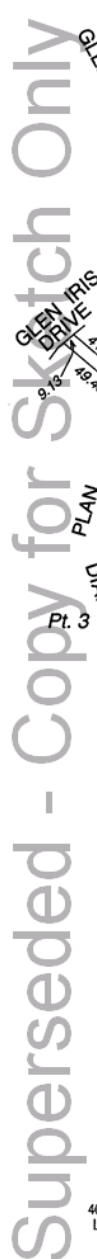
Page 2 (of 4 pages)

SECOND SCHEDULE (continued)	REGISTERED or LODGED	TIME	SEAL & INITIAL	CANCELLATION		REGISTERED or LODGED	SEAL & INITIAL
				NATURE	NUMBER		
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DUPLICATE EDITION 2	DATE DUPLICATE ISSUED 10/2/2014

WESTERN AUSTRALIA

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME **2190** FOLIO **500**

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.


REGISTRAR OF TITLES



LAND DESCRIPTION:

LOT 3 ON DIAGRAM 30047

REGISTERED PROPRIETOR: (FIRST SCHEDULE)

THE LAKES GOLF LINKS (WA) PTY LTD OF LOT 169 JANDAKOT ROAD, JANDAKOT
(A H440284) REGISTERED 9/5/2000

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

1. THE LAND THE SUBJECT OF THIS CERTIFICATE OF TITLE EXCLUDES ALL PORTIONS OF THE LOT DESCRIBED ABOVE EXCEPT THAT PORTION SHOWN IN THE SKETCH OF THE SUPERSEDED PAPER VERSION OF THIS TITLE. VOL 2190 FOL 500.
2. G500077 EASEMENT TO GAS CORPORATION. SEE SKETCH ON VOL 2190 FOL 500. REGISTERED 12/6/1997.
*H510366 NOTIFICATION. THE GRANTEES OF EASEMENT G500077 ARE NOW THE GRANTEES ARE NOW ALINTAGAS NETWORKS PTY LTD. REGISTERED 25/7/2000.

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-----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: 2190-500 (3/D30047)
PREVIOUS TITLE: 2183-873
PROPERTY STREET ADDRESS: LOT 3 DEAN RD, JANDAKOT.
LOCAL GOVERNMENT AUTHORITY: CITY OF COCKBURN

NOTE 1: A000001A PENDING SURVEY - DIAGRAM 86320.

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Version: 1, Version Date: 02/12/2021

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PARTICULARS	INSTRUMENT NATURE	NUMBER	REGISTERED	TIME	SEAL & INITIAL		
SECOND SCHEDULE (continued) Sundry H510366. The Grantee of Easement G500077 is now AlintaGas Networks Pty Ltd pursuant to Section 16 of the Gas Corporation (Business Disposal) Act 1999. (Dup C/T not prod).							
						REGISTERED or LODGED	TIME
			25.7.00	15.19			

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872

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 REGISTRAR OF TITLES

LAND DESCRIPTION:

LOT 512 ON DIAGRAM 94292

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

THE LAKES GOLF LINKS (WA) PTY LTD OF LOT 169 JANDAKOT ROAD, JANDAKOT
(A H353003) REGISTERED 22/3/2000

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

1. EASEMENT BURDEN - SEE DIAGRAM 94292.

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Lot as described in the land description may be a lot or location.

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STATEMENTS:

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SKETCH OF LAND:	2183-872 (512/D94292)
PREVIOUS TITLE:	2015-165, 2139-82
PROPERTY STREET ADDRESS:	NO STREET ADDRESS INFORMATION AVAILABLE.
LOCAL GOVERNMENT AUTHORITY:	CITY OF COCKBURN

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2139 82

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IN THE REGISTER


 ORIGINAL CERTIFICATE OF TITLE

The person described in the First Schedule hereto is the registered proprietor of the undermentioned estate in the undermentioned land subject to the easements, encumbrances and notices shown in the Second Schedule hereto.

Dated 22nd March, 2000


 REGISTRAR OF TITLES


 ORIGINAL CERTIFICATE OF TITLE

ESTATE AND LAND REFERRED TO

Estate in fee simple in portion of Jandakot Agricultural Area Lot 169 and being Lot 512 the subject of Diagram 94292, delineated on the map in the Third Schedule hereto.

FIRST SCHEDULE (continued overleaf)

The Lakes Golf Links (W.A.) Pty. Ltd. of Lot 169 Jandakot Road, Jandakot.

SECOND SCHEDULE (continued overleaf)

- EASEMENT for Right of Carriageway created on Diagram 94292 under Section 136C TLA.
- MORTGAGE H353004 to National Australia Bank Ltd. Registered 22.3.00 at 13.32 hrs.

THIRD SCHEDULE

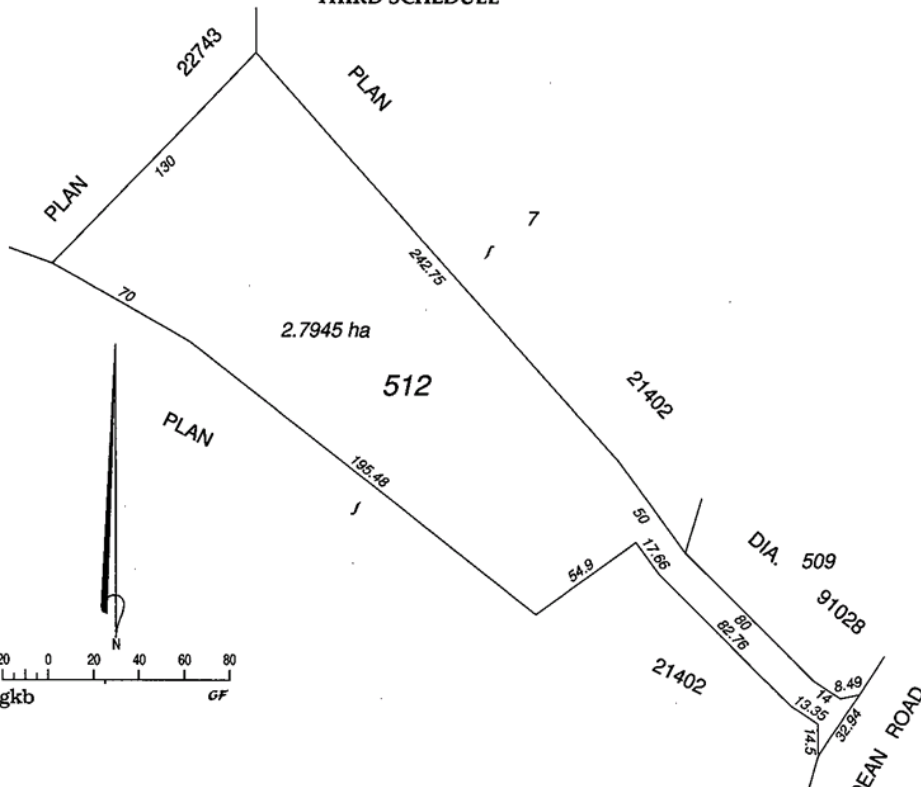
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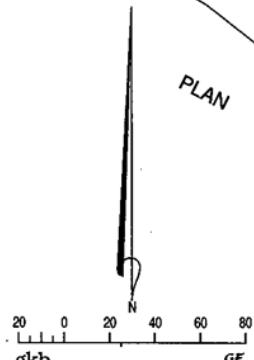
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UNDER THE TRANSFER OF LAND ACT 1893

VOLUME
2183

FOLIO
871

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 REGISTRAR OF TITLES

LAND DESCRIPTION:

LOT 509 ON DIAGRAM 91028

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

THE LAKES GOLF LINKS (WA) PTY LTD OF LOT 169 JANDAKOT ROAD, JANDAKOT
(A H353002) REGISTERED 22/3/2000

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

1. EASEMENT BENEFIT - SEE DIAGRAM 94292.
2. EASEMENT BURDEN CREATED UNDER SECTION 27A OF T. P. & D. ACT - SEE DIAGRAM 91028.

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.
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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:	2183-871 (509/D91028)
PREVIOUS TITLE:	2015-165, 2139-82
PROPERTY STREET ADDRESS:	76 DEAN RD, JANDAKOT.
LOCAL GOVERNMENT AUTHORITY:	CITY OF COCKBURN

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The person described in the First Schedule hereto is the registered proprietor of the undermentioned estate in the undermentioned land subject to the easements, encumbrances and notices shown in the Second Schedule hereto.

Dated 22nd March, 2000

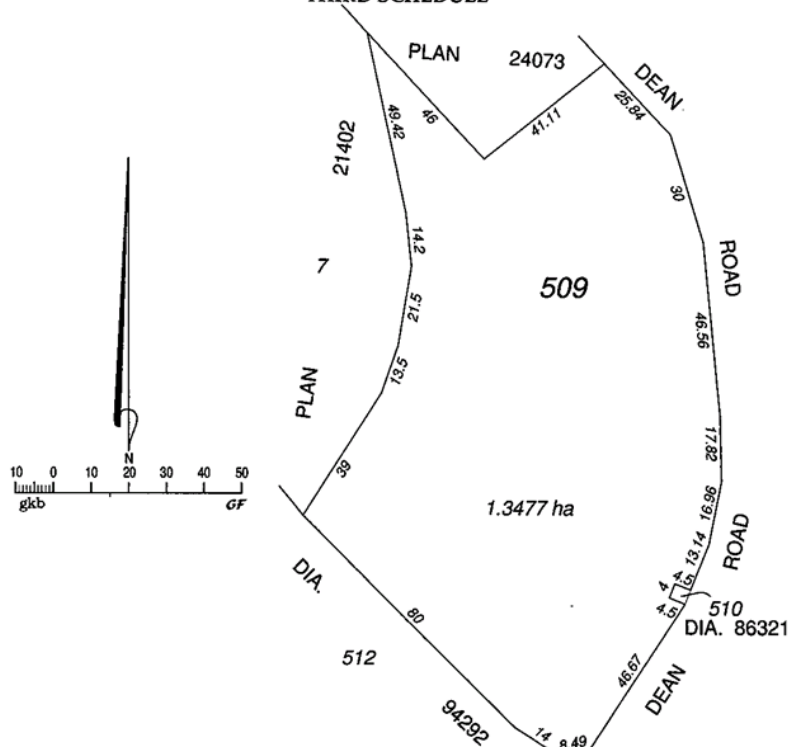
REGISTRAR OF TITLES

**ESTATE AND LAND REFERRED TO**

Estate in fee simple in portion of Jandakot Agricultural Area Lot 169 and being Lot 509 the subject of Diagram 91028, delineated on the map in the Third Schedule hereto, together with an easement for a right of carriageway created on Diagram 94292 under Section 136C TLA.

FIRST SCHEDULE (continued overleaf)**The Lakes Golf Links (W.A.) Pty. Ltd.** of Lot 169 Jandakot Road, Jandakot.**SECOND SCHEDULE (continued overleaf)**

1. EASEMENT for Sewerage purposes created on Diagram 91028 under Section 27A TP&D Act.
2. MORTGAGE H353005 to National Australia Bank Ltd. Registered 22.3.00 at 13.32 hrs.

THIRD SCHEDULE**NOTE: Entries may be affected by subsequent endorsements.**

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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.


REGISTRAR OF TITLES



LAND DESCRIPTION:

LOT 139 ON PLAN 18946

REGISTERED PROPRIETOR: (FIRST SCHEDULE)

THE LAKES HOLDINGS PTY LTD OF THE LAKES HOTEL, JANDAKOT ROAD, JANDAKOT
(T F074575) REGISTERED 23/12/1992

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

1. B368209 EASEMENT TO THE STATE ENERGY COMMISSION OF WESTERN AUSTRALIA. SEE SKETCH ON VOL 1947 FOL 547. REGISTERED 11/7/1977.
2. G004043 EASEMENT TO CITY OF COCKBURN. SEE SKETCH ON VOL 1947 FOL 547. REGISTERED 12/10/1995.
3. I296686 EASEMENT TO CITY OF COCKBURN. SEE SKETCH ON DEPOSITED PLAN 29509. REGISTERED 15/11/2002.

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.
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-----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: 1947-547 (139/P18946)
PREVIOUS TITLE: 1869-309
PROPERTY STREET ADDRESS: NO STREET ADDRESS INFORMATION AVAILABLE.
LOCAL GOVERNMENT AUTHORITY: CITY OF COCKBURN

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Volume 1869 Folio 309



WESTERN AUSTRALIA

REGISTER BOOK
VOL. FOL.
CT 1947 547



CERTIFICATE OF TITLE
UNDER THE "TRANSFER OF LAND ACT, 1893" AS AMENDED

I certify that the person described in the First Schedule hereto is the registered proprietor of the undermentioned estate in the undermentioned land subject to the easements and encumbrances shown in the Second Schedule hereto.


 REGISTRAR OF TITLES

Dated 4th December, 1992

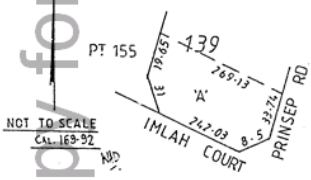
ESTATE AND LAND REFERRED TO

Estate in fee simple in portion of Jandakot Agricultural Area Lot 155 and being Lot 139 on Plan 18946, delineated on the map in the Third Schedule hereto, limited however to the natural surface and therefrom to a depth of 609.6 metres.

FIRST SCHEDULE (continued overleaf)

Hesfi Pty. Ltd. of 1-27 Somersby Road, Welshpool

SECOND SCHEDULE (continued overleaf)



1. TRANSFER B368209. The right to enter in and upon the portion of the within land marked 'A' on the map in the margin for the purpose of erecting and maintaining towers, poles, wires and other necessary apparatus together also with certain other rights, conditions and restrictions as to buildings as set out in the said Transfer is granted to The State Energy Commission of Western Australia. Registered 11.7.77 at 10.30 o'clock.

NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS

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FIRST SCHEDULE (continued)

NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS

REGISTERED PROPRIETOR	INSTRUMENT NUMBER	REGISTERED	TIME	SEAL	CERT OFFICER
The Lakes Holdings Pty Ltd of The Lakes Hotel, Jandakot Road, Jandakot.	F74575	23.12.92	15.49		

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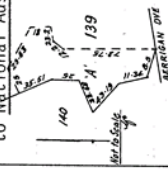
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SECOND SCHEDULE (continued)									
NOTE: RULING THROUGH AND SEALING WITH THE OFFICE SEAL INDICATES THAT AN ENTRY NO LONGER HAS EFFECT. ENTRIES NOT RULED THROUGH THAT BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.									
INSTRUMENT NUMBER	PARTICULARS	REGISTERED	TIME	SEAL	INITIALS	CANCELLATION	NUMBER	REGISTERED OR LODGED	INITIALS
Mortgage F74576	to Mesfi Pty Ltd	23.12.92	15.49			Discharged	F605132	6.7.94	
Caveat F74577	Lodged 23.12.92 at 15.49 hrs.								
Mortgage F74579	to Esanda Finance Corporation Ltd	23.12.92	15.49			Discharged	F405879	22.12.93	
Caveat F103514	Lodged 5.2.93 at 9.45 hrs.								
Mortgage F405880	to Commonwealth Bank of Australia.	22.12.93	10.37			Discharged	G4041	12.10.95	
Caveat F845201	Lodged 3.4.1995 at 15.08 hrs.	12.10.95	15.09			Withdrawn	G4040	12.10.95	
Mortgage G4042	to National Australia Bank Ltd.								
Transfer G4043	The right to enter upon the portion of the within land marked 'A' on the map in the margin for the purpose of exercising certain drainage rights as set out in the said transfer is granted to City of Cockburn	12.10.95	15.09						



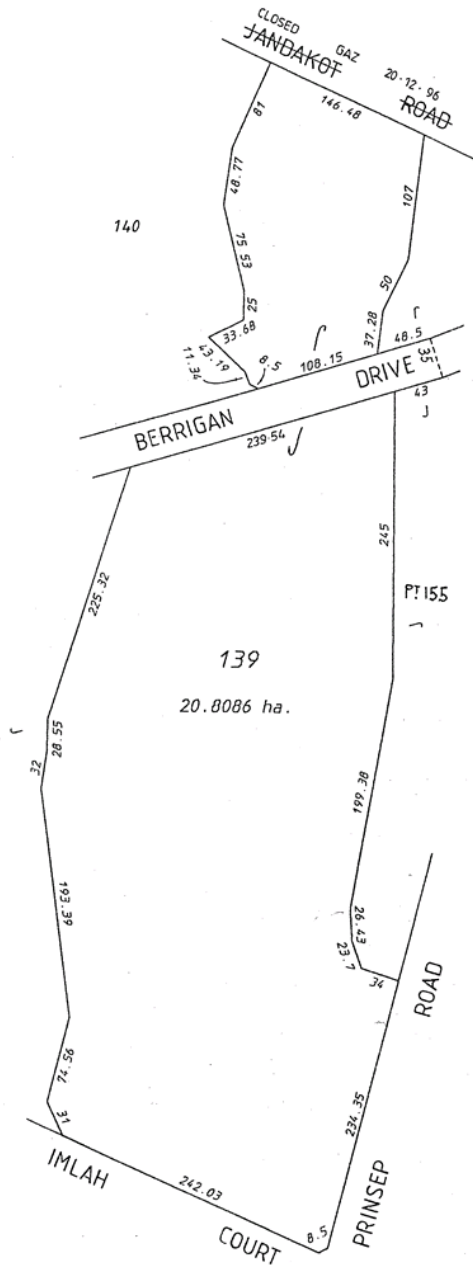
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THIRD SCHEDULE

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Appendix 2
Bushfire Management Plan

Bushfire Management Plan:
Scheme Amendment: Glen Iris Estate

Acumen Development Solutions



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Bushfire Management Plan:
Scheme Amendment: Glen Iris Estate | Acumen Development Solutions

DOCUMENT TRACKING

Project Name	Bushfire Management Plan: Scheme Amendment: Glen Iris Estate
Project Number	20PER-15185
Project Manager	Daniel Panickar
Prepared by	James Leonard
Reviewed by	Daniel Panickar (BPAD Level 3 – 37802)
Approved by	Daniel Panickar (BPAD Level 3 – 37802)
Status	Final
Version Number	v4
Last saved on	13 September 2021

This report should be cited as 'Eco Logical Australia 2020. Bushfire Management Plan: *Scheme Amendment: Glen Iris Estate*. Prepared for Acumen Development Solutions.

ACKNOWLEDGEMENTS

This document has been prepared by Eco Logical Australia Pty Ltd with support from Acumen Development Solutions

Disclaimer

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Template 2.8.1

Version control	
Version	Purpose
v1	Draft – Submission to client
v2	Final – Submission to client
v3	Final – Submission to City of Cockburn and DPLH
v4	Final – Revised in response to comments provided by the City of Cockburn

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1.3 Environmental considerations	1
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1. Introduction

1.1 Proposal details

Eco Logical Australia (ELA) was commissioned by Acumen Development Solutions to prepare a Bushfire Management Plan (BMP) to support a Scheme Amendment for Glen Iris Estate (Lot 6 and 7 Glen Iris Drive, Lot 3 and 509 Dean Road and Lot 139 Imlah Court, hereafter referred to as the subject site, Figure 1). The Scheme Amendment will result in an intensification of land use and involves the rezoning of the subject site to allow for the development of approximately 550 residential lots, 1 commercial lot and 20 Public Open Space (POS) and landscape interface areas (Figure 2).

The subject site is within a designated bushfire prone area as per the *Western Australia State Map of Bush Fire Prone Areas* (DFES 2019; Figure 3), which triggers bushfire planning requirements *under State Planning Policy 3.7 Planning in Bushfire Prone Areas* (SPP 3.7; Western Australian Planning Commission (WAPC) 2015) and reporting to accompany submission of the development application in accordance with the associated *Guidelines for Planning in Bushfire Prone Areas v 1.3* (the Guidelines; WAPC 2017).

The subject site is located within the City of Cockburn and is currently zoned as 'Special Use' and is proposed to be zoned as 'Urban- residential'. The subject site is bound by:

- Residential development and rail reserve to the north;
- Residential development and private industrial development to the south;
- Rural residential blocks and remnant vegetation to the east; and
- Residential development and Kwinana Freeway to the west.

This assessment has been prepared by ELA Senior Bushfire Consultant James Leonard with quality assurance undertaken by ELA Principal Bushfire Consultant, Daniel Panickar (FPAA BPAD Level 3 Certified Practitioner No. BPAD37802-L3).

1.2 Purpose and application of the plan

The primary purpose of this BMP is to act as a technical supporting document to inform planning assessment. This BMP is also designed to provide guidance on how to plan for and manage the bushfire risk to the subject site through implementation of a range of bushfire management measures in accordance with the Guidelines.

1.3 Environmental considerations

Some bushfire prone areas also have high biodiversity values. SPP 3.7 policy objective 5.4 recognises the need to consider bushfire risk management measures alongside environmental, biodiversity and conservation values. No environmental approvals are being sought at this stage of development, however will be commenced as required to support future stages of planning.

Landscaping plans for the subject site are currently being developed, however ELA has consulted with the project team and understand that at a broad level, these plans will incorporate the following aspects:

- Pockets of retained Banksia scrub (north and south POS areas);
- Planted drainage basin;
- Streetscapes throughout the development - existing or new trees, irrigated grass, shrubs and groundcovers under 600 mm height in road reserves;
- Parks - irrigated grass, existing or new trees and low shrubs and groundcovers to any slopes and to define areas; and
- Screen planting along the edges of existing or proposed taller fences and walls to visually soften them, this is likely to comprise plantings between 2 - 3m tall and 2 - 3m wide.

These initial portions of landscape planning have been addressed in the bushfire assessment for the development, outlined in Section 2.

Figure 1: Subject site



Figure 2: Site Plan

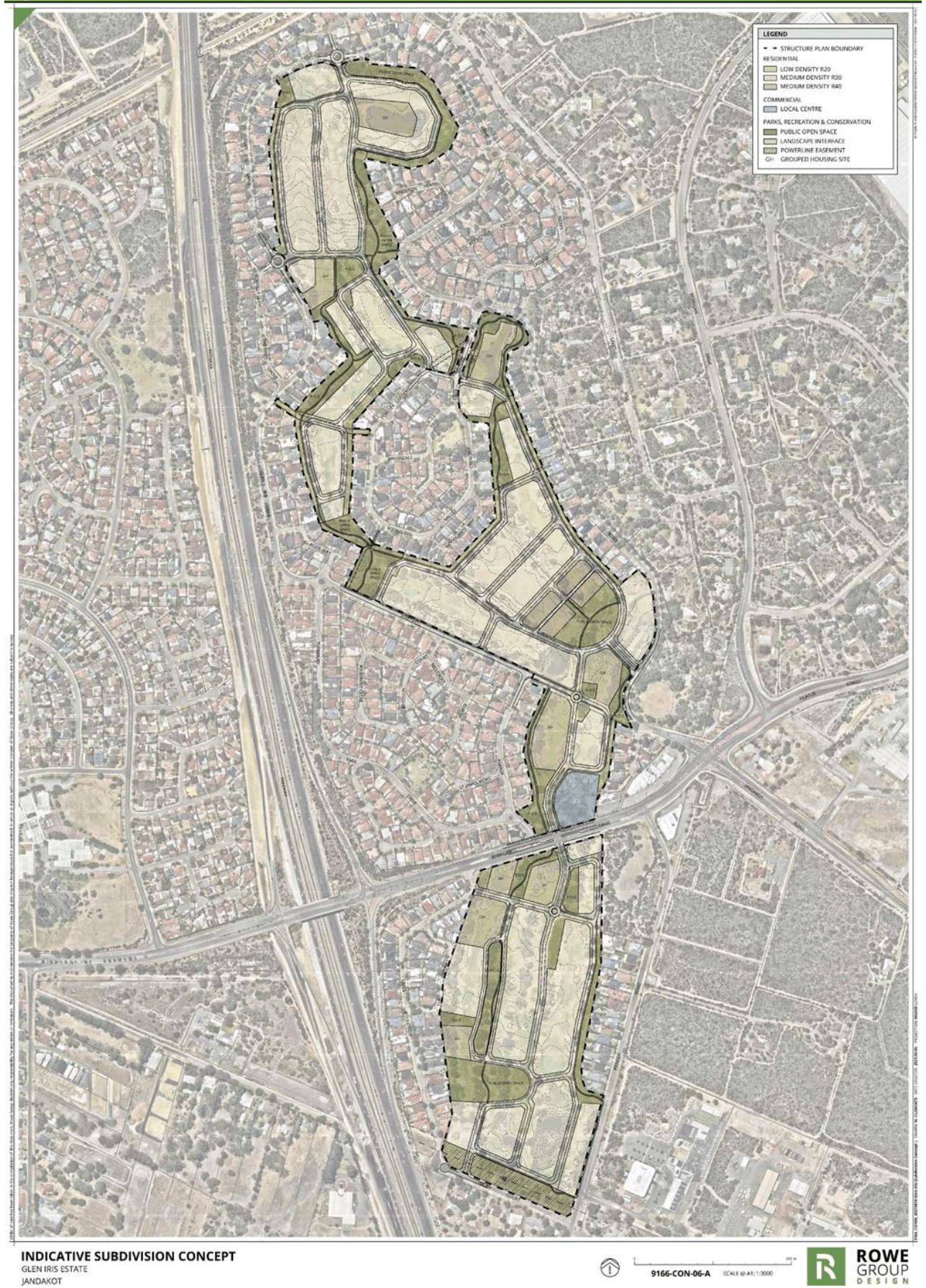
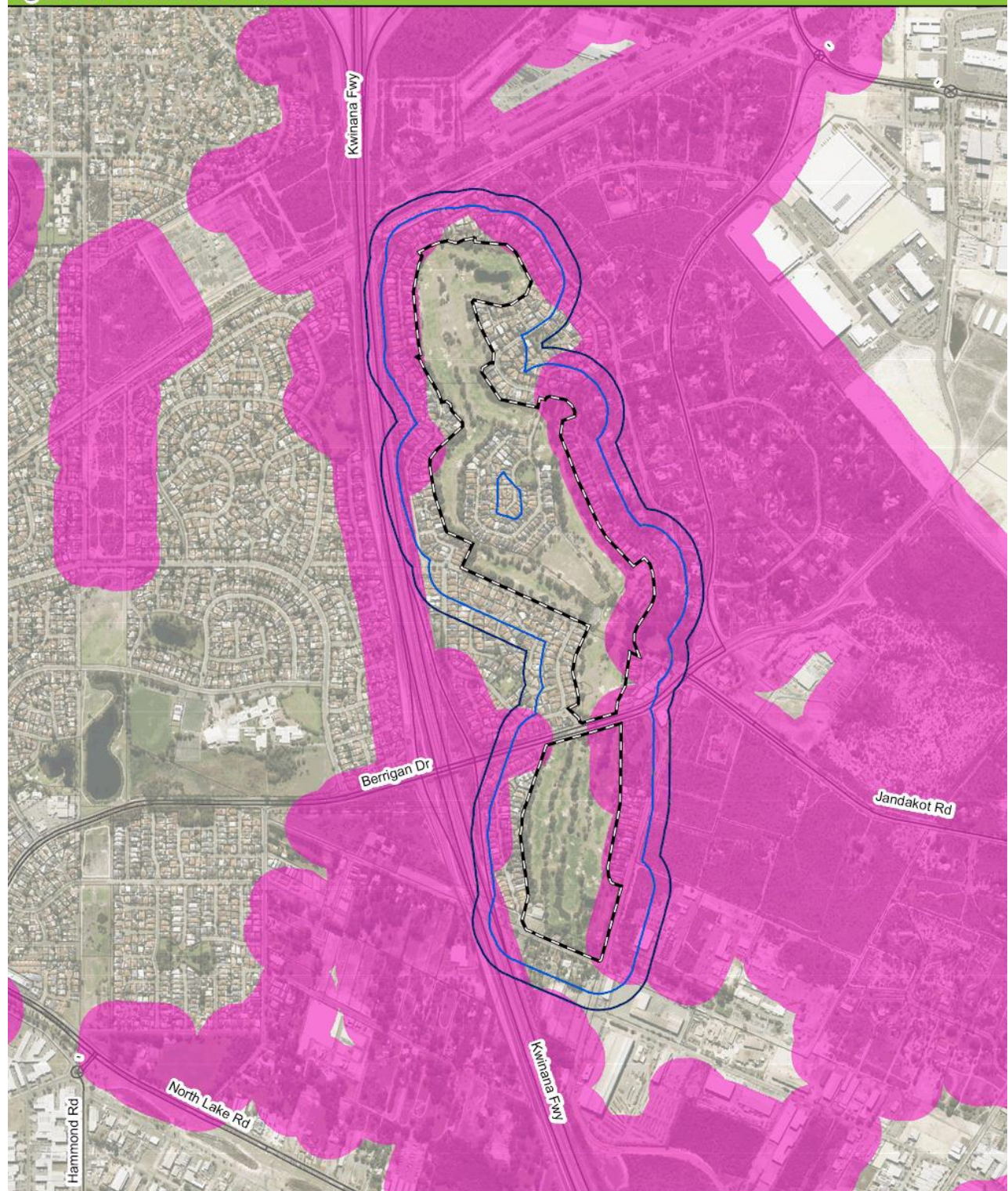


Figure 3: Bushfire Prone Areas



Legend

- Subject site
- 100m assessment area
- 150m assessment area

0 125 250 500
Metres
Datum/Projection:
GDA 1994 Perth Coastal Grid 1994

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20PER-15185- JL: Date: 11/05/202

2. Bushfire assessment results

2.1 Bushfire assessment inputs

The following section is a consideration of spatial bushfire risk and has been used to inform the bushfire assessment in this report.

2.1.1 Fire Danger Index

A blanket Fire Danger Index (FDI) of FDI 80 is adopted for Western Australia, as outlined in Australian Standard AS 3959: 2018 *Construction of Buildings in Bushfire Prone Areas* (SA 2018) and endorsed by Australasian Fire and Emergency Service Authorities Council (AFAC).

2.1.2 Vegetation classification and slope under vegetation

Vegetation and effective slope (i.e. slope under vegetation) within the subject site and surrounding 150 m (the assessment area) were assessed in accordance with the Guidelines and AS 3959: 2018 with regard given to the *Visual guide for bushfire risk assessment in Western Australia* (DoP 2016). Site assessment was undertaken on 12 April 2021.

The classified vegetation and effective slope for the subject site from each of the identified vegetation plots are identified below, Table 1 and Figure 4. Photographs relating to each area and vegetation type are included in Appendix A.

2.1.2.1 Post-development bushfire assessment

An assessment of vegetation and slope was undertaken based on the proposed development concept in Figure 2. A summary of this assessment is provided below and is depicted in Figure 5:

- Majority of the subject site has been excluded to represent cleared areas for development, and low threat vegetation in the form of streetscapes, parks, planted drainage basins and screen planting;
- Two pockets of retained Banksia scrub have been classified (within the northern and southern portions of the subject site); and
- The current extent of classified vegetation within the Western Power easement in the south of the subject site has been retained, however may be modified to low threat vegetation in future planning applications and supporting BMPs.

Future landscaping plans will be developed for POS areas to support future planning applications which may modify these classifications. Updated BMPs will be prepared to address any changes.

Bushfire Management Plan:
Scheme Amendment: Glen Iris Estate | Acumen Development Solutions

Table 1: Classified vegetation as per AS 3959: 2018

Plot	Vegetation Classification	Effective Slope	Pre-development	Post-development
1	Class B woodland	All upslopes and flat land (0 degrees)	Present	Cleared
2	Class C Shrubland	All upslopes and flat land (0 degrees)	Present	Present
3	Class D Scrub	All upslopes and flat land (0 degrees)	Present	Present
4	Class G Grassland	All upslopes and flat land (0 degrees)	Present	Present
5	Excluded under clause 2.2.3.2 (e) and (f)	N/A	N/A	N/A

Figure 4: Vegetation classification pre-development

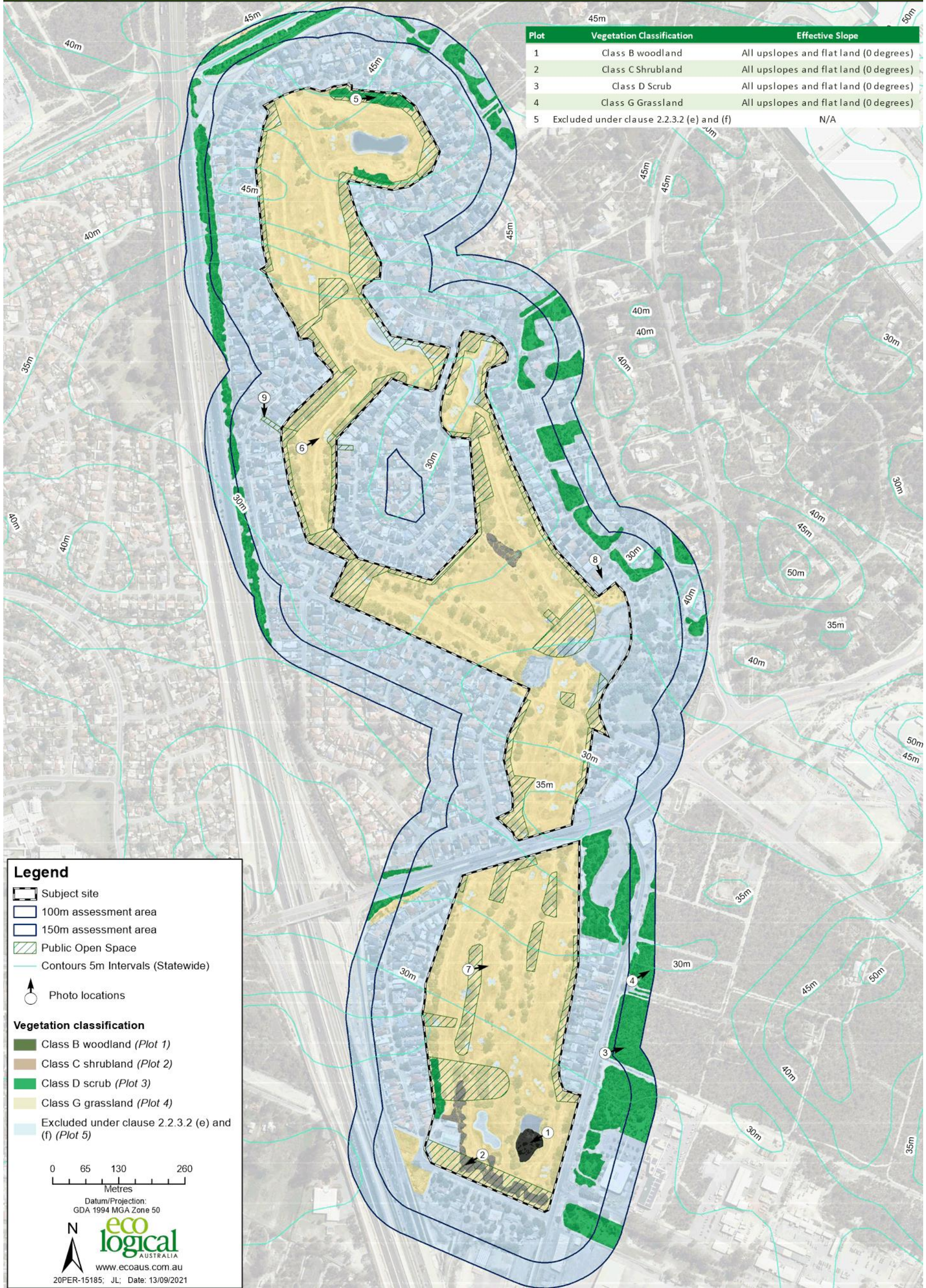
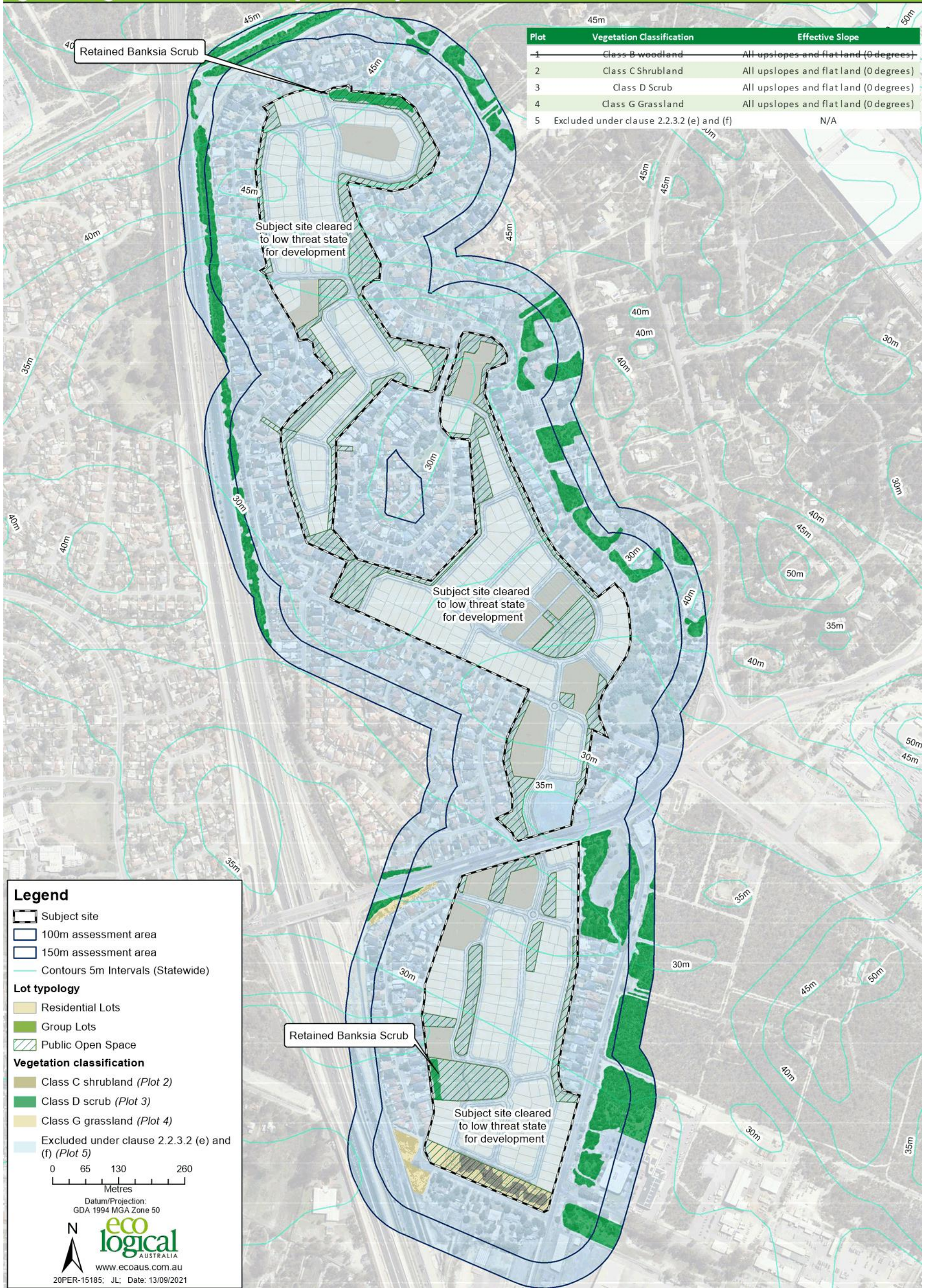


Figure 5: Vegetation classification post-development



2.2 Bushfire assessment outputs

A Bushfire Hazard Level (BHL) assessment has been undertaken in accordance with SPP 3.7, the Guidelines and the bushfire assessment inputs in Section 2.1.

2.2.1 BHL assessment

All land located within 100 m of the classified vegetation depicted in Figure 4 is considered bushfire prone and is subject to a BHL assessment in accordance with the Guidelines

Pre-development BHLs have been assessed for the subject site in accordance with the methodology contained within the Guidelines and incorporates the following factors:

- Vegetation class; and
- Slope under classified vegetation.

Table 2 contains a summary of the BHL assessment for each vegetation plot depicted in Figure 4. All land within 100 m of Extreme and Moderate BHLs has also been mapped as a Moderate hazard as per the Guidelines, and the final result is depicted in Figure 6. Descriptions of each vegetation classification are with each of the plates in Appendix A.

Clearing and landscaping will be undertaken within the subject site for development purposes, and consequently the pre-development BHLs are subject to change. A post development BHL assessment is provided in Table 2 and Figure 7 based on expected changes to vegetation within the subject site depicted in Figure 5.

Table 2: Bushfire Hazard Level assessment

Plot	Vegetation classification	Effective Slope	BHL Pre-development	BHL Post-development
1	Class B woodland	Upslope/ flat land	Extreme	N/A - Cleared
2	Class C shrubland	Upslope/ flat land	Moderate	Moderate
3	Class D scrub	Upslope/ flat land	Extreme	Extreme
4	Class G grassland	Upslope/ flat land	Moderate	Moderate
5	Excluded under clause 2.2.3.2 (e) and (f)	N/A	Low	Low

2.3 Identification of issues arising from the BAL assessment

The on-site vegetation extent is proposed to be cleared to enable development of a significant urban built footprint amongst areas of landscaped/managed Public Open Space (POS) and various easements. Therefore, for the purposes of strategic level planning, ELA does not consider the current on-site vegetation extent to be a bushfire hazard issue post-development, since these hazards can be managed through a staged clearing process, adequate separation of future built assets from classified vegetation (both external and internal [e.g. retained vegetation] to the subject site), and ongoing fuel management that can be undertaken in and around individual development stages.

On the basis of the above information, ELA considers that the bushfire hazards within and adjacent to the subject site and the associated bushfire risk is readily manageable through standard management responses and compliance with acceptable solutions outlined in the Guidelines. These management

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measures will need to be factored into the development design as early as possible to ensure a suitable, compliant and effective bushfire management outcome is achieved to ensure protection of future life and property assets.

Demonstration of compliance with the relevant requirements of SPP 3.7, the Guidelines and AS 3959: 2018 at future planning stages will also depend on the developer's ability to coordinate the timing and staging of clearing and development works within the subject site with the aim of avoiding bushfire impacts from temporary, retained vegetation.

Figure 6: Bushfire Hazard Level (BHL) assessment pre-development

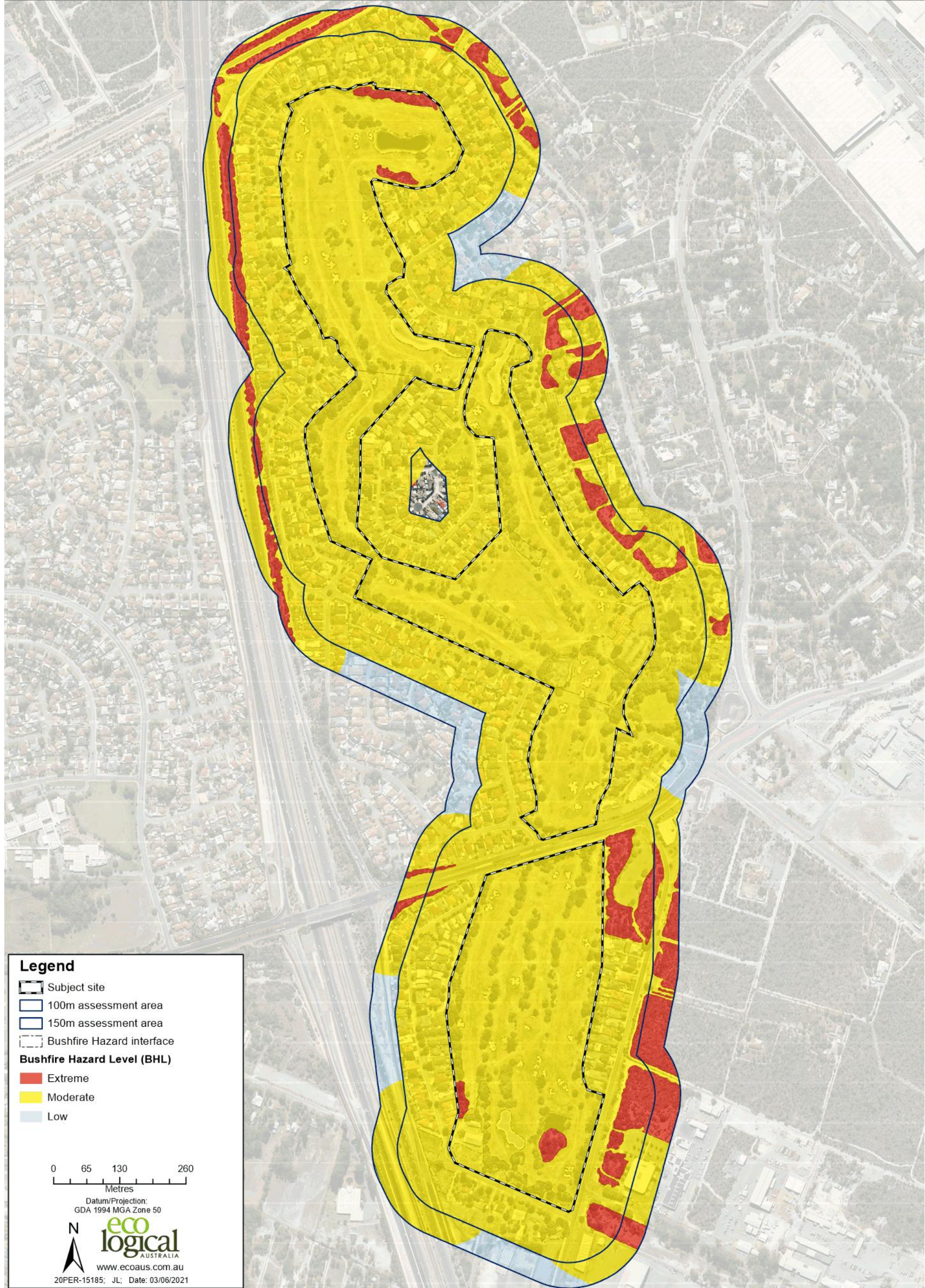
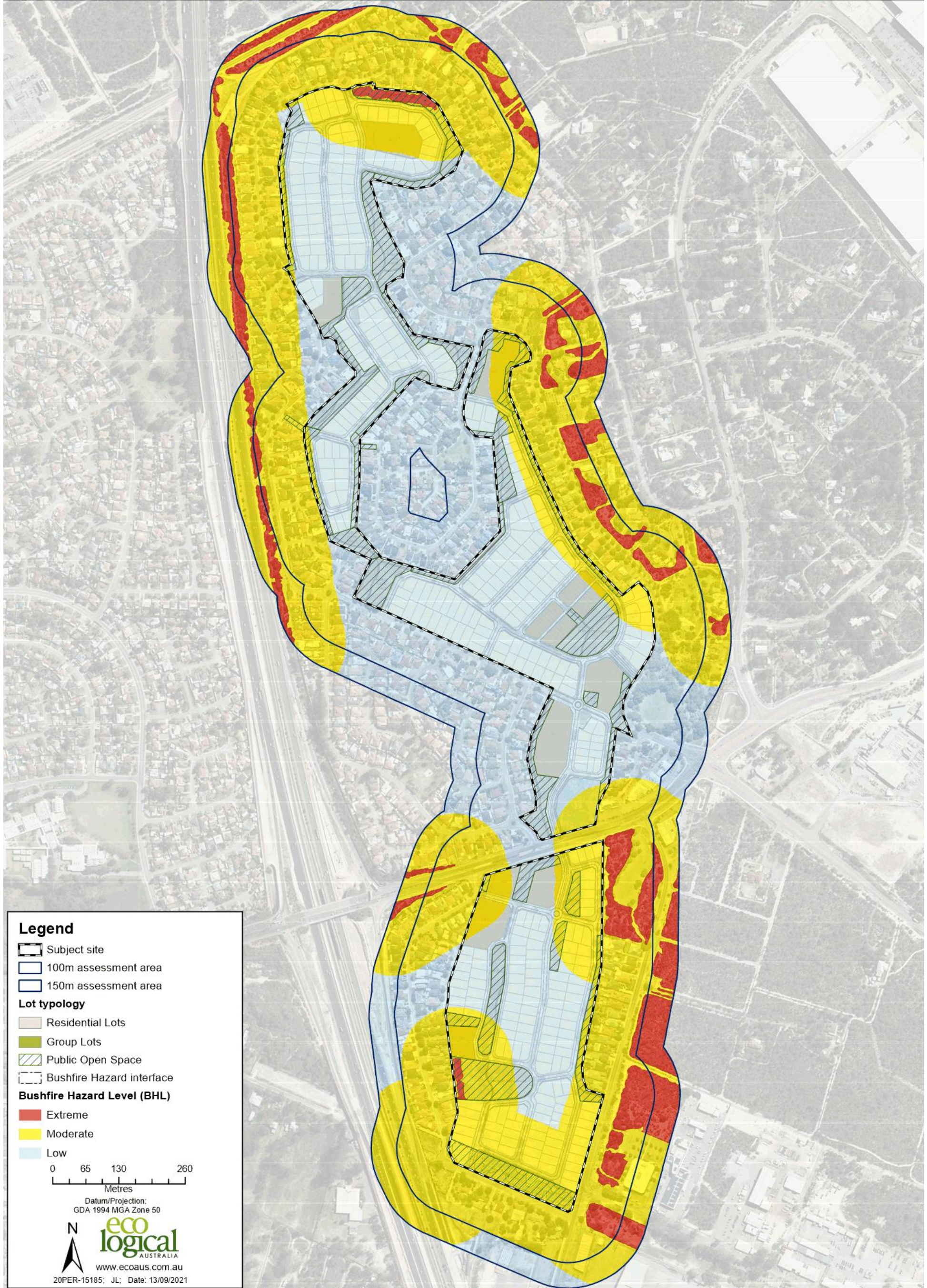


Figure 7: Bushfire Hazard Level (BHL) assessment post-development



3. Assessment against the Bushfire Protection Criteria

3.1 Compliance

The Scheme Amendment is required to comply with policy measures 6.2 and 6.3 of SPP 3.7 and the Guidelines. Implementation of this BMP is expected to meet objectives 5.1-5.4 of SPP 3.7.

In response to the above requirements of SPP 3.7 and the Guidelines, bushfire risk management measures, as outlined, have been devised for the Scheme Amendment in accordance with Guideline acceptable solutions to meet compliance with bushfire protection criteria.

Table 3 outlines the Acceptable Solutions (AS) that are relevant to the proposal and summaries how the intent of each Bushfire Protection Criteria has been achieved. No Performance Solutions (PS) have been proposed for this proposal. These management measures are depicted in Figure 8 where relevant.

Table 3: Summary of solutions used to achieve bushfire protection criteria

Bushfire Protection Criteria	AS	PS	N/A	Comment
Element 1: Location A1.1 Development location	☒	☐	☐	Post-development, all buildings within the subject site will be situated in areas subject to BHLs of Moderate or Low (refer to Figure 8). The proposed development is considered to be compliant with A1.1.
Element 2: Siting and design of development A2.1 Asset Protection Zone (APZ)	☐	☐	☒	As the lot layout is currently unconfirmed, APZs are unable to be prescribed at this level of planning. APZs will be defined in BMPs supporting future planning applications to ensure that all future lots will be subject to a BAL rating of BAL-29 or lower. Figure 8 demonstrates that APZs are able to be accommodated within road reserves, maintained Public Open Space areas etc. The proposed development is considered to be compliant with A2.1.
Element 3: Vehicular access A3.1 Two access routes	☒	☐	☐	There are currently eight proposed access points that join to the existing road network that lead to/from the subject site (Figure 8). The proposed development is considered to be compliant with A3.1.
A3.2 Public road	☒	☐	☐	Internal roads within the subject site areas are currently unconfirmed, however future design will ensure that all public roads will comply with vehicular access requirements (Appendix C). Additional details will be provided in future BMPs to support more detailed planning applications. The proposed development is considered to be compliant with A3.2.

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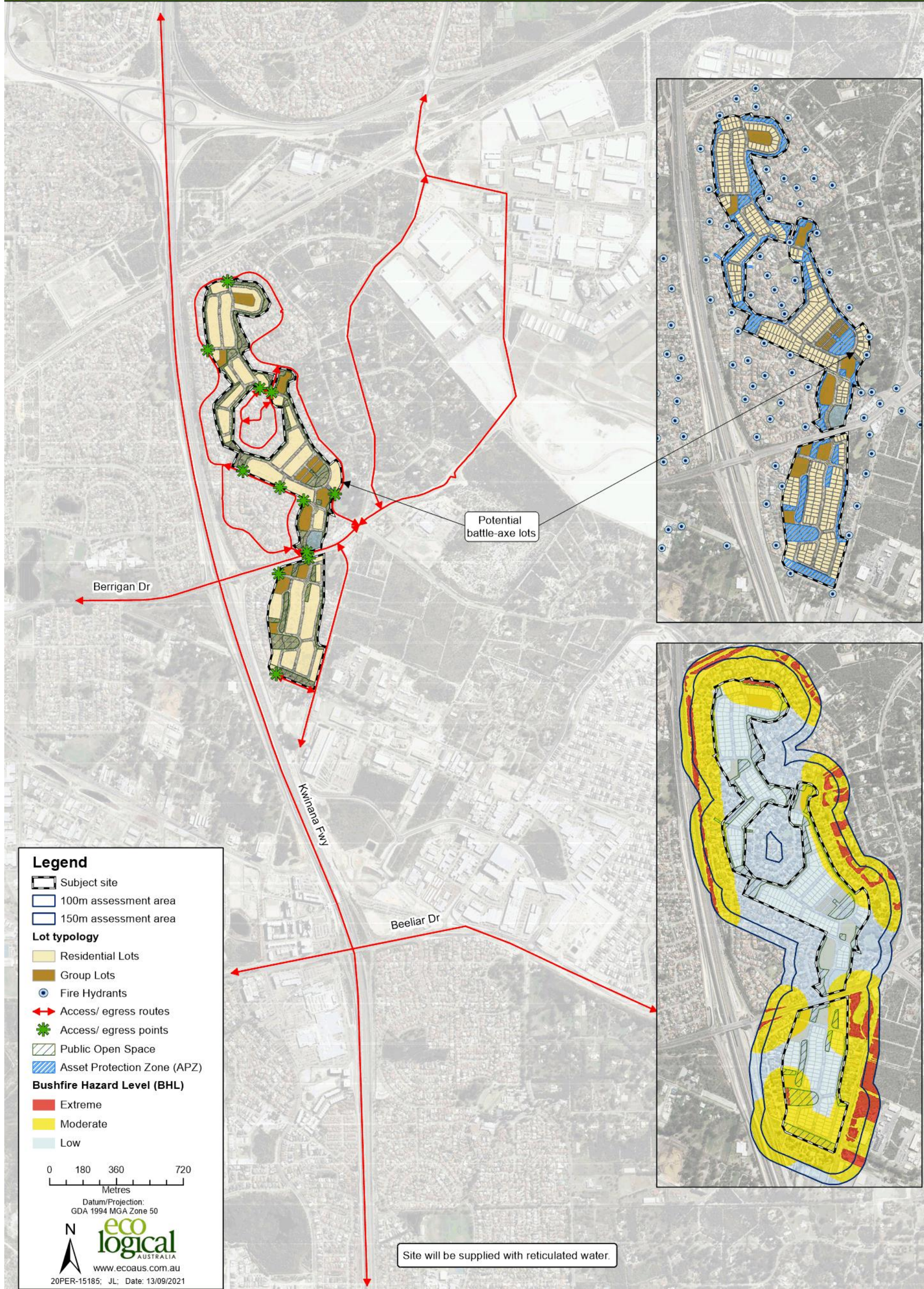
Bushfire Protection Criteria	AS	PS	N/A	Comment
A3.3 Cul-de-sac	☒	☐	☐	Internal roads within the subject site areas are currently unconfirmed. If cul-de-sacs are required, these will be confirmed at Structure Plan level and will be compliant with the guideline requirements. Additional details will be provided in future BMPs to support more detailed planning applications. The proposed development is considered to be compliant with A3.3.
A3.4 Battle-axe	☒	☐	☐	Battle-axe lots are anticipated on the eastern portion of the subject site (Figure 8). Design for the battle-axe lots will be finalised at subdivision stage. Additional details will be provided in future BMPs to support more detailed planning applications. The proposed development is considered to be compliant with A3.4
A3.5 Private Driveway longer than 50 m	☐	☐	☒	No private driveways longer than 50 m are proposed.
A3.6 Emergency Access way	☐	☐	☒	No emergency access ways are proposed or required as part of the development.
A3.7 Fire-service access routes	☐	☐	☒	No fire service access routes are required or proposed.
A3.8 Firebreak width	☐	☐	☒	No fire breaks are required or proposed as per the City of Cockburn Firebreak Notice 2020 (CoC 2020).
Element 4: Water				The subject site will be connected to a reticulated water supply.
A4.1 Reticulated areas	☒	☐	☐	The proposed development is considered to be compliant with A4.1.
A4.2 Non-Reticulated areas	☐	☐	☒	Reticulated water is present within the area.
A4.3 Individual Lots within non-reticulated areas	☐	☐	☒	Reticulated water is present within the area.

NOTE – AS- ACCEPTABLE SOLUTION, PS- PERFORMANCE SOLUTION, N/A- NOT APPLICABLE

3.2 Additional bushfire risk considerations

The City of Cockburn has noted concerns regarding potential access limitations north of Berrigan Drive, whereby all connections head back to a very short portion of Berrigan Drive. ELA has considered this risk in preparation of the BMP, however are of the opinion that the level of risk exposure is low. The bushfire hazard affecting the subject site is associated with rural properties and small reserves in a narrow (approx. 800 m) band between the site and Jandakot airport (to the north and east). Emergency access south to Berrigan Drive, moving west towards the freeway will move evacuees away from the source of bushfire hazards. Providing an additional access route to the north was not considered appropriate as this would traverse the bushfire hazards adjacent to the subject site.

Figure 8: Spatial representation of the bushfire management strategies



4. Implementation and enforcement

Implementation of the BMP applies to the developer, the City of Cockburn, and future landowners to ensure bushfire management measures are adopted and implemented on an ongoing basis. This BMP has been prepared as a strategic guide to demonstrate how development compliance will be delivered at future planning stages in accordance with the Guidelines. In this respect, management measures documented in Section 3, where applicable, will be incorporated into development design as early as possible and confirmed through subdivision design. Therefore, aside from the revision of this BMP or preparation of a BMP addendum to accompany future subdivision applications, there are no further items to implement, enforce or review at this stage of the planning process.

5. Conclusion

In the author's professional opinion, the bushfire protection requirements listed in this assessment provide an adequate standard of bushfire protection for the proposed development. As such, the proposed development is consistent with the aim and objectives of SPP 3.7 and associated guidelines and is recommended for approval.

6. References

City of Cockburn 2020. *Fire control order*. Available from: <https://www.cockburn.wa.gov.au/Health-Safety-and-Rangers/Fire-and-Emergency-Management/Fire-Control-Order>

Department of Fire and Emergency Services (DFES), 2019, *Map of Bush Fire Prone Areas*, [Online], Government of Western Australia, available from: <http://www.dfes.wa.gov.au/regulationandcompliance/bushfireproneareas/Pages/default.aspx>

Department of Planning (DoP), 2016, *Visual guide for bushfire risk assessment in Western Australia*. DoP, Perth.

Standards Australia (SA), 2018, *Construction of buildings in bushfire-prone areas, AS 3959-2018*. SAI Global, Sydney.

Western Australian Herbarium (1998–). FloraBase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions. <https://florabase.dpaw.wa.gov.au/>

Western Australian Planning Commission (WAPC), 2015, *State Planning Policy 3.7 Planning in Bushfire Prone Areas*. WAPC, Perth.

Western Australian Planning Commission (WAPC), 2017, *Guidelines for Planning in Bushfire Prone Areas Version 1.3 (including appendices)*, WAPC, Perth.

Western Australian Planning Commission (WAPC), 2019, *A guide to developing a Bushfire Emergency Evacuation Plan, October 2019*.

Appendix A – Classified Vegetation Photos

Plot	1	Classification or Exclusion Clause	Class B Woodland
Photo Point 1			
Classified vegetation within this plot is comprised of trees between 10 to 30 m tall with approximately 20 to 30% foliage cover. There is limited surface litter. Some grass and shrubs are present at the base of the trees. Slope under the vegetation has been assessed as upslope/ flat land.			
Plot	2	Classification or Exclusion Clause	Class C Shrubland
Photo Point 2			
Classified vegetation within this plot is predominantly less than 2 m in height with a foliage cover greater than 30%. The understorey is widespread characterised by dense low shrubs. Some grasses are present. Slope under the vegetation has been assessed as upslope/ flat land.			

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Plot	3	Classification or Exclusion Clause	Class D Scrub
Photo Point 3 This vegetation is representative of Class D scrub due to the vegetation height, composition and the canopy cover. The predominant vegetation is <i>Banksia attenuata</i> and <i>Banksia menziesii</i> which grow to heights of 10 m and 7 m respectively (WA Herbarium, 1998-). The <i>Banksia</i> individuals in this plot are already mature and are approximately 6 m in height and therefore unlikely to grow any taller due to the environmental conditions of this remnant vegetation. There are some emergent trees <10m in height and grasses present. However, the sparse distribution of these trees does not affect the predominant vegetation structure and the foliage cover is between 10 and 30%. Slope under the vegetation has been assessed as upslope/ flat land.			
			
Plot	3	Classification or Exclusion Clause	Class D Scrub
Photo Point 4 This vegetation is representative of Class D scrub due to the vegetation height, composition and the canopy cover. The predominant vegetation is <i>Banksia attenuata</i> and <i>Banksia menziesii</i> which grow to heights of 10 m and 7 m respectively (WA Herbarium, 1998-). The <i>Banksia</i> individuals in this plot are already mature and are approximately 6 m in height and therefore unlikely to grow any taller due to the environmental conditions of this remnant vegetation. There are some emergent trees <10m in height and grasses present. However, the sparse distribution of these trees does not affect the predominant vegetation structure and the foliage cover is between 10 and 30%. Slope under the vegetation has been assessed as upslope/ flat land.			
			

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Plot	3	Classification or Exclusion Clause	Class D Scrub
Photo Point 5 This vegetation is representative of Class D scrub due to the vegetation height, composition and the canopy cover. The predominant vegetation is <i>Banksia attenuata</i> and <i>Banksia menziesii</i> which grow to heights of 10 m and 7 m respectively (WA Herbarium, 1998-). The <i>Banksia</i> individuals in this plot are already mature and are approximately 6 m in height and therefore unlikely to grow any taller due to the environmental conditions of this remnant vegetation. There are some emergent trees <10m in height and grasses present. However, the sparse distribution of these trees does not affect the predominant vegetation structure and the foliage cover is between 10 and 30%. Slope under the vegetation has been assessed as upslope/ flat land.			
			
Plot	4	Classification or Exclusion Clause	Class G Grassland
Photo Point 6 Classified vegetation within this plot is predominantly grassland with foliage cover from the over storey less than 10%. This plot represents the previously managed fairways within the Glen Iris Golf Course. Slope under the vegetation has been assessed as upslope/ flat land.			
			

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Plot	4	Classification or Exclusion Clause	Class G Grassland
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Photo Point 7

Classified vegetation within this plot is predominantly grassland with foliage cover from the over storey less than 10%. This plot represents the previously managed fairways within the Glen Iris Golf Course.

Slope under the vegetation has been assessed as upslope/ flat land.



Plot	5	Classification or Exclusion Clause	Excluded AS 3959-2018 2.2.3.2 (e) and (f)
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Photo Point 8

This plot has been excluded under Clause 2.2.3.2 (e) and (f) of AS 3959-2018. This is an area of maintained front verges and road within a residential area.



Plot	4	Classification or Exclusion Clause	Excluded AS 3959-2018 2.2.3.2 (e) and (f)
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Photo Point 9

This plot has been excluded under Clause 2.2.3.2 (e) and (f) of AS 3959-2018. This is an area of maintained front verges and road within a residential area.



Appendix B – Standards for Asset Protection Zones

The following standards have been extracted from the *Guidelines for Planning in Bushfire Prone Areas v 1.3* (WAPC 2017).

Every habitable building is to be surrounded by, and every proposed lot can achieve, an APZ depicted on submitted plans, which meets the following requirements:

a. Width: Measured from any external wall or supporting post or column of the proposed building, and of sufficient size to ensure the potential radiant heat impact of a fire does not exceed 29kW/m² (BAL-29) in all circumstances.

b. Location: the APZ should be contained solely within the boundaries of the lot on which a building is situated, except in instances where the neighbouring lot or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity (see explanatory notes).

c. Management: the APZ is managed in accordance with the requirements of 'Standards for Asset Protection Zones' (below):

- Fences: within the APZ are constructed from non-combustible materials (e.g. iron, brick, limestone, metal post and wire). It is recommended that solid or slatted non-combustible perimeter fences are used
- Objects: within 10 metres of a building, combustible objects must not be located close to the vulnerable parts of the building i.e. windows and doors
- Fine Fuel load: combustible dead vegetation matter less than 6 millimetres in thickness reduced to and maintained at an average of two tonnes per hectare
- Trees (> 5 metres in height): trunks at maturity should be a minimum distance of 6 metres from all elevations of the building, branches at maturity should not touch or overhang the building, lower branches should be removed to a height of 2 metres above the ground and or surface vegetation, canopy cover should be less than 15% with tree canopies at maturity well spread to at least 5 metres apart as to not form a continuous canopy (Figure 9).

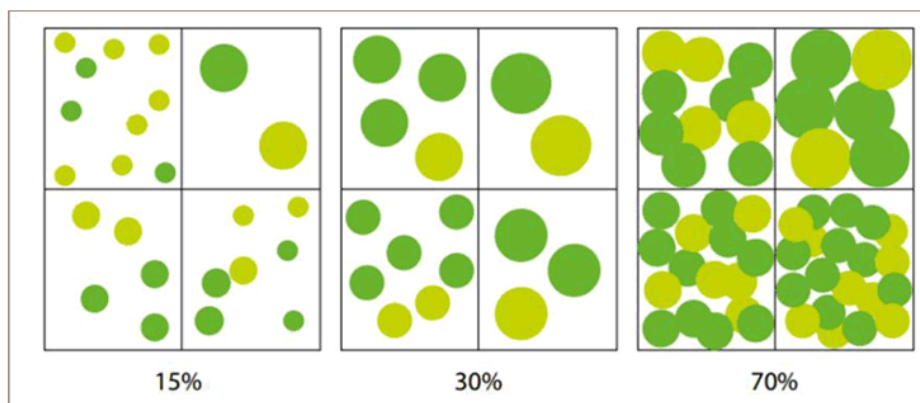


Figure 9: Illustrated tree canopy cover projection (WAPC 2017)

- **Shrubs (0.5 metres to 5 metres in height):** should not be located under trees or within 3 metres of buildings, should not be planted in clumps greater than 5m² in area, clumps of shrubs should

be separated from each other and any exposed window or door by at least 10 metres. Shrubs greater than 5 metres in height are to be treated as trees

- **Ground covers (<0.5 metres in height):** can be planted under trees but must be properly maintained to remove dead plant material and any parts within 2 metres of a structure, but 3 metres from windows or doors if greater than 100 millimetres in height. Ground covers greater than 0.5 metres in height are to be treated as shrubs
- **Grass:** should be managed to maintain a height of 100 millimetres or less.

Additional notes

The Asset Protection Zone (APZ) is an area surrounding a building that is managed to reduce the bushfire hazard to an acceptable level. Hazard separation in the form of using subdivision design elements or excluded and low threat vegetation adjacent to the lot may be used to reduce the dimensions of the APZ within the lot.

The APZ should be contained solely within the boundaries of the lot on which the building is situated, except in instances where the neighbouring lot or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity. The APZ may include public roads, waterways, footpaths, buildings, rocky outcrops, golf courses, maintained parkland as well as cultivated gardens in an urban context, but does not include grassland or vegetation on a neighbouring rural lot, farmland, wetland reserves and unmanaged public reserves.

Appendix C - Vehicular access technical requirements (WAPC 2017)

Technical requirements	Public road	Cul-de-sac	Private driveway	Emergency access way	Fire service access route
Minimum trafficable surface (m)	6*	6	4	6*	6*
Horizontal distance (m)	6	6	6	6	6
Vertical clearance (m)	4.5	N/A	4.5	4.5	4.5
Maximum grade <50 m	1 in 10	1 in 10	1 in 10	1 in 10	1 in 10
Minimum weight capacity (t)	15	15	15	15	15
Maximum crossfall	1 in 33	1 in 33	1 in 33	1 in 33	1 in 33
Curves minimum inner radius	8.5	8.5	8.5	8.5	8.5
* Refer to E3.2 Public roads: Trafficable surface					

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Appendix D – Local Government Firebreak Notice



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Appendix 3
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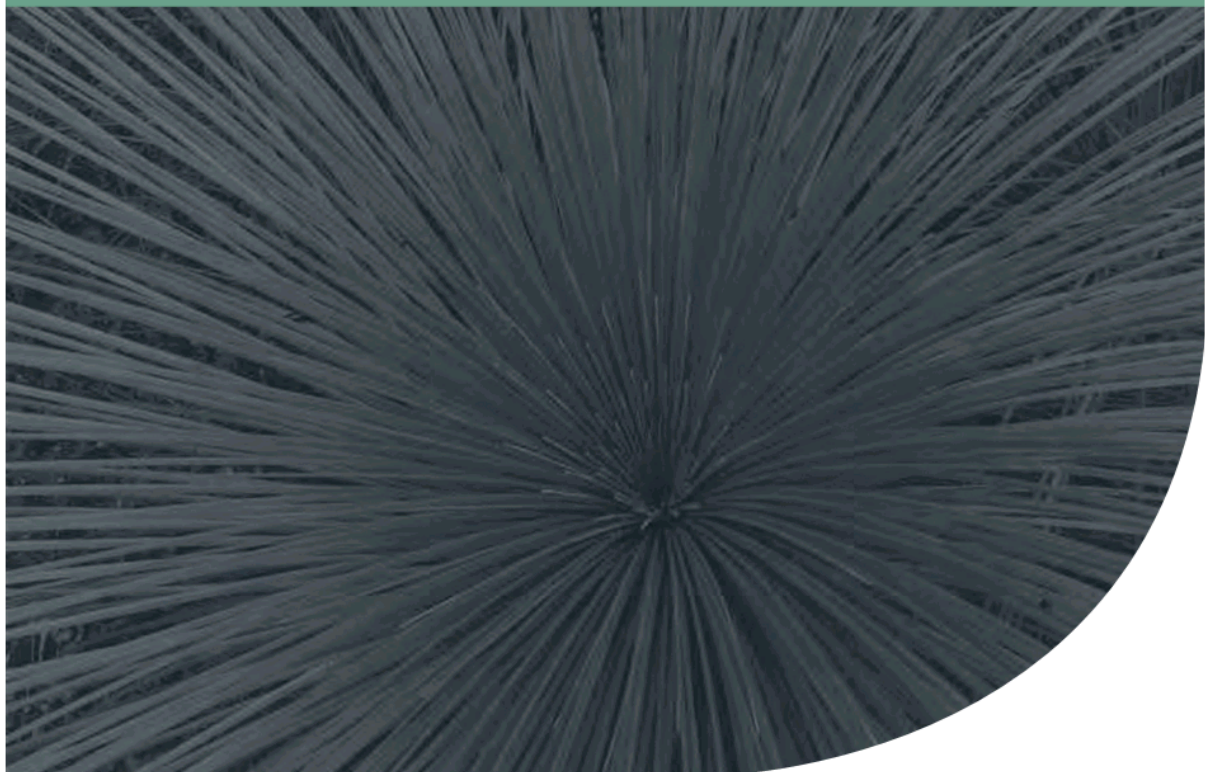


Environmental Assessment Report: Local Scheme Amendment

Former Glen Iris Golf Course

Project No: EP20-009(08)

Prepared for Acumen Development Solutions on behalf of
Eastcourt Property Group
September 2021



Prepared for Acumen Development Solutions on behalf of Eastcourt Property Group

Doc No.: EP20-009(08)--010C PPS | Version: C

Environmental Assessment Report: Local Scheme Amendment

Former Glen Iris Golf Course



Document Control

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Former Glen Iris Golf Course



Executive Summary

ECP Acquisitions 6 Pty Ltd (the proponent) plans to develop the former Glen Iris Golf Course into a residential estate (referred to herein as 'the site'). The proponent engaged Emerge Associates (Emerge) to prepare this *Environmental Assessment Report* (EAR) to support the proposed residential development.

The site is currently zoned 'Special Use 1', 'Special Use 6', and 'Residential' under the City of Cockburn (CoC) *Town Planning Scheme No. 3* (TPS No.3) and 'Urban' under the Metropolitan Region Scheme (MRS). The site was operated as a Golf Course until it was permanently closed and then sold to ECP Acquisitions 6 (a development entity associated with Eastcourt Property Group) in early 2020 who intends to develop the land as a residential estate. A local scheme amendment is therefore being sought to best facilitate the site's redevelopment.

The site is approximately 53.7 hectares (ha) in size and is surrounded by residential subdivision and the Yangebup freight rail line to the north, Kwinana Freeway to the west, 'Resource' zones and 'Special Use' reserves to the west, and existing residential dwellings and areas zoned 'Mixed Business' and 'Industrial' to the south. The central portion of the site was historically developed as a golf course in the early 1960s. Northern and southern extensions of the golf course were cleared and developed during different periods in the early 1990s, alongside the residential development of the area between the golf course and Kwinana Freeway. Prior to this time, the northern and southern portions of the site supported native vegetation. By 1995 the majority of the vegetation was cleared within the northern and southern extension areas with some scattered native vegetation retained and non-endemic landscape plantings established.

The relevant environmental attributes and values of the site are summarised as follows:

- The elevation of the site ranges from 25 m in relation to the Australian height datum (mAHD) in the southern portion to 40 mAHD in the northern portion of the site.
- The site is not known to contain any restricted landforms or unique geological features.
- The site is classified as having a 'moderate to low' risk of Acid Sulfate Soils (ASS) occurring within 3 m of natural soil surface across the site.
- Given the extent of historic clearing and the previous land use of the site, existing vegetation is predominantly mapped as 'completely degraded'.
- Native vegetation only exists in scattered patches and occurs over approximately 4% of the entire site area, primarily as the **EmB** vegetation community.
- Four plant communities were identified during site surveys with the largest extent being 35.7 ha determined to be 'bare ground and turf' given that the site was used as a golf course until March 2020. The next largest by extent was 'planted trees and shrubs predominantly non-native trees' covering an area of 13.6 ha.
- No threatened or priority listed flora species were identified or considered to occur on the site due to the high level of historic disturbance and previous land use.
- The site survey identified the presence of suitable habitat for two threatened and five priority flora species, primarily associated with the **EmB** vegetation community.
- Historical disturbance has significantly compromised the fauna habitat value within the site due to the clearing of native vegetation and the current extent of bare ground within the site.

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- Five fauna habitats have been identified during a site survey as providing habitat scattered across the site.
- Two fauna species considered of conservation significance were recorded, Carnaby's black cockatoo which is listed as endangered under the EPBC Act and quenda which is listed as a Priority 4 species in WA.
- During site surveys 11 potential breeding habitat trees were identified for black cockatoos, and none of the trees contained suitable breeding hollows.
- A total of 4.76 ha of foraging habitat was mapped within the site for Carnaby's black cockatoo and 4.88 ha for forest red-tailed black cockatoo. This was not quality foraging habitat, and is considered to be of marginal foraging value.
- One of the introduced fauna species recorded, *Oryctolagus cuniculus (rabbit), is listed as a declared pest pursuant to the *Biosecurity and Agriculture Management Act 2007*.
- No wetlands with conservation values (i.e. Conservation or Resource Enhancement management category) are mapped within or in close proximity to the site.
- Artificial ponds were established over the site in the past.
- No Registered Aboriginal Heritage Sites are mapped as being present within the site.
- No Bush Forever sites occur within the site. A number of Bush Forever sites occur to the east and west of the site.
- Key sources of future noise emissions surrounding the site were determined to be:
 - Road noise generated from Kwinana Freeway and Berrigan Drive
 - Rail noise generated from Yangebup freight rail line and the Thornlie-Cockburn rail line
 - Aircraft noise associated with Jandakot Airport
 - Industry situated to the south of the site.
- There is 'Industrial' zoned land and industrial development/operations to the south of the site, with the uses within 500m of the site largely comprising smaller depots, work yards and storage yards, with the exception being Fremantle Steel Group's steel fabrication facilities being located approximately 200m from the nearest portion of the site. A search of the Department of Water and Environmental Regulation's Environmental Regulation's (DWER) Licences and Works Approvals database for the City of Cockburn area does not indicate that there are any existing prescribed premises within 500m of the site. Given the nature of the uses (currently and likely into the future) it is expected that noise would be the primary consideration in relation to new sensitive uses in close proximity to the site, and there is no reason to expect that there would be significant dust or odour emissions, or higher levels of risk that would be of concern or require larger separations that would preclude residential development within the site. Any new industrial uses in the future within the industrial zoned land to the south would need to give appropriate consideration to the existing residential dwellings situated on Imlah Court, which are situated closer than the site.

The proposed scheme amendment is unlikely to result in development that would significantly impact environmental attributes or values, or nearby land uses, and any potential impacts can be managed through the standard planning processes associated with structure planning and subdivision/development. This is considered further in **Section 0** and **Section 0** of this report, but overall:

- Acid Sulfate Soils: As the site is classed as having a "moderate to low" risk of having ASS within the soil 3 m below the natural soil surface, and in the absence of any significant excavations

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that would disturb any ASS, this issue is not considered to be an issue requiring further detailed consideration.

- **Native Vegetation:** The majority of the 1.9 ha of native woodland vegetation (Plant Community **EmB**) within the site will be retained. It is expected that the scheme text provisions will include a requirement for future local structure plans to accommodate this vegetation in areas of Public Open Space to provide for the future retention of its environmental values.
- **Fauna:** Black cockatoo foraging habitat will be retained in the in areas of Public Open Space. Quenda habitat on the site will be retained to ensure that this Priority 4 species can continue to occupy this site.
- **Hydrology:** The current hydrological functions of the site can be managed through the application of the Better Urban Water Management Framework (implemented through the standard planning process). This will be detailed in the Local Water Management Strategy (LWMS) prepared to support the proposed Local Structure Plan for the site.
- **Noise:** Emissions associated with surrounding uses were predicted to be within acceptable levels within the relevant time periods or could be effectively mitigated at the time of subdivision through:
 - The incorporation of quiet house design (Package A) within some lots in close proximity to Kwinana Freeway and Berrigan Drive
 - Built form responses (including the installation of 6.38mm laminated glazing) to respond to aircraft noise.
 - While not expected to be an issue due to existing noise sensitive premises further to the south of the site, built form responses and the provision of solid fencing along Princep Road and Imlah Court would further mitigate noise emissions from industrial uses to the south of the site.
- **Surrounding land uses:** Noise would be the key emission from these areas in relation to new sensitive uses (i.e. residential) within the site. Existing residential dwellings along Imlah Court would be nearer to the existing (and any future) industrial activities and therefore set an existing compliance requirement for maximum noise emissions.
- **Bushfire risks:** A bushfire hazard level assessment has been undertaken as part of the Bushfire Management Plan (BMP) (ecological Australia 2021) prepared to support the scheme amendment. The BMP has not identified any bushfire hazards that would render the site unsuitable for urban development. Further detailed bushfire risk assessments will be required to support structure planning and subdivision or development stages in accordance with SPP 3.7, the Guidelines and AS 3959 based on the proposed layout and bushfire hazards, existing or proposed. Bushfire risk mitigation would not cause any limitation in any proposed environmental/vegetation retention outcomes.

In conclusion, there are no significant environmental issues or constraints within the site to the extent that it would preclude the site being rezoned to 'Development' under TPS 3. The identified environmental values will be appropriately protected through the future planning processes, including structure planning and subdivision/development applications.

Prepared for Acumen Development Solutions on behalf of Eastcourt Property Group

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Former Glen Iris Golf Course

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Prepared by: Emergent & Design

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Appendices

Appendix A

Detailed Flora and Vegetation Assessment

Appendix B

Basic Fauna Assessment

Appendix C

Targeted Black Cockatoo Assessment

Appendix D

Arboricultural Assessment

Appendix E

Acoustic Assessment

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List of Abbreviations

Table A1: Abbreviations – General terms

General terms	
AHIS	Aboriginal Heritage Inquiry System
ANEF	Australian Noise Exposure Forecast
ASS	Acid Sulfate Soil
BSA	Bassendean Soil Association
CBC	Carnaby's black cockatoo
CBD	Central Business District
DBH	Diameter at Breast Height
EAR	Environmental Assessment Report
ESA	Environmentally Sensitive Area
ha	Hectares
IBRA	Interim Biogeographic Regionalisation of Australia
m AHD	Metres Australian Height Datum
MNES	Matters of National Environmental Significance
PEC	Priority Ecological Community
PDWSA	Public Drinking Water Source Area
TEC	Threatened Ecological Community

Table A2: Abbreviations – Legislation and policies

Legislation and policies	
AH Act	<i>Aboriginal Heritage Act 1972</i>
BAM Act	<i>Biosecurity and Agriculture Management Act 2007</i>
BC Act	<i>Biodiversity Conservation Act 2016</i>
EP Act	<i>Environmental Protection Act 1986</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>

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Table A3: Abbreviations – Organisations

Organisations	
CoC	City of Cockburn
DAWE	Department of Agriculture, Water and the Environment
DBCA	Department of Biodiversity Conservation and Attractions
DoW	Department of Water (now known as Department of Water and Environmental Regulation)
DPLH	Department of Planning, Lands and Heritage
DWER	Department of Water and Environmental Regulation
EPA	Environmental Protection Authority
WAPC	Western Australian Planning Commission

Table A4: Abbreviations – Planning and building terms

Planning and building terms	
LSP	Local Structure Plan
MRS	Metropolitan Region Scheme
TPS	Town Planning Scheme

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1. Introduction

ECP Acquisitions 6 Pty Ltd (a company related to Eastcourt Property Group) intends to develop the former Glen Iris Golf Course into a residential estate. The former Golf Course comprises Lots 6 and 7 Glen Iris Drive, Lots 3, 509 and 512 Dean Road and Lot 139 Imlah Court in Jandakot (referred to herein as the 'site'). The site is located approximately 16 kilometres (km) South of the Perth Central Business District (CBD) within the City of Cockburn (CoC). The site is zoned 'Urban' under the Metropolitan Region Scheme (MRS) and 'Special Use 1', 'Special Use 6', and 'Residential' under the CoC *Town Planning Scheme No. 3* (TPS No.3). A request to initiate an amendment to TPS No.3 has been submitted to rezone the site to 'Development'.

The site is approximately 53.7 hectares (ha) in size, as shown in Figure 1, and is surrounded by suburban and rural residential properties and the Yangebup freight rail line to the north, Kwinana Freeway and existing residential dwellings to the west, Jandakot Airport to the northeast, commercial and industrial uses to the south east, and existing residential dwellings and an area zoned Mixed Business to the south.

1.1. Purpose of report

ECP Acquisitions 6 Pty Ltd (the proponent) engaged Emerge Associates to undertake an assessment of the potential environmental impacts that could arise from the rezoning the site to 'Development', that would likely occur through future development associated with the change in zoning. This assessment accompanies the submission of the amendment initiation request to the CoC TPS No. 3.

This Environmental Assessment Report (EAR) provides a synthesis of information regarding the environmental values and attributes of the site, gathered from a range of information sources, such as local and regional reports, databases, mapping and site-specific investigations.

Emerge Associates and others have undertaken a range of site-specific surveys to prepare the following documents for the site, which have informed this EAR, and include:

- Detailed Flora and Vegetation Assessment (attached as **Appendix A**).
- Basic Fauna Assessment (attached as **Appendix B**).
- Targeted Black Cockatoo Assessment (attached as **Appendix C**).
- Arboricultural Assessment (attached as **Appendix D**).
- Acoustic Assessment (Herring Storer Acoustics 2021), attached as **Appendix E**.

The outcomes of these site-specific investigations, as well as the comprehensive desktop review of available information, has provided context for the following within the site:

- Landforms, topography and soils.
- Flora and vegetation.
- Terrestrial fauna.
- Surface and groundwater hydrology.
- Aboriginal and non-indigenous heritage.
- Historical and existing land uses within and surrounding the site.

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2. Existing Environment

2.1. Landform and soils

2.1.1. Topography

The elevation of the site ranges from 25 m Australian Height Datum (m AHD) in the southern portion to 40 m AHD in the northern portion of the site (DoW 2008), as shown in **Figure 2**.

2.1.2. Landform, soils and geology

Landform and soils influence vegetation types at regional and local scales. The site occurs on the Swan Coastal Plain, which is the geomorphic unit that characterises much of the Perth metropolitan area.

Examinations of broad scale soil mapping places the site within Bassendean soil association (BSA) (Churchward and McArthur 1980). The BSA comprises sand plains with low dunes and occasional swamps, iron or humus podzols and area of complex steep dunes.

It was confirmed during Emerge Associates' field surveys that the site is located on Bassendean sands which typically are very light grey at surface, yellow at depth, fine to medium-grained, sub-rounded quartz and moderately well sorted of eolian origin (Purdie *et al.* 2004). Desktop research and the Emerge Associates' field surveys did not identify any restricted landforms or unique geological features at the site.

In November and December 2020, a geotechnical investigation was carried out under the direction of CMW Geosciences Pty Ltd to provide further information on the ground conditions and provide recommendations with respect to geotechnical aspects of the proposed future residential development of the site (CMW Geosciences 2021). 55 test pits were excavated to depths of up to 2.2 m to investigate the underlying soil conditions, facilitate sampling for laboratory testing, and to assess excavatability and inform earthworks recommendations. These investigations generally confirmed the broad scale soils and landforms mapping.

2.1.3. Acid Sulfate Soils

Acid Sulfate Soils (ASS) is the name commonly given to naturally occurring soils and sediment containing iron sulphide (iron pyrite) materials. In their natural state, ASS are generally present in waterlogged and/or anoxic conditions and do not present any risk to the environment. However, when oxidised, ASS can pose issues through the production of sulphuric acid, which can present a range of risks for the surrounding environment, infrastructure and human health.

The Department of Water and Environmental Regulation (DWER) provides broad-scale mapping indicating areas of potential ASS risk (DWER 2021). A review of the DWER mapping indicates that the entire site is classified as having a 'moderate to low' risk of ASS occurring within 3 m of natural soil surface, but 'high to moderate' risk of ASS beyond 3m of the natural soil surface.

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2.2. Biodiversity and natural assets

2.2.1. Flora and vegetation

Emerge Associates has undertaken a Detailed Flora and Vegetation Assessment for the site, which is provided in **Appendix A**. This section provides a summary of the key outcomes of this assessment.

2.2.1.1. Historical context

Historical aerial images available from 1953 and onwards show that the northern and southern portions of the site, separated by Berrigan Drive, were subject to vegetation clearing at different occasions, as shown in **Plate 1** to **Plate 4**. The northern area of the site consisted of native vegetation until construction of the central part of the golf course commenced, which is visible in aerial imagery from 1965 shown in **Plate 2**. By 1995 the remainder of the vegetation on the northern area was cleared for further golf course construction, shown in **Plate 3** and **Plate 4**. Scattered remnant native trees appear to have been retained between the course fairways, however most of the vegetation has been cleared for golf course construction. The southern portion of the site, except two patches near the southern boundary, was completely cleared of native vegetation for the golf course in the early 1990s. The vegetation on the site is therefore highly disturbed and sat within an artificial landscape setting.

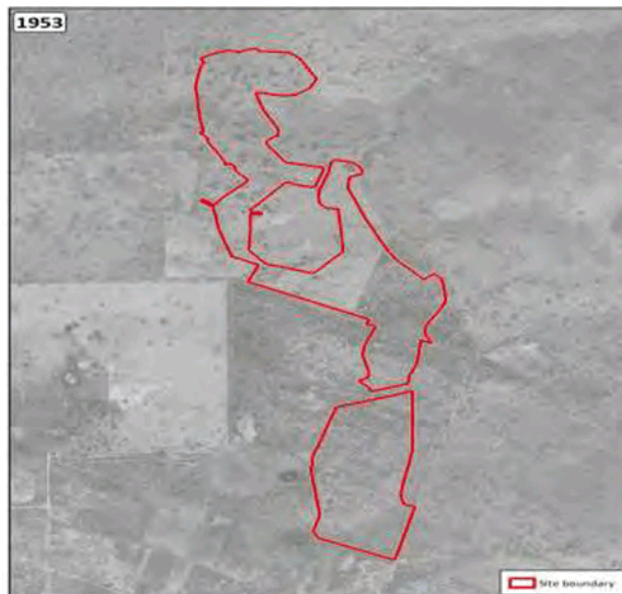


Plate 1: 1953 Glen Iris Golf Course historical aerial imagery.

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Plate 2: 1965 Glen Iris Golf Course historical aerial imagery.



Plate 3: 1985 Glen Iris Golf Course historical aerial imagery.

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Plate 4: 1995 Glen Iris Golf Course historical aerial imagery.

2.2.1.2. Regional context

Native vegetation is described and mapped at different scales in order to illustrate patterns in its distribution. At a continental scale the *Interim Biogeographic Regionalisation of Australia* (IBRA) divides the Swan Coastal Plain into two floristic subregions (Environment Australia 2000). The site is contained within the 'SWA02' or Perth subregion, which is characterised as mainly containing *Banksia* low woodland on leached sands with *Melaleuca* swamps where ill-drained; and woodland of *Eucalyptus gomphocephala* (tuart), *E. marginata* (jarrah) and *Corymbia calophylla* (marri) on less leached soils (Beard 1990). This subregion is recognised as a biodiversity hotspot and contains a wide variety of endemic flora and vegetation types.

Variations in native vegetation within the site can be further classified based on regional vegetation associations. Heddlé *et al.* (1980) mapping shows the site as comprising the 'Bassendean central and south' complex, which is described as vegetation ranging from woodland of *Eucalyptus marginata* – *Allocasuarina fraseriana*-*Banksia* spp. to low woodland of *Melaleuca* spp. and sedgelands on the moister sites. This complex was determined to have 26.87% remaining as of 2019 (Government of Western Australia 2019).

The EPA's *Environmental Guidance for Planning and Development Studies* (EPA 2008) states that the loss of biodiversity caused by habitat fragmentation is significantly greater once a habitat type falls below 30% of its original extent. The Guidance also references the biodiversity conservation national objective and target of retaining 30% of the original extent of each vegetation complex, and the states' minimum target of 10% for constrained urban areas such as the Swan Coastal Plain. The percentage remaining of the 'Bassendean central and south' complex falls below the 30% retention objective but is above the 10% minimum retention target for the Swan Coastal Plain.

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2.2.1.3. Site specific investigations

A flora and vegetation assessment to the standard required of a detailed survey in accordance with the Environmental Protection Authority's (EPA's) *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA 2016b) was undertaken to support the preparation of the EAR.

An ecologist from Emerge visited the site on 11 March 2020 to conduct the initial reconnaissance flora and vegetation assessment (Emerge Associates 2020). During the survey, an assessment was made of the type, condition and values of vegetation across the site, and weed mapping was also undertaken. The site was traversed on foot and the composition and condition of vegetation was recorded.

Detailed sampling of the vegetation was undertaken using a combination of non-permanent 10 x 10 m relevés. A total of three relevés were sampled and the position of each sample location was recorded on a hand-held GPS unit.

The data recorded within each sample included:

- Site details (site name, site number, observers, date, and location).
- Environmental information (slope, aspect, bare-ground, rock outcropping soil type and colour class, litter layer, topographical position, time since last fire event).
- Biological information (vegetation structure and condition, degree of disturbance and species present).

Additionally plant taxa that were not observed within the samples were recorded as the ecologist traversed the site. Photographs were taken throughout the field visit to show particular site conditions. Assessments were done to determine whether suitable habitat was present for conservation significant species identified as potentially occurring within the site. All plant specimens that were collected during the field survey were dried, pressed and named in accordance with requirements of the Western Australia Herbarium.

Vegetation conditions were assigned at each sample and changes in vegetation condition were recorded and mapped across the site. For vegetation in the site containing *Banksia* spp., the condition scale provided in the conservation advice for the 'banksia Woodlands of the Swan Coastal Plain TEC' (DoEE 2016) was applied in addition to the Keighery scale.

Further to this, Emerge have undertaken additional site visits and survey during Winter and Spring 2021 to update the flora and vegetation survey to a detailed survey. Additional site visits have occurred in August and September, and the information/data generated from this used to update the survey report.

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2.2.1.4. Plant communities

Based on the findings from the survey, four native plant communities were recorded in the site, as described below in **Table 1** and shown in **Figure 3**, with representative photographs of each community provided in **Plate 5** to **Plate 8**.

Table 1: Description and extent of plant communities identified within the site

Plant community	Description	Area (ha)
EmB	Woodland to open woodland <i>Eucalyptus marginata</i> subsp. <i>marginata</i> , <i>Banksia attenuata</i> and <i>Banksia menziesii</i> over mixed shrubland <i>Xanthorrhoea preissii</i> , <i>Allocasuarina humilis</i> and <i>Hibbertia hypericoides</i> over open sedgeland <i>Mesomelaena pseudostygia</i> over non-native grassland <i>Ehrharta calycina</i> (Plate 5).	1.9
TdSt	Closed sedgeland <i>Typha domingensis</i> , <i>Schoenoplectus tabernaemontani</i> , <i>Cortaderia selloana</i> and <i>Baumea</i> sp. (Plate 6).	0.2
Planted trees and shrubs	Predominantly scattered non-native planted trees and shrubs such as <i>Corymbia</i> spp., <i>Eucalyptus</i> spp., <i>Melaleuca</i> spp. and <i>Grevillea</i> spp. with occasional native plants (Plate 7).	13.6
Turf and bare ground	Closed non-native grassland (turf) and bare ground (Plate 8).	35.7
Total		51.4 ¹

Note 1: excludes areas of infrastructure and open water (2.3 ha)

Plant community **TdSt** exists as multiple small patches on the edges of artificial lakes and is considered to be likely planted or a combination of planted and naturally generated vegetation. Plant community **EmB** exists as scattered patches in the northern, central and south western portion of the site. Plant communities **planted trees and shrubs** and **turf and bare ground** exist across the site and were likely previously installed for the site's historic use as a golf course.

The remainder of the site supports multiple artificial lakes, buildings and hardstand comprising an area approximately 2.3 ha in size.

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Plate 5: Plant community **EmB** in 'very good – good' condition/Woodland fauna habitat



Plate 6: Plant community **TdSt** in 'good – degraded' condition/Riparian fauna habitat

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Plate 7: **Planted trees and shrubs** in 'completely degraded' condition



Plate 8: **Turf and bare ground** in 'completely degraded' condition

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2.2.1.5. Vegetation condition

Plant community **EmB** comprises the most intact native vegetation within the site, covering approximately 4% of the site. One small patch of this community was mapped as being in 'Very Good' condition as it supported the general structure expected of the Banksia woodland community and have a moderate native species diversity. Other patches of **EmB** that were more disturbed with an altered structure, lower native species diversity and higher weed cover were mapped as being in 'Good' and 'Good-Degraded' condition.

Plant community **TdSt**, covering less than 1% of the site, was identified as being in 'Good-Degraded' condition as it comprises combination of native and non-native species that only exist in the site due to the presence of the artificial lakes.

The **planted trees and shrubs** (25% coverage) and the **turf and bare ground** (66% coverage) plant communities were mapped as being in 'Completely Degraded' condition as they were dominated by non-native species or present only as bare non-vegetated areas on the site. The artificial lakes, buildings and hardstand were not assigned a condition category.

The extent of vegetation by condition category is detailed in **Table 2** and shown in **Figure 4**.

Table 2: Extent of vegetation condition categories within the site

Condition category (Keighery 1994)	Size (ha)
Pristine	0
Excellent	0
Very good	0.43
Very good – good	0.0
Good	0.69
Good – degraded	0.22
Degraded	0.8
Completely degraded	49.25

2.2.1.6. Threatened and Priority Ecological Communities.

Threatened Ecological Communities (TECs) are ecological communities that are recognised as rare or under threat and therefore warrant special protection.

Selected TECs are afforded statutory protection at a Commonwealth level under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). TECs listed under the EPBC Act are categorised as either 'critically endangered', 'endangered' or 'vulnerable'.

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Within Western Australia, state listed TECs are statutorily protected through the *Biodiversity Conservation Act 2016* (BC Act). While no TECs are currently listed for protection under the BC Act, they will likely be listed at a future date, and then require Ministerial authorisation where a proposed development is likely to disturb or modify an identified TEC. In the meantime, the Minister for Environment has listed certain ecological communities as threatened through a non-statutory process if the community was presumed to be totally destroyed or at risk of becoming totally destroyed. These listings are then applied through other statutory environmental approval processes, such as under Part IV and Part V of the *Environmental Protection Act 1986* (EP Act).

An ecological community under consideration for listing as a TEC in Western Australia, but which does not yet meet survey criteria or has not been adequately defined, or which is rare but not currently threatened, is referred to as a 'Priority Ecological Community' (PEC). Whilst PECs are not afforded formal protection in Western Australia, they are also considered during environmental approval processes.

A search was conducted for TEC and PEC that may occur or have been recorded within a 10 km radius of the site using the Protected Matters Search Tool (DAWE 2020a) and NatureMap (DBCA 2020).

The structure and composition of plant community **EmB** indicates that it has the potential to represent Commonwealth listed TEC 'Banksia Woodland of the Swan Coastal Plain' (BWTEC) and the state listed PEC 'banksia dominated woodlands of the Swan Coastal Plain IBRA region'. BWTEC is listed as 'endangered' under the EPBC Act. Whether a patch of vegetation is considered to represent the BWTEC depends on a number of diagnostic criteria included within *Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain ecological community (TSSC 2016)* including geographic location, soils, landforms, structure, and composition, condition and patch size (DoEE 2016).

As outlined in **Table 3**, none of the **EmB** vegetation patches satisfies the criteria to be considered a patch of the BWTEC due to the small size of the patches.

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Table 3: Criteria for determining presence of Banksia Woodlands of the Swan Coastal Plain TEC adapted from (TSSC 2016)

Criteria	Requirements for meeting criteria	Site implications
Must meet key diagnostic characteristics	A variety of factors relating to: Location Soils Structure Composition	Site meets location and soils criteria. The EmB vegetation includes the key diagnostic feature of a tree layer of <i>Banksia attenuata</i> , <i>Banksia menziesii</i> and <i>Banksia ilicifolia</i> . The EmB vegetation within site also meets structure and composition criterion. It is likely to represent FCT 23a which is identified as one of the FCTs comprising the banksia woodland TEC.
Must meet condition thresholds	A patch should at least meet the 'good' condition category.	The EmB vegetation is present in 'Very Good', 'Good' and 'Good – Degraded' condition, which meets this criterion. The conservation advice indicates that a single patch may include areas of variable condition, meaning the 'Good – Degraded' condition may still be considered the TEC. The patches of EmB vegetation that are adjacent to each other would be considered part of the same patch. Therefore, six 'patches' of EmB vegetation exist within the site.
Must meet minimum patch size	Minimum size of patch: Pristine=no minimum size Excellent=0.5 ha Very Good=1 ha Good=2 ha	The six patches of EmB vegetation are each less than 1 ha in size and do <u>not</u> meet this criterion.
Must incorporate surrounding context	Breaks (e.g. tracks) < 30 m do not separate vegetation into separate patches Buffer zones may apply (20-50 m recommended from patch edge) The site should be thoroughly sampled (two surveys in same spring). Survey timing should be appropriate. Surrounding environment should be considered (e.g. connectivity, conservation values, fauna habitat)	The patches of EmB vegetation are isolated from other areas of banksia woodland and no relevant surrounding context considerations apply.
Result	The site does not support any vegetation that represents the banksia woodland TEC.	

DBCA's Priority Ecological Community list indicates that the description, area and condition thresholds that apply to the EPBC Act listed TEC of the same name also apply to the 'Banksia woodlands of the Swan Coastal Plain PEC (DBCA 2020b). Since the **EmB** vegetation does not represent the Banksia woodland TEC is also does not represent the PEC.

The remainder of the site is not identified as being representative of any other TEC or PEC.

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The term 'weed' can refer to any plant that requires some form of action to reduce its effect on the economy, the environment, human health and amenity. Many non-native flora species and some native species are considered to be weeds. A particularly invasive or detrimental weed species may be listed as a 'declared pest' pursuant to the state *Biosecurity and Agriculture Management Act 2007* (BAM Act), indicating that it warrants special management to limit its spread. At a National level, the Australian government has compiled a list of 32 Weeds of National Significance (WoNS) (DoEE 2019c).

As part of the flora and vegetation assessment (Emerge Associates 2020), mapping of weed species was undertaken within the site. The weed cover within the site was widespread, with moderate – high coverage across the site, particularly in the areas subject to historical disturbance. The areas within the site classified as turf and bare ground are also consistent with wide spread weed cover.

No species listed as a declared pest pursuant to BAM Act or WoNS were recorded within the site during the site assessments.

2.2.1.8. Significant flora

Certain flora species that are considered to be rare or under threat warrant special protection under Commonwealth and/or State legislation. At a Commonwealth level, flora species may be listed as 'threatened' pursuant to the EPBC Act. At a State level, plant species may also be classed as 'threatened' under the BC Act. Species which are potentially rare or threatened; meet the criteria for near threatened; or have recently been removed from the threatened species list are classed as 'priority' flora species. However, priority flora species are not afforded statutory protection.

No locally or regionally significant flora species were recorded within the site, including during the 2021 Winter and Spring survey visits.

2.2.1.9. Dieback

Opportunistic observations of signs of Phytophthora dieback were made during the site assessments. Signs of dieback include where sensitive species were noticeably dead, dying or absent, in particular where other less sensitive species were not. Sensitive species were identified from literature and sources such as the Dieback Working Group (2020)

No signs of Phytophthora dieback were observed within the site.

2.2.2. Bush Forever

The Government of Western Australia's Bush Forever Policy (Government of WA 2000) is a strategic plan for conserving regionally significant bushland within the Swan Coastal Plain portion of the Perth Metropolitan Region. The objective of Bush Forever is to protect comprehensive representations of all original vegetation complexes by targeting a minimum of 10% of each for protection (Government of WA 2000). Bush Forever sites are representative of regional ecosystems and habitat and have a key role in the conservation of Perth's biodiversity.

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No Bush Forever sites occur within the site. A number of Bush Forever sites occur to the east and west of the site.

2.2.3. Ecological linkages

Ecological linkages are linear landscape elements that allow the movement of fauna, flora and genetic material between areas of remnant habitat. The Perth Biodiversity Project (PBP), supported by the Western Australia Local Government Association (WALGA), have identified and mapped regional ecological linkages within the Perth Metropolitan Region (WALGA and PBP 2004).

There are no PBP mapped ecological linkages on the site. One biodiversity ecological linkage (No.48) is located approximately 0.8 km to the north of the site and extends to the west and east.

In addition to the PBP identified regional ecological linkages, ecological linkages can also exist at a local level, such as those identified in Towards Establishing a Green Network (WALGA 2014). This identified potential local ecological linkages situated immediately to the east and south of the site. Existing native vegetation further to the east and south of the site, would provide a local level ecological linkage function. The extent to which the site contributes to these linkages is limited by the lack of native remnant vegetation within the site.

2.2.4. Environmentally Sensitive Areas

'Environmentally sensitive areas' (ESAs) are prescribed under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* and have been identified to protect native vegetation values of areas surrounding values such as significant wetlands, threatened flora, threatened communities and *Bush Forever* sites.

No ESAs are present within or in close proximity to the site. A number of ESAs occur to the east and west of the site.

2.2.5. Fauna

Emerge Associates (Emerge) has prepared a Basic Fauna Assessment and a Targeted Black Cockatoo Assessment for the site, and these are provided in **Appendix B** and **Appendix C** respectively. This section provides a summary of the key outcomes of these assessments.

2.2.5.1. Site specific surveys and investigations

A fauna assessment to the standard required of a 'basic' fauna survey in accordance with the Environmental Protection Authority's (EPA's) *Technical Guidance – Terrestrial fauna Surveys* (EPA 2016a) was conducted by Emerge. Emerge also conducted a 'Targeted Black Cockatoo Assessment' with reference to the EPA's technical guidance and the EPBC Act's black cockatoo referral guidelines (DSEWPaC 2012). In addition, following concerns raised by local residents regarding quenda, camera traps were installed during April 2021 to monitor for their presence.

An ecologist from Emerge visited the site on 11 March, between 10:30 am to 4:30 pm, and 28 May 2020, between 2:00 pm to 6:00 pm, to determine the fauna values associated with the site.

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Transects were traversed during both days across the site, during daylight hours, and the characteristics of fauna habitat and presence of fauna species was recorded. Microhabitats such as logs, rocks and leaf litter were investigated and secondary evidence of species presence such as tracks, scats, skeletal remains, foraging evidence or calls was also noted.

A fauna list was compiled, and fauna habitat values were described, with particular reference to 'threatened' and 'priority' fauna species with potential to occur within the site. Taxonomy and nomenclature for vertebrate fauna species was taken from the *Western Australian Museum Checklist of the Terrestrial Vertebrate Fauna of Western Australia* (Western Australian Museum 2019).

The banks of the artificial lakes within the site were also searched on the second day of the survey.

A zoologist and an ecologist from Emerge visited the site on 11 March and 12 November 2020 during the day to conduct the 'Targeted Black Cockatoo Assessment'. The assessment is further supported by an Arboricultural Assessment, see **Appendix D**.

Transects were traversed across the site and potential night roosting, breeding and foraging habitat was identified and recorded. Secondary evidence of any black cockatoo activity such as chew marks, branch clippings, droppings, moulted feathers and chewed fruit was also investigated and recorded.

2.2.5.2. Fauna habitat

Fauna habitats were identified according to the most dominant flora species and vegetation types present within the site, as determined from observations made during the site survey. The identified fauna habitats were then mapped on aerial images with boundaries interpreted from aerial photography, plant communities and notes taken in the field.

Information from the fauna desktop study for the habitat requirements for conservation significant vertebrate fauna species were also compiled and compared with the collected data of species identified during the site assessments. This was done to identify whether any conservation significant fauna species are considered to have the potential to utilise the site.

Historical disturbance has significantly compromised habitat values within the site with most of native vegetation having been removed during the construction of the golf course. The site now predominantly comprises areas consisting of non-native vegetation and weed species with scattered patches of native vegetation and non-native trees and shrubs.

Five fauna habitats were recorded in the site, as shown in **Figure 5**. **Native woodland** is present as scattered patches and has the highest fauna habitat values due to the presence of native trees, shrubs and ground cover and contains microhabitats such as logs, rocks, and leaf litter. The **riparian** and **water** habitats provide value for aquatic fauna species and those associated with riparian areas. The **planted trees and shrubs** habitat mainly provides habitat for avian species as the majority is devoid of understorey vegetation. The **turf and bare ground** habitat extends over a large portion of the site and has minimal habitat values for native fauna species.

During the 'Targeted Black Cockatoo Assessment' a total of 11 black cockatoo habitat trees were recorded within the site, the locations of the habitat trees are shown in **Figure 6**. All the habitat trees were *Eucalyptus marginata* (jarrah) with each determined not to be suitable for breeding due to the absence of suitable hollows.

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Foraging habitat was also identified during the site assessment predominantly comprised of *Banksia attenuata* (candlestick banksia), *Banksia menziesii* (firewood banksia), *Eucalyptus patens* (Swan River blackbutt), jarrah, marri, *Melia azedarach* (Cape lilac) and *Tipuana tipu* (tipuana). A total of 4.76 ha of foraging habitat was mapped within the site for Carnaby's black cockatoo (CBC), shown in **Figure 7**, and 4.88 ha for forest red-tailed black cockatoo (FRTBC), as shown in **Figure 8**. The foraging habitat for both species of black cockatoo is comprised of vegetation providing a high, moderate or low value feeding resource, see **Appendix C**, with the vast majority of the vegetation being in the low resource category, see **Figure 7** and **Figure 8**.

The overall black cockatoo habitat quality score for the site, which evaluates the site's foraging, roosting, and breeding habitat, was determined to be five out of ten for the FRTBC representing a 'moderate' score and three out of ten for the CBC representing a 'low' score.

A description of the habitat and the corresponding area is provided in **Table 1** and representative photographs are provided in **Plate 5** to **Plate 8**, in **Section 2.2.1.4**.

2.2.5.3. Vertebrate species of conservation significance

Certain fauna species that are considered to be rare or under threat warrant protection under state and/or federal legislation. At a federal level, fauna species may be listed as 'threatened' pursuant to the EPBC Act. At a state level, fauna species can be classed as 'threatened' under the BC Act. In addition to this, DBCA maintains a list of priority fauna species which, while not considered threatened under the BC Act and therefore not protected directly, elicit some concern over their long-term survival and hence, are considered during state approval processes.

A total of 15 native, three introduced and two conservation significant fauna species were recorded in the site during the on-ground surveying. The conservation significant species recorded were:

- Carnaby's black cockatoo listed as 'endangered' under the EPBC Act
- Quenda, listed as Priority 4 at the state level.

Based on the results of the fauna survey and the camera trap monitoring, these two fauna species of conservation significance were positively identified as utilising the site for some purpose.

Calyptorhynchus latirostris (Carnaby's black cockatoo (CBC))

- Approximately 20 CBC were recorded perching in trees during the site assessment on 11 March 2020 within the central portion of the site.
- No signs of foraging or night roosting were recorded or observed, however the native woodland and planted trees and shrubs plant communities support plants known to be suitable foraging habitat for.
- The site contains trees with the potential to provide breeding or roosting habitat for black cockatoos. However, currently there are no suitable hollows in these trees, there were no signs of roosting during the field visits, and there are no records in the BirdLife Australia datasets indicating that black cockatoos roost at the site.
- The site is located outside the CBC's breeding range.

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Isoodon fusciventer (quenda)

- During the site assessment quenda diggings were found and recorded in the southern portion of the site within dense understorey vegetation within the planted trees and shrubs and riparian habitats.
- The site assessment recorded three habitats within the site that may support up to 15.73 ha of habitat for the quenda: Native Woodland, Riparian (not inundated), planted trees and shrubs (where understorey vegetation is present and dense).
- The camera trapping undertaken in April 2021 confirmed the presence of quenda on the site.

In addition, 45 further species of conservation significance have potential to occur on the site. The majority of these are birds which may only use the site intermittently if at all, including forest red-tailed black cockatoo (FRTBC) which are 'likely' to occur due to potential habitat present at the site.

2.3. Hydrology

2.3.1. Groundwater

Information on the regional groundwater resources obtained from the Department of Water (DoW) Water Register (DoW 2015) indicates that the site is underlain by a multi-layered aquifer system comprised of the following resources:

- Perth - Superficial Swan (unconfined).
- Perth - Leederville (confined).
- Perth - Yarragadee North (confined).

The DWER *Water Information Reporting Tool* (DoW 2015) includes groundwater and surface water monitoring information from bores and wells across the state. The current water table at the northern portion of the site is 18 m below surface level with the base of the aquifer 59 m below surface level. The southern portion of the site has a water table of 4 m below surface level with the base of aquifer 47 m below surface level.

2.3.2. Surface water

There are no natural surface water bodies present within the site.

The site does not have a connection to any arterial drainage scheme and all stormwater that is generated on site is infiltrated. Currently the site provides stormwater storage and infiltration areas for adjacent developed areas which drain into the site, including 18 bubble-up pit outlets.

2.3.3. Wetlands

Wetlands include "areas of seasonally, intermittently or permanently waterlogged soils or inundated land, whether natural or otherwise, fresh and saline, e.g. waterlogged soils, ponds, billabongs, lakes, swamps, tidal flats, estuaries, rivers and their tributaries" (Wetlands Advisory Committee 1977). Wetlands can further be recognised by the presence of vegetation associated with waterlogging or the presence of hydric soils such as peat, peaty sand or carbonate mud (Hill *et al.* 1996).

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Wetlands of national or international significance may be afforded special protection under Commonwealth or international agreements. The following lists of important wetlands were checked as part of this assessment:

- *Ramsar List of Wetlands of International Importance* (DBCA 2017)
- *A Directory of Important Wetlands in Australia* (DBCA 2018a).

No Ramsar or listed 'important wetlands' are located within the site.

The Department of Biodiversity Conservation and Attractions (DBCA) maintains the *Geomorphic Wetlands of the Swan Coastal Plain* dataset (DBCA 2018b), which categorises geomorphic wetland features into specific management categories to guide land use and conservation.

A review of the dataset indicated that no wetlands with conservation values (i.e. Conservation or Resource Enhancement management category) occur within or near the site. There are some Multiple Use management category wetlands in close proximity to the site, but these areas do not support any conservation values and have been partially developed in surrounding areas. The location of these wetlands are shown in **Figure 2**.

2.3.4. Public Drinking Water Source Areas

Public Drinking Water Source Areas (PDWSAs) are proclaimed by DWER to protect identified drinking water sources, including surface water and groundwater sources (DoW 2009). They are proclaimed under the *Metropolitan Water Supply, Sewerage and Drainage Act 1909* or the *Country Areas Water Supply Act 1947* as Water Reserves, Catchment Areas or Underground Water Pollution Control Areas. PDWSAs supply drinking water to local populations and can be vulnerable to contamination from a range of land uses. Once an area is identified as a PDWSA, consideration needs to be given to the intended land uses and associated activities within the area, to ensure that they are appropriate in meeting the PDWSA's water protection quality objectives.

Parts of the site are located within a Priority 3 (P3) PDWSA, the '*Jandakot Underground Water Pollution Control Area*' (UWPCA). A review of the *Land use compatibility tables for public drinking water source areas* (DoW 2016) indicates that land zoned for urban purposes is an acceptable use within a P3 PDWSA.

The past use of the site as a Golf Course posed potential risks to transmit nutrients, pesticides and chemicals to the water table (Water Corporation 2006). The historic use of fertilizers on the golf course posed a significant risk as the site is located within the wellhead protection zone of a number of public drinking water supply bores, with the hazard presenting a medium management priority (Water Corporation 2006). The preventative measures that were applied included frequent water quality monitoring, land planning controls, fertilizer and pesticide use controls and the implementation of *State Planning Policy (SPP) 2.3 Jandakot Groundwater Protection* (WAPC 2017a).

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2.4. Heritage

2.4.1. Indigenous heritage

The Aboriginal Heritage Inquiry System (AHIS) is maintained pursuant to Section 38 of the *Aboriginal Heritage Act 1972* by the Department of Planning, Lands and Heritage (DPLH) and contains information on Registered Aboriginal Heritage Sites and Other Heritage Places throughout Western Australia.

In accordance with the *Aboriginal Heritage Due Diligence Guidelines* (DAA 2013), a search of the AHIS online database was undertaken. No Registered Aboriginal Heritage Sites or Other Heritage Places have been identified within the site.

2.4.2. Non-Indigenous heritage

A desktop search of the Australian Heritage Database (Department of the Environment 2019), the State Heritage Office database (Heritage Council 2019) and the CoC Local Government Inventory and Heritage List (City of Cockburn 2021) indicated there are no registered heritage sites located within, or in proximity to the site.

2.5. Bushfire

Portions of the site are within a 'bushfire prone area' as shown on the state-wide *Map of Bush Fire Prone Areas* prepared by the Office of Bushfire Risk Management (OBRM 2019), see **Plate 9**. Strategic planning proposals, including scheme amendments, require a bushfire hazard level assessment under the *Guidelines for Planning in Bushfire Prone Areas Version 1.3* (the Guidelines) (WAPC and DFES 2017).



Plate 9: Bushfire Prone areas.

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A Bushfire Management Plan (BMP) (eco logical Australia 2021) has been prepared to support the TPS amendment. The BMP includes an assessment of vegetation within and surrounding the site to determine applicable bushfire hazards, in accordance with *Australian Standard 3959:2018 Construction of buildings in bushfire-prone areas* (AS 3959), and an assessment of the bushfire protection criteria outlined in the Guidelines.

The majority of the on-site vegetation is proposed to be cleared to enable urban development, which will be set amongst landscaped buffers, managed Public Open Space (POS) and various easements. The BMP concludes that the current on-site vegetation will not be a bushfire hazard issue post-development, since these hazards can be managed through a staged clearing process, adequate separation of future built assets from bushfire classified vegetation, and ongoing fuel management that can be undertaken in and around individual development stages.

On this basis, the BMP considers that the bushfire hazards within and adjacent to the site and the associated bushfire risk is readily manageable through standard management responses and compliance with acceptable solutions outlined in the Guidelines. Therefore, the BMP has determined that TPS amendment is consistent with the aim and objectives of SPP 3.7 and associated guidelines.

2.6. Other land use considerations

2.6.1. Historic and existing land uses

As discussed in **Section 2.2.1.1**, the central portion of the site has been used as a golf course since the early 1960s, with the remainder of the site undisturbed bushland until residential development and extensions to the golf course commenced in the early 1990s. Based on a review of aerial photography (Landgate 2021), the previous use of the site as a golf course continued uninterrupted since 1995.

2.6.2. Potential site contamination

A review of the DWER *Contaminated Sites Database* indicates that the site is not registered as a contaminated site pursuant to the *Contaminated Sites Act 2003*. A 'Remediated for restricted use' site is located adjacent on the south-east portion of the site.

Residual construction and demolition debris may be present across the site at the locations of former buildings. During site investigations by CMW Geosciences, segments of suspected asbestos containing materials (ACM) in the form of fractured cement pipe were found in the upper 0.5 m of soil in three locations in an area along the western boundary of the central precinct adjacent to Hartwell Parade (CMW Geosciences 2021). Such occurrences are not uncommon, being a legacy of the ACM pipework previously used by the Water Corporation, some of which is still actively used for water supply. The proponent will remove this ACM before any development commences.

2.6.3. Surrounding land uses

The site is generally located within a developed area with residential development to the west adjacent to the Kwinana Freeway, residential and rural-residential development to the east between the site and Jandakot Airport, and residential areas and industrial development to the south of the

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site. Located to the south-east of the site is approximately 36 ha of remnant vegetation which is classified as a 'Rural-water protection zone' under the Metropolitan Region Scheme (MRS).

2.6.3.1. Acoustic Impacts

The central and southern portion of the site is within the predicted Australian Noise Exposure Forecast (ANEF) 20 to 25 contour for Jandakot Airport, see **Figure 2**. The ANEF system is a tool used to illustrate the impact of aircraft noise in an area using visual contours and provides guidance on the acceptability of new development sites within each of the ANEF zones.

A Noise Assessment has been undertaken by Herring Storer Acoustics (Herring Storer Acoustics 2021) to support planning for the proposed redevelopment of the site, and to understand the potential noise impacts on future residential development caused by road traffic (Kwinana Freeway and Berrigan Drive), rail traffic (Yangebup Freight Rail Line and the Thornlie passenger railway line) aircraft associated with Jandakot Airport, and industrial activities to the south of the site, see **Appendix E**.

The noise assessment indicates that quiet house design is likely to be required in some locations in close proximity to Kwinana Freeway and Berrigan Drive. The lots in these areas will also require notification on titles. Rail noise from the Yangebup freight rail line and Thornlie passenger rail line was predicted to be within acceptable levels.

Based on the guidance within *SPP 5.3 Land Use Planning in the Vicinity of Jandakot Airport*, the majority of the northern portion of the site is not adversely impacted by aircraft noise. An area of the central and southern portion of the site is within the ANEF 20 to 25 contour. As a consequence, development approvals for future residential development on lots within this area will be conditioned such that the internal noise levels from aircraft noise events are to meet the criteria in AS2021 (*Australian Standard 2021 Acoustics-Aircraft noise intrusion-building siting and construction*). These lots will also require notifications on titles for aircraft noise. In addition, the City of Cockburn's *Local Planning Policy (LPP) 1.12: Noise Attenuation* identifies the site as being within the 'Jandakot Airport Frame Area', and therefore recommends consideration should be given to noise attenuation for noise sensitive premises corresponding to the requirements of the Western Australian Planning Commission publication *Aircraft Noise Insulation for Residential Development in the Vicinity of Perth Airport*, and in particular the installation of 6.38mm laminated glazing, for all areas within the Jandakot Frame Area.

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3. Planning framework and proposal

3.1. Proposed Town Planning Scheme Amendment

This EAR has been prepared to provide the proponent with an assessment of the environmental factors identified within the site, to support the lodgement of a local planning scheme amendment request with the City of Cockburn. The proposed scheme amendment will seek to rezone the site to 'Development' under the current City of Cockburn *Town Planning scheme No.3*.

Once the scheme amendment request has been received by the responsible authority, it will be referred to the EPA under Section 48A of the EP Act, prior to being initiated. The EPA will then decide on whether the proposed scheme amendment requires formal assessment. The EPA may also provide informal advice on the proposed scheme amendment without formally assessing the scheme or determine that the proposed amendment is not capable of being environmentally acceptable. The environmental factors and objectives considered by the EPA are discussed further in **section 0**.

3.2. Future planning approvals process

3.2.1. Local Structure Plans

A Local Structure Plan (LSP) will provide a framework for the provision of future land use, subdivision, and development within the site. It will assist in the coordination and provision of utility networks, transport networks, public open space, urban water management, development standards and other infrastructure development.

The environmental features of the site will be assessed and managed appropriately through the LSP preparation and design process. The process will be documented in an Environmental Assessment and Management Strategy (EAMS).

3.2.2. Subdivision and development

Following approval of the LSP, the area within the LSP will be subdivided and developed for urban land uses. The subdivision application process will need to address the requirements of any relevant local scheme provisions or other requirements included within the approved LSP. Once issued, subdivision approval/s would include a range of conditions, some of which may relate to environmental matters, which will need to be implemented as part of the subdivision and development process, before titles for subdivided lots are issued. Other components of development may be progressed through development approval, for example forward bulk earthworks or other non-subdivision works.

It is anticipated that all environmental impacts associated with implementation of urban subdivision and development works across the site will be considered by the EPA, under Section 48A of the EP Act, during its review of the TPS 3 scheme amendment.

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3.3. Future environmental approvals

3.3.1. State process

The clearing of any native vegetation to enable approved subdivision works to proceed is exempt from the need for a Native Vegetation Clearing Permit pursuant to Part V of the EP Act. Any clearing of native vegetation not related to subdivision works will require a permit.

3.3.2. Federal process

The site contains foraging habitat for black cockatoos which are listed as Matters of National Environmental Significance (MNES) in accordance with the EPBC Act. Any proposed action which is considered likely to result in a 'significant impact' upon a MNES should be referred to DAWE for a determination as to whether the action requires an EPBC Act approval.

Using the outcomes of the Targeted Black Cockatoo Assessment (Emerge Associates, 2021), a preliminary self-assessment against the *Matters of National Environmental Significance Significant Impact Guidelines* (DotE 2013) was undertaken to determine the likelihood of whether future subdivision or development approval applications will require referral pursuant to the EPBC Act. It was concluded that due the limited extent of foraging habitat and the absence of any trees with suitable breeding hollows on the site, future development is highly unlikely to significantly impact any species of black cockatoo and a referral pursuant to the EPBC Act is presently considered unnecessary.

Once detailed designs have been progressed to the stage that they can support a subdivision or development application, sufficient certainty will be available to confirm the extent of any impact to black cockatoo species. Using this information, the self-assessment in accordance with the *Matters of National Environmental Significance Significant Impact Guidelines* will be reviewed to determine if the confirmed impact extent raises any issues that might alter the current view that any impact to black cockatoo species will not be significant.

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4. Environmental Factors Considered by the EPA

The EPA identifies a number of environmental principles, factors and objectives within the *Statement of Environmental Principles, Factors and Objectives* (EPA 2018) which are used to guide the determination of significant environmental impacts and whether impacts can be appropriately mitigated or managed. An assessment of the proposed scheme amendment (and subsequent development of the site) against the relevant environmental factors has been provided in **Table 4**, as well as consideration of whether the objective for each factor is likely to be met.

Overall, the consideration of the EPA factors and objectives indicates that the proposed scheme amendment has the potential to result in development outcomes that support the EPA's objectives and provide opportunities for improvements in urban water management.

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Table 4: Summary of EPA environmental factors and objectives relevant to the proposed future land use

Environmental factor	EPA objective	Can the proposed future development meet the EPA objective?
Flora and vegetation	To protect flora and vegetation so that biological diversity and ecological integrity are maintained.	Most of the site is covered by turf and bare ground, and there are no conservation significant plant species or vegetation communities present on the site. It is the proponent's intention, subject to the approval of future development plans, to retain as much as possible of the native flora and vegetation on the site, with the urban development predominately focused on the areas of turf and bare ground. As part of future construction, a Construction and Environment Management Plan (CEMP) will be prepared to guide the management of the environmental values during work. The CEMP will include measures to ensure that weeds and dieback are not brought into the site, including the washing down of vehicles and bringing in clean fill and mulch. As the rezoning of the site to 'Development' will not give rise to significant clearing of native vegetation, this objective can be met.
Landforms	To maintain the variety and integrity of distinctive physical landforms so that environmental values are protected.	The site is not known to contain any restricted landforms or unique geological features. This objective can be met.
Terrestrial environmental quality	To maintain the quality of land and soils so that environmental values are protected.	This objective relates to managing potential contaminants and pathways leading to soil quality being impacted, as well as erosion, ASS and salinity. The regional ASS risk mapping indicates that there is no known risk of ASS occurring within 3 m of the natural soil surface. In addition, there are no contaminated sites identified within the site, nor are there any historic land uses which are likely to cause contamination within the site. In addition, any risk of land degradation can be mitigated through controls applied during clearing and construction, such as dust suppression, mulching, erosion control etc. This objective can be met.

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Table 4: Summary of EPA environmental factors and objectives relevant to the proposed future land use (continued)

Environmental factor	EPA objective	Can the proposed future development meet the EPA objective?
Terrestrial fauna	To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.	The majority of the site supports turf, bare ground and infrastructure which provides low habitat values for native fauna. The native woodland habitat provides the highest relative value but, as this habitat extends over a small portion of the site (4%) and occurs as scattered patches, the importance of this habitat to native fauna is limited. The remainder of the site supports planted trees and shrubs which provide varying habitat values depending on plant species and density. Two fauna species of conservation significance were recorded within the site: Carnaby's black cockatoo (CBC) (threatened) and quenda (Priority 4). One other threatened species, forest red-tailed black cockatoo (FRTBC), is considered likely to occur in the site. A total of 11 habitat trees were recorded in the site of which none contain hollows suitable for breeding by black cockatoos. Approximately 4.76 ha of CBC and 4.88 ha of FRTBC foraging habitat exists on the site, which was identified as being of low and moderate quality respectively. Potential foraging habitat for CBC and FRTBC is mapped in extensive areas to the south-east and east of the site within a 6 km radius, with both species of black cockatoo likely to prefer these larger patch sizes to the fragmented habitat on the site. Mapped black cockatoo roosting habitat within a 6 km radius of the site supports this proposition. It is the proponent's intention, subject to the approval of future development plans, to retain the majority of the conservation significant fauna habitat on the site, with the urban development predominately focused on the areas of turf and bare ground. The creation of public open space areas, planted with a range of native plant species present an opportunity to provide additional fauna habitat and foraging habitat for species of black cockatoos. As the rezoning of the site to 'development' will not give rise to the significant clearing of conservation significant fauna habitat, this objective can be met.
Inland waters	To maintain the hydrological regimes of groundwater and surface water so that environmental values are protected.	No natural surface water features or wetlands have been identified within or adjacent to the site. Groundwater and surface water (generated as runoff from the proposed and existing carriageways) will be managed in accordance with the endorsed <i>Better Urban Water Management Framework</i>, (including Water Sensitive Urban Design principles). For water quality treatment and major event management, the stormwater management system will consist of lot soakwells, road drainage pits, piped drainage, overland flows paths, swales and distributed bioretention and flood storage areas within areas of public open space and road reserves. Compared to the maintenance of the golf course, the use of bore water for irrigation will reduced by between 60-70%. The adoption of Water Sensitive Urban Design principles and Urban Water Management Plans for any future development means that the existing hydrological regimes at the site can be either maintained or improved upon; therefore, this objective can be met.
Air quality	To maintain air quality and minimise emissions so that environmental values are protected.	As the rezoning of the site to 'Development' will not give rise to significant air pollution emissions, therefore this objective can be met.

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Table 4: Summary of EPA environmental factors and objectives relevant to the proposed future land use (continued)

Environmental factor	EPA objective	Can the proposed future development meet the EPA objective?
Greenhouse Gas Emissions	To reduce net greenhouse gas emissions in order to minimise the risk of environmental harm associated with climate change.	The proposed urban development of the site will progress in accordance with the requirements of <i>State Planning Policy 7.0 Design of the Built Environment</i> (DPLH 2019), which promotes well-designed homes that minimise energy use and in turn the greenhouse gas emissions associated with fossil fuel powered electricity generation. The site's location in close proximity to the CBD, and the Cockburn Train station, will enable future residents to reduce their reliance on (fossil fuel powered) car use. The proposed future development presents a range of opportunities to reduce greenhouse gas emissions, when compared to traditional housing designs and structure plan layouts; therefore, this objective can be met.
Social Surroundings	To protect social surroundings from significant harm.	This objective is relevant to aesthetic, cultural, economic and/or social values which may be impacted by the proposed land use. The site is located within an urban context and the proposed land use is therefore consistent with the surroundings. There are no significant cultural heritage sites within or adjacent to the site that would be impacted. Although the site currently comprises open space, it is in private ownership meaning that public access is not available. The proposed future urban development of the site will incorporate areas of public open space, which while not as expansive, will be accessible at all times and appropriately maintained. As part of the detailed design of the urban form, landscaping treatments will be determined to align with the existing landscape and complement the future urban development. As the site is in close proximity to the Kwinana Freeway, Yangebup Freight rail line and Thornlie rail line and Jandakot Airport, future development may be subject to noise from surrounding land uses. The central and southern portions of the site are subject to the predicted Australian Noise Exposure Forecast (ANEF) 20 to 25 contour for Jandakot Airport. Existing industrial development to the southeast and south of the site is not expected to pose significant amenity impacts or concerns. A noise assessment has been undertaken to understand the potential impacts from these sources to the proposed residential development within the site. On this basis, the future redevelopment of the site for urban land uses will not significantly impact the social surrounding; therefore, this objective can be met.

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Table 4: Summary of EPA environmental factors and objectives relevant to the proposed future land use (continued)

Environmental factor	EPA objective	Can the proposed future development meet the EPA objective?
Human health	To protect human health from significant harm.	The proposed urban redevelopment of the site presents the opportunity to provide active areas of public open space containing play spaces and exercise equipment, and a network of walking and cycling trails, which will provide healthy life style opportunities to existing local and future residents. The only potential risk to human health arising from residential development is the introduction of increased numbers of motor vehicles on the roads within and surrounding the development. The design of the future road network will be compliant with the requirement of the Western Australian government's Liveable Neighbourhoods Policy (WAPC 2009) and supported by Traffic Impact Assessments; meaning that any risks will be managed to acceptable levels. Through the provision of open space and the appropriate management of motor vehicle movement this objective can be met.

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5. Environmental Assessment and Future Environmental Management Framework

Table 5 below summarises the environmental values that have been considered for the site and outlines the values that will require further specific consideration as part of the future development of the site, as well as an outline of the future management considerations.

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Table 5: Summary of environmental value, consideration of potential impacts and future management requirements

Environmental Value	Relevant Consideration and potential for impact	Applicable Legislation/ policy and/or guidelines	Management considerations/requirements for future development
Acid Sulfate Soils	A review of the DWER mapping indicates that the entire site is classified as having a 'moderate to low' risk of ASS occurring within 3 m of natural soil surface, but 'high to moderate' risk of ASS beyond 3m of the natural soil surface.	• <i>Environmental Protection Act 1986</i> • <i>Acid Sulfate Soils Planning Guidelines</i> (WAPC 2008a) • <i>Identification and investigations of acid sulfate soils and acidic landscapes</i> (DEC 2013) • <i>SPP2 Environment and Natural Resources Policy</i> (2003)	As there is appropriate separation to groundwater, and the regional ASS mapping indicates that there is 'moderate to low' risk of encountering ASS within 3 m of the natural soil surface, ASS is not considered to pose a significant constraint to the proposed urban development of the site. Nevertheless, any future ASS considerations can be identified and suitably managed as part of the future construction in accordance with the WAPC's <i>Acid Sulfate Soils Planning Guidelines</i> (2008).
Flora and vegetation	Native vegetation located within the site is mapped in varying condition with the vast majority in a 'completely degraded' condition. Approximately 0.67 ha of the vegetation was classified to be in 'very good-good' condition. No threatened flora species and no TECs or PECs were identified within the site.	• <i>Environmental Protection and Biodiversity Conservation Act 1999</i> • <i>Environmental Protection Act 1986</i> • <i>Biodiversity Conservation Act 2016</i> • <i>SPP2 Environment and Natural Resources Policy</i> (2003)	Where it is possible, retain vegetation, this will be determined as part of the future detailed planning of the proposed public open space areas. The EmB vegetation community was identified to hold the best value and will be considered for retention where possible. It is considered that future development is highly unlikely to significantly impact any MNES. As such, it is presently not anticipated that a referral pursuant to the EPBC Act will be required. This issue will be reviewed as the detailed designs for the site evolve. As part of future construction, a CEMP will be prepared, which will identify areas within the site that may be retained as future development progresses.

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Table 5: Summary of environmental value, consideration of potential impacts and future management requirements (continued)

Environmental Value	Relevant Consideration and potential for impact	Applicable Legislation/ policy and/or guidelines	Management considerations/requirements for future development
Terrestrial Fauna	Two conservation significant fauna species have been identified within the site, the Carnaby's black cockatoo (CBC) and quenda. In addition, it is possible that the forest red-tailed black cockatoo (FRTBC) may utilise the site. Approximately 4.76 ha of vegetation within the site was identified as potential CBC foraging habitat, and approximately 4.88 ha as foraging habitat for FRTBC. A total of 11 black cockatoo breeding habitat trees were identified within the site, none contained hollows suitable for black cockatoo breeding. There was no evidence of breeding or roosting recorded at any trees within the site at the time of the survey, and the foraging habitat within the site is limited compared to the larger extent of foraging habitat within the broader area, including Bibra Lake Reserve less than 2 km north-west of the site. It is highly unlikely that the proposed urban development will have a significant impact on the black cockatoo species. Quenda were recorded on the site, however most of the planted trees and shrubs community does not provide favourable habitat for quenda, lacking the dense understorey vegetation and cover that the species refers. It is likely that the proposed urban development and associated public open space areas will provide suitable habitat for this species in the long term. The urban redevelopment of the site will occur in stages over several years, meaning that the removal of existing habitat used by the quenda will not occur all at once. Over time it is likely that the majority of the quenda population existing on the site will migrate to more suitable habitat in surrounding remnant bushland. As such it is unlikely that the proposed development will have an adverse impact on the quenda population.	• <i>Environmental Protection and Biodiversity Conservation Act 1999</i> • <i>Environmental Protection Act 1986</i> • <i>Biodiversity Conservation Act 2016</i> • <i>Local Biodiversity Plan 2018/19 – 2023/24 (CoW 2018)</i> • <i>SPP2 Environment and Natural Resources Policy (2003)</i>	Given the fragmented nature of existing native vegetation within the site, it is considered unlikely that the site would contain any habitat critical to the survival of any terrestrial fauna species or any species of conservation significance. Where possible, trees will be retained as part of construction, with tree retention opportunities identified as part of the detailed design phase. Where trees are to be retained, these will be detailed within the CEMP. If trees to be removed contain a hollow, these will be inspected for use by cockatoos and other fauna prior to clearing occurring. Native plant species will be preferred for the planting of the proposed public open space areas and green spaces, which will provide native fauna habitat. It is considered that future development is highly unlikely to significantly impact any MNES. As such, it is presently not anticipated that a referral pursuant to the EPBC Act will be required. This issue will be reviewed as the detailed designs for the site evolve. As part of future construction, a CEMP will be prepared, which will identify necessary measures to avoid impacts on fauna during construction activities as future development progresses.

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Table 5: Summary of environmental value, consideration of potential impacts and future management requirements (continued)

Environmental Value	Relevant Consideration and potential for impact	Applicable Legislation/ policy and/or guidelines	Management considerations/requirements for future development
Groundwater	The current water table at the northern portion of the site is 18 m from surface level with the base of the aquifer 59 m below surface level. The southern portion of the site has a water table of 4 m from surface level with the base of aquifer 47 m below surface level. The site is located within a P3 PDWSA, however as identified in the <i>Land use compatibility tables for public drinking water source areas</i> (DoW 2016), urban development is an acceptable use within a P3 PDWSA.	• <i>State Planning Policy 2.3 Jandakot Groundwater Protection</i> (WAPC 2017b) • <i>State Planning Policy 2.7 Public Drinking Water Source Policy</i> (WAPC 2003) • <i>State Planning Policy 2.9 Water Resources</i> (WAPC 2006) • <i>Better Urban Water Management Framework</i> (WAPC 2008b) • <i>Water quality protection note 36 – Protection public drinking water source areas</i> (DoW 2009)	It is unlikely that provision of appropriate separation distance between surface levels and groundwater will require further consideration within the site. Groundwater and surface water runoff will be managed in accordance with the endorsed <i>Better Urban Water Management Framework</i> (BUWMF) and will aid the Local Water Management Strategy for the site. All future stages of planning are to be consistent with the BUWMF including Urban Water Management Plans.
Surface water	Regional hydrography mapping does not identify any natural surface water features specifically within or adjacent to the site.	• <i>State Planning Policy 2.9 Water Resources</i> (WAPC 2006) • <i>Better Urban Water Management Framework</i> (WAPC 2008b)	Surface water runoff will be managed in accordance with the <i>Better Urban Water Management Framework</i>, which includes maintenance of the post-development environment in accordance with the pre-development environment. This will ensure that the proposed urban development does not impact on surrounding environmental values. The location of surface water treatment areas can be determined as part of the detailed design of the urban development; however, they will comprise drainage swales and sumps located within road reserves and areas of public open space.

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Table 5: Summary of environmental value, consideration of potential impacts and future management requirements (continued)

Environmental Value	Relevant Consideration and potential for impact	Applicable Legislation/ policy and/or guidelines	Management considerations/requirements for future development
Aboriginal Heritage	No Registered Aboriginal Heritage Sites were identified within the site.	• <i>Aboriginal Heritage Act 1972</i>	Under the AH Act, all Aboriginal sites are protected whether they are known or not. As part of ground disturbing activities, if Aboriginal artefacts or sites (not previously identified) are uncovered, works will cease, and a suitably qualified expert will survey the potential site. Based on the outcome of the survey, additional consent pursuant to the AH Act may be required to manage and disturb the site.
Bushfire	The site is located within an identified 'bushfire prone area' (OBRM 2019). Therefore, the bushfire risk for the proposed scheme amendment was assessed through a bushfire management plan to demonstrate that the proposed land use can comply with the aim of SPP 3.7, and the bushfire compliance criteria as outlined in the Guidelines.	• <i>State Planning Policy 3.7 Planning in Bushfire Prone Areas</i> (WAPC 2015) • <i>Guidelines for Planning in Bushfire Prone Areas Version 1.3</i> (the Guidelines) (WAPC and DFES 2017)	Further bushfire management plans will be prepared to support the future planning stages e.g. LSP and subdivision.

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Environmental Value	Relevant Consideration and potential for impact	Applicable Legislation/ policy and/or guidelines	Management considerations/requirements for future development
Surrounding Land Uses	The site is generally located within a developed area with dense urban residential development to the west, adjacent to the Kwinana Freeway, scattered residential development to the east between the site and Jandakot Airport and industrial development to the south of the site past Berrigan Drive and Jandakot Road. Located to the south-east of the site are approximately 36 ha of remnant native vegetation, which is classified as a 'rural-water protection zone' under the Metropolitan Region Scheme. This remnant native vegetation will be available to accommodate any native fauna, e.g. quenda, that migrate from the site during its staged urban redevelopment. Due to the close proximity of the site to Jandakot Airport, the central and southern portions of the site are within the ANEF 20 to 25 contours for Jandakot Airport. Kwinana Freeway is adjacent to the site, and the noise assessment identified two areas within the site which exceed the 55 dB(A) target based on future traffic flows on the freeway. There are existing and potentially additional industrial land uses situated to the south of the site.	• <i>Environmental Protection (Noise) Regulations 1997</i>	It is unlikely that any noise emissions resulting from a change in land use/rezoning will be significant and any potential emissions during the staged redevelopment can be managed throughout the CEMP. Potential dust emissions throughout the staged redevelopment can be appropriately managed through typical dust suppression measures such as, limiting the size and number of stockpiles and the regular wetting of construction areas. Dust management can be addressed through the preparation of a CEMP. The exceedance of the road traffic noise target is marginal and will not require any noise mitigation measures. The impact of aircraft noise can be managed through adherence to the requirements of AS2021. Furthermore, future residents will be made aware of noise impacts through notifications on the titles of potential affected lots. Existing residential dwellings situated along the southern side of Imlah Court provide an existing threshold for noise emission compliance from industrial activities to the south. The accommodation of additional noise mitigation to respond to aircraft noise will further mitigate any noise emissions, as will opportunities for other interface treatments, such as solid fencing etc.

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6. Implementation Framework

A summary of how the proposed development responds to the environmental values and attributes discussed in **section 0** has been provided in **Table 6**. This table also outlines the proposed future management required as part of the construction process.

Table 6: Environmental management framework implementation table

Factor	Scheme amendment	Design phase
Acid sulfate soils	Review ASS risk mapping published by DWER.	Completion of ASS self-assessment for and preparation of an Acid Sulfate Soil and Dewatering Management Plan, if required.
Native vegetation	Assessment of flora and vegetation values.	Consideration of a combination of potential mitigation measures during the detailed design stage including revegetation of temporarily cleared areas and retention of good or better vegetation and priority species where possible. If clearing is not exempt, application for a Native Vegetation Clearing Permit in accordance with Part V of the EP Act. Inclusion of measures for flora and vegetation management within the CEMP.
Native fauna	Assessment of fauna values.	Preparation of the CEMP to minimise impacts to fauna, particularly black cockatoo species and quenda. Reconsideration of requirement for an EPBC Act referral in relation to black cockatoo species. Consideration of a combination of potential mitigation measures during the detailed design stage including revegetation of temporarily cleared areas and retention of CBC foraging and quenda habitat where possible. Inclusion of measures for fauna management within the CEMP.
Hydrology	Review existing surface and groundwater data published by DWER.	Consideration of the <i>Better Urban Water Management</i> framework (including Water Sensitive Urban Design principles) as part of construction, through the preparation of a CEMP.
Surrounding land uses	Identification of sensitive land uses	Inclusion of measures for dust suppression within the CEMP. Adoption of noise mitigation in built form to address noise associated with aircraft and other potential noise sources.

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7. Summary and Conclusions

This EAR has been prepared on behalf of ECP Acquisitions 6 Pty Ltd, to support an amendment to the City of Cockburn Town Planning Scheme No.3 to rezone the site to 'Development'. Based on an assessment against the EPA's *Statement of Principles, Factors and Objectives*, the proposed scheme amendment is unlikely to result in a change in land use that would lead to future significant impacts on environmental attributes or values, or nearby land uses. The consideration of the EPA factors and objectives indicates that the proposed scheme amendment is likely to result in development that will provide opportunities to improve the site's previous water management regime through a 60-70% reduction in bore water use and reduce greenhouse gas emissions.

The proposed urban development of the former golf course will be suitably assessed and managed through the following management framework, in accordance with relevant federal, state and local government legislation policies, guidelines and best management practices:

- **Native Vegetation:** The development of the site will proceed in accordance with the conditions of approved subdivisions, meaning that clearing of native vegetation will be exempt from the need for a Native Vegetation Clearing Permit pursuant to Part V of the EP Act. However, any clearing of vegetation that is not part of the subdivision approval will require a clearing permit. Any trees identified for retention during the design process will need to be appropriately managed during construction. The clearing of any vegetation within the site will not require a referral pursuant to the EPBC Act, as there would be no significant impacts to any Matters of National Environmental Significance.
- **Native Fauna:** Areas of CBC and FRTBC foraging habitat and breeding habitat trees will be retained and suitably protected and managed during the stages of construction works. Likewise quenda habitat, to ensure conditions conducive to the continued presence of this species on the site post development. As no significant impacts to any MNES are presently anticipated, there is no requirement for a referral pursuant to the EPBC Act.
- **Hydrology:** While there are no natural surface water features or wetlands within the site, stormwater and groundwater management requirements (i.e. detention of run-off) will need to occur in accordance with the *Better Urban Water Management Framework*, to ensure that the hydrological regime of the site and surrounding area is not adversely impacted. It is expected that urban development within the site will have positive impacts on groundwater and stormwater quality taking into consideration the previous land use of the site.
- **Noise:** Mitigation will be required to address road noise and also aircraft noise in accordance with Australian Standard AS 2021:2015 Acoustics - Aircraft Noise Intrusion and the City of Cockburn's *Local Planning Policy 1.12 Noise Attenuation*. This, combined with possible interface treatments on the northern side of Imlah Court and western side of Princep Road would mitigate any noise emissions from existing industrial uses, and can be resolved through structure planning and future subdivision.
- **Bushfire:** A bushfire hazard level assessment has been undertaken as part of the Bushfire Management Plan (BMP) prepared to support the scheme amendment. The BMP has not identified any bushfire hazards that would render the site unsuitable for urban development.

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Further detailed bushfire risk assessments and BMPs will be required to support structure planning, subdivision or development stages.

Overall, the environmental attributes and values of the site can be accommodated through the future detailed design stages, with the proposed scheme amendment compliant with the management objective for each of the EPA's environmental factors.

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8. References

8.1. General references

The references listed below have been considered as part of preparing this document.

Beard, J. S. 1990, *Plant Life of Western Australia*, Kangaroo Press Pty Ltd., Kenthurst, N.S.W.

Churchward, H. M. and McArthur, W. M. 1980, 'Landforms and Soils of the Darling System, Western Australia', in Department of Conservation and Environment (ed.), *Atlas of Natural Resources Darling System Western Australia*, Department of Conservation and Environment.

CMW Geosciences 2021, *Proposed Residential Subdivision Glen Iris Golf Course, Jandakot, WA Geotechnical Investigation Report PER2020-0452AB*, Version 1.

City of Wanneroo (CoW) 2018, *Local Biodiversity Plan 2018/19 - 2023/2024*, Wanneroo.

Department of Aboriginal Affairs (DAA) 2013, *Aboriginal Heritage Due Diligence Guidelines (Version 3.0)*, Department of Aboriginal Affairs, Perth.

Department of Biodiversity, Conservation and Attractions (DBCA) 2017, *Ramsar Sites (DBCA-010)*.

Department of Biodiversity, Conservation and Attractions (DBCA) 2018a, *Directory of Important Wetlands in Australia - Western Australia (DBCA-045)*.

Department of Biodiversity, Conservation and Attractions (DBCA) 2018b, *Geomorphic Wetlands, Swan Coastal Plain (DBCA-019)*.

Department of Environment and Energy (DoEE) 2016, *Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain ecological community*, Canberra.

Department of the Environment (DotE) 2013, *Matters of National Environmental Significance - Significant impact guidelines 1.1 Environment Protection and Biodiversity Conservation Act 1999*, Canberra.

Department of Water (DoW) 2008, *LiDAR Elevation Dataset, Swan Coastal Plain*, Perth.

Department of Water (DoW) 2009, *Protecting public drinking water source areas*, Government of Western Australia, Perth.

Department of Water (DoW) 2016, *Water quality protection note no. 25: land use compatibility tables for public drinking water source areas*, Perth.

Department of Sustainability Environment Water Populations and Communities (DSEWPac) 2012, *EPBC Act referral guidelines for three threatened black cockatoo species*, Commonwealth of Australia, Canberra.

eco logical Australia 2021, *Bushfire Management Plan: Scheme Amendment: Glen Iris 20PER-15185*, Version 1.

Environmental Assessment Report: Local Scheme Amendment

Former Glen Iris Golf Course



Emerge Associates 2020, *Detailed Flora and Vegetation Assessment - Breakwater Drive Duplication, Two Rocks*, EP19-095(04)--006C RAW, Version C.

Environment Australia 2000, *Revision of the Interim Biogeographic Regionalisation for Australia (IBRA) and Development of Version 5.1 - Summary Report*, Department of Environment and Heritage.

Environmental Protection Authority (EPA) 2008, *Guidance Statement No. 33. Environmental Guidance for Planning and Development*, Perth.

Environmental Protection Authority (EPA) 2016a, *Technical Guidance - Terrestrial Fauna Surveys*, Perth.

Environmental Protection Authority (EPA) 2016b, *Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment*, Perth.

Environmental Protection Authority (EPA) 2018, *Statement of Environmental Principles, Factors and Objectives*, Perth.

Government of WA 2000, *Bush Forever - Volume 1: Policies, principles and processes*, Perth.

Hedde, E. M., Loneragan, O. W. and Havel, J. J. 1980, 'Vegetation Complexes of the Darling System Western Australia', in Department of Conservation and Environment (ed.), *Atlas of Natural Resources Darling System Western Australia*, Perth.

Herring Storer Acoustics 2021, *Acoustic Assessment Glen Iris Golf Course 27789-1-20325*, Version 1.

Hill, A. L., Semeniuk, C. A., Semeniuk, V. and Del Marco, A. 1996, *Wetlands of the Swan Coastal Plain: Volume 2A - Wetland Mapping, Classification and Evaluation*, Water and Rivers Commission and the Department of Environmental Protection, Perth.

Keighery, B. 1994, *Bushland Plant Survey: A guide to plant community survey for the community*, Wildflower Society of WA (Inc), Nedlands.

Purdie, B., Tille, P. and Schoknecht, N. 2004, *Soil-landscape mapping in south-Western Australia: an overview of methodology and outputs. Resource Management Technical Report 280*, State of Western Australia.

Threatened Species Scientific Committee (TSSC) 2016, *Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain ecological community*.

Western Australian Local Government Association and Perth Biodiversity Project (WALGA and PBP) 2004, *Local Government Biodiversity Planning Guidelines for the Perth Metropolitan Region*, Perth.

Western Australian Planning Commission (WAPC) 2003, *State Planning Policy No 2.7: Public Drinking Water Source Policy*, Perth.

Western Australian Planning Commission (WAPC) 2006, *State Planning Policy 2.9: Water Resources*, Gazetted in December 2006, Perth.

W. A. P. Commission (WAPC) 2008a, *Acid Sulfate Soils Planning Guidelines*, Perth.

Environmental Assessment Report: Local Scheme Amendment

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Western Australian Planning Commission (WAPC) 2008b, *Better Urban Water Management*, Perth.

Western Australian Planning Commission (WAPC) 2009, *Liveable Neighbourhoods (Edition 4)*,
Western Australian Planning Commission and Department for Planning and Infrastructure, Perth.

Western Australian Planning Commission (WAPC) 2015, *State Planning Policy 3.7 Planning in Bushfire Prone Areas*, Perth.

W. A. P. Commission (WAPC) 2017a, *IPWEA Local Government Guidelines for Subdivisional Development 2.3*, Perth.

Western Australia Planning Commission (WAPC) 2017b, *State Planning Policy 2.3 Jandakot Groundwater Protection*.

Western Australian Planning Commission and Department of Fire and Emergency Services (WAPC and DFES) 2017, *Guidelines for Planning in Bushfire Prone Areas Version 1.3*, Western Australia. December 2017.

Water Corporation 2006, *Jandakot Underground Water Pollution Control Area Drinking Water Source Protection Review* Perth.

Western Australian Museum 2019, *WA Museum Checklist of the Terrestrial Vertebrate Fauna of Western Australia*, Perth, Western Australia.

Wetlands Advisory Committee 1977, *The status of reserves in System Six*, Environmental Protection Authority, Perth.

8.2. Online references

City of Cockburn 2021, *Inventory and Heritage List*, viewed 26 March 2021,
<https://www.cockburn.wa.gov.au/Building-Planning-and-Roads/Heritage/Inventory-and-Heritage-List>

Department of Planning, Lands and Heritage (DPLH) 2017, *Aboriginal Heritage Enquiry System*, viewed March 2021, <https://maps.daa.wa.gov.au/AHIS/>.

Department of Water Environment Regulation (DWER) 2018a, *Contaminated Sites Database*, viewed March 2021,
<https://dow.maps.arcgis.com/apps/webappviewer/index.html?id=c2ecb74291ae4da2ac32c441819c6d47>.

Department of Water and Environmental Regulation (DWER) 2018b, *Perth Groundwater Map*, viewed March 2021, <https://maps.water.wa.gov.au/#/webmap/gwm>.

Department of Water and Environmental Regulation (DWER) 2018c, *ASS Risk Maps*, viewed on March 24, 2021, <https://gmapgis.com/acid-sulfate-soils-risk-map-western-australia.htm>.

Dieback Working Group Inc (2020) *About Dieback – Diagnosis*, viewed 20/03/2020,
<https://www.dwg.org.au/about-dieback/diagnosis/>

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Office of Bushfire Risk management (OBRM) 2019, *Map of Bush Fire Prone Areas*, viewed November 2019, <https://maps.slip.wa.gov.au/landgate/bushfireprone/>

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Figures



Figure 1: Site Location

Figure 2: Environmental Features

Figure 3: Plant Communities

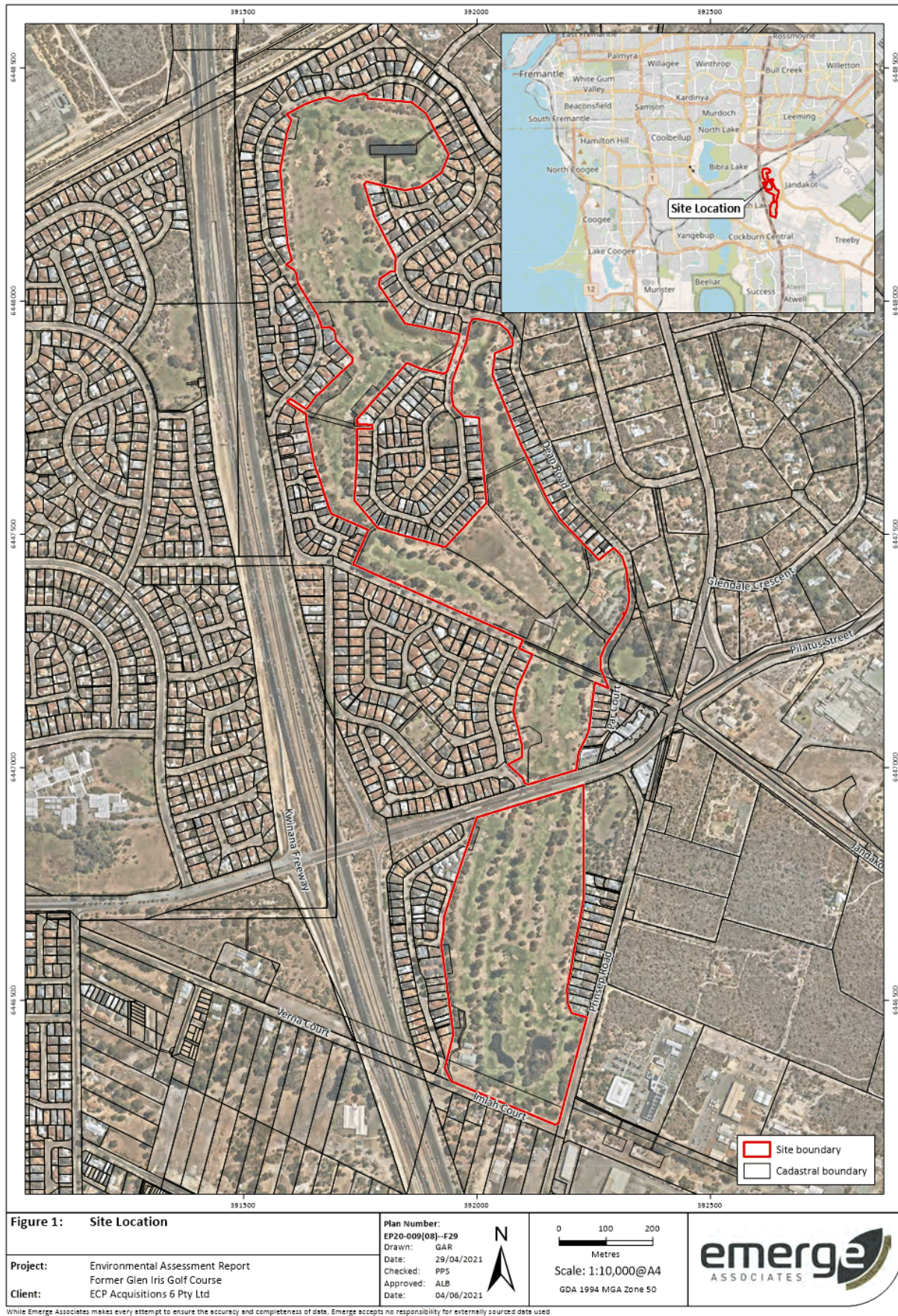
Figure 4: Vegetation Condition

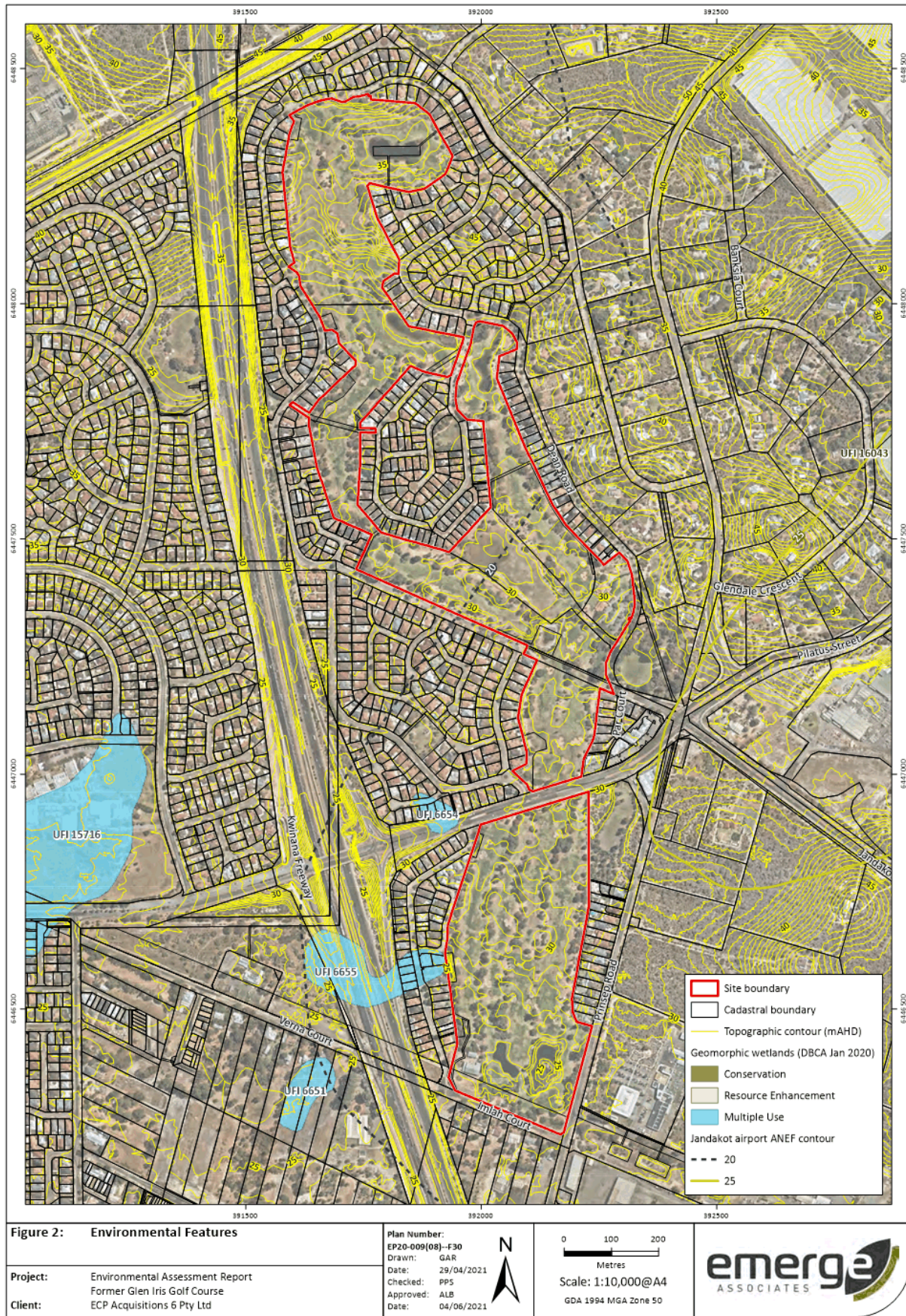
Figure 5: Fauna Habitat

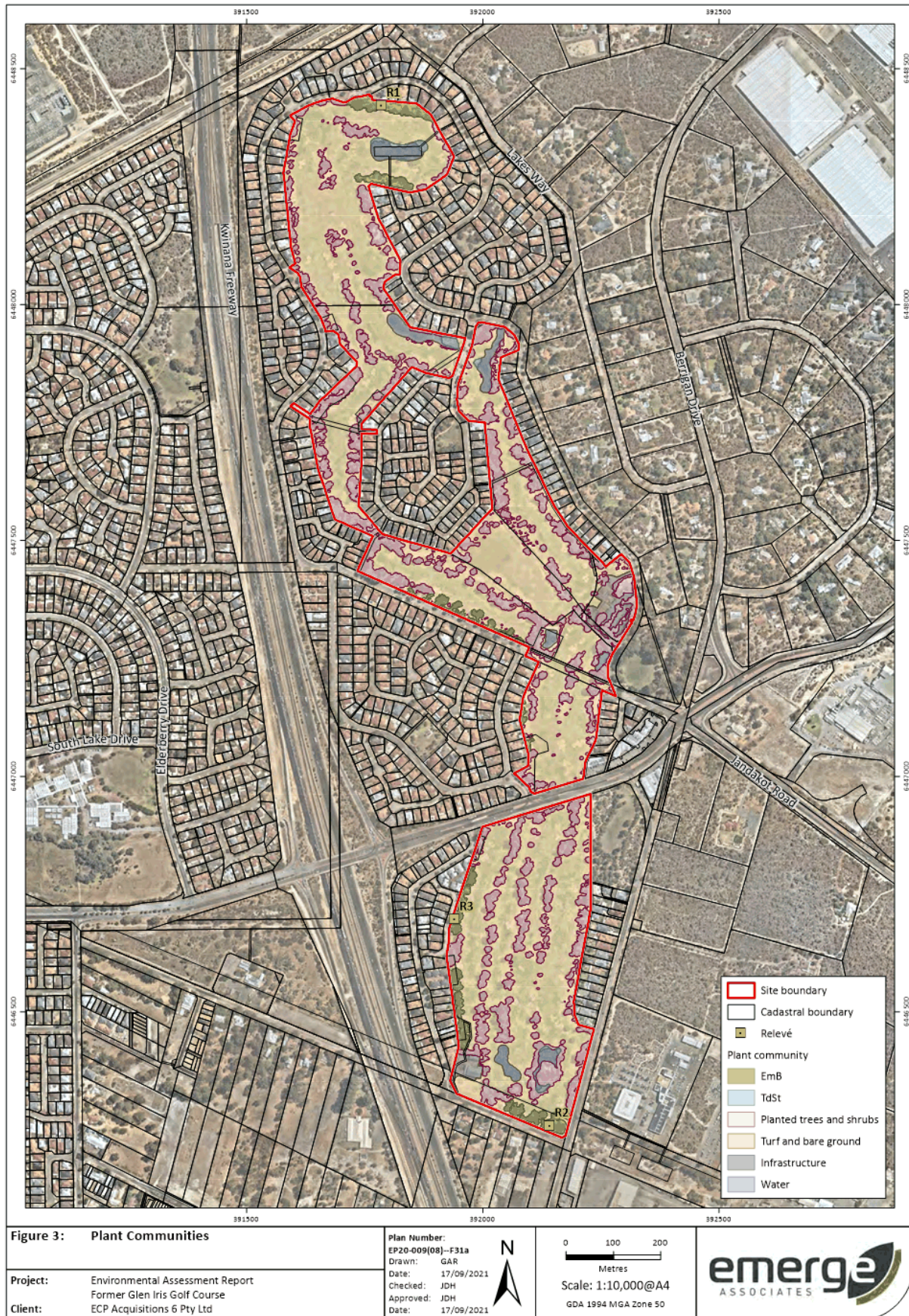
Figure 6: Black Cockatoo Habitat Trees

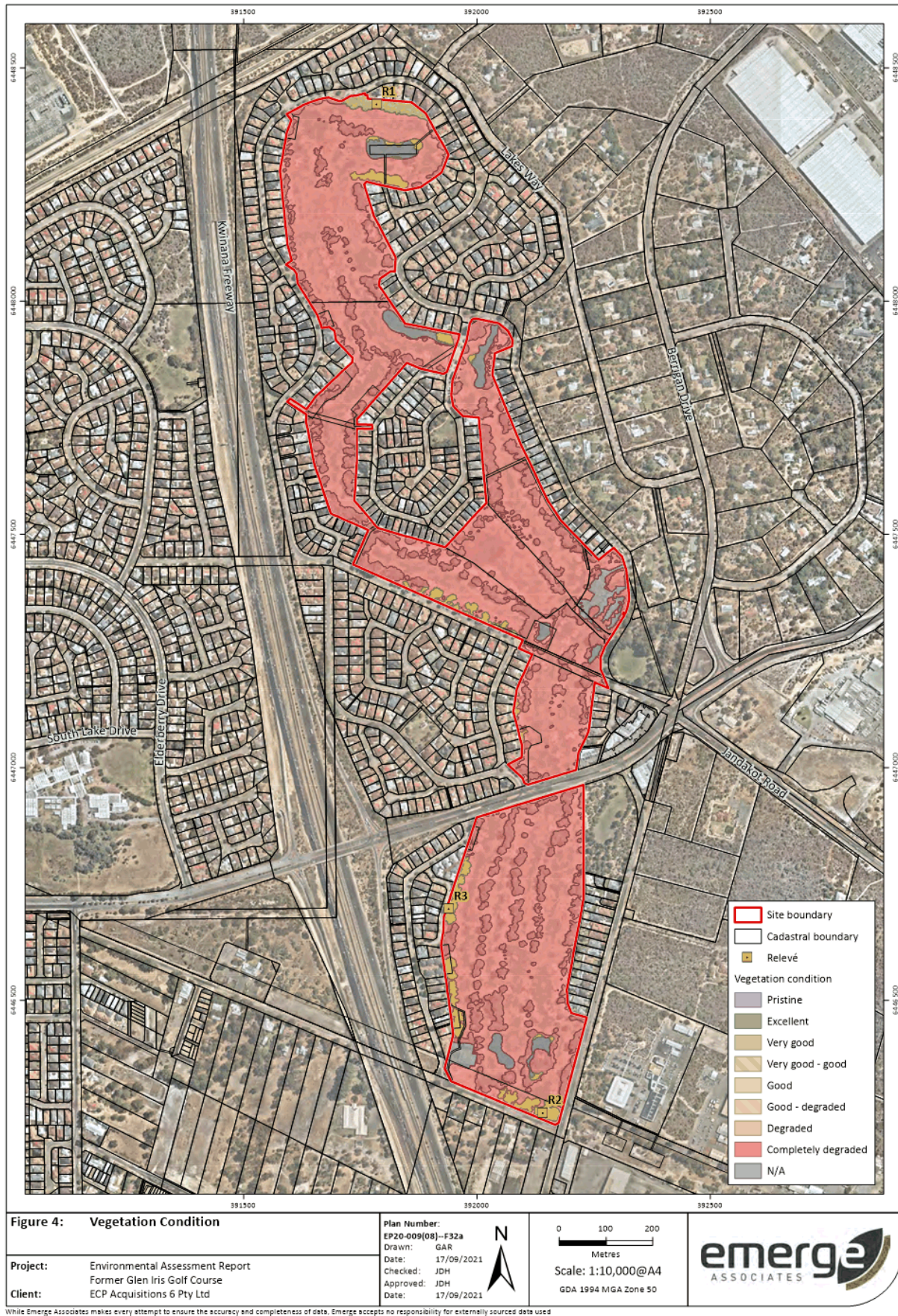
Figure 7: Potential Carnaby's Black Cockatoo Foraging Habitat

Figure 8: Potential Forest Red-tailed Black Cockatoo Foraging Habitat









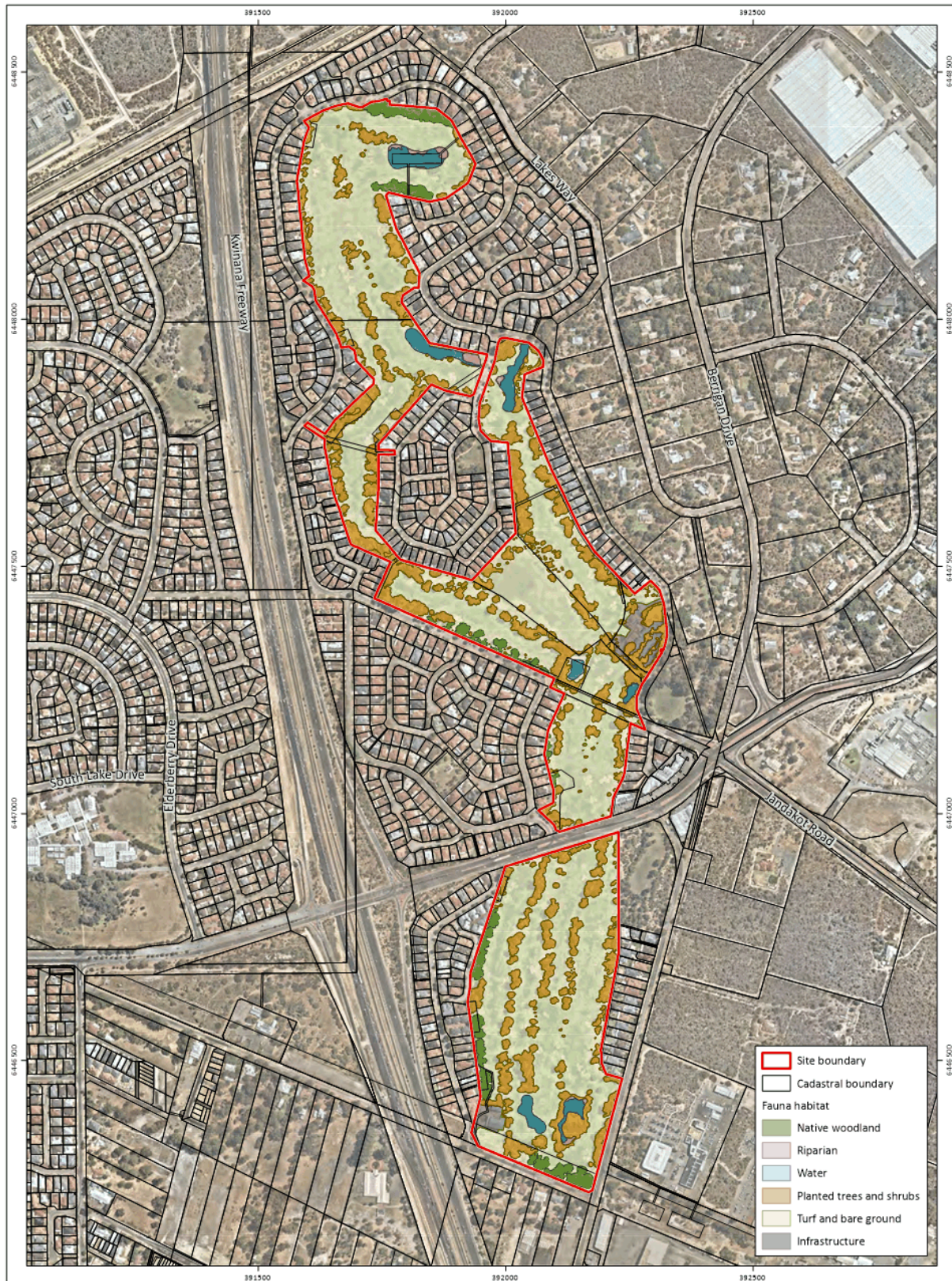


Figure 5: Fauna Habitat

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Client: ECP Acquisitions 6 Pty Ltd

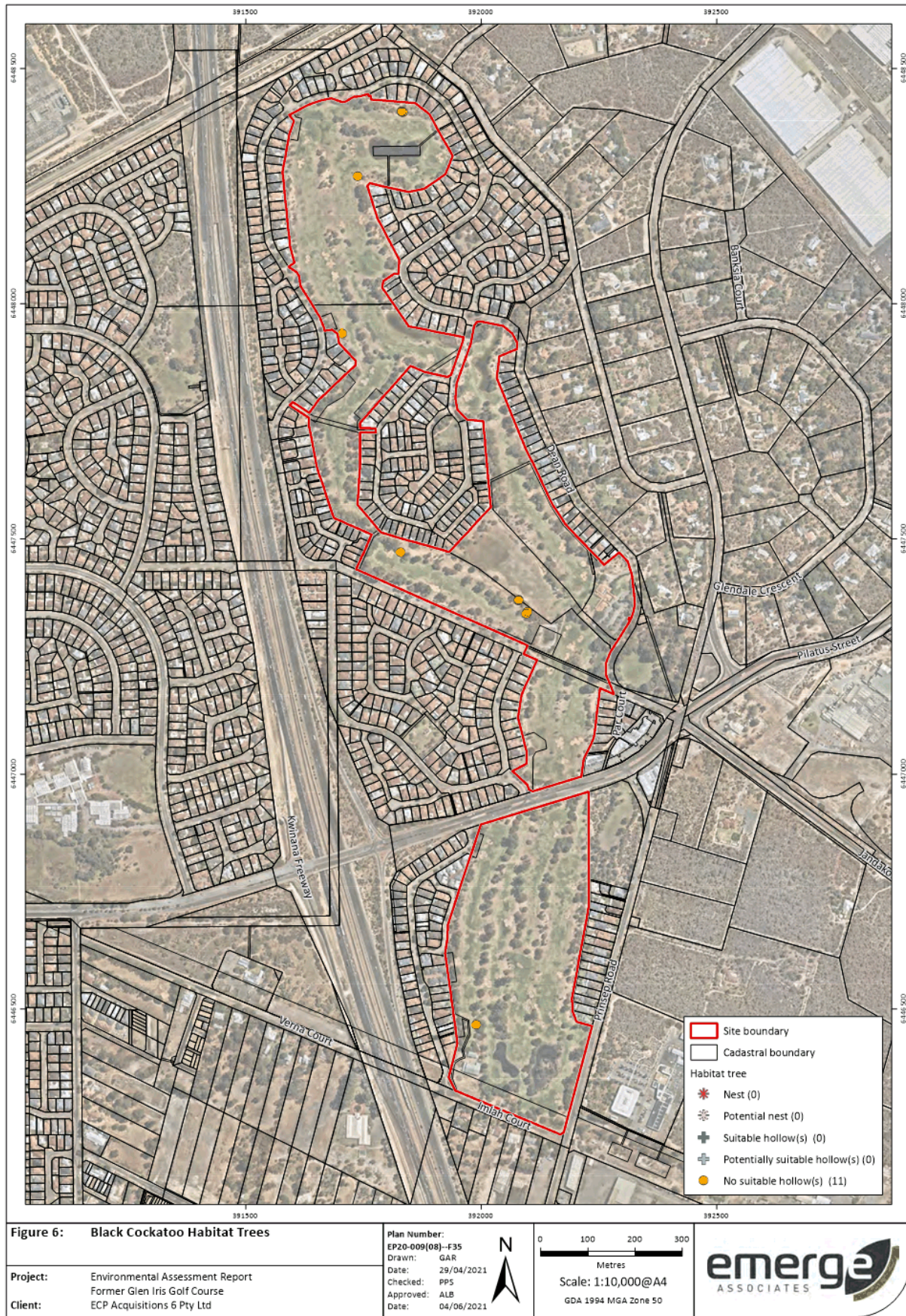
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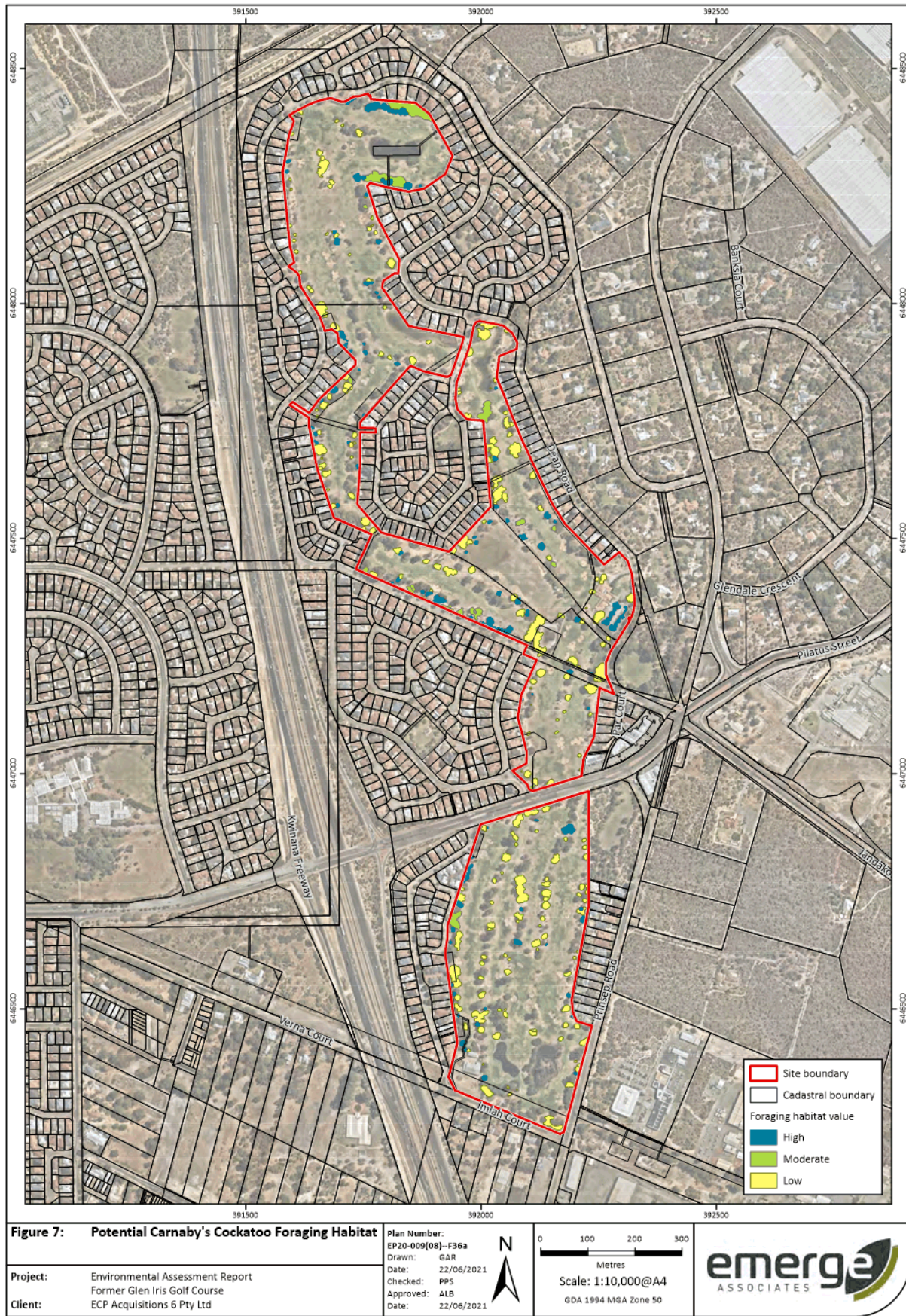


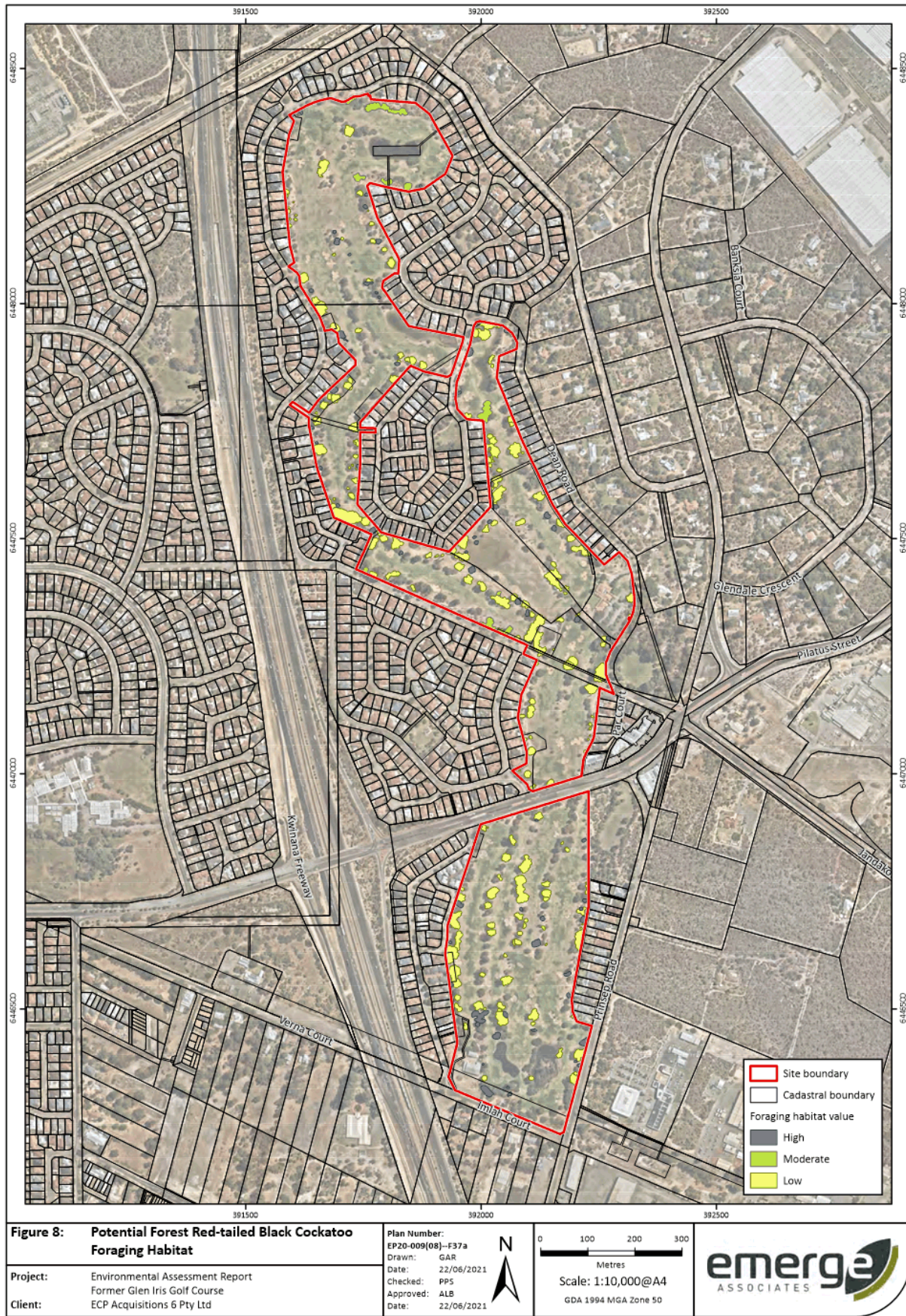
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While Emerge Associates makes every attempt to ensure the accuracy and completeness of data, Emerge accepts no responsibility for externally sourced data used







Appendix A

Detailed Flora and Vegetation Assessment





Detailed Flora and Vegetation Assessment

Former Glen Iris Golf Course

Project No: EP20-009(03)

Prepared for ECP Acquisitions 6 Pty Ltd
October 2021



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Detailed Flora and Vegetation Assessment

Former Glen Iris Golf Course



Document Control

Doc name:		Detailed Flora and Vegetation Assessment Former Glen Iris Golf Course			
Doc no.:		EP20-009(03)--002D RAW			
Version	Date	Author		Reviewer	
1	June 2020	Rachel Weber	RAW	Tom Atkinson	TAA
	Report prepared for client review				
A	April 2021	Rachel Weber	RAW	Tom Atkinson	TAA
	Minor updates to reflect change in site boundary				
B	June 2021	Rachel Weber	RAW	Tom Atkinson	TAA
	Minor updates to numeric decimal places				
C	September 2021	Sarah Paul	SKP	Tom Atkinson	TAA
	Updated to include targeted spring surveys for conservation significant species				
D	October 2021	Sarah Paul	SKP	Rachel Weber	RAW
	Updated to include additional targeted spring surveys for conservation significant species				

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Detailed Flora and Vegetation Assessment
Former Glen Iris Golf Course

Executive Summary

Emerge Associates (Emerge) were engaged by ECP Acquisitions 6 Pty Ltd to conduct a 'detailed' and 'targeted' level assessment within the former Glen Iris Golf Course (referred to herein as the 'site') to provide information on the flora and vegetation values.

As part of the assessment a desktop review of relevant background information was completed, and site surveys were undertaken on 11 March 2020, 19 August, 9 September, 7 and 28 October 2021. Outcomes of the flora and vegetation assessment include the following:

- A total of 80 native and 51 non-native (weed) species were recorded in the site.
- Four plant communities were recorded within the site:
 - Plant community **EmB** extends over 1.9 ha (4% of the site) and comprises remnant native vegetation in 'very good', 'good' and 'degraded' condition. This vegetation occurs as scattered patches and is considered likely to represent floristic community type (FCT) 23a 'Central *Banksia attenuata* – *B. menziesii* woodlands'.
 - Plant community **TdSt** extends over 0.2 ha (<1% of the site) and comprises riparian vegetation that is likely planted or a combination of planted and naturally regenerated and was mapped as being in 'good – degraded' condition.
 - Plant community **planted trees and shrubs** extends over 13.6 ha (25% of the site) and comprises predominantly scattered non-native species in 'completely degraded' condition.
 - Plant community **turf and bare ground** extends over 35.7 ha (66% of the site) and comprises the previous golf fairway and bare ground in 'completely degraded' condition.
- The remainder of the site comprises artificial lakes, buildings and hardstand which extend over 2.3 ha (4% of the site) and were not assigned to a vegetation condition category.
- No threatened or priority flora species were recorded within the site and none are considered likely to occur.
- No threatened or priority ecological communities occur within the site and none are considered likely to occur.

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Appendices

Appendix A

Additional Information

Appendix B

Conservation Significant Flora Species and Likelihood of Occurrence Assessment

Appendix C

Flora Species List

Appendix D

Conservation Significant Communities and Likelihood of Occurrence Assessment

Appendix E

Sample Data

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Abbreviation Tables

Table A1: Abbreviations – Organisations

Organisations	
EPA	Environmental Protection Authority
DBCA	Department of Biodiversity, Conservation and Attractions
DoW	Department of Water (now DWER)
DWER	Department of Water and Environmental Regulation
WALGA	Western Australia Local Government Association

Table A2: Abbreviations – General terms

General terms	
ESA	Environmentally sensitive area
FCT	Floristic community type
IBRA	Interim Biogeographic Regionalisation of Australia
MUW	Multiple use wetland
NVIS	National Vegetation Inventory System (ESCAVI 2003)
P1	Priority 1
P2	Priority 2
P3	Priority 3
P4	Priority 4
P5	Priority 5
PEC	Priority ecological community
T	Threatened
TEC	Threatened ecological community
UFI	Unique feature identifier

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Table A3: Abbreviations –Legislation

Legislation	
BAM Act	Biosecurity and Agriculture Management Act 2007
EP Act	Environmental Protection Act 1986
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
BC Act	Biodiversity Conservation Act 2016
BC Regs	Biodiversity Conservation Regulations 2018

Table A4: Abbreviations – planning

Planning terms	
MRS	Metropolitan region scheme

Table A5: Abbreviations – units of measurement

Units of measurement	
cm	Centimetre
ha	Hectare
m	Metre
m AHD	m in relation to the Australian height datum
mm	Millimetre

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1 Introduction

1.1 Project background

ECP Acquisitions 6 Pty Ltd intends to develop the former privately run Glen Iris Golf Course into a residential estate. The former Glen Iris Golf Course comprises Lots 6 and 7 Glen Iris Drive, Lots 3, 509 and 512 Dean Road and Lot 139 Imlah Court in Jandakot (referred to herein as the 'site').

The site is located approximately 16 kilometres (km) south of the Perth Central Business District within the City of Cockburn and is zoned 'urban' under the *Metropolitan Region Scheme* (MRS) and 'development contribution area 13 special use 1', 'development contribution area 13 special use 6', 'development contribution area 13 residential-R40' under the *City of Cockburn Town Planning Scheme No. 3*.

The site is approximately 53.7 hectares (ha) in size and is surrounded by residential subdivision, with a railway to the north and Kwinana Freeway to the west. The site comprises two areas separated by Berrigan Drive. The location and extent of the site is shown in **Figure 1**.

1.2 Purpose and scope of work

Emerge Associates (Emerge) were engaged by Acumen Development Solutions, on behalf of ECP Acquisitions 6 Pty Ltd, to provide environmental consultancy services to support the planning process for the site. The purpose of this survey is to provide sufficient information on the flora and vegetation values within the site to inform this process.

The scope of work was specifically to undertake a flora and vegetation assessment to the standard required of a detailed and a targeted survey with reference to the Environmental Protection Authority's (EPA's) *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA 2016).

As part of this scope of work, the following tasks were undertaken:

- Desktop review of relevant background information pertaining to the site and surrounds, including database searches for threatened flora species and ecological communities.
- Compilation of a comprehensive list of flora species recorded as part of the field survey.
- Mapping of conservation significant flora and vegetation, plant communities and vegetation condition.
- Identification of potential habitat for conservation significant flora and vegetation and likelihood of occurrence.
- Targeted searches for conservation significant flora within areas of suitable habitat.
- Documentation of the desktop assessment, survey methodology and results into a report.

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2 Environmental Context

2.1 Climate

Climate has a strong influence on the types of vegetation that grow in a region and the life cycles of the flora present. It is therefore critical for a flora and vegetation survey to respond appropriately to climatic conditions to ensure that surveys are conducted during times when flora species are easiest to detect and identify.

The south-west of Western Australia experiences a Mediterranean climate of hot dry summers and cool wet winters. In Mediterranean type climates some flora species will typically spend part of their lifecycle as either underground storage organs or as seed. This is an adaptation to unfavourable environmental conditions such as excessive heat and drought that occur over the summer period. These species, known as 'geophytes' or 'annuals', tend to re-emerge during winter when favourable conditions return and are most visible during spring, which is the flowering period for a majority of plant species. Therefore, spring is the optimal time to complete flora and vegetation surveys in the south-west of WA.

An average of 719.6 millimetres (mm) of rainfall is recorded annually from the Jandakot Aero weather station, which is the closest weather station, located approximately 2 km east of the site. The majority of this rainfall is received between the months of May and September. Mean maximum temperatures at the Jandakot Aero weather station range from 18.0°C in July to 31.6°C in February, while mean minimum temperatures range from 6.9°C in July to 17.2°C in February (BoM 2020).

A total of 600.6 mm of rain was recorded between May and August 2021 prior to the surveys which is higher than the combined long-term average of 558.5 mm for the same months (BOM 2021). This high rainfall was considered to have been sufficient to promote the flowering and emergence of native flora.

2.2 Geomorphology and soils

Landform and soils influence vegetation types at regional and local scales. The site occurs on the Swan Coastal Plain, which is the geomorphic unit that characterises much of the Perth metropolitan area.

The Swan Coastal Plain is approximately 500 km long and 20 to 30 km wide and is roughly bound by the Indian Ocean to the west and the Darling Scarp to the east. Broadly the Swan Coastal Plain consists of two sedimentary belts of different origin. Its eastern side has formed from the deposition of alluvial material washed down from the Darling Scarp, while its western side is comprised of three dune systems that run roughly parallel to the Indian Ocean coastline (Seddon 2004). These dune systems, referred to as Quindalup, Spearwood and Bassendean associations, represent a succession of coastal deposition that has occurred since the late Quaternary period (approximately two million years ago) (Kendrick *et al.* 1991) and, as a result, they contain soils at different stages of leaching and formation.

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Examination of broad scale soil mapping places the site within the Bassendean soil association (Churchward and McArthur 1980). The Bassendean association comprises sand plains with low dunes and occasional swamps, iron or humus podzols and areas of complex steep dunes.

Finer scale mapping by (Gozzard 2011) also places the site in Bassendean sand (S8) which was later confirmed during the field survey. The Bassendean sands typically very light grey at surface, yellow at depth, fine to medium-grained, sub-rounded quartz, moderately well sorted of eolian origin (Purdie *et al.* 2004).

The site is not known to contain any restricted landforms or unique geological features.

2.3 Topography

The elevation of the site ranges from 25 m in relation to the Australian height datum (mAHD) in the southern portion to 40 mAHD in the northern portion of the site (DoW 2008) (**Figure 2**).

2.4 Hydrology and wetlands

Wetlands include “areas of seasonally, intermittently or permanently waterlogged soils or inundated land, whether natural or otherwise, fresh and saline, e.g. waterlogged soils, ponds, billabongs, lakes, swamps, tidal flats, estuaries, rivers and their tributaries” (Wetlands Advisory Committee 1977). Wetlands can further be recognised by the presence of vegetation associated with waterlogging or the presence of hydric soils such as peat, peaty sand or carbonate mud (Hill *et al.* 1996).

Wetlands of national or international significance may be afforded special protection under Commonwealth or international agreements. The following lists of important wetlands were checked as part of this assessment:

- *Ramsar List of Wetlands of International Importance* (DBCA 2017b)
- *A Directory of Important Wetlands in Australia* (DBCA 2018).

No Ramsar or listed ‘important wetlands’ are located within or near the site.

Examination of the Department of Water and Environmental Regulation (DWER) hydrography dataset (DWER 2018) shows that no wetland or water related features are mapped within the site.

On the Swan Coastal Plain DBCA (2017a) have used the geomorphic wetland classification system developed by Semeniuk (1987) and Semeniuk and Semeniuk (1995) to classify wetlands based on the landform shape and water permanence (hydro-period). The Department of Biodiversity, Conservation and Attractions (DBCA) maintains the *Geomorphic Wetlands of the Swan Coastal Plain* dataset (DBCA 2020a), which further categorises geomorphic wetland features into specific management categories to guide land use and conservation. Note that as this dataset was drafted at a regional scale the boundaries of mapped wetland features are often inconsistent with physical wetland boundaries.

A review of the *Geomorphic Wetlands, Swan Coastal Plain* dataset (DBCA 2020a) indicated that no wetland features are mapped within the site. Two ‘multiple use’ category wetland features (UFIs 6654 and 6655) occur adjacent to the south-western portion of the site.

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The locations of the geomorphic wetlands surrounding the site are shown in **Figure 2**.

2.5 Regional vegetation

Native vegetation is described and mapped at different scales in order to illustrate patterns in its distribution. At a continental scale the *Interim Biogeographic Regionalisation of Australia* (IBRA) divides the Swan Coastal Plain into two floristic subregions (Environment Australia 2000). The site is contained within the 'SWA02' or Perth subregion, which is characterised as mainly containing *Banksia* low woodland on leached sands with *Melaleuca* swamps where ill-drained; and woodland of *Eucalyptus gomphocephala* (tuart), *E. marginata* (jarrah) and *Corymbia calophylla* (marri) on less leached soils (Beard 1990). This subregion is recognised as a biodiversity hotspot and contains a wide variety of endemic flora and vegetation types.

Variations in native vegetation within the site can be further classified based on regional vegetation associations. Hedde *et al.* (1980) mapping shows the majority of the site as comprising the 'Bassendean central and south' complex, which is described as vegetation ranging from woodland of *Eucalyptus marginata* - *Allocasuarina fraseriana* - *Banksia* spp. to low woodland of *Melaleuca* spp. and sedgelands on the moister sites. This complex was determined to have 26.87% remaining in 2019, of which 2.15% is under formal protection (Government of Western Australia 2019).

2.6 Historic land use

Review of historical images available from 1953 (WALIA 2020) onwards shows that the northern and southern portions of the site, separated by Berrigan Drive, have been subject to vegetation clearing at different times.

The northern portion of the site supported native vegetation until construction of the central part of the Glen Iris Golf Course commenced, which is first visible in imagery from 1965. The remainder of the northern portion of the site was cleared of native vegetation by 1995 for further golf course construction. Scattered remnant native trees appear to have been retained between the golf course fairway but the majority of the vegetation was cleared during construction of the golf course.

The southern portion of the site supported native vegetation until construction of the golf course commenced, which is first visible in imagery from 1995. The entirety of the southern portion of the site, except two areas near the southern boundary, were completely cleared of native vegetation for the golf course.

The Glen Iris Golf Course was formally closed by the previous owners in March 2020 and has been in caretaker and maintenance ever since.

2.7 Significant flora and vegetation

2.7.1 Threatened and priority flora

Certain flora taxa that are considered to be rare or under threat warrant special protection under Commonwealth and/or State legislation. At a Commonwealth level, flora taxa may be listed as 'threatened' under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

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Threatened flora species listed under the EPBC Act are assigned a conservation status according to attributes such as population size and geographic distribution. Any action likely to have a significant impact on a taxon listed under the EPBC Act requires Ministerial approval.

In Western Australia flora species may also be classed as 'threatened' under the *Biodiversity Conservation Act 2016* (BC Act). Similarly, it is an offence to 'take' or 'disturb' threatened flora listed under the BC Act without Ministerial approval.

Flora species that do not currently meet the criteria for listing as threatened but are potentially rare or threatened may be added to the DBCA's *Priority Flora List*. These species are classified into 'priority' levels based on threat. Whilst priority species are not under direct statutory protection, they are considered during State approval processes. Further information on threatened and priority species and their categories is provided in **Appendix A**.

2.7.2 Threatened and priority ecological communities

An ecological community is a naturally occurring group of native plants, animals and other organisms that are interacting in a unique habitat. An ecological community's structure, composition and distribution are influenced by environmental factors such as soil type, position in the landscape, altitude, climate and water availability (DoEE 2019b). 'Threatened ecological communities' (TECs) are ecological communities that are recognised as rare or under threat and therefore warrant special protection.

Selected TECs are afforded statutory protection at a Commonwealth level under the EPBC Act. Similar to flora species, TECs listed under the EPBC Act are assigned a conservation status. Any action likely to have a significant impact on a community listed under the EPBC Act requires Ministerial approval.

TECs are also listed within Western Australia under the BC Act and the BC Regulations. Their significance is also acknowledged through other state environmental approval processes such as 'environmental impact assessment' pursuant to Part IV of the *Environmental Protection Act 1986* (EP Act) and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*.

A plant community that is under consideration for listing as a TEC in Western Australia, but does not yet meet survey criteria or has not been adequately defined, may be listed as a 'priority ecological community' (PEC). Listing as a PEC is similarly considered during State approval processes. Further information on categories of TECs and PECs is provided in **Appendix A**.

2.7.3 Local and regional significance

Flora species and ecological communities may be significant for a number of reasons irrespective of whether they have special protection under policy or legislation.

Two reasons that vegetation within the site may be significant are listed below:

- The vegetation within the site has potential value as habitat for threatened or priority fauna species including, in particular, Carnaby's black cockatoo and the forest red-tailed black cockatoo, which are listed as 'vulnerable' under the EPBC Act and 'endangered' under the BC Act.

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- The vegetation supports flora species Listed in *Bush Forever* 'significant flora' list for the Bassendean dunes (Government of WA 2000).

2.7.4 Weeds

The term 'weed' can refer to any plant that requires some form of action to reduce its effect on the economy, the environment, human health and amenity. Many non-native flora species and some native species are considered to be weeds.

A particularly invasive or detrimental weed species may be listed as a 'declared pest' pursuant to Western Australia's *Biosecurity and Agriculture Management Act 2007* (BAM Act), indicating that it warrants special management to limit its spread. At a National level, the Australian government has compiled a list of 32 *Weeds of National Significance* (WoNS) (DoEE 2019c). Whilst the WoNS list is non-statutory, many WoNS are also listed under the BAM Act. Further information on categories of declared pests is provided in **Appendix A**.

Due to historical disturbance weed species are expected to be present at the site.

2.8 Bush Forever

The Government of Western Australia's *Bush Forever* policy is a strategic plan for conserving regionally significant bushland within the Swan Coastal Plain portion of the Perth Metropolitan Region. The objective of *Bush Forever* is to protect comprehensive representations of all original ecological communities by targeting a minimum of 10% of each vegetation complex for protection (Government of WA 2000). *Bush Forever* sites are representative of regional ecosystems and habitat and have a key role in the conservation of Perth's biodiversity.

No *Bush Forever* sites occur within the site. Multiple *Bush Forever* sites occur to the east and west of the site.

2.9 Ecological linkages

Ecological linkages are linear landscape elements that allow the movement of fauna, flora and genetic material between areas of remnant habitat. This exchange of genetic material between vegetation remnants improves the viability of those remnants by allowing greater access to breeding partners and food sources, refuge from disturbances such as fire and maintenance of genetic diversity of plant communities and populations. Ecological linkages are ideally continuous or near-continuous as the more fractured a linkage is, the less ease flora and fauna have in moving within the corridor (Alan Tingay and Associates 1998).

The Perth Biodiversity Project, supported by the Western Australia Local Government Association (WALGA), have identified and mapped regional ecological linkages within the Perth Metropolitan Region (WALGA and PBP 2004).

There are no mapped ecological linkages within the site. One biodiversity ecological linkage (no. 48) is located approximately 800 m to the north of the site and extends to the west and east.

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2.10 Previous surveys

No previous flora and vegetation surveys are known to have been undertaken within the site.

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3 Methods

3.1 Desktop assessment

3.1.1 Database searches

A search was conducted for threatened and priority flora that may occur or have been recorded within a 10 km radius of the site using the *Protected Matters Search Tool* (DAWE 2020a) and *NatureMap* (DBCA 2020).

A search was also conducted for TECs and PECs that may occur or have been recorded within a 10 km radius of the site using the *Protected Matters Search Tool* (DAWE 2020a) and the *Weed and Native Flora Dataset* (Keighery *et al.* 2012).

Prior to undertaking the field survey, information on the habitat preferences of threatened and priority flora species and communities identified from database searches was reviewed. This was compared to existing environmental information available for the site, such as geomorphology, soils, regional vegetation and historic land use, to identify species and communities for which habitat may occur in the site.

3.2 Field survey

An ecologist from Emerge visited the site on 11 March 2020, 19 August, 9 September, 7 and 28 October 2021 to conduct the flora and vegetation field surveys.

3.2.1 Flora and vegetation

The site was traversed on foot and the composition and condition of vegetation was recorded.

Detailed sampling of the vegetation was undertaken using non-permanent relevés. Each relevé was completed over an approximately 10 x 10 m area. A total of three relevés were sampled and the position of each sample location was recorded with a hand-held GPS unit, as shown in **Figure 3**. The data recorded within each relevé included:

- site details (site name, site number, observers, date, location)
- environmental information (slope, aspect, bare-ground, rock outcropping soil type and colour class, litter layer, topographical position, time since last fire event)
- biological information (vegetation structure and condition, degree of disturbance and species present).

Additional plant taxa not observed within samples were recorded opportunistically as the ecologist traversed the site. Photographs were taken throughout the field visit to show particular site conditions.

The suitability of habitat within the site for conservation significant species identified in the desktop assessment was assessed (refer **Section 3.1**). Areas of suitable habitat were searched for conservation significant species as required.

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All plant specimens collected during the field survey were dried, pressed and then named in accordance with requirements of the Western Australian Herbarium. Identification of specimens occurred through comparison with named material and through the use of taxonomic keys. Flora species not native to Western Australia are denoted by an asterisk (“*”) in text and raw data.

Vegetation condition was assigned at each sample and changes in vegetation condition were also noted and mapped across the site. The condition of the vegetation was assessed using methods from Keighery (1994). For vegetation in the site containing *Banksia* spp., the condition scale provided in the conservation advice for the ‘banksia Woodlands of the Swan Coastal Plain TEC’ (TSSC 2016) was applied in addition to the Keighery scale (as shown in **Table 1**).

Table 1: Vegetation condition scale applied during the field assessment

Condition category	Definition (Keighery 1994)	Indicator (TSSC 2016)	
		Typical native vegetation composition	Typical weed cover
Pristine	Pristine or nearly so, no obvious signs of disturbance.	Native plant species diversity fully retained or almost so	Zero or close to
Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species.	High native plant species diversity	Less than 10%
Very good	Vegetation structure altered obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing	Moderate native plant species diversity	5-20%
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and grazing.	Low native plant species diversity	5-50%
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.	Very low native plant species diversity	20-70%
Completely degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as ‘parkland cleared’ with the flora comprising weed or crop species with isolated native trees or shrubs.	Very low to no native species diversity	Greater than 70%

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3.3 Mapping and data analysis

3.3.1 Likelihood of occurrence of conservation significant flora and vegetation

Information on the habitat preferences of threatened and priority flora species and communities identified from database searches was reviewed. Based on existing conditions such as plant community, vegetation condition, land use and disturbance, an assessment of the likelihood of occurrence of threatened and priority flora species and communities within the site was undertaken using the categories outlined in **Table 2**.

Table 2: Likelihood of occurrence assessment categories and definitions

Likelihood	Definition
Recorded	The species was recorded during the current field survey.
Likely	The site contains suitable habitat for the species and it is likely the species may occur based on presence of a recent historical record within or close to the site.
Possible	The site contains suitable habitat for the species but there is no other information to suggest that the species may occur within or close to the site.
Unlikely	The site does not contain suitable habitat for the species or the site contains suitable habitat for the species within which thorough targeted searches were completed and conclusion has been made that the species is unlikely to be present.

3.3.2 Plant community identification and description

The local plant communities within the site were identified from the sample data collected during the field survey. The vegetation was described according to the dominant species present using the structural formation descriptions of the *National Vegetation Inventory System (NVIS)* (ESCAVI 2003). The identified plant communities were mapped on aerial photography from the sample locations and boundaries were interpreted from aerial photography and notes taken in the field. Vegetation condition was mapped on aerial photography based on the locations and notes recorded during the field survey to define areas with differing condition.

3.3.3 Floristic community type assignment

Where possible, each plant community was assigned a 'floristic community type' (FCT), as defined by Gibson *et al.* (1994). This was determined by comparing the flora species recorded within each sample to those in the regional datasets *A floristic survey of the southern Swan Coastal Plain* Gibson *et al.* (Gibson *et al.* 1994) and *Weed and Native Flora Data for the Swan Coastal Plain* (Keighery *et al.* 2012). No statistical FCT analysis was undertaken due to the high level of disturbance across most of the site and small size of vegetation patches in better quality.

Ultimately the flora species present and contextual information relating to the soils, landforms and known locations of FCTs within the region were used to determine the appropriate FCT for vegetation within the site.

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3.3.4 Threatened and priority ecological communities

Areas of native vegetation potentially representing a TEC were assessed against key diagnostic characteristics and, if available, size and/or vegetation condition thresholds provided in the following document:

- *Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain ecological community (TSSC 2016).*

3.4 Survey limitations

It is important to note the specific constraints imposed on surveys and the degree to which these may have limited survey outcomes. An evaluation of the survey methodology against standard constraints outlined in the EPA document *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA 2016) is provided in **Table 3**.

Table 3: Evaluation of survey methodology against standard constraints outlined in EPA (2016)

Constraint	Degree of limitation	Details
Availability of contextual information	No limitation	The broad scale contextual information described in Section 2 is adequate to place the site and vegetation in context.
	No limitation	No previous relevant surveys are known to have been undertaken within the site.
Experience level of personnel	No limitation	Regarding assignment of FCTs, the authoritative Gibson <i>et al.</i> (1994) dataset was derived from a necessarily limited sample of vegetation from largely publicly owned land which is now more than 20 years out of date. Consequently, it is unknown to what degree official FCTs are appropriate reference to biodiverse vegetation across the Swan Coastal Plain. In lieu of an alternative and as recommended by DBCA, the Gibson <i>et al.</i> (1994) dataset was used to assign an FCT where possible. Comparison of species in the patches of vegetation in better condition with the Gibson <i>et al.</i> (1994) dataset, in combination with soils, landforms and known locations of FCTs within the region, was sufficient to assign an FCT.
Suitability of timing	No limitation	This flora and vegetation assessment was undertaken by qualified botanists with 6-11 years of botanical experience in Western Australia. Technical review was undertaken by a senior environmental consultant with 18 years' experience in environmental science in Western Australia.
Temporal coverage	No limitation	The survey was conducted in March 2020 and August, September and October 2021 and thus within the main flowering season. High rainfall was recorded from May to August 2021 in the months preceding the site visits. Therefore, it is likely that most plant species would have been in flower and/or visible at the time of survey. The degraded nature of most of the site limits the potential habitat for native geophytic plants such as orchids and the majority of threatened and priority flora species with potential to occur are perennial species. Nevertheless, some orchid species were recorded and able to be identified to species level. No unidentified specimens were collected. The survey timing was considered adequate to allow the detection of all species for which seasonal timing is critical.
	No limitation	Comprehensive flora and vegetation assessments can require multiple visits, at different times of year, and over a period of multiple, to enable observation of all species present. The portions of the site containing native vegetation were visited five times over two years and three seasons.

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Table 3: Evaluation of survey methodology against standard constraints outlined in EPA (2016) (continued)

Constraint	Degree of limitation	Details
Spatial coverage and access	No limitation	Site coverage was comprehensive (track logged).
	No limitation	All parts of the site could be accessed as required.
Sampling intensity	No limitation	A total of 131 species were recorded, comprising 80 native and 51 non-native species. These species were recorded from three sample locations and opportunistic observations across the site. Considering the high level of disturbance within the majority of the site and the small size of the areas of remnant native vegetation, the number of native species recorded was considered sufficient to classify the vegetation for the purposes of this assessment.
Influence of disturbance	Minor limitation	Time since fire is greater than 60 years as interpreted from aerial imagery and therefore species reliant on fire to emerge may not have been visible. However, this was not considered a limitation in regards to determining the presence of threatened or priority flora species.
	No limitation	Historical ground disturbance was evident in the majority of the site. The disturbance history of the site was considered when undertaking field sampling.
Adequacy of resources	No limitation	All resources required to perform the survey were available.

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4 Results

4.1 General site conditions

The site is gently undulating and comprises sandy white-grey soils. The site was recently used as a golf course and the fairways and lakes were irrigated at the time of the survey.

The site has been highly modified for its use as a golf course and is dominated by non-native vegetation and unvegetated areas. Small areas of remnant native vegetation occur as scattered patches of varying quality.

4.2 Flora

4.2.1 Desktop assessment

The database search results identified a total of 16 threatened and 34 priority flora species occurring or potentially occurring within a 10 km radius of the site. Information on these species including their habitat preferences is provided in **Appendix B**.

Based on background information available for the site, two threatened flora species and five priority flora species were identified as having potential to occur within the site as shown in **Table 4**.

Table 4: Conservation significant flora species considered to have potential to occur in the site based on known habitat preferences

Species	Level of significance		Life strategy	Habitat	Flowering period
	State	EPBC Act			
<i>Caladenia huegelii</i>	CR	E	PG	Well-drained, deep sandy soils in lush undergrowth in a variety of moisture levels.	Sep-early Nov
<i>Macarthuria keigheryi</i>	E	E	P	Low-lying winter-wet damp grey/white sands in open patches.	Sep-Dec, Feb-Mar
<i>Stenanthemum sublineare</i>	P2	-	P	White sand on coastal plains.	Oct-Dec
<i>Thelymitra variegata</i>	P2	-	PG	Sandy clay, sand, laterite.	Jun-Sep
<i>Phlebocarya pilosissima</i> subsp. <i>pilosissima</i>	P3	-	P	White or grey sand, lateritic gravel.	Aug-Oct
<i>Styphelia filifolia</i>	P3	-	P	Brown over pale yellow sand.	Feb-Apr
<i>Jacksonia sericea</i>	P4	-	P	Calcareous and sandy soils on Swan Coastal Plain	Dec-Feb

4.2.2 Species inventory

A total of 80 native and 51 non-native (weed) species were recorded within the site during the field survey, representing 45 families and 103 genera. The dominant families containing native taxa were

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Myrtaceae (15 native taxa and 13 weed taxa) and Fabaceae (12 native taxa and four weed taxa). A complete species list is provided in **Appendix C**.

4.2.3 Threatened and priority flora

No occurrences of threatened or priority flora species were recorded within the site.

The **EmB** vegetation described in **Section 4.3.2** comprises suitable habitat for the threatened and priority flora species identified in **Table 4**. Targeted searches were undertaken for these species during the optimal survey period and they were not recorded. Therefore, no threatened or priority flora species are considered likely to occur in the site.

The likelihood of occurrence assessment is provided in **Appendix B**.

4.2.4 Locally and regionally significant flora

No locally or regionally significant flora species were recorded within the site.

4.2.5 Declared pests

No species listed as declared pests pursuant to the BAM Act or weeds of national significance (WoNS) were recorded in the site.

4.3 Vegetation

4.3.1 Desktop assessment

The database search results identified four TECs and three PECs occurring or potentially occurring within a 10 km radius of the site. Information on these communities is provided in **Appendix D**.

Based geomorphology, soils and regional vegetation patterns, the following one TEC and three PECs were considered to have potential to occur in the site:

- 'Banksia woodlands of the Swan Coastal Plain' TEC which is listed as 'endangered' under EPBC Act.
- 'Banksia woodlands of the Swan Coastal Plain' PEC (P3)
- '*Banksia ilicifolia* woodlands, southern Swan Coastal Plain' PEC (P3)
- 'Northern Spearwood shrublands and woodlands' PEC (P3).

4.3.2 Plant communities

Four plant communities were identified within the site. Plant community **EmB** exists as scattered patches in the northern, central and south-western portions of the site. Plant community **TdSt** exists as multiple small patches on the edges of artificial lakes and is considered to be likely planted or a combination of planted and naturally generated vegetation. Plant communities **planted trees and shrubs** and **turf and bare ground** exist across the site and were likely previously installed for the sites' historic use as a golf course.

The remainder of the site supports multiple artificial lakes, buildings and hardstand (2.3 ha).

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A description and the area of each plant community is provided in **Table 5**, representative photographs of each are provided in **Plate 1 to Plate 4** and raw sample data is provided in **Appendix E**. The location of each plant community is shown in **Figure 3**.

Table 5: Description and extent of plant communities identified within the site

Plant community	Description	Area (ha)
EmB	Woodland to open woodland <i>Eucalyptus marginata</i> subsp. <i>marginata</i> , <i>Banksia attenuata</i> and <i>Banksia menziesii</i> over mixed shrubland <i>Xanthorrhoea preissii</i> , <i>Allocasuarina humilis</i> and <i>Hibbertia hypericoides</i> over open sedgeland <i>Mesomelaena pseudostygia</i> over non-native grassland <i>Ehrharta calycina</i> (Plate 1).	1.9
TdSt	Closed sedgeland <i>Typha domingensis</i> , <i>Schoenoplectus tabernaemontani</i> , <i>Cortaderia selleana</i> and <i>Baumea</i> sp. (Plate 2).	0.2
Planted trees and shrubs	Predominantly scattered non-native planted trees and shrubs such as <i>Corymbia</i> spp., <i>Eucalyptus</i> spp., <i>Melaleuca</i> spp. and <i>Grevillea</i> spp. with occasional native plants (Plate 3).	13.6
Turf and bare ground	Closed non-native grassland (turf) and bare ground (Plate 4).	35.7



Plate 1: Plant community **EmB** in 'very good' condition

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Plate 2: Plant community **TidSt** in 'good – degraded' condition



Plate 3: **Planted trees and shrubs** in 'completely degraded' condition

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Plate 4: **Turf and bare ground** in 'completely degraded' condition

4.3.3 Vegetation condition

Plant community **EmB** comprises the most intact native vegetation within the site. Some of the **EmB** vegetation was mapped as being in 'very good' condition as they supported the general structure expected of a banksia woodland community and had moderate native species diversity. The remainder of the **EmB** vegetation was mapped as being in 'good' and 'degraded' condition where it was more disturbed with an altered structure, lower native species diversity and higher weed cover.

Plant community **TdSt** was mapped as being in 'good – degraded' condition as it comprises a combination of native and non-native species that only exist in the site due to the presence of the artificial lakes created for the previous golf course.

The **planted trees and shrubs** and the **turf and bare ground** communities were mapped as being in 'completely degraded' condition as they are dominated by non-native species or comprise unvegetated areas. The remainder of the site, which comprises artificial lakes, buildings and hardstand, were not assigned a condition category (2.3 ha).

The extent of vegetation by condition category is detailed in **Table 6** and shown in **Figure 4**.

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Table 6: Extent of vegetation condition categories within the site

Condition category (Keighery 1994)	Size (ha)
Pristine	0
Excellent	0
Very good	0.43
Good	0.69
Good – degraded	0.22
Degraded	0.80
Completely degraded	49.25

4.3.4 Floristic community types

Plant community **EmB** was determined to likely represent FCT 23a 'Central *Banksia attenuata* – *B. menziesii* woodlands'. This FCT is listed as 'well reserved' and 'low risk' by Gibson *et al.* (1994).

The other plant communities in the site were considered too degraded to assign to an FCT.

4.3.5 Threatened and priority ecological communities

The structure and composition of plant community **EmB** indicates that it has the potential to represent the Commonwealth listed TEC 'banksia woodlands of the Swan Coastal Plain' and the State listed PEC of the same name (P3).

The above TEC, herein referred to as the 'banksia woodland TEC', is listed as 'endangered' under the EPBC Act. Whether a patch of vegetation is considered to represent the banksia woodland TEC depends on a number of diagnostic criteria including geographic location, soils, landform, structure, composition, condition and patch size (DoEE 2016).

As outlined in **Table 7**, the **EmB** vegetation does not satisfy the criteria to be considered a patch of the 'banksia woodland TEC' due to the small size of the patches.

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Table 7: Criteria for determining presence of Banksia Woodlands of the Swan Coastal Plain TEC adapted from (TSSC 2016)

Criteria	Requirements for meeting criteria	Site implications
1. Must meet key diagnostic characteristics	A variety of factors relating to: - Location - Soils - Structure - Composition	- Site meets location and soils criteria. - The EmB vegetation includes the key diagnostic feature of a tree layer of <i>Banksia attenuata</i>, <i>Banksia menziesii</i> and <i>Banksia ilicifolia</i>. - The EmB vegetation within site also meets structure and composition criterion. It is likely to represent FCT 23a which is identified as one of the FCTs comprising the banksia woodland TEC.
2. Must meet condition thresholds	A patch should at least meet the 'good' condition category (see Table 1)	- The EmB vegetation is present in 'very good', 'good' and 'degraded' condition, which meets this criterion. The conservation advice indicates that a single patch may include areas of variable condition, meaning the 'degraded' condition may still be considered the TEC. - The patches of EmB vegetation that are adjacent to each other would be considered part of the same patch. Therefore, six 'patches' of EmB vegetation exist within the site.
3. Must meet minimum patch size	Minimum size of patch: - Pristine=no minimum size - Excellent=0.5 ha - Very Good=1 ha - Good=2 ha	The six patches of EmB vegetation are each less than 1 ha in size and do <u>not</u> meet this criterion.
4. Must incorporate surrounding context	- Breaks (e.g. tracks) < 30 m do not separate vegetation into separate patches - Buffer zones may apply (20-50 m recommended from patch edge) - The site should be thoroughly sampled (2 surveys in same spring). - Survey timing should be appropriate. - Surrounding environment should be considered (e.g. connectivity, conservation values, fauna habitat)	The patches of EmB vegetation are isolated from other banksia woodland and no relevant surrounding context considerations apply.
Result	The site does not support any vegetation that represents the banksia woodland TEC.	

DBCA's *Priority Ecological Community* list indicates that the description, area and condition thresholds that apply to the Commonwealth-listed TEC of the same name also apply to the 'banksia woodlands of the Swan Coastal Plain' PEC (DBCA 2020b). Since the **EmB** vegetation does not represent the banksia woodland TEC it also does not represent the PEC.

No other TECs or PECs occur within the site.

4.3.6 Locally and regionally significant vegetation

Plant communities **EmB** and **planted trees and shrubs** contain multiple foraging species for threatened species of black cockatoo. In addition, a small number of mature *Corymbia calophylla*, *Eucalyptus marginata* and **Eucalyptus* sp. trees with a diameter at breast height larger than 500 mm are also present within plant communities **EmB** and **planted trees and shrubs**. Due to their size these

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trees have the potential to provide some value as foraging, roosting and breeding habitat values for black cockatoos, along with other ecological services.

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5 Discussion

The site has been highly modified and approximately 92% supports vegetation in 'completely degraded' condition. Native vegetation exists as scattered patches that extend over approximately 4% of the site. The remaining 4% of the site comprises artificial lakes, buildings and hardstand. The highest quality vegetation exists within plant community **EmB**.

5.1 Threatened and priority flora

Based on the desktop assessment, it was considered that two threatened and five priority flora species had potential to occur within the site. If these species were to occur it was most likely that they would have been found within the **EmB** vegetation, which, while disturbed, is the most intact remnant vegetation in the site.

Intensive targeted searches were undertaken in August, September and October 2021 across the **EmB** vegetation and none of the identified threatened or priority flora species were recorded. The absence of the larger perennial species such as *Jacksonia gracillima*, *Verticordia lindleyi* subsp. *lindleyi* and *Andersonia gracilis* was relatively easy to confirm. However, due to their size and seasonal lifeform, smaller annual or geophytic species such as *Drakaea elastica*, *Thelymitra variegata* and *Caladenia huegelii* can be more difficult to detect. Intensive targeted searches were carried out in August, September and October 2021 to search for *Drakaea elastica*, *Thelymitra variegata* and *Caladenia huegelii*. The searches were conducted during the main growing and flowering period for these species and so they would have been visible, if present. Since these species were not recorded the surveys are considered sufficient to conclude that they do not occur in the site.

5.2 Vegetation condition

A vegetation condition score has the greatest implications when the condition of vegetation is close the boundary between 'good' and 'degraded'. This is because good condition is typically accepted as the threshold for conservation significance, while 'degraded' condition implies a low conservation requirement. Separating these two condition categories is further complicated by the fact that good condition is more correctly understood to mean 'average' condition. Applying the Keighery (1994) condition scale good condition vegetation can be expected to be significantly altered, with very obvious disturbance and the presence of aggressive weeds at high density. Therefore, good does not literally mean "good" as the label implies.

The method applied to assess vegetation condition was robust, as it combined the standard qualitative, categorical scheme of Keighery (1994), with the additional indicators for diversity and weed cover outlined in DoEE (2016).

Compound condition categories were applied where the patch of vegetation supported a mosaic of small areas in differing condition and at fine-scale unsuitable for mapping.

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5.3 Floristic community type assignment

Although no statistical FCT analysis was undertaken, the flora species within the **EmB** vegetation are similar to those recorded within Gibson *et al.* (1994) sites that represent FCT 23a. A total of 15 Gibson *et al.* (1994) and Keighery *et al.* (2012) samples that represent FCT 23a occur within approximately four kilometres of the site and the soils and landform within the site also align with that described for FCT 23a.

5.4 Threatened and priority ecological communities

Arriving at the conclusion that the **EmB** vegetation does not represent the banksia woodland TEC/PEC was straightforward as the small patches of this vegetation do not meet defined size thresholds.

5.5 Wetlands

The two mapped multiple use wetlands located adjacent to the south-western portion of the site comprise residential lots and extend over portions of the Kwinana Freeway (UFI 6655) and Berrigan Drive (UFI 6654) (**Figure 2**). Neither of these mapped wetlands contain any native wetland vegetation in proximity to the site.

5.6 Local and regional significance

Suitable habitat for threatened species of black cockatoo were opportunistically recorded within the site. A separate fauna assessment has been undertaken to determine the fauna habitat within the site and whether other fauna species of conservation significance are likely to occur (Emerge Associates 2021).

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6 Conclusions

Over 95% of the site has been highly disturbed and modified from its remnant state, with approximately 2.3 ha supporting artificial lakes, buildings and hardstand and 49.2 ha supporting non-native vegetation (planted trees and shrubs and turf and bare ground) in 'completely degraded' condition. The remainder of the site supports remnant native vegetation (1.9 ha) and riparian vegetation that is likely planted or a combination of planted and naturally regenerated (0.2 ha).

No threatened or priority flora species were recorded within the site and none are considered likely to occur.

No TECs or PECs occur within the site and none are considered likely to occur.

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7 References

7.1 General references

Alan Tingay and Associates 1998, *A Strategic Plan for Perth's Greenways - Final Report*. December 1998.

Beard, J. S. 1990, *Plant Life of Western Australia*, Kangaroo Press Pty Ltd., Kenthurst, N.S.W.

Churchward, H. M. and McArthur, W. M. 1980, 'Landforms and Soils of the Darling System, Western Australia', in Department of Conservation and Environment (ed.), *Atlas of Natural Resources Darling System Western Australia*, Department of Conservation and Environment.

Department of Biodiversity, Conservation and Attractions (DBCA) 2017a, *A methodology for the evaluation of wetlands on the Swan Coastal Plain*, draft prepared by the Wetlands Section of the Department of Biodiversity, Conservation and Attractions and the Urban Water Branch of the Department of Water and Environmental Regulation, Perth.

Department of Biodiversity, Conservation and Attractions (DBCA) 2017b, *Ramsar Sites (DBCA-010)*.

Department of Biodiversity, Conservation and Attractions (DBCA) 2018, *Directory of Important Wetlands in Australia - Western Australia (DBCA-045)*.

Department of Biodiversity, Conservation and Attractions (DBCA) 2020a, *Geomorphic Wetlands, Swan Coastal Plain (DBCA-019)*.

Department of Biodiversity Conservation and Attractions (DBCA) 2020b, *Priority Ecological Communities for Western Australia Version 30*.

Department of the Environment and Energy (DoEE) 2016, *Banksia Woodlands of the Swan Coastal Plain in Community and Species Profile and Threats Database*, Canberra.

Department of Water (DoW) 2008, *LiDAR Elevation Dataset, Swan Coastal Plain*, Perth.

Department of Water and Environmental Regulation (DWER) 2018, *Hydrography Linear (Heirarchy) (DWER-031)*, Perth.

Emerge Associates 2021, *Level 1 Fauna Assessment - Former Glen Iris Golf Course*, EP20-009(04)--004A RAW, Version A.

Environment Australia 2000, *Revision of the Interim Biogeographic Regionalisation for Australia (IBRA) and Development of Version 5.1 - Summary Report*, Department of Environment and Heritage.

Environmental Protection Authority (EPA) 2016, *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment*, Perth.

Detailed Flora and Vegetation Assessment

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ESCAVI 2003, *Australian Vegetation Attribute Manual: National Vegetation Information System, Version 6.0*, Department of the Environment and Heritage, Canberra.

Gibson, N., Keighery, B., Keighery, G., Burbidge, A. and Lyons, M. 1994, *A Floristic survey of the southern Swan Coastal Plain*, Department of Conservation and Land Management and the Conservation Council of Western Australia, Perth.

Government of WA 2000, *Bush Forever - Volume 1: Policies, principles and processes*, Perth.

Government of Western Australia 2019, *2018 South West Vegetation Complex Statistics. Current as of March 2019*, WA Department of Biodiversity, Conservation and Attractions, Perth.

Gozzard, J. 2011, *Sea to scarp - geology, landscape, and land use planning in the southern Swan Coastal Plain*, Geological Survey of Western Australia.

Heddle, E. M., Loneragan, O. W. and Havel, J. J. 1980, 'Vegetation Complexes of the Darling System Western Australia', in Department of Conservation and Environment (ed.), *Atlas of Natural Resources Darling System Western Australia*, Perth.

Hill, A. L., Semeniuk, C. A., Semeniuk, V. and Del Marco, A. 1996, *Wetlands of the Swan Coastal Plain: Volume 2A - Wetland Mapping, Classification and Evaluation*, Water and Rivers Commission and the Department of Environmental Protection, Perth.

Keighery, B. 1994, *Bushland Plant Survey: A guide to plant community survey for the community*, Wildflower Society of WA (Inc), Nedlands.

Keighery, B. J., Keighery, G. J., Longman, V. M. and Clarke, K. A. 2012, *Weed and Native Flora Data for the Swan Coastal Plain*, Departments of Environmental Protection and Conservation and Land Management, Western Australia.

Kendrick, G. W., Wyrwoll, K. H. and Szabo, B. J. 1991, *Pliocene-Pleistocene coastal events and history along the western margin of Australia*, Quaternary Science Reviews, 10: 419-439.

Purdie, B., Tille, P. and Schoknecht, N. 2004, *Soil-landscape mapping in south-Western Australia: an overview of methodology and outputs. Resource Management Technical Report 280*, State of Western Australia.

Seddon, G. 2004, *A Sense of Place: a response to an environment, the Swan Coastal Plain Western Australia*, Blooming Books, Melbourne.

Semeniuk, C. A. 1987, *Wetlands of the Darling System - a geomorphic approach to habitat classification*, Journal of the Royal Society of Western Australia, 69: 95-112.

Semeniuk, C. A. and Semeniuk, V. 1995, *A Geomorphic Approach to Global Classification for Inland Wetlands*, Vegetatio, 118(1/2): 103-124.

Threatened Species Scientific Committee (TSSC) 2016, *Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain ecological community*.

Detailed Flora and Vegetation Assessment

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Western Australian Local Government Association and Perth Biodiversity Project (WALGA and PBP) 2004, *Local Government Biodiversity Planning Guidelines for the Perth Metropolitan Region*, Perth.

Wetlands Advisory Committee 1977, *The status of reserves in System Six*, Environmental Protection Authority, Perth.

7.2 Online references

Bureau of Meteorology (BoM) 2020, *Climate Averages*, viewed 20 May 2020, <<http://www.bom.gov.au/climate/data/>>.

Department of Biodiversity, Conservation and Attractions (DBCA) 2020, *NatureMap*, viewed 27 March 2020 <<https://naturemap.dbca.wa.gov.au/>>.

Department of Agriculture, Water and the Environment (DAWE) 2020a, *Protected Matters Search Tool*, viewed 27 March 2020, <<https://www.environment.gov.au/epbc/protected-matters-search-tool>>.

Department of Agriculture, Water and the Environment (DAWE) 2020b, *Threatened Ecological Communities*, viewed 20 June 2020, <<http://www.environment.gov.au/biodiversity/threatened/communities/about>>.

Department of Agriculture, Water and the Environment (DAWE) 2020c, *Weeds of National Significance*, viewed 12 July 2020, <<http://www.environment.gov.au/biodiversity/invasive/weeds/weeds/lists/wons.html>>.

West Australian Land Information Authority (WALIA) 2020, *Landgate Map Viewer*, viewed 27 March 2020, <<http://landgate.wa.gov.au>>.

Western Australian Herbarium 2020, *FloraBase – the Western Australian Flora*, Department of Biodiversity, Conservation and Attractions (DBCA), viewed 20 May 2020 <<https://florabase.dpaw.wa.gov.au/>>.

Figures

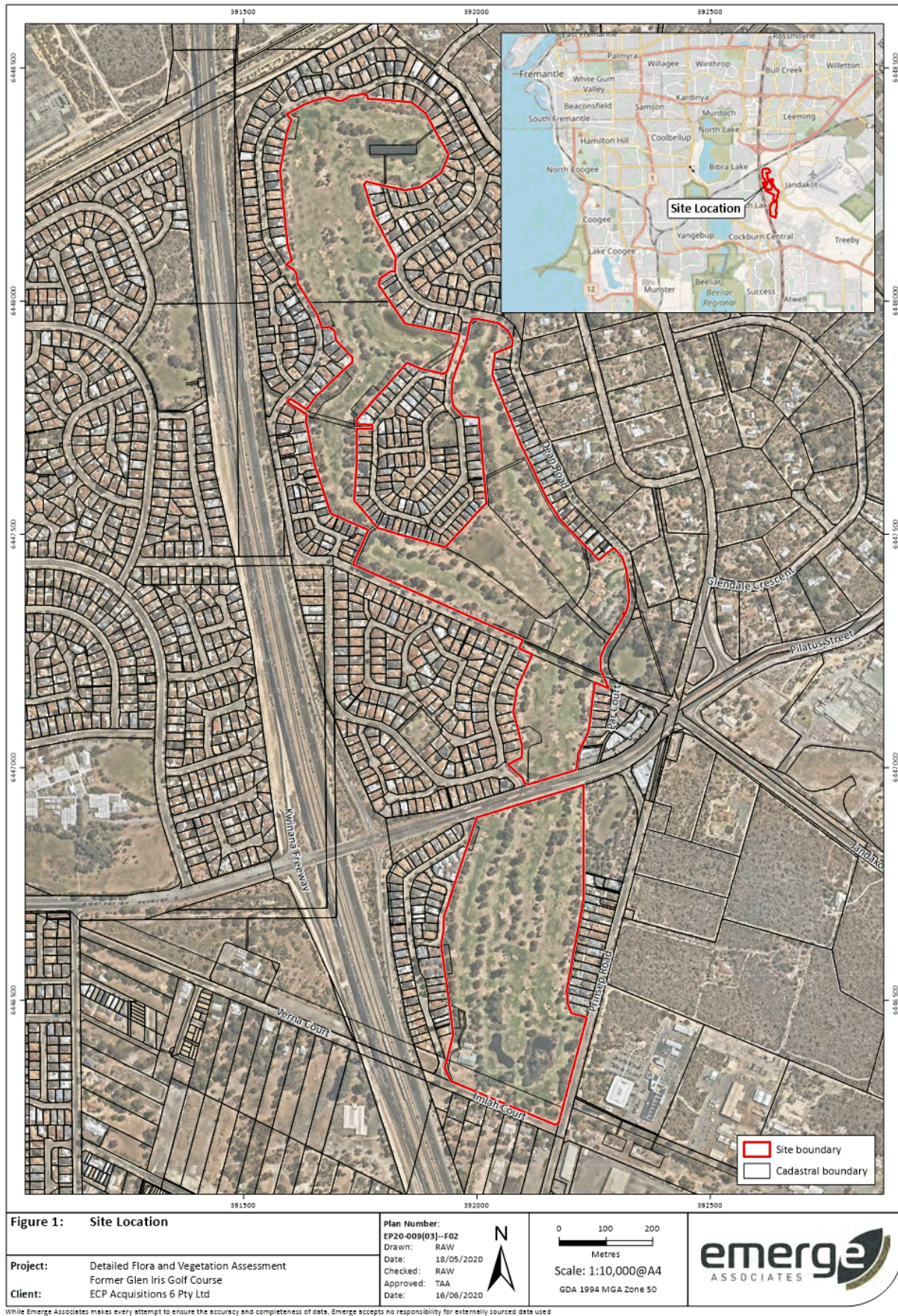


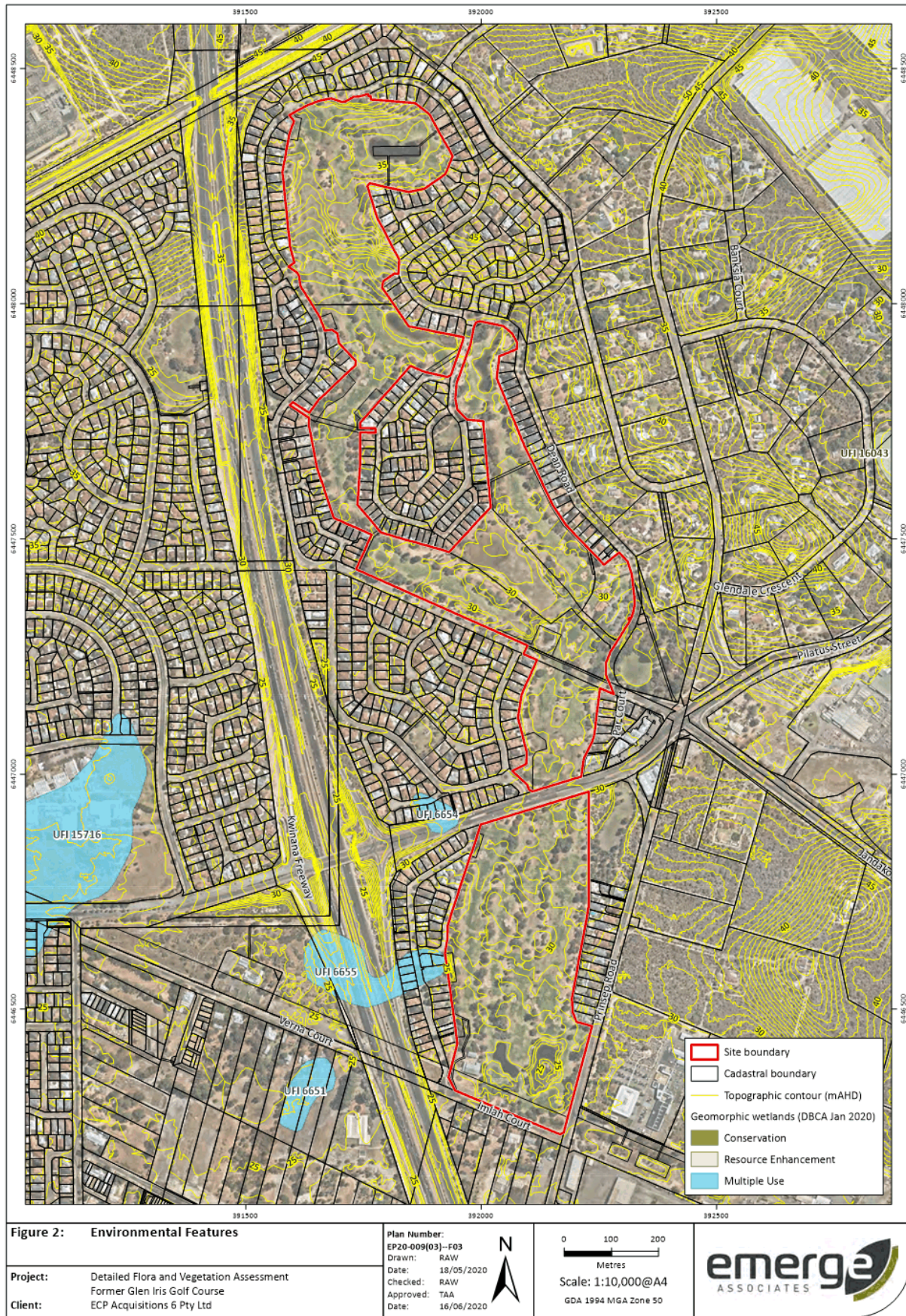
Figure 1: Site Location

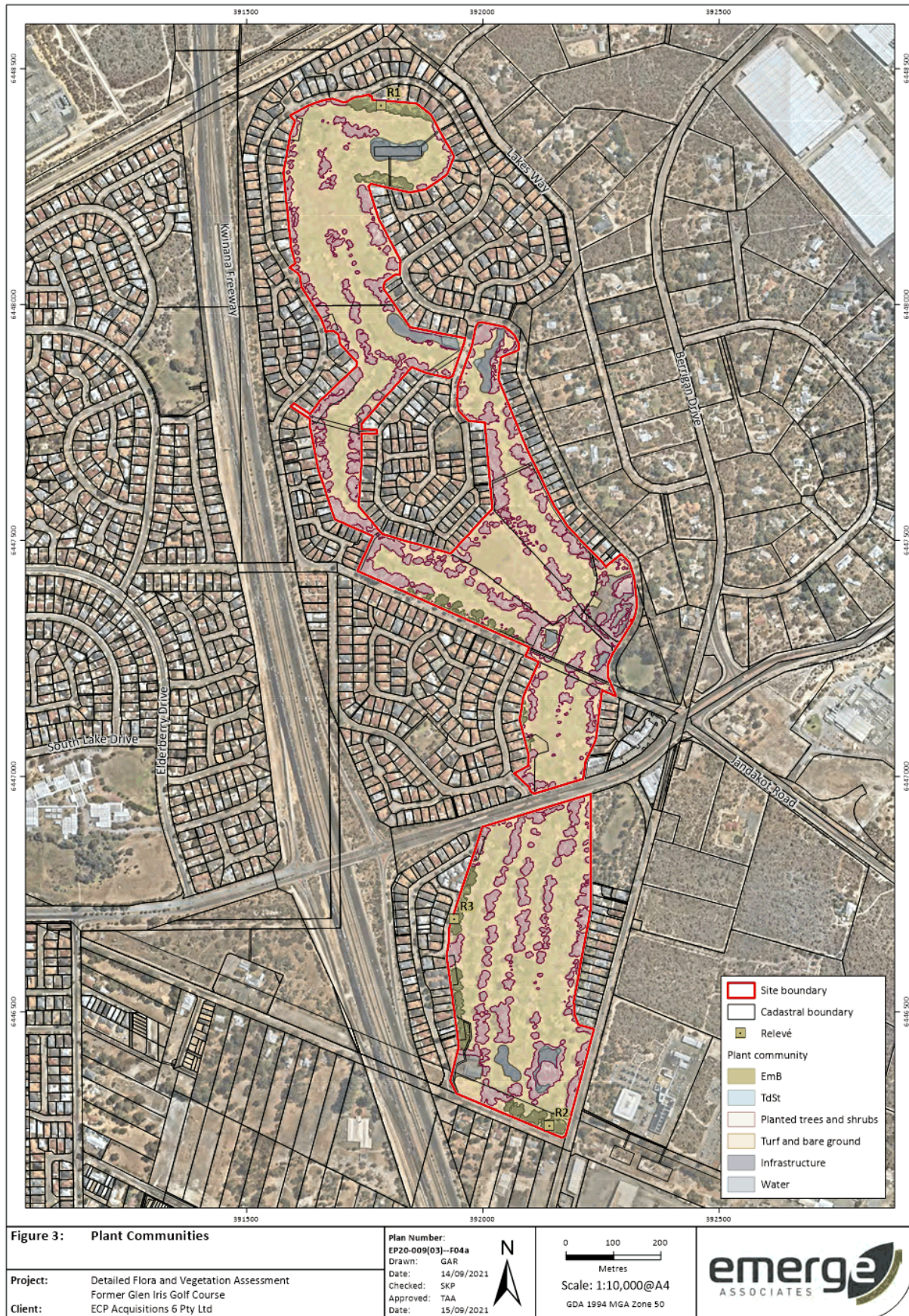
Figure 2: Environmental Features

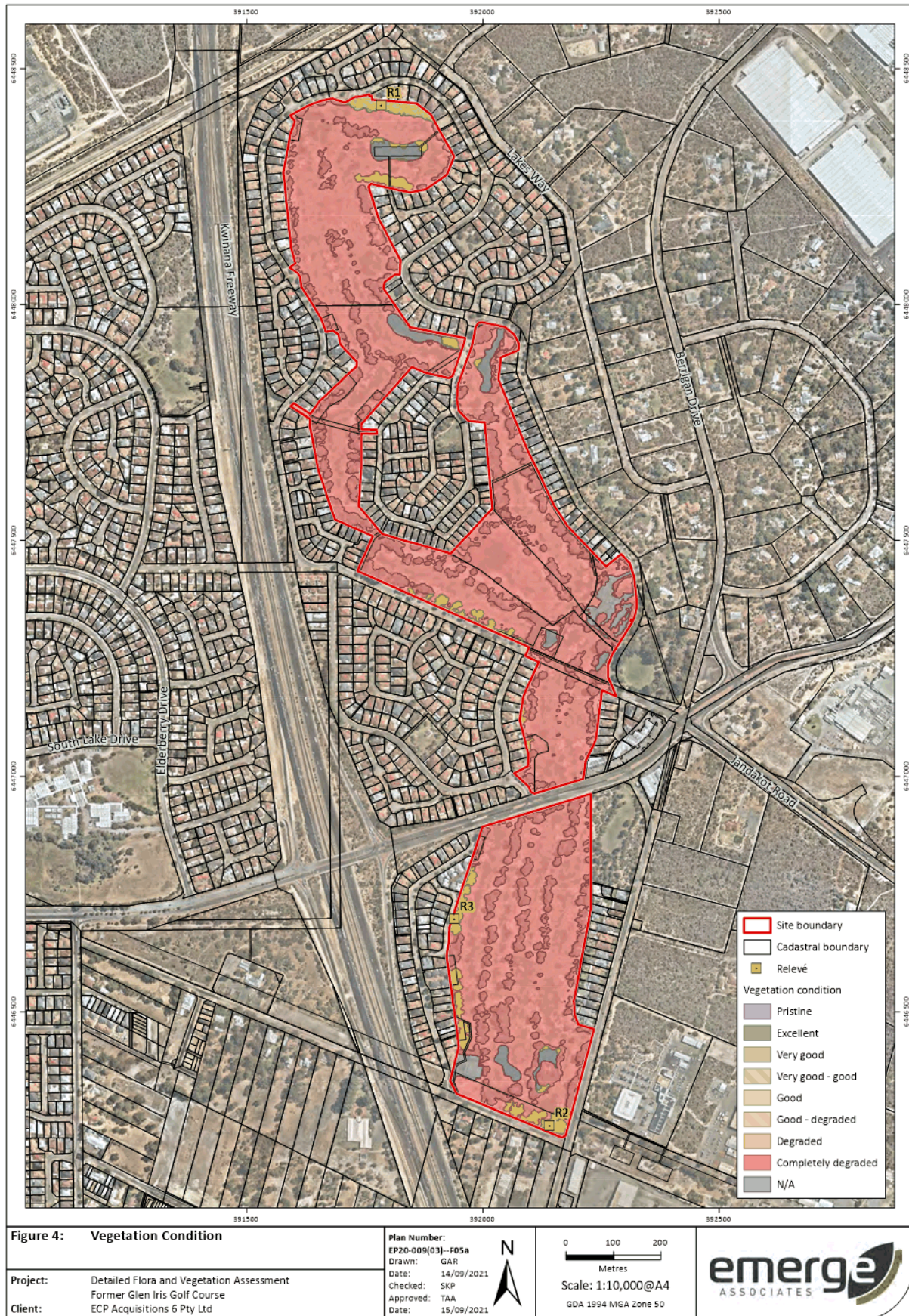
Figure 3: Plant Communities

Figure 4: Vegetation Condition









Appendix A

Additional Information



Additional Background Information



Conservation Significant Flora and Vegetation

Threatened and priority flora

Flora species considered rare or under threat warrant special protection under Commonwealth and/or State legislation. At the Commonwealth level, flora species can be listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Flora species considered 'threatened' pursuant to Schedule 1 of the EPBC Act are assigned categories according to their conservation status, as outlined in **Table 1**.

In Western Australia, plant taxa may be classed as 'threatened' under the *Biodiversity Conservation Act 2016* (BC Act) which is enforced by Department of Biodiversity Conservation and Attractions (DBCA). Threatened flora species are listed under sections 19(1) and 26(2) of the BC Act. It is an offence to 'take' or disturb threatened flora without Ministerial approval. Section 5(1)1 of the Act defines to take as including "... to gather, pluck, cut, pull up, destroy, dig up, remove, harvest or damage flora by any means" or to cause or permit the same to be done. The definition of threatened flora under the BC Act is provided in **Table 1**.

Section 43 of the BC Act requires that an occurrence of a threatened species or threatened ecological community is reported to DBCA where the occurrence has been identified as part of field work completed:

- as part of an assessment under Part IV of the *Environmental Protection Act 1986*; or
- in relation to an application for a clearing permit under the *Environmental Protection Act 1986* section 51E(1)(d).

Penalties apply to individuals and organisations that fail to provide accurate reports of threatened species or communities.

The *Biodiversity Conservation Regulations 2018* (BC Regulations 2018) came into effect on January 1 2019. The BC Regulations include provisions for licencing, charges, penalties and other provisions associated with the BC Act.

Flora species that may be threatened or near threatened but lack sufficient information to be listed under the BC Act may be added to the DBCA's *Priority Flora List* (DBCA 2018c). Priority flora species are considered during State approval processes. Priority flora categories and definitions are listed in **Table 1**.

Additional Background Information



Table 1: Definitions of conservation significant flora species pursuant to the EPBC Act and BC Act and on DBCA's Priority Flora List (DBCA 2018c)

Conservation code	Description
EX [†]	Threatened Flora – Presumed Extinct Taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such.
TA [†]	Threatened Flora – Extant Taxa which are declared to be likely to become extinct or is rare, or otherwise in need of special protection.
CR [^]	Threatened Flora – Critically Endangered Taxa which are considered to be facing an extremely high risk of extinction in the wild.
EN [^]	Threatened Flora – Endangered Taxa which are considered to be facing a very high risk of extinction in the wild.
VU [^]	Threatened Flora – Vulnerable Taxa which are considered to be facing a high risk of extinction in the wild.
P1 [‡]	Priority One – Poorly Known Taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat e.g. road verges, urban areas, farmland, active mineral leases etc., or the plants are under threat, e.g. from disease, grazing by feral animals etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
P2 [‡]	Priority Two – Poorly Known Taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but urgently need further survey.
P3 [‡]	Priority Three – Poorly Known Taxa which are known from several populations, and the taxa are not believed to be under immediate threat (i.e. not currently endangered), either due to the number of known populations (generally >5), or known populations being large, and either widespread or protected. Such taxa are under consideration for declaration as 'rare flora' but needs further survey.
P4 [‡]	Priority Four – Rare Taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5-10 years.

[^]pursuant to the EPBC Act, [†]pursuant to the BC Act, [‡]on DBCA's Priority Flora List

Threatened and priority ecological communities

'Threatened ecological communities' (TECs) are recognised as ecological communities that are rare or under threat and therefore warrant special protection. Selected TECs are afforded statutory protection at a Commonwealth level under section 181 of the EPBC Act. TECs nominated for listing under the EPBC Act are considered by the Threatened Species Scientific Committee and a final decision is made by the Commonwealth Minister for the Environment. Once listed under the EPBC Act, communities are categorised as either 'critically endangered', 'endangered' or 'vulnerable' as defined in **Table 2**. Any action likely to have a significant impact on a community listed under the EPBC Act requires approval from the Minister for the Environment.

Additional Background Information



Within Western Australia TECs are determined by the Western Australian Threatened Ecological Communities Scientific Advisory Committee (WATECSAC) and endorsed by the State Minister for the Environment. The WATECSAC is an independent group comprised of representatives from organisations including tertiary institutions, the Western Australian Museum and DBCA. The TECs endorsed by the State Minister are published by DBCA (DBCA 2018b).

TECs are assigned to one of the categories outlined in **Table 2** according to their status (in relation to the level of threat). TECs are afforded direct statutory protection at a State level under the BC Act and BC Regulations. Ecological communities are listed under Section 27(1) and 33 of the BC Act. Their significance is also acknowledged through other state environmental approval processes such as 'environmental impact assessment' pursuant to Part IV of the *Environmental Protection Act 1986* (EP Act) and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*.

Table 2: Categories of threatened ecological communities (English and Blyth 1997; DEC 2009)

Conservation code	Description
PD	Presumably Totally Destroyed An ecological community that has been adequately searched for but for which no representative occurrences have been located.
CE	Critically Endangered An ecological community that has been adequately surveyed and is found to be facing an extremely high risk of total destruction in the immediate future.
E	Endangered An ecological community that has been adequately surveyed and is not critically endangered but is facing a very high risk of total destruction in the near future.
V	Vulnerable An ecological community that 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.

An ecological community that is under consideration for listing as a TEC, but does not yet meet survey criteria or has not been adequately defined may be listed as a 'priority ecological community' (PEC). PECs are categorised as priority category 1, 2 or 3 as described in **Table 3**. Ecological communities that are adequately known and are rare but not threatened, or meet criteria for 'near threatened', or that have been recently removed from the threatened list, are placed in 'priority 4'. These ecological communities require regular monitoring. Conservation dependent ecological communities are placed in 'priority 5' (DEC 2013). Listed PECs are published by DBCA (DBCA 2017b).

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Table 3: Categories of priority ecological communities (DEC 2013)

Priority code	Description
P1	Priority One: Poorly known ecological communities Ecological communities that are known from very few occurrences with a very restricted distribution (generally ≤ 5 occurrences or a total area of ≤ 100ha). Occurrences are believed to be under threat either due to limited extent, or being on lands under immediate threat (e.g. within agricultural or pastoral lands, urban areas, active mineral leases) or for which current threats exist. May include communities with occurrences on protected lands. 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 immediate threat from known threatening processes across their range.
P2	Priority Two: Poorly known ecological communities Communities that are known from few occurrences with a restricted distribution (generally ≤ 10 occurrences or a total area of ≤ 200ha). At least some occurrences are not believed to be under immediate threat (within approximately 10 years) 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.
P3	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 with significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat (within approximately 10 years), 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, inappropriate fire regimes, clearing, hydrological change etc. 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.
P4	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 a higher threat category. (iii) Ecological communities that have been removed from the list of threatened communities during the past five years.
P5	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.

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Weeds

A number of legislative and policy documents exist in relation to weed management at state and national levels. The *Biosecurity and Agriculture Management Act 2007* (BAM Act) is the principle legislation guiding weed management in Western Australia and lists declared pest species. At a national level, the Australian government has compiled a list of 32 Weeds of National Significance (WoNS) (DoEE 2018), of which many are also listed under the BAM Act.

Declared Pests

Part 2.3.23 of the BAM Act requires a person must not; “a) keep, breed or cultivate the declared pest; b) keep, breed or cultivate an animal, plant or other thing that is infected or infested with the declared pest; c) release into the environment the declared pest, or an animal, plant or other thing that is infected or infested with the declared pest; or d) intentionally infect or infest, or expose to infection or infestation, a plant, animal or other thing with a declared pest”.

Under the BAM Act, all declared pests are assigned a legal status, as described in **Table 4**. Species assigned to the ‘declared pest, prohibited - s12’ category are placed in one of three control categories, as described in **Table 5**.

The *Biosecurity and Agriculture Management Regulations 2013* specify keeping categories for species assigned to the ‘declared pest - s22(2)’ category, which relate to the purposes of which species can be kept, as well as the entities that can keep them. The categories are described in **Table 6**.

The Western Australian Organism List (WAOL) provides the status of organisms which have been categorised under the BAM Act (DPIRD 2020).

Table 4: Legal status of declared pest species listed under the BAM Act (DPIRD 2020)

Category	Description
Declared Pest Prohibited - s12	May only be imported and kept subject to permits. Permit conditions applicable to some species may only be appropriate or available to research organisations or similarly secure institutions.
Declared Pest s22(2)	Must satisfy any applicable import requirements when imported, and may be subject to an import permit if they are potential carriers of high-risk organisms. They may also be subject to control and keeping requirements once within Western Australia

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Table 5: Control categories of declared pest species listed under the BAM Act (DPIRD 2020)

Category	Description
C1	Exclusion Not established in Western Australia and control measures are to be taken, including border checks, in order to prevent them entering and establishing in the State.
C2	Eradication Present in Western Australia in low enough numbers or in sufficiently limited areas that their eradication is still a possibility.
C3	Management Established in Western Australia but it is feasible, or desirable, to manage them in order to limit their damage. Control measures can prevent a C3 pest from increasing in population size or density or moving from an area in which it is established into an area which currently is free of that pest.

Table 6: Keeping categories of declared pest species listed under the BAM Act (DPIRD 2020)

Category	Description
Prohibited	Can only be kept under a permit for public display and education purposes, and/or genuine scientific research, by entities approved by the state authority.
Exempt	No permit or conditions are required for keeping.
Restricted	Organisms which, relative to other species, have a low risk of becoming a problem for the environment, primary industry or public safety and can be kept under a permit by private individuals.

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Wetland Habitat

Geomorphic wetland types

On the Swan Coastal Plain DBCA (2017a) have used the geomorphic wetland classification system developed by Semeniuk (1987) and Semeniuk and Semeniuk (1995) to classify wetlands based on the landform shape and water permanence (hydro-period) as outlined in **Table 7**.

Table 7: Geomorphic Wetlands of the Swan Coastal Plain classification categories (DBCA 2017a)

Level of inundation	Geomorphology			
	Basin	Flat	Channel	Slope
Permanently inundated	Lake	-	River	-
Seasonally inundated	Sumpland	Floodplain	Creek	-
Seasonally waterlogged	Dampland	Palusplain	-	Paluslope

Wetland management categories

DBCA maintains the *Geomorphic Wetland of the Swan Coastal Plain* dataset (DBCA 2018a), which also categorises individual wetlands into specific management categories as described in **Table 8**.

Table 8: Geomorphic Wetlands of the Swan Coastal Plain classification categories (DBCA 2017a)

Management category	Description of wetland	Management objectives
Conservation (CCW)	Support high levels of attributes	Preserve wetland attributes and functions through reservation in national parks, crown reserves and state owned land. Protection provided under environmental protection policies.
Resource enhancement (REW)	Partly modified but still supporting substantial functions and attributes	Restore wetland through maintenance and enhancement of wetland functions and attributes. Protection via crown reserves, state or local government owned land, environmental protection policies and sustainable management on private properties.
Multiple use (MUW)	Few wetland attributes but still provide important hydrological functions	Use, development and management considered in the context of water, town and environmental planning through land care.

The management categories of wetland features are determined based on hydrological, biological and human use features. The DBCA document *A methodology for the evaluation of specific wetland types on the Swan Coastal Plain, Western Australia* (DBCA 2017a) details the methodology by which wetlands on the Swan Coastal Plain are assigned management categories based on a two tiered evaluation system, with preliminary and secondary evaluation stages. The preliminary evaluation aims to identify any features of conservation significance that would immediately place the wetland within the CCW management category. Examples of these significant features include presence on significant wetland lists, presence of TECs or PECs (Priority 1 and 2), presence of threatened flora and

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over 90% of vegetation in good or better condition based on the Keighery (1994) scale. If such environmental values are identified the wetland would be categorised as CCW without further evaluation.

Should the preliminary evaluation indicate that no such features occur, the secondary evaluation and site assessment are then applied. In the secondary evaluation, an appropriate management category is determined through the assessment of a range of environmental attributes, functions and values.

Wetland reclassification

DBCA have a protocol for proposing changes to the wetland boundaries and management categories of the existing geomorphic wetland dataset (DEC 2007). The procedure involves a wetland desktop evaluation and site assessment which culminates in a recommended management category.

Relevant information should be obtained in the optimal season for vegetation condition and water levels, which is usually spring (DEC 2007). In the case of larger wetlands that have undergone a degree of disturbance, a separate management category may be assigned to parts of the wetland in order to reflect the current values.

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References

General references

Department of Biodiversity, Conservation and Attractions (DBCA) 2017a, *A methodology for the evaluation of wetlands on the Swan Coastal Plain*, draft prepared by the Wetlands Section of the Department of Biodiversity, Conservation and Attractions and the Urban Water Branch of the Department of Water and Environmental Regulation, Perth.

Department of Biodiversity Conservation and Attractions (DBCA) 2017b, *Priority Ecological Communities for Western Australia Version 27*, Species and Communities Branch, Department of Biodiversity, Conservation and Attractions.

Department of Biodiversity, Conservation and Attractions (DBCA) 2018a, *Geomorphic Wetlands, Swan Coastal Plain (DBCA-019)*.

Department of Biodiversity, Conservation and Attractions (DBCA) 2018b, *List of Threatened Ecological Communities endorsed by the Western Australian Minister for Environment*, Perth.

Department of Biodiversity, Conservation and Attractions (DBCA) 2018c, *Threatened and Priority Flora List 16 January 2018*, Perth.

Department of Environment and Conservation (DEC) 2007, *Protocol for proposing modifications to the Geomorphic Wetlands Swan Coastal Plain dataset*, Perth.

Department of Environment and Conservation (DEC) 2009, *Definitions, Categories and Criteria for Threatened and Priority Ecological Communities*, Perth.

Department of Environment and Conservation (DEC) 2013, *Definitions, Categories and Criteria for Threatened and Priority Ecological Communities*, Perth.

English, V. and Blyth, J. 1997, *Identifying and Conserving Threatened Ecological Communities in the South West Botanical Province*, ANCA National Reserves System Cooperative Program, Project Number N702, Perth.

Keighery, B. 1994, *Bushland Plant Survey: A guide to plant community survey for the community*, Wildflower Society of WA (Inc), Nedlands.

Semeniuk, C. A. 1987, *Wetlands of the Darling System - a geomorphic approach to habitat classification*, Journal of the Royal Society of Western Australia, 69: 95-112.

Semeniuk, C. A. and Semeniuk, V. 1995, *A Geomorphic Approach to Global Classification for Inland Wetlands*, Vegetatio, 118(1/2): 103-124.

Online references

Department of Environment and Energy (DoEE) 2018, Weeds of National Significance, <<http://www.environment.gov.au/biodiversity/invasive/weeds/weeds/lists/wons.html>>.

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Department of Primary Industries and Regional Development (DPIRD) 2020, The Western Australian Organism List (WAOL), < <https://www.agric.wa.gov.au/bam/western-australian-organism-list-waol>>.

Appendix B

Conservation Significant Flora Species and Likelihood of
Occurrence Assessment





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Species name	Level of significance		Life strategy	Habitat	Flowering period	Likelihood of occurrence
	WA	EPBC Act				
<i>Synaphea sp.</i> Fairbridge Farm (D. Papenfus 696)	CR	CR	P	Low woodland on grey, clayey sand with lateritic pebbles (Pinjarra Plain) near winter wet flats.	Sep-Nov	Unlikely
<i>Synaphea sp.</i> Fairbridge Farm (D. Papenfus 696)	CR	CR	P	Low woodland on grey, clayey sand with lateritic pebbles (Pinjarra Plain) near winter wet flats.	Sep-Nov	Unlikely
<i>Andersonia gracilis</i>	V	E	P	Seasonally damp, black sandy clay flats near or on the margins of swamps.	Sep-Nov	Unlikely
<i>Caladenia huegelii</i>	CR	E	PG	Well-drained, deep sandy soils in lush undergrowth in a variety of moisture levels.	Sep-early Nov	Unlikely
<i>Diuris purdiei</i>	E	E	PG	Sand to sandy clay soils in areas subject to winter inundation.	late Sep-mid-Oct, only after a summer or early autumn fire	Unlikely
<i>Drakaea elastica</i>	CR	E	PG	Bare patches of sand within otherwise dense vegetation in low-lying areas alongside winter-wet swamps.	Late Sep-Oct/Nov (survey Jul-Aug)	Unlikely
<i>Eucalyptus x balanites</i>	CR	E	P	Light coloured sandy soils over laterite. Habitat consists of gently sloping heathlands; open mallee woodland over shrubland (Population 2) or heathland with emergent mallees (population 1)	Oct - Feb	Unlikely
<i>Grevillea curviloba</i> <i>subsp. incurva</i>	EN	E	P	Sand, sandy loam. Winter-wet heath.	Aug-Sep	Unlikely
<i>Lepidosperma rostratum</i>	EN	E	P	Peaty sand and clay amongst low heath, in winter-wet swamps.	May-Jun (survey late Jun-Aug)	Unlikely
<i>Macarthuria keigheryi</i>	E	E	P	Low-lying winter-wet damp gey/white sands in open patches.	Sep-Dec, Feb-Mar	Unlikely
<i>Thelymitra dedmaniarum</i>	CR	E	PG	Red brown sandy loam with dolerite and granite outcrops.	Oct-Nov	Unlikely



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Species name	Level of significance		Life strategy	Habitat	Flowering period	Likelihood of occurrence
	WA	EPBC Act				
<i>Thelymitra stellata</i>	E	E	PG	Sandy loam, clay or gravel over laterite or gravel.	Sep-Nov	Unlikely
<i>Diuris drummondii</i>	V	V	PG	In low-lying depressions in peaty and sandy clay swamps.	Nov-Jan	Unlikely
<i>Diuris micrantha</i>	V	V	PG	Dark grey-black sandy clay-loam in winter wet depressions or swamps. Often in shallow standing water.	Aug/Sep-early Oct	Unlikely
<i>Drakaea micrantha</i>	E	V	PG	Open sandy patches often adjacent to winter-wet swamps.	Sept- early Oct	Unlikely
<i>Eleocharis keigheryi</i>	V	V	P	Clay or sandy loam in freshwater creeks and transient waterbodies such as seasonally wet clay pans.	Aug-Dec	Unlikely
<i>Austrostipa jacobsoniana</i>	CR	-	P	Grey sandy clay.	Nov-Jan	Unlikely
<i>Eremophila glabra</i> subsp. <i>chlorella</i>	EN	-	P	Sandy clay. Winter-wet depressions.	Jul-Nov	Unlikely
<i>Acacia lasiocarpa</i> var. <i>bracteolata</i> long peduncle variant (G.J. Keighery 5026)	P1	-	P	Grey or black sand over clay in winter wet areas.	May-Aug	Unlikely
<i>Hydrocotyle striata</i>	P1	-	A	Sand and clay in springs and creeklines.	Nov	Unlikely
<i>Acacia benthamii</i>	P2	-	P	Sand, typically on limestone breakaways	Aug - Sept	Unlikely
<i>Poranthera moorokatta</i>	P2	-	A	Sandy or clay soils. Dampland or low sandy dunes.	Oct or Feb	Unlikely
<i>Stenanthemum sublineare</i>	P2	-	P	White sand on coastal plains.	Oct-Dec	Unlikely
<i>Thelymitra variegata</i>	P2	-	P	Sandy clay, sand, laterite.	Jun-Sep	Unlikely
<i>Thysanotus</i> sp. <i>Badgingarra</i> (E.A. Griffin 2511)	P2	-	P	Grey sand with lateritic gravel.	Dec	Unlikely
<i>Angianthus micropodioides</i>	P3	-	A	Saline sandy soils on edge of rivers, depressions and clay pans.	Nov-Dec or Jan-Feb	Unlikely
<i>Byblis gigantea</i>	P3	-	P	Sandy-peat swamps. Seasonally wet areas.	Sep-Jan	Unlikely
<i>Cyathochaeta teretifolia</i>	P3	-	P	Grey sand, sandy clay in swamps and creek edges.	Oct-Jan	Unlikely
<i>Dampiera triloba</i>	P3	-	P	Damp peat/loam soil.	Aug-Dec	Unlikely
<i>Dillwynia dillwynioides</i>	P3	-	P	Winter wet depressions on sandy soils	Aug - Dec	Unlikely



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Species name	Level of significance		Life strategy	Habitat	Flowering period	Likelihood of occurrence
	WA	EPBC Act				
<i>Jacksonia gracillima</i>	P3	-	P	Sand, often adjacent to winter wet areas	Sep-Dec	Unlikely
<i>Phlebocarya pilosissima</i> subsp. <i>pilosissima</i>	P3	-	P	White or grey sand, lateritic gravel.	Aug-Oct	Unlikely
<i>Pimelea calcicola</i>	P3	-	P	sand, limestone, coastal ridges	Sep-Nov	Unlikely
<i>Schoenus benthamii</i>	P3	-	P	White, grey sands, sandy clay in winter wet flats and swamps	Oct-Nov	Unlikely
<i>Schoenus capillifolius</i>	P3	-	A	Brown mud in claypans	Oct-Nov	Unlikely
<i>Schoenus pennisetis</i>	P3	-	A	Grey or peaty sand in swamps and winter-wet depressions.	Aug-Sep	Unlikely
<i>Stylidium aceratum</i>	P3	-	A	Sandy soils in swamp heathland.	Oct-Nov	Unlikely
<i>Stylidium paludicola</i>	P3	-	P	Peaty sand over clay. Winter wet habitats. Marri and Melaleuca woodland, Melaleuca shrubland	Oct-Dec	Unlikely
<i>Styphelia filifolia</i>	P3	-	P	Brown over pale yellow sand.	Feb-Apr	Unlikely
<i>Aponogeton hexatpalus</i>	P4	-	P	Mud. Freshwater: ponds, rivers, claypans.	Jul-Oct	Unlikely
<i>Dodoniaea</i>	P4	-	P	Sand, outcropping limestone.	Jul-Oct	Unlikely
<i>Drosera occidentalis</i>	P4	-	P	Flat, brown/white/yellow moist	Oct-	Unlikely
<i>Hydrocotyle</i>	P4	-	A	Floating in swamps.	Aug-Oct	Unlikely
<i>Jacksonia sericea</i>	P4	-	P	Calcareous and sandy soils on Swan Coastal Plain	Dec-Feb	Unlikely
<i>Kennedia becxiana</i>	P4	-	P	Sand or loam on granite hills and	Sep-Dec	Unlikely
<i>Microtis quadrata</i>	P4	-	PG	Sand, loam or peat in winter wet areas	Oct-Dec	Unlikely
<i>Ornduffia submersa</i>	P4	-	A	Sandy clay in inundated	Aug-Nov	Unlikely
<i>Stylidium longitubum</i>	P4	-	A	Seasonal wetlands.	Oct-Dec	Unlikely
<i>Tripterococcus</i> sp.	P4	-	P	Winter-wet areas on grey sand.	Oct-Feb	Unlikely
<i>Verticordia lindleyi</i> subsp. <i>lindleyi</i>	P4	-	P	Sand and sandy clay in winter wet areas.	May or Nov-Jan	Unlikely
Note: T=threatened, CE=critically endangered, E=endangered, V=vulnerable, P1=Priority 1, P2=Priority 2, P3=Priority 3, P4=Priority 4, P=perennial, PG=perennial geophyte, A=annual. Species considered to potentially occur within the site are shaded green						

Appendix C

Flora Species List





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Family	Status	Species
Aizoaceae	*	<i>Carpobrotus edulis</i>
Anacardiaceae	*	<i>Schinus terebinthifolia</i>
Anarthriaceae		<i>Lyginia imberbis</i>
Apocynaceae		<i>?Alyxia buxifolia</i>
	*	<i>Nerium oleander</i>
Areaceae	*	<i>Washingtonia filifera</i>
Asparagaceae		<i>Lomandra caespitosa</i>
		<i>Lomandra hermaphrodita</i>
		<i>Sowerbaea laxiflora</i>
Asteraceae	*	<i>Conyza bonariensis</i>
	*	<i>Hypochaeris ?glabra</i>
	*	<i>Lactuca seriata</i>
	*	<i>Sonchus oleraceus</i>
	*	<i>Ursinia anthemoides</i>
Casuarinaceae		<i>Allocasuarina fraseriana</i>
		<i>Allocasuarina humilis</i>
Chenopodiaceae		<i>Rhagodia baccata subsp. baccata</i>
Colchicaceae		<i>Burchardia congesta</i>
Convolvulaceae	*	<i>Ipomoea cairica</i>
Cupressaceae		<i>Callitris preissii</i>
Cyperaceae		<i>Baumea sp.</i>
	*	<i>Cyperus congestus</i>
		<i>Lepidosperma sp.</i>
		<i>Mesomelaena pseudostygia</i>
		<i>?Schoenus sp.</i>
		<i>Schoenoplectus tabernaemontani</i>
Dasypogonaceae		<i>Dasypogon bromeliifolius</i>
Dilleniaceae		<i>Hibbertia huegelii</i>
		<i>Hibbertia hypericoides</i>
Droseraceae		<i>Drosera erythrorhiza</i>
		<i>Drosera menziesii</i>



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Family	Status	Species
Ericaceae		<i>Conostephium pendulum</i> <i>Leucopogon</i> sp. <i>Styphelia propinqua</i>
Fabaceae	*	<i>Acacia baileyana</i>
	*	<i>Acacia longifolia</i>
		<i>Acacia pulchella</i>
		<i>Acacia rostellifera</i>
		<i>Acacia saligna</i>
		<i>Acacia stenoptera</i>
		<i>Bossiaea eriocarpa</i>
		<i>Daviesia nudiflora</i>
		<i>Daviesia triflora</i>
		<i>Gastrolobium capitatum</i>
		<i>Gompholobium tomentosum</i>
		<i>Hardenbergia comptoniana</i>
		<i>Jacksonia furcellata</i>
		<i>Jacksonia sternbergiana</i>
	*	<i>Robinia</i> sp.
	*	<i>Trifolium</i> sp.
Geraniaceae		
	*	<i>Pelargonium capitatum</i>
Goodeniaceae		<i>Dampiera linearis</i> <i>Lechenaultia biloba</i> <i>Scaevola canescens</i> <i>Scaevola repens</i>
Haemodoraceae		<i>Conostylis aculeata</i> <i>Conostylis setigera</i> <i>Phlebocarya ciliata</i>
Hemerocallidaceae		<i>Arnocrinum preissii</i> <i>Corynotheca micrantha</i> var. <i>micrantha</i> <i>Tricoryne elatior</i>
Iridaceae	*	<i>Gladiolus caryophyllaceus</i>
	*	<i>Patersonia occidentalis</i>
Juncaceae		<i>Juncus pallidus</i>
Lamiaceae	*	<i>Salvia rosmarinus</i>
Loranthaceae		<i>Nuytsia floribunda</i>
Malvaceae	*	<i>Lagunaria patersonia</i>
Meliaceae		



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Family	Status	Species
	*	<i>Melia azedarach</i>
Myrtaceae		
		<i>Agonis flexuosa</i>
		? <i>Calytrix</i> sp
		<i>Corymbia calophylla</i>
	*Pl	<i>Corymbia citriodora</i>
	*Pl	<i>Corymbia ficifolia</i>
	*Pl	<i>Corymbia maculata</i>
		<i>Eremaea pauciflora</i>
	*Pl	<i>Eucalyptus caesia</i>
	*Pl	<i>Eucalyptus camaldulensis</i>
		<i>Eucalyptus gomphocephala</i> var. <i>gomphocephala</i>
	*Pl	<i>Eucalyptus grandis</i>
		<i>Eucalyptus marginata</i> subsp. <i>marginata</i>
	*Pl	<i>Eucalyptus sideroxylon</i>
	*Pl	<i>Eucalyptus</i> sp. 1
	*Pl	<i>Eucalyptus</i> sp. 2
		<i>Eucalyptus todtiana</i>
	*Pl	<i>Eucalyptus utilis</i>
		<i>Hypocalymma angustifolium</i>
		<i>Hypocalymma robustum</i>
		<i>Kunzea glabrescens</i>
	*	<i>Leptospermum laevigatum</i>
	*Pl	<i>Lophostemon confertus</i>
	*Pl	<i>Melaleuca</i> sp.
		? <i>Melaleuca systena</i>
		<i>Melaleuca thymoides</i>
		<i>Regelia ciliata</i>
		<i>Regelia inops</i>
		<i>Scholtzia involucreata</i>
Nyctaginaceae		
	*	<i>Bougainvillea</i> sp.
Oleaceae		
	*Pl	<i>Olea europaea</i> subsp. <i>europaea</i>
Orchidaceae		
		<i>Caladenia latifolia</i>
		<i>Microtis media</i>
Pinaceae		
	*Pl	<i>Pinus</i> sp.
Poaceae		
	*	<i>Avena barbata</i>
	*	<i>Briza maxima</i>
	*	<i>Bromus diandrus</i>
	*	<i>Cenchrus clandestinus</i>
	*	<i>Cortaderia selloana</i>
	*	<i>Cynodon dactylon</i>
	*	<i>Ehrharta calycina</i>
	*	<i>Eragrostis curvula</i>



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Family	Status	Species
	*	<i>Lagurus ovatus</i>
	*	<i>Paspalum dilatatum</i>
	*	<i>Sporobolus africanus</i>
Portulacaceae		<i>Portulaca oleracea</i>
Proteaceae		<i>Adenanthos cygnorum</i>
		<i>Banksia attenuata</i>
		<i>Banksia ilicifolia</i>
		<i>Banksia menziesii</i>
	*PI	<i>Grevillea sp.</i>
		<i>Persoonia saccata</i>
		<i>Petrophile linearis</i>
	*PI	<i>Protea sp.</i>
		<i>Stirlingia latifolia</i>
Restionaceae		<i>Desmocladius flexuosus</i>
		<i>Hypolaena exsulca</i>
Santalaceae		<i>Exocarpos sparteus</i>
Simaroubaceae		<i>Ailanthus altissima</i>
Thymelaeaceae		<i>Pimelea suaveolens</i>
Typhaceae		<i>Typha domingensis</i>
Violaceae		<i>Hybanthus calycinus</i>
Xanthorrhoeaceae		<i>Xanthorrhoea preissii</i>
Zamiaceae		<i>Macrozamia fraseri</i>

Note: * denotes non-native species, PI denotes planted

Appendix D

Conservation Significant Communities and Likelihood of
Occurrence Assessment





Conservation significant communities known or likely to occur
within 10 km of the site
Former Glen Iris Golf Course

Page 1 of 1

Code	Community name	TEC/PEC	Level of significance	
			State	EPBC Act
	Clay pans of the Swan Coastal Plain	TEC	VU/EN	CR
	Tuart (<i>Eucalyptus gomphocephala</i>) woodlands and forests of the Swan Coastal Plain	TEC	-	CR
SCP22	<i>Banksia ilicifolia</i> woodlands, southern Swan Coastal Plain	TEC/PEC	P3	EN (Banksia woodlands of the Swan Coastal Plain)
SCP24	Northern Spearwood shrublands and woodlands	TEC/PEC	P3	EN
	Banksia woodlands of the Swan Coastal Plain	TEC/PEC	P3	EN
	Subtropical and temperate coastal saltmarsh	TEC	-	VU
Note: TEC=threatened ecological community, PEC=priority ecological community, CR=critically endangered, EN=endangered, VU=vulnerable, P3=priority 3				

Appendix E

Sample Data





Vegetation Sample Data Former Glen Iris Golf Course

Page 1 of 7

Sample Name: R1**Project no.:** EP20-009**Date:** 11/03/2020, 19/08/21, 9/9/21**Author:** TAA,SKP**Status:** Non-permanent

R1: Page 2 of 3

Quadrat and landform details

Sample type: releve	Size: other
NW corner easting: 391786	NW corner northing: 6448422
Altitude (m): N/A	Geographic datum/zone: GDA94/Zone 50
Soil water content: dry	Landform: flat
Time since fire: > 5 yrs	Disturbance: moderate - weeds
Soil type/texture: sand/	Bare ground (%): 10
Rocks (%) and type: No rocks	Soil colour: brown/white
Litter: 30% (leaves, branches,)	Vegetation condition: very good





Vegetation Sample Data Former Glen Iris Golf Course

Page 2 of 7

Sample Name:**R1****Project no.:** EP20-009**Date:** 11/03/2020, 19/08/21, 9/9/21**Status:** Non-permanent**Author:** TAA,SKP

R1: Page 2 of 3

Species Data

* denotes non-native species

Status**Confirmed name**

Acacia pulchella
Acacia stenoptera
Allocasuarina humilis
Banksia attenuata
Banksia menziesii
 * *Carpobrotus edulis*
Conostephium pendulum
Conostylis ?aculeata
Dampiera linearis
Daviesia nudiflora
Desmocladius flexuosus
 * *Ehrharta calycina*
 * *Eragrostis curvula*
Eucalyptus marginata subsp. marginata
Gastrolobium capitatum
Gompholobium tomentosum
 *PI *Grevillea sp.*
Hardenbergia comptoniana
Hibbertia hypericoides
Jacksonia furcellata
Jacksonia sternbergiana
Lepidosperma sp.
 * *Leptospermum laevigatum*
Lyginia imberbis
Mesomelaena pseudostygia
 * *Nerium oleander*
Patersonia occidentalis
 * *Pelargonium capitatum*
Petrophile linearis
Phlebocarya ciliata
Scaevola canescens
Stirlingia latifolia
Xanthorrhoea preissii
Pimelea ?suaveolens subsp. suaveolens
Tricoryne elatior



Vegetation Sample Data
Former Glen Iris Golf Course

Page 3 of 7

Sample Name:**R1****Project no.:** EP20-009**Date:** 11/03/2020, 19/08/21, 9/9/21**Status** Non-permanent**Author:** TAA,SKP

R1: Page 3 of 3

Conostylis setigera
Hybanthus calycinus
Sowerbaea laxiflora
Drosera menziesii
Hypocalymma robustum
Lomandra caespitosa

* = non-native, PI=planted



Vegetation Sample Data Former Glen Iris Golf Course

Page 4 of 7

Sample Name: R2

Project no.: EP20-009

Date: 11/03/2020, 19/08/21, 9/9/21

Author: TAA,SKP

Status: Non-permanent

R2: Page 2 of 2

Quadrat and landform details

Sample type: releve	Size: other
NW corner easting: 392142	NW corner northing: 6446258
Altitude (m): N/A	Geographic datum/zone: GDA94/Zone 50
Soil water content: dry	Landform: flat
Time since fire: no evidence	Disturbance: moderate - weeds
Soil type/texture: sand/	Bare ground (%): 30
Rocks (%) and type: No rocks	Soil colour: brown/white
Litter: 15% (leaves, twigs,)	Vegetation condition: very good





Vegetation Sample Data Former Glen Iris Golf Course

Page 5 of 7

Sample Name: R2

Project no.: EP20-009

Date: 11/03/2020, 19/08/21, 9/9/21

Author: TAA,SKP

Status Non-permanent

R2: Page 2 of 2

Species Data

* denotes non-native species

Status	Confirmed name
*	<i>Acacia longifolia</i>
	<i>Allocasuarina fraseriana</i>
	<i>Burchardia congesta</i>
*	<i>Cynodon dactylon</i>
	<i>Dasypogon bromeliifolius</i>
*	<i>Ehrharta calycina</i>
	<i>Hypolaena exsulca</i>
	<i>Kunzea glabrescens</i>
*	<i>Lagurus ovatus</i>
	<i>Lyginia imberbis</i>
	<i>Melaleuca thymoides</i>
	<i>Scholtzia involucrata</i>
	<i>Xanthorrhoea preissii</i>

* = non-native

**Vegetation Sample Data
Former Glen Iris Golf Course**

Page 6 of 7

Sample Name: R3

Project no.: EP20-009

Date: 11/03/2020, 19/08/21, 9/9/21

Author: TAA,SKP

Status: Non-permanent

R3: Page 2 of 2

Quadrat and landform details

Sample type: releve	Size: other
NW corner easting: 391941	NW corner northing: 6446696
Altitude (m): N/A	Geographic datum/zone: GDA94/Zone 50
Soil water content: dry	Landform: flat
Time since fire: > 5 yrs	Disturbance: moderate - weeds
Soil type/texture: sand/	Bare ground (%): 20
Rocks (%) and type: No rocks	Soil colour: brown/white
Litter: 20% (leaves, branches,)	Vegetation condition: very good





Vegetation Sample Data Former Glen Iris Golf Course

Page 7 of 7

Sample Name:**R3****Project no.:** EP20-009**Date:** 11/03/2020, 19/08/21, 9/9/21**Status** Non-permanent**Author:** TAA,SKP

R3: Page 2 of 2

Species Data

* denotes non-native species

Status**Confirmed name**

Adenanthos cygnorum
Allocasuarina humilis
Banksia attenuata
Banksia menziesii
Callitris preissii
 * *Carpobrotus edulis*
Conostephium pendulum
Daviesia nudiflora
Daviesia triflora
 * *Ehrharta calycina*
 *PI *Eucalyptus caesia*
Eucalyptus marginata subsp. marginata
Gastrolobium capitatum
Gompholobium tomentosum
Hibbertia hypericoides
Hypocalymma angustifolium
Jacksonia furcellata
Lomandra hermaphrodita
Lyginia imberbis
Macrozamia fraseri
Mesomelaena pseudostygia
Patersonia occidentalis
 * *Pelargonium capitatum*
Persoonia saccata
Scaevola repens
Scholtzia involucrata
Stirlingia latifolia
 * *Styphelia propinqua*
Caladenia latifolia
Hypocalymma robustum

* = non-native, PI=planted

Appendix B

Basic Fauna Assessment





Level 1 Fauna Assessment

Former Glen Iris Golf Course

Project No: EP20-009(04)

Prepared for ECP Acquisitions 6 Pty Ltd
June 2021



Prepared for ECP Acquisitions 6 Pty Ltd

Doc No.: EP20-009(04)--004B RAW | Version: B

Level 1 Fauna Assessment

Former Glen Iris Golf Course



Document Control

Doc name:	Level 1 Fauna Assessment Former Glen Iris Golf Course				
Doc no.:	EP20-009(04)--004B RAW				
Version	Date	Author		Reviewer	
1	June 2020	Rachel Weber	RAW	Tom Atkinson	TAA
	Initial report submitted for client review				
A	April 2021	Melanie Schubert	MS	Rachel Weber	RAW
	Minor updates to reflect change in site boundary				
B	June 2021	Rachel Weber	RAW	Tom Atkinson	TAA
	Minor updates to numeric decimal places				

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Level 1 Fauna Assessment

Former Glen Iris Golf Course



Executive Summary

ECP Acquisitions 6 Pty Ltd intends to develop the former Glen Iris Golf Course into a residential estate (referred to herein as 'the site'). Emerge were engaged to conduct a 'level 1' fauna assessment to provide information on the fauna values within the site to inform the development.

As part of the assessment a desktop review of relevant background information was completed and a site survey was undertaken on 11 March and 28 May 2020. During the survey an assessment was made on the type and conservation significance of fauna habitat across the site.

Outcomes of the level 1 fauna assessment include the following:

- Five fauna habitats were recorded in the site:
 - The **native woodland** habitat has the highest fauna habitat values but extends over a small portion of the site (4%) and occurs as scattered patches.
 - The **riparian** and **water** habitats, although artificial, also provide habitat for native fauna and occur as small patches (3% of the site).
 - The **planted trees and shrubs** habitat provides varying habitat values according to the plant species and density and extends over 25% of the site.
 - The remainder of the site (68%) supports turf, bare ground and infrastructure which provide low habitat values for native fauna.
- A total of 15 native and three introduced fauna species were recorded in the site, including Carnaby's cockatoo (threatened under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*) and quenda (Priority 4 in Western Australia).
- The **native woodland** and **planted trees and shrubs** habitats support plants known to be foraged by threatened species of black cockatoos including Carnaby's cockatoo. These habitats may also support trees suitable for use by black cockatoos as breeding or roosting habitat. A targeted assessment would be required to confirm the black cockatoo habitat values within the site.
- The portions of the **native woodland**, **planted trees and shrubs** and **riparian** habitats with dense understorey vegetation provide suitable habitat for quenda.
- An additional 45 species of conservation significance have potential to occur in the site. The majority of these species are birds which may only use the site intermittently, if at all. The **native woodland** habitat also provides a relatively small area of potential habitat for two invertebrates and two reptiles of conservation significance.

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Level 1 Fauna Assessment
Former Glen Iris Golf Course

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Project number: EP20-009(04)| June 2021

Integrated Science & Design

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Level 1 Fauna Assessment

Former Glen Iris Golf Course



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Appendix A

Additional Information

Appendix B

Database Search Results

Appendix C

Conservation Significant Species and Likelihood of Occurrence Assessment

Appendix D

Species List

Level 1 Fauna Assessment

Former Glen Iris Golf Course



Abbreviation Tables

Table A1: Abbreviations – Organisations

Organisations	
EPA	Environmental Protection Authority
DBCA	Department of Biodiversity, Conservation and Attractions
DAWE	Department of Agriculture, Water and the Environment
WA Museum	Western Australian Museum

Table A2: Abbreviations – General terms

General terms	
T	Threatened
EN	Endangered
EX	Extinct
VU	Vulnerable
MI	Migratory
HT	Habitat tree
P1	Priority 1
P2	Priority 2
P3	Priority 3
P4	Priority 4
P5	Priority 5

Table A3: Abbreviations – Legislation

Legislation	
BAM Act	Biosecurity and Agriculture Management Act 2007
EP Act	Environmental Protection Act 1986
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
BC Act	Biodiversity Conservation Act 2016
BC Regs	Biodiversity Conservation Regulations 2018

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Level 1 Fauna Assessment
Former Glen Iris Golf Course*Table A4: Abbreviations – planning*

Planning terms	
MRS	Metropolitan Region Scheme

Table A5: Abbreviations – units of measurement

Units of measurement	
cm	Centimetre
ha	Hectare
km	Kilometre
m	Metre

Level 1 Fauna Assessment

Former Glen Iris Golf Course



1 Introduction

1.1 Project background

ECP Acquisitions 6 Pty Ltd intends to develop the former Glen Iris Golf Course into a residential estate. The former Glen Iris Golf Course comprises Lots 6 and 7 Glen Iris Drive, Lots 3, 509 and 512 Dean Road and Lot 139 Imlah Court in Jandakot (referred to herein as the 'site').

The site is located approximately 16 kilometres (km) south of the Perth Central Business District within the City of Cockburn and is zoned 'urban' under the Metropolitan Region Scheme (MRS) and 'development contribution area 13 special use 1', 'development contribution area 13 special use 6', 'development contribution area 13 residential-R40' under the City of Cockburn *Town Planning Scheme No. 3*.

The site is approximately 53.7 hectares (ha) in size and is surrounded by residential subdivision, with a railway to the north and Kwinana Freeway to the west. The site comprises two areas separated by Berrigan Drive. The location and extent of the site is shown in **Figure 1**.

1.2 Purpose and scope of work

Emerge Associates (Emerge) were engaged by Acumen Development Solutions, on behalf of ECP Acquisitions 6 Pty Ltd, to provide environmental consultancy services to support the planning process for the site. The purpose of this survey is to provide sufficient information on the fauna values within the site to inform this process.

The scope of work was specifically to conduct a fauna assessment to the standard required of a 'level 1' fauna survey with reference to the Environmental Protection Authority's (EPA's) *Technical Guidance – Terrestrial fauna Surveys* (EPA 2016).

As part of this scope of work, the following tasks were undertaken:

- Desktop review of background information regarding fauna species relevant to the site and surrounds.
- Compilation of a list of fauna species opportunistically recorded as part of the field survey.
- Identification of potential habitat for conservation significant fauna species and likelihood of occurrence.
- Documentation of the desktop assessment, survey methodology and results into a report.

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2 Environmental Context

2.1 Significant fauna

2.1.1 Threatened fauna species

Certain fauna taxa that are considered to be rare or under threat warrant special protection under Commonwealth and/or State legislation. At a Commonwealth level, fauna taxa may be listed as 'threatened' under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Any action likely to have a significant impact on a taxon listed under the EPBC Act requires approval from the Commonwealth Minister for the Environment.

In Western Australia fauna species may also be classed as 'threatened' under the *Biodiversity Conservation Act 2016* (BC Act). It is an offence to 'take' or 'disturb' threatened fauna without Ministerial approval.

Threatened fauna species listed under the EPBC Act and/or BC Act are assigned a conservation status according to attributes such as population size and geographic distribution. Further information on threatened species and their categories is provided in **Appendix A**.

2.1.2 Priority fauna species

Fauna species that do not currently meet the criteria for listing as threatened but are potentially rare or threatened may be added to the Department of Biodiversity, Conservation and Attractions (DBCA) *Priority Fauna List*. These species are classified into 'priority' levels based on threat. Whilst priority species are not under direct statutory protection, they are considered during State approval processes. Further information on priority species and their categories is provided in **Appendix A**.

2.1.3 Migratory fauna species

Migratory fauna species that migrate to Australia and its external territories, or pass through or over Australian waters during their annual migrations warrant special protection under Commonwealth and State legislation. At a Commonwealth level, migratory fauna taxa may be listed as 'migratory' under *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Any action likely to have a significant impact on a taxon listed under the EPBC Act requires approval from the Commonwealth Minister for the Environment.

In Western Australia migratory fauna taxa may be listed as 'specially protected species' and classed as 'migratory' under the *Biodiversity Conservation Act 2016* (BC Act). Further information on migratory species is provided in **Appendix A**.

2.1.4 Specially protected fauna species

In Western Australia, fauna species that are of special conservation interest, including migratory species, cetaceans, species subject to international agreement or species otherwise in need of special protection, may be listed as 'specially protected' under the BC Act.

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2.1.5 Pest fauna species

The term 'pest fauna' can refer to any animal that requires some form of action to reduce its effect on the economy, the environment, human health and amenity. Many non-native fauna species and some fauna species native to Australia but not Western Australia are considered to be pest fauna.

A particularly invasive or detrimental pest species may be listed as a 'declared pest' pursuant to Western Australia's *Biosecurity and Agriculture Management Act 2007* (BAM Act), indicating that it warrants special management to limit its spread. Further information on categories of declared pests is provided in **Appendix A**.

2.2 Bush Forever

The Government of Western Australia's *Bush Forever* policy is a strategic plan for conserving regionally significant bushland within the Swan Coastal Plain portion of the Perth Metropolitan Region. The objective of *Bush Forever* is to protect comprehensive representations of all original ecological communities by targeting a minimum of 10% of each vegetation complex for protection (Government of WA 2000). *Bush Forever* sites are representative of regional ecosystems and habitat and have a key role in the conservation of Perth's biodiversity.

No *Bush Forever* sites occur within the site. Multiple *Bush Forever* sites occur to the east and west of the site.

2.3 Ecological linkages

Ecological linkages are linear landscape elements that allow the movement of fauna, flora and genetic material between areas of remnant habitat. The movement of fauna and the exchange of genetic material between vegetation remnants improve the viability of those remnants by allowing greater access to breeding partners and food sources, refuge from disturbances such as fire and maintenance of genetic diversity of plant communities and populations. Ecological linkages are ideally continuous or near-continuous as the more fractured a linkage is, the less ease flora and fauna have in moving within the corridor (Alan Tingay and Associates 1998).

The Perth Biodiversity Project, supported by the Western Australia Local Government Association (WALGA), have identified and mapped regional ecological linkages within the Perth Metropolitan Region (WALGA and PBP 2004). This study was extended beyond the Perth Metropolitan Region through the South West Biodiversity Project, resulting in the identification and mapping of the South West regional ecological linkages (Molloy *et al.* 2009).

There are no mapped ecological linkages within the site. One biodiversity ecological linkage (No. 48) is located approximately 800 m to the north of the site and extends to the west and east.

2.4 Previous surveys

No previous fauna surveys are known to have been undertaken within the site.

Level 1 Fauna Assessment
Former Glen Iris Golf Course

3 Methods

3.1 Desktop assessment

3.1.1 Database searches

A search was conducted for fauna species that may occur or have been recorded within a 10 km radius of the site using the *Protected Matters Search Tool* (DAWE 2020) and *NatureMap* (DBCA 2020).

A total number of species with potential to occur within the site was calculated by adding the total count of non-conservation significant species provided by *NatureMap* to the combined number of conservation significant species provided by *NatureMap* and *Protected Matters Search Tool*.

3.1.2 Likelihood of occurrence

Information on habitat preferences and distribution of threatened and priority vertebrate fauna species identified in database searches was reviewed. This was assessed against the general site conditions and fauna habitat types recorded during the field survey.

An assessment of the likelihood of occurrence of threatened and priority fauna species within the site was undertaken and each was assigned to one of the following categories:

- **Recorded:** The species in question was positively identified as being present within the site during the field survey or from recent literature records.
- **Likely:** Potentially suitable habitat for the species in question was identified during the field survey and the site lies within the known distribution of the species.
- **Possible:** Potentially suitable habitat for the species in question was identified but of marginal quality and/or extent. The site lies within or close to the known distribution of the species.
- **Unlikely:** The site lies outside of the known distribution of the species in question and/or no suitable habitat was identified within the site.

3.2 Field survey

An ecologist from Emerge visited the site on the 11 March 2020 during the day from approximately 10:30 am to 4:30 pm to conduct the level 1 fauna survey field survey.

Another ecologist from Emerge also visited the site on 28 May 2020 during the day from approximately 2:00 pm to 6:00 pm to conduct an additional assessment of the fauna in the artificial lakes within the site.

3.2.1 Level 1 fauna

During both surveys transects were traversed across the site and the characteristics of fauna habitat and presence of fauna species was recorded. Microhabitats such as logs, rocks and leaf litter were investigated and secondary evidence of species presence such as tracks, scats, skeletal remains, foraging evidence or calls was also noted.

Level 1 Fauna Assessment

Former Glen Iris Golf Course



A vertebrate fauna list was compiled and fauna habitat values were described, with particular reference to 'threatened' and 'priority' fauna species with potential to occur within the site. Taxonomy and nomenclature for vertebrate fauna species was taken from the *Western Australian Museum Checklist of the Terrestrial Vertebrate Fauna of Western Australia* (Western Australian Museum 2019). Literature listed in **Appendix A** represent the main publications used to identify fauna species and habitats within the site.

3.3 Data analysis, presentation mapping

3.3.1 Fauna habitat

Fauna habitats were described according to the dominant flora species and vegetation type present, as determined from observations made during the field survey and information provided in the *Reconnaissance Flora and Vegetation Assessment* for the site (Emerge Associates 2020). The identified fauna habitats were mapped on aerial photography with the boundaries interpreted from aerial photography, Emerge Associates (2020) plant communities and notes taken in the field.

Information on specific habitat requirements for conservation significant vertebrate fauna species with potential to occur within the site were compiled as part of the desktop assessment. This information was compared to the fauna habitats identified within the site to determine whether any conservation significant fauna species are considered to have potential to utilise the site.

3.4 Survey limitations

It is important to note the specific constraints imposed on surveys and the degree to which these may have limited survey outcomes. An evaluation of the survey methodology against standard constraints outlined in the EPA document *Technical Guidance – Terrestrial Fauna Surveys* (EPA 2016) is provided in **Table 1**.

Table 1: Evaluation of survey methodology against standard constraints outlined in EPA Technical Guidance – Terrestrial Fauna Surveys (EPA 2016)

Constraint	Degree of limitation	Details
Level of survey	No limitation	A level 1 survey (desktop study and field survey) was considered adequate given the relatively low habitat values within the site and the generally good availability of fauna information for the region.
Scope	No limitation	The survey focused on vertebrate fauna and habitat values, with particular focus on conservation significant taxa with potential to occur within the site.
Proportion of fauna identified, recorded and/or collected.	No limitation	All observed vertebrate fauna were identified.
Sources of information e.g. previously available information (whether historic or recent) as distinct from new data.	No limitation	Adequate information was available from database searches.

Level 1 Fauna Assessment

Former Glen Iris Golf Course



Table 1: Evaluation of survey methodology against standard constraints outlined in EPA Technical Guidance – Terrestrial Fauna Surveys (EPA 2016) (continued)

Constraint	Degree of limitation	Details
The proportion of the task achieved and further work which might be needed.	No limitation	The task was achieved in its entirety.
Experience level of personnel	Minor limitation	The field surveys were undertaken by two qualified ecologists with three years' and 18 years' experience in environmental science. The report was authored by a qualified ecologist with over nine years' experience. Technical review was undertaken by a senior environmental consultant with 18 years' experience in environmental science in Western Australia.
Suitability of timing	Slight limitation	Survey timing is not considered to be of great importance for Level 1 assessments.
Completeness	No limitation	The desktop assessment and field survey components were completed.
Spatial coverage and access	No limitation	Site coverage was comprehensive (track logged).
	No limitation	All parts of the site could be accessed as required.
Survey intensity	No limitation	The intensity of the survey was adequate given the size of the site and the relatively low habitat value present.
Influence of disturbance	No limitation	The site is highly modified due to historical disturbance. However, no recent disturbance was noted that may have affected outcomes of the survey.
Adequacy of resources	No limitation	All resources required to perform the survey were available.

Level 1 Fauna Assessment

Former Glen Iris Golf Course



4 Results

4.1 General site conditions

The site is gently undulating and comprises sandy white-grey soils. The fairways within the site were irrigated at the time of the survey. Seven artificial lakes occur within the site that were also sustained by irrigation at the time of the survey.

The site has been highly modified for use as a golf course and is dominated by non-native vegetation and unvegetated areas, with native vegetation present as individuals or small scattered patches. The artificial lakes are surrounded by either turf, riparian vegetation or planted trees and shrubs.

4.2 Fauna habitat

Historical disturbance has significantly compromised habitat values within the site. The majority of the native vegetation has been removed and vegetation now predominantly comprises cleared area, dominated by non-native and weed species with scattered or patches of native and non-native trees and shrubs.

Five fauna habitats were recorded in the site. **Native woodland** is present as scattered patches and has the highest fauna habitat values due to the presence of native trees, shrubs and ground cover and contains microhabitats such as logs, rocks and leaf litter. The **riparian** and **water** habitats provide value for aquatic fauna species and those associated with riparian areas. The **planted trees and shrubs** habitat mainly provides habitat for avian species as the majority is devoid of understorey vegetation. The **turf and bare ground** habitat extends over a large portion of the site and has minimal habitat values for native fauna species.

The remainder of the site is not considered to provide fauna habitat as it comprises infrastructure such as buildings and hardstand (0.9 ha).

A description and the area of each habitat is provided in **Table 2** and representative photographs of each are provided in **Plate 1** to **Plate 5**. The location of each habitat is shown in **Figure 3**.

Level 1 Fauna Assessment

Former Glen Iris Golf Course



Table 2: Fauna habitats identified within the site

Fauna habitat classification	Description	Area (ha)
Native woodland	Woodland to open woodland <i>Eucalyptus marginata</i> subsp. <i>marginata</i> , <i>Banksia attenuata</i> and <i>Banksia menziesii</i> over mixed shrubland <i>Xanthorrhoea preissii</i> , <i>Allocasuarina humilis</i> and <i>Hibbertia hypericoides</i> over open sedgeland <i>Mesomelaena pseudostygia</i> over non-native grassland <i>*Ehrharta calycina</i> (Plate 1).	1.9
Riparian	Closed sedgeland <i>Typha domingensis</i> , <i>Schoenoplectus tabernaemontani</i> , <i>*Cortaderia selloana</i> and <i>Baumea</i> sp. (likely planted or a combination of planted and naturally regenerated) (Plate 2).	0.2
Water	Water in artificial lakes of varying depth (Plate 3).	1.4
Planted trees and shrubs	Predominantly scattered non-native planted trees and shrubs such as <i>*Corymbia</i> spp., <i>*Eucalyptus</i> spp., <i>Melaleuca</i> spp. and <i>Grevillea</i> spp. with occasional native plants (Plate 4).	13.6
Turf and bare ground	Closed non-native grassland (turf) and bare ground (Plate 5).	35.7



Plate 1: **Native woodland** habitat

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Plate 4: *Planted trees and shrubs habitat*



Plate 5: *Turf and bare ground habitat*

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4.3 Fauna

4.3.1 Desktop assessment

A total of 560¹ fauna species were identified from database searches as occurring or potentially occurring within 10 km of the site, as listed in **Appendix B**.

Of these, 92 species are of conservation significance, comprising 38 threatened, 14 priority, 39 migratory fauna and one other specially protected species as listed in **Appendix C**.

4.3.2 Species inventory

A total of 15 native and three introduced fauna species were recorded in the site, including two fauna species of conservation significance which is described in **Section 4.3.3**.

Two of the introduced fauna species, **Cherax destructor* (yabby) and **Cyprinus rubrofuscus* (koi fish), were recorded on 28 May 2020 within or adjacent to the artificial lakes. Scats of the other introduced fauna species, **Oryctolagus cuniculus* (rabbit) were recorded across the site during both surveys.

A complete species list is provided in **Appendix D**.

4.3.3 Conservation significant fauna

Two fauna species of conservation significance were recorded in the site: Carnaby's cockatoo which is listed as endangered under the EPBC Act and quenda which is listed as P4 in WA.

Approximately 20 individuals of Carnaby's cockatoo were recorded perching in trees on the 11 March 2020 in the central portion of the site. No signs of foraging or night roosting were opportunistically recorded in the site. The **native woodland** and **planted trees and shrubs** habitats support plants known to be foraged by threatened species of black cockatoos including Carnaby's cockatoo. These habitats may also support trees suitable for use as breeding or roosting habitat by black cockatoos.

Diggings of quenda (P4) were recorded in the south eastern portion of the site within the **planted trees and shrubs** and **riparian** habitats, within dense understorey vegetation. The following three mapped habitats may comprise suitable habitat for quenda:

- **native woodland**
- **riparian** (where it is not inundated)
- **planted trees and shrubs** (where understorey vegetation is present and dense).

A total of 48 fauna species of conservation significance were considered to have potential to occur in the site, as shown in **Table 3**. This comprises the two recorded species, one that is considered likely to occur and 45 considered to possibly occur.

The remaining conservation significant fauna species identified in **Section 4.3.1** are not considered to occur in the site due to lack of suitable habitat or because the site lies outside of the species known distribution. The likelihood of occurrence assessment for these species is provided in **Appendix B**.

¹ Includes native and non-native species

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Table 3: Conservation significant fauna species which have potential to occur within the site

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		BC Act	EPBC Act		
Birds					
<i>Actitis hypoleucos</i>	Common sandpiper	MI	MI	Edge of sheltered waters salt or fresh, e.g. estuaries, mangrove creeks, rocky coasts, near-coastal saltlakes (including saltwork ponds), river pools, lagoons, claypans, drying swamps, flood waters, dams and sewage ponds. Preferring situations wherelow perches are available (Johnstone & Storr 1998).	Possible (marginal habitat present)
<i>Apus pacificus</i>	Pacific swift	MI	MI	Aerial, migratory species that is most often seen over inland plains and sometimes above open areas, foothills or in coastal areas. Sometimes occurs over settled areas, including towns, urban areas and cities (Pizzey & Knight 2012).	Possible (may opportunistically occur above the site, potential foraging habitat present)
<i>Ardea alba</i>	Eastern great egret	-	MA	Shallows of rivers, estuaries; tidal mudflats, freshwater wetlands; sewage ponds, irrigation areas and larger dams (Pizzey & Knight 2012).	Possible (potential habitat present)
<i>Ardea ibis</i>	Cattle egret	-	MA	Stock paddocks, pastures, croplands, garbage tips, wetlands, tidal mudflats, drains (Pizzey & Knight 2012).	Possible (potential habitat present)
<i>Botaurus poiciloptilus</i>	Australasian bittern	EN	EN	In or over water, in tall reedbeds, sedges, rushes, cumbungi, lignum. Also occurs in ricefields, drains in tussocky paddocks and occasionally in saltmarshes and brackish wetlands.	Possible (marginal habitat present)
<i>Calidris acuminata</i>	Sharp-tailed sandpiper	MI	MI	Occurs in tidal mudflats, saltmarshes and mangroves, as well as, shallow fresh,brackish or saline inland wetlands. It is also known from floodwaters, irrigated pastures and crops, sewage ponds, saltfields.	Possible (marginal habitat present)

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Table 3: Conservation significant fauna species which have potential to occur within the site (continued)

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		BC Act	EPBC Act		
<i>Calidris melanotos</i>	Pectoral sandpiper	MI	MI	Mainly fresh waters (swamps, lagoons, river pools, irrigation channels and sewage ponds); also samphire flats around estuaries and saltlakes (Johnstone & Storr 1998).	Possible (marginal habitat present)
<i>Calidris ruficollis</i>	Red-necked stint	MI	MI	Tidal mudflats, saltmarshes, sandy or shelly beaches, saline and freshwater wetlands (coastal and inland), saltfields, sewage ponds (Pizzey and Knight 2012).	Possible (marginal habitat present)
<i>Calidris subminuta</i>	Long-toed stint	MI	MI	Mainly freshwater swamps (especially when drying and where vegetation is short), river pools, lagoons and claypans; also brackish pools, sewage ponds and samphire flats around estuaries and saltlakes.	Possible (marginal habitat present)
<i>Calyptorhynchus banksii naso</i>	Forest red-tailed black cockatoo	VU	VU	Eucalypt and Corymbia forests, often in hilly interior. More recently also observed in more open agricultural and suburban areas including Perth metropolitan area. Attracted to seeding Corymbia calophylla, Eucalyptus marginata, introduced Melia azdarach and Eucalyptus spp. trees.	Likely (potential habitat present)
<i>Calyptorhynchus latirostris</i>	Carnaby's cockatoo	EN	EN	Mainly proteaceous scrubs and heaths and adjacent eucalypt woodlands and forests; also plantations of Pinus spp. Attracted to seeding Banksia spp., Dryandra spp., Hakea spp., Eucalyptus spp., Corymbia calophylla, Grevillea spp., and Allocasuarina spp. (Johnstone and Storr 1998).	Recorded (suitable habitat present)
<i>Charadrius bicinctus</i>	Double-banded plover	MI	MI	Wide beaches, tidal mudflats, saltmarsh, wide and sparsely vegetated margins of shallow saline and freshwater wetlands, paddocks with sparse vegetation, ploughed fields, airfields.	Possible (potential habitat present)

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Table 3: Conservation significant fauna species which have potential to occur within the site (continued)

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		BC Act	EPBC Act		
<i>Charadrius dubius</i>	Little ringed plover	MI	MI	Open, muddy or sandy shores of lakes, swamps, tidal areas, sewage ponds or farm dams. Rare but regular summer migrant to Australia (Pizzey & Knight 2012).	Possible (potential habitat present)
<i>Charadrius leschenaultii</i>	Great sand plover	VU	VU (MI)	Wide sandy or shelly beaches, sandpits, tidal mudflats, reefs, sand cays, mangroves, saltmarsh, dune wilderness, bare paddocks, seldom far inland (Pizzey & Knight 2012).	Possible (potential habitat present)
<i>Charadrius ruficapillus</i>	Red-capped plover	-	MA	Broad, sandy and shelly beaches; bare margins of saline wetlands and lakes, inland and coastal; saltmarsh; tidal mudflats and sandflats; adjacent dunes; occasionally shallow freshwater wetlands, inland and coastal (Pizzey & Knight 2012).	Possible (potential habitat present)
<i>Chlidonias leucopterus</i>	White-winged black tern	MI	MI	Vegetated and open wetlands, brackish and saline lakes, saltfields, irrigated lands, sewage ponds and occasionally offshore.	Possible (potential habitat present)
<i>Falco peregrinus</i>	Peregrine falcon	OS	-	Mainly found around cliffs along coasts, rivers, ranges and around wooded watercourses and lakes (Johnstone and Storr 1998).	Possible (marginal habitat present)
<i>Gallinago hardwickii</i>	Latham's snipe	MI	MI	Soft, wet ground or shallow water with tussocks and other green or dead growth, wet parts of paddocks, seepage below dams, irrigated areas, scrub or open woodland from sea level to alpine bogs over 2000 m, samphire on saltmarshes and mangrove fringes. Rare visitor to Western Australia.	Possible (potential habitat present)
<i>Gallinago megala</i>	Swinhoe's snipe	MI	MI	Wet, grassy ground; edges of reedy swamps (Pizzey & Knight 2012).	Possible (potential habitat present)

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Table 3: Conservation significant fauna species which have potential to occur within the site (continued)

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		BC Act	EPBC Act		
<i>Gallinago stenura</i>	Pin-tailed snipe	MI	MI	Boggy edges of vegetated wetlands; sewage and other ponds; stubbles, grasslands with shrubs, pastures (Pizzey & Knight 2012).	Possible (potential habitat present)
<i>Gelochelidon nilotica</i>	Gull-billed tern	MI	MI	Beaches, mudflats; fresh, brackish wetlands, including far inland; grasslands, crops, ploughed fields, airfields (Pizzey & Knight 2012).	Possible (potential habitat present)
<i>Himantopus himantopus</i>	Black-winged stilt	-	MA	Freshwater and saltwater marshes, mudflats, and the shallow edges of lakes and rivers (Birdlife Australia 2019).	Possible (potential habitat present)
<i>Ixobrychus dubius</i>	Australian little bittern	P4	-	Dense vegetation surrounding/within freshwater pools, swamps and lagoons, well screened with trees. Shelters in dense beds of Typha spp., Baumea spp. and tall rushes in freshwater swamps around lakes and along rivers (Johnstone and Storr 1998).	Possible (marginal habitat present)
<i>Limosa limosa</i>	Black-tailed godwit	MI	MI	Tidal mudflats, estuaries, sewage ponds, shallow river margins, brackish or saline inland lakes, flooded pastures, airfields (Pizzey & Knight 2012).	Possible (potential habitat present)
<i>Merops ornatus</i>	Rainbow bee-eater	-	MA	Open woodlands with sandy, loamy soil; sandridges, sandpits, riverbanks, road cuttings, beaches, dunes, cliffs, mangroves, rainforest, woodlands and golf courses (Pizzey & Knight 2012).	Possible (potential habitat present)
<i>Numenius minutus</i>	Little curlew	MI	MI	Dry grasslands, floodplains, margins of drying swamps; tidal mudflats, airfields, playing fields, crops, commercial saltfields, sewage ponds (Pizzey & Knight 2012).	Possible (potential habitat present)
<i>Numenius phaeopus</i>	Whimbrel	MI	MI	Estuaries, mangroves, tidal flats, coral cays, exposed reefs, flooded paddocks, sewage ponds, bare grasslands, sportsgrounds and lawns.	Possible (potential habitat present)

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Table 3: Conservation significant fauna species which have potential to occur within the site (continued)

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		BC Act	EPBC Act		
<i>Oxyura australis</i>	Blue-billed duck	P4	-	Mainly deeper freshwater swamps and lakes; occasionally saltlakes and estuaries freshened by flood waters (Johnstone and Storr 1998a).	Possible (marginal habitat present)
<i>Phalaropus lobatus</i>	Red-necked phalarope	MI	MI	Shallow pools in commercial saltfields, tidal mudflats, beaches, saltmarshes, freshwater wetlands.	Possible (marginal habitat present)
<i>Philomachus pugnax</i>	Ruff	MI	MI	Fresh, brackish and saline wetlands; tidal mudflats, saltfields, sewage ponds (Pizzey & Knight 2012).	Possible (marginal habitat present)
<i>Plegadis falcinellus</i>	Glossy Ibis	MI	MI	Shallow and adjacent flats of freshwater lakes and swamps, also river pools, flooded samphire and sewage ponds.	Possible (marginal habitat present)
<i>Pluvialis fulva</i>	Pacific golden plover	MI	MI	Estuaries, mudflats, saltmarshes, mangroves; rocky reefs and stranded seaweed on ocean shores; margins of shallow open inland swamps; sewage ponds, short-grass paddocks, sportsgrounds, airfields, ploughed land (Pizzey & Knight 2012).	Possible (potential habitat present)
<i>Recurvirostra novaehollandiae</i>	Red-necked avocet	-	MA	Estuaries, tidal mudflats; fresh, brackish and salt swamps and lakes; claypans, commercial saltfields and sewage ponds (Pizzey & Knight 2012).	Possible (marginal habitat present)
<i>Rostratula australis</i>	Australian painted snipe	EN	EN	Mainly shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans (Marchant and Higgins 1993).	Possible (marginal habitat present)
<i>Thalassarche cauta cauta</i>	Shy albatross	VU	VU (MI)	Scarce visitor (late May to mid-October) to southwestern and western seas. Breeds on islands off Tasmania and south New Zealand (Johnstone and Storr 1998).	Possible (marginal habitat present)

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Table 3: Conservation significant fauna species which have potential to occur within the site (continued)

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		BC Act	EPBC Act		
<i>Thinornis rubricollis</i>	Hooded plover	P4	VU	Margins and shallows of saltlakes, sandy and seaweedy beaches and estuaries; also dams (Johnstone & Storr 1998).	Possible (marginal habitat present)
<i>Tringa glareola</i>	Wood sandpiper	MI	MI	Mainly shallow fresh waters (lagoons, swamps, claypans, river pools, dams, bore overflows and sewage ponds); occasionally brackish swamps, rarely saltlakes and estuaries.	Possible (potential habitat present)
<i>Tringa nebularia</i>	Common greenshank	MI	MI	Shallow fresh waters (claypans, lagoons, swamps, river pools, dams and sewage ponds) and salt waters (estuaries, mangrove creeks, lakes, samphire flats, reef flats and saltwork ponds).	Possible (potential habitat present)
<i>Tringa stagnatilis</i>	Marsh sandpiper	MI	MI	Mainly shallow fresh or brackish waters: swamps, lakes, river pools, soaks, sewage ponds and bore overflows. Occasionally estuaries and salt ponds, and rarely coasts.	Possible (potential habitat present)
<i>Tringa totanus</i>	Common redshank	MI	MI	Sheltered coastal wetlands such as bays, river estuaries, lagoons, inlets and saltmarsh (with bare open flats and banks of mud or sand). Also found around saltlakes, freshwater lagoons, artificial wetlands and saltworks and sewage farms (Higgins & Davies 1996).	Possible (marginal habitat present)
<i>Tyto novaehollandiae novaehollandiae</i>	Australian masked owl	P3	-	Forests, open woodlands, farmlands with large trees. E.g. river red gums, adjacent cleared country, timbered watercourses, paperbark woodlands and caves (Pizzey & Knight 2012).	Possible (marginal habitat present)
Invertebrates					
<i>Idiosoma sigillatum</i>	Swan Coastal Plain shield-backed trapdoor spider	P3	-	Widely distributed in sandy areas on the Swan Coastal Plain and on Rottnest Island (Prince 2003).	Possible (suitable habitat present, multiple records nearby)

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Table 3: Conservation significant fauna species which have potential to occur within the site (continued)

Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		BC Act	EPBC Act		
<i>Synemon gratiosa</i>	Graceful sunmoth	P4	-	Coastal heathland on Quindalup dunes where it is restricted to secondary sand dunes due to the abundance of the preferred host plant <i>Lomandra maritima</i> . Banksia woodland on Spearwood and Bassendean dunes, where the second known host plant <i>L. hermaphrodita</i> is widespread (DEC 2011).	Possible (hostplant recorded)
<i>Throscodectes xiphos</i>	Styler bush cricket	P1	-	Species poorly understood and documented. Known from Jandacot area, where it was originally collected in the axial leaf bases of grass trees (<i>Xanthorrhoea preissii</i>) (Invertebrate Solutions 2019).	Possible (suitable habitat present, single record nearby, poor knowledge of species)
Mammals					
<i>Hydromys chrysogaster</i>	Rakali	P4	-	Areas with permanent water, fresh, brackish or marine. Likely to occur in all major rivers and most of the larger streams as well as bodies of permanent water in the lower south west (Christensen et al. 1985).	Possible (marginal habitat present)
<i>Isodon fusciventer</i>	Quenda	P4	-	Dense scrubby, often swampy, vegetation with dense cover up to one metre high (DEC 2012a)	Recorded (suitable habitat present)
Reptiles					
<i>Lerista lineata</i>	Perth slider	P3	-	Sandy coastal heath and low scrubland. Banksia spp. woodland, Eucalyptus gomphocephala open woodland over deep sands, and coastal dunes immediately adjacent to the beach (Wilson and Swan 2017).	Possible (potential habitat present)
<i>Neelaps calonotos</i>	Black-striped snake	P3	-	Coastal and near-coastal dunes, sandplains supporting heathlands and Banksia spp. woodlands (Bush et al. 2002).	Possible (potential habitat present)

4.3.1 Declared pests

One of the introduced fauna species recorded, *Oryctolagus cuniculus* (rabbit), is listed as a declared pest (C3) pursuant to the BAM Act.

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5 Discussion

5.1 Fauna habitat values

Over half of the site (68%) supports turf, bare ground and infrastructure which provide low habitat values for native fauna. The **native woodland** habitat provides the highest habitat values but extends over a small portion of the site (4%) and occurs as scattered patches. The **riparian** and **water** habitats, although artificial, also provide habitat for native fauna and occur as small patches (3% of the site). The remainder of the site supports **planted trees and shrubs** which provide varying habitat values according to the plant species and density. The majority of the **planted trees and shrubs** habitat lacks understorey vegetation and would mainly provide habitat for common avian species.

The 15 native and three introduced fauna taxa recorded within the site are common and widespread on the Swan Coastal Plain region, although two of them are of conservation significance as detailed in **Section 5.2**.

5.2 Conservation significant fauna

Threatened Carnaby's cockatoo were recorded in the site and another threatened black cockatoo, forest red-tailed black cockatoo, is considered likely to occur in the site. The **native woodland** and **planted trees and shrubs** habitats support plants known to be foraged by threatened species of black cockatoos including Carnaby's cockatoo and forest red-tailed black cockatoo. These habitats may also support trees suitable for use by black cockatoos as breeding or roosting habitat. Further targeted assessment would be required to confirm the black cockatoo habitat values within the site.

Quenda (P4) diggings were recorded in the site and the **native woodland**, **planted trees and shrubs** and **riparian** habitats are considered to provide suitable habitat for quenda. Quenda inhabit dense scrub/shrub vegetation and therefore only parts of the above habitats with a dense understorey vegetation are considered likely to support this species (DEC 2012). The **planted trees and shrubs** habitat largely lacks understorey and as such the **native woodland** and **riparian** habitats would provide the highest habitat value to quenda in the site.

An additional 45 species of conservation significance have potential to occur in the site. However, the majority of these species are birds which may only use the site intermittently, if at all. The **native woodland** habitat also provides a relatively small area of potential habitat for two invertebrates and two reptiles of conservation significance.

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6 Conclusions

The majority of the site supports turf, bare ground and infrastructure which provides low habitat values for native fauna. The **native woodland** habitat provides the highest relative value but, as this habitat extends over a small portion of the site (4%) and occurs as scattered patches, the importance of this habitat to native fauna is likely limited. Although artificial, the **riparian** and **water** habitats also provide habitat for native fauna. The remainder of the site supports **planted trees and shrubs** which provide varying habitat values depending on plant species and density.

The 15 native and three introduced fauna taxa recorded within the site are all common and widespread across the Swan Coastal Plain region. Two of them are of conservation significance.

Two fauna species of conservation significance were recorded within the site: Carnaby's cockatoo (threatened) and quenda (P4). One other threatened species, forest red-tailed black cockatoo, is considered likely to occur in the site. A targeted assessment would be required to confirm the black cockatoo habitat values within the site.

An additional 45 species of conservation significance have potential to occur in the site. The majority of these species are birds which may only use the site intermittently, if at all. The **native woodland** habitat also provides a relatively small area of potential habitat for two invertebrates and two reptiles of conservation significance.

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7 References

7.1 General references

Alan Tingay and Associates 1998, *A Strategic Plan for Perth's Greenways - Final Report*. December 1998.

Department of Environment and Conservation (DEC) 2012, *Fauna profiles, Quenda Isoodon obesulus (Shaw, 1797)*, Perth.

Emerge Associates 2020, *Reconnaissance Flora and Vegetation Assessment - Former Glen Iris Golf Course*, EP20-009(03)–002 RAW, Version 1.

Environmental Protection Authority (EPA) 2016, *Technical Guidance - Terrestrial Fauna Surveys*, Perth.

Government of WA 2000, *Bush Forever - Volume 1: Policies, principles and processes*, Perth.

Molloy, S., Wood, J., Hall, S., Wallrodt, S. and Whisson, G. 2009, *South West Regional Ecological Linkages Technical Report*, Western Australian Local Government Association and Department of Environment and Conservation, Perth.

Western Australian Local Government Association and Perth Biodiversity Project (WALGA and PBP) 2004, *Local Government Biodiversity Planning Guidelines for the Perth Metropolitan Region*, Perth.

Western Australian Museum 2019, *WA Museum Checklist of the Terrestrial Vertebrate Fauna of Western Australia*, Perth, Western Australia.

7.2 Online references

Department of Parks and Wildlife (DBCA) 2020, *NatureMap*, viewed 27 March 2020 <<https://naturemap.dpaw.wa.gov.au/>>.

Department of the Environment (DAWE) 2020x, *Protected Matters Search Tool*, viewed 27 March 2020 <<https://www.environment.gov.au/epbc/protected-matters-search-tool>>.

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Figures

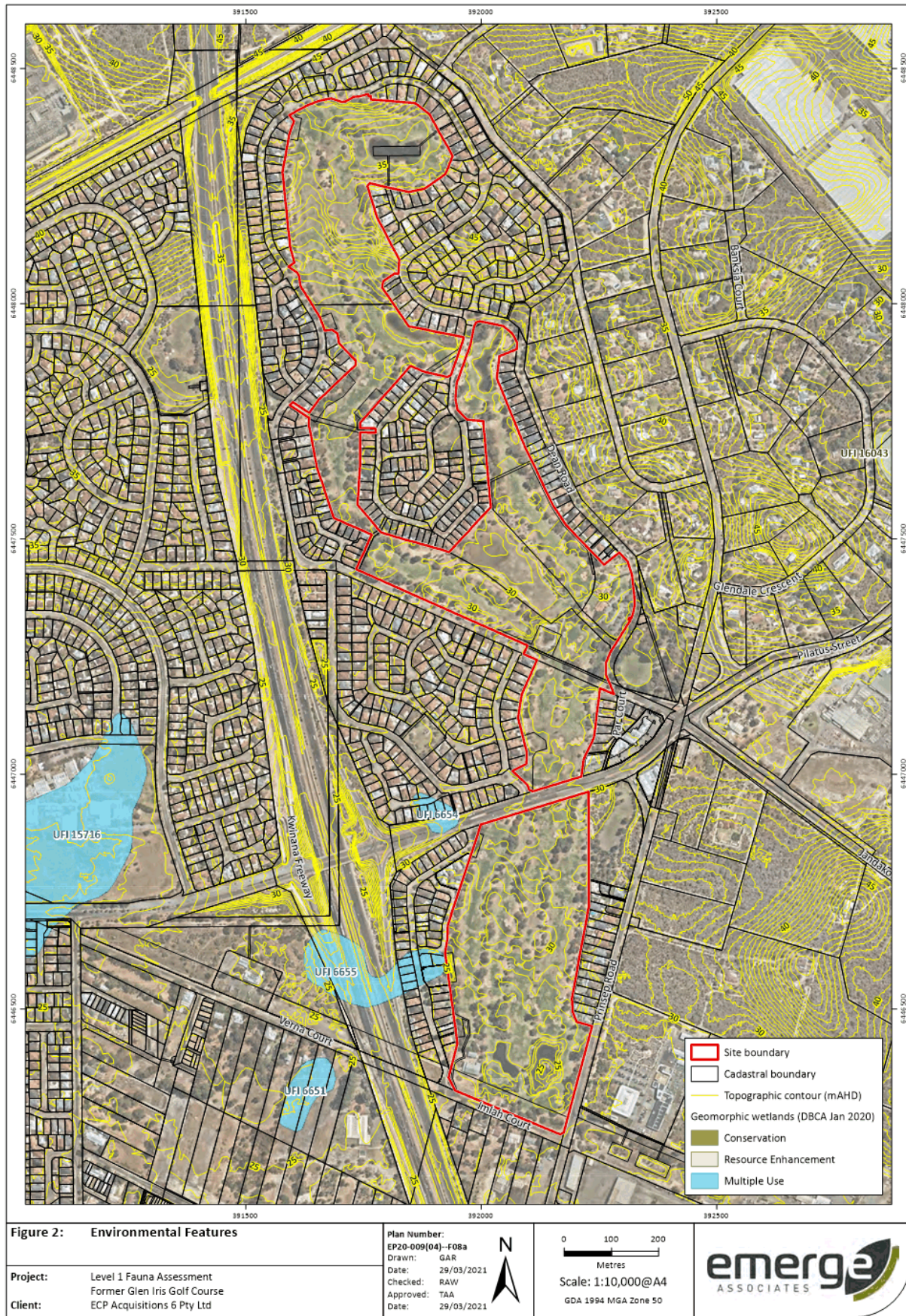


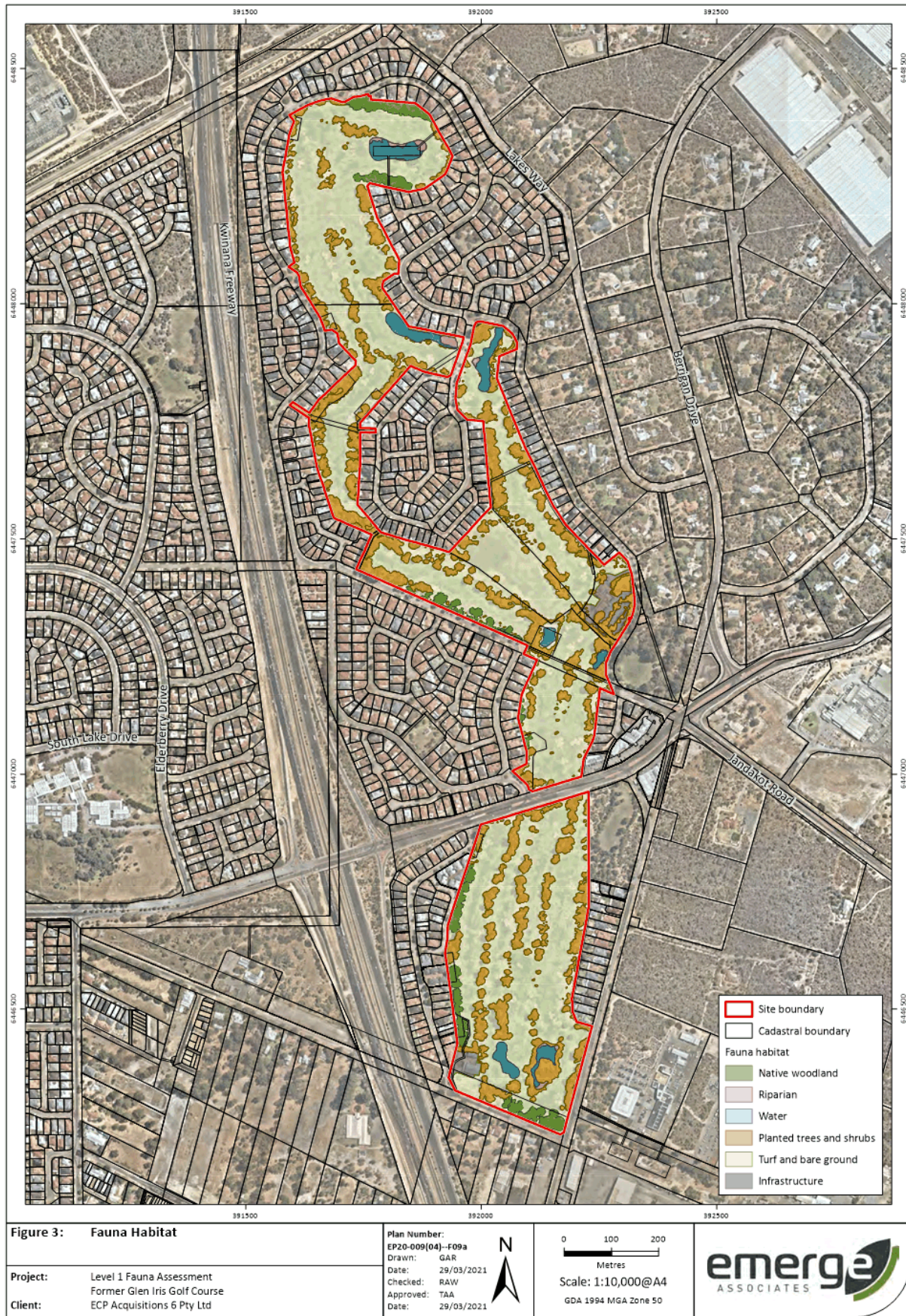
Figure 1: Site Location

Figure 2: Environmental Features

Figure 3: Fauna Habitat







Appendix A

Additional Information



Additional Background Information



Conservation Significant Fauna

Threatened and priority fauna

Fauna species considered rare or under threat warrant special protection under Commonwealth and/or State legislation. At the Commonwealth level, fauna species can be listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Migratory birds may be recognised under international treaties including:

- *Japan Australia Migratory Bird Agreement 1981* (JAMBA)
- *China Australia Migratory Bird Agreement 1998* (CAMBA)
- *Republic of Korea-Australia Migratory Bird Agreement 2007* (ROKAMBA)
- *Bonn Convention 1979* (The Convention on the Conservation of Migratory Species of Wild Animals).

All migratory bird species listed in the annexes to these bilateral agreements are protected in Australia as 'matters of national environmental significance' (MNES) under the EPBC Act. Fauna species considered 'threatened' pursuant to Schedule 1 of the EPBC Act are assigned categories as outlined in **Table 1**.

Table 1: Definitions of conservation significant fauna species pursuant to the EPBC Act

Conservation Code	Category
X	Threatened Fauna – Extinct There is no reasonable doubt that the last member of the species has died.
EW [#]	Threatened Fauna – Extinct in the Wild Taxa which are known only to survive in cultivation, captivity or as a naturalised population outside its past range, or taxa which have not been recorded in its known and/or expected habitat despite appropriate exhaustive surveys.
CR [#]	Threatened Fauna – Critically Endangered Taxa which are considered to be facing an extremely high risk of extinction in the wild.
EN [#]	Threatened Fauna – Endangered Taxa which are considered to be facing a very high risk of extinction in the wild.
VU [#]	Threatened Fauna – Vulnerable Taxa which are considered to be facing a high risk of extinction in the wild.
Migratory [#]	Migratory Fauna All migratory species that are: (i) native species; and (ii) from time to time included in the appendices to the Bonn Convention; and (b) all migratory species from time to time included in annexes established under JAMBA, CAMBA and ROKAMBA; and All native species from time to time identified in a list established under, or an instrument made under, an international agreement approved by the Minister.
Ma	Marine Fauna Species in the list established under s248 of the EPBC Act

[#]matters of national environmental significance (MNES) under the EPBC Act

Additional Background Information



In Western Australia, fauna taxa may be classed as 'threatened', 'extinct', or 'specially protected' under the *Biodiversity Conservation Act 2016* (BC Act), which is enforced by Department of Biodiversity Conservation and Attractions (DBCA) (DBCA 2019). The definitions of these categories are provided in **Table 2**.

Table 2: Definitions of specially protected fauna schedules under the BC Act (DBCA 2019)

Category	Conservation Code	Definition
Threatened	CR	Critically endangered Threatened species considered to be facing an extremely high risk of extinction in the wild in the immediate future.
	EN	Endangered Threatened species considered to be facing a very high risk of extinction in the wild in the near future.
	VU	Vulnerable Threatened species considered to be facing a high risk of extinction in the wild in the medium-term future.
Extinct	EX	Extinct Species where there is no reasonable doubt that the last member of the species has died.
	EW	Extinct in the wild 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. Note that no species are currently listed as EW.
Specially protected	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 Includes birds that subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and the Bonn Convention, relating to the protection of migratory birds.
	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.
	OS	Other specially protected species Fauna otherwise in need of special protection to ensure their conservation.

Additional Background Information



Fauna species that may be threatened or near threatened but lack sufficient information to be legislatively listed may be added to the DBCA's *Priority Fauna List* (DBCA 2018). Species listed under priorities 1-3 comprise possible threatened species that do not meet survey criteria or are otherwise data deficient. Species listed under priority 4 are those 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 (DBCA 2019).

Priority fauna species are considered during State approval processes. Priority fauna categories and definitions are listed in **Table 3** (DBCA 2019).

Table 3: Definitions of priority fauna categories on DBCA's *Priority Fauna List* (DBCA 2019)

Conservation Code	Category
P1	Priority 1 – Poorly known 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.
P2	Priority 2 – Poorly known 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.
P3	Priority 3 – Poorly known 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.
P4	(a) Priority 4 – Rare species 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) Priority 4 – Near Threatened Species that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable. (c) Priority 4 – Other Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

Additional Background Information



Pest fauna

A number of legislative and policy documents exist in relation to pest fauna management at state and national levels. The *Biosecurity and Agriculture Management Act 2007* (BAM Act) is the principle legislation guiding pest fauna management in Western Australia and lists declared pest species.

Declared Pests

Part 2.3.23 of the BAM Act requires a person must not; *"a) keep, breed or cultivate the declared pest; b) keep, breed or cultivate an animal, plant or other thing that is infected or infested with the declared pest; c) release into the environment the declared pest, or an animal, plant or other thing that is infected or infested with the declared pest; or d) intentionally infect or infest, or expose to infection or infestation, a plant, animal or other thing with a declared pest"*.

Under the BAM Act, all declared pests are assigned a legal status, as described in **Table 4**. Species assigned to the 'declared pest, prohibited - s12' category are placed in one of three control categories, as described in **Table 5**.

The *Biosecurity and Agriculture Management Regulations 2013* specify keeping categories for species assigned to the 'declared pest - s22(2)' category, which relate to the purposes of which species can be kept, as well as the entities that can keep them. The categories are described in **Table 6**.

The Western Australian Organism List (WAOL) provides the status of organisms which have been categorised under the BAM Act (DAFWA 2016).

Table 4: Legal status of declared pest species listed under the BAM Act (DAFWA 2016)

Category	Description
Declared Pest Prohibited - s12	May only be imported and kept subject to permits. Permit conditions applicable to some species may only be appropriate or available to research organisations or similarly secure institutions.
Declared Pest s22(2)	Must satisfy any applicable import requirements when imported, and may be subject to an import permit if they are potential carriers of high-risk organisms. They may also be subject to control and keeping requirements once within Western Australia

Table 5: Control categories of declared pest species listed under the BAM Act (DAFWA 2016)

Category	Description
C1	Exclusion Not established in Western Australia and control measures are to be taken, including border checks, in order to prevent them entering and establishing in the State.
C2	Eradication Present in Western Australia in low enough numbers or in sufficiently limited areas that their eradication is still a possibility.
C3	Management Established in Western Australia but it is feasible, or desirable, to manage them in order to limit their damage. Control measures can prevent a C3 pest from increasing in population size or density or moving from an area in which it is established into an area which currently is free of that pest.

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Additional Background Information

*Table 6: Keeping categories of declared pest species listed under the BAM Act (DAFWA 2016)*

Category	Description
Prohibited	Can only be kept under a permit for public display and education purposes, and/or genuine scientific research, by entities approved by the state authority.
Exempt	No permit or conditions are required for keeping.
Restricted	Organisms which, relative to other species, have a low risk of becoming a problem for the environment, primary industry or public safety and can be kept under a permit by private individuals.

Additional Background Information



References

General references

Department of Biodiversity, Conservation and Attractions (DBCA) 2018, *Threatened and Priority Fauna List 15 February 2018*, Perth.

Department of Biodiversity Conservation and Attractions (DBCA) 2019, *Conservation Codes for Western Australian Flora and Fauna - last updated 3 January 2019*.

Appendix B

Database Search Results





Australian Government
Department of the Environment and Energy

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 27/03/20 18:55:14

[Summary](#)

[Details](#)

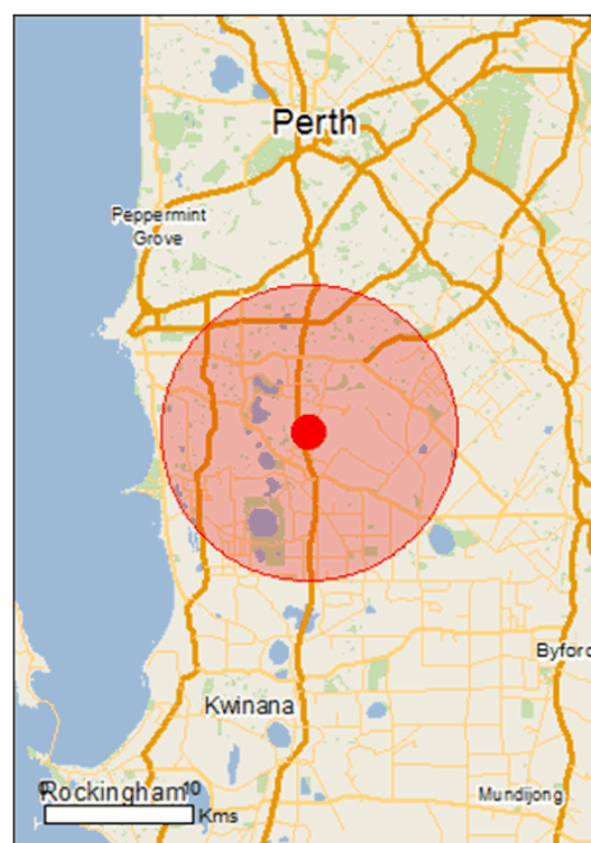
[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)



This map may contain data which are
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[Coordinates](#)

Buffer: 10.0Km



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	2
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	4
Listed Threatened Species:	54
Listed Migratory Species:	54

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	63
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	15
Regional Forest Agreements:	None
Invasive Species:	42
Nationally Important Wetlands:	4
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar)	[Resource Information]
Name	Proximity
Forrestdale and thomsons lakes	Within Ramsar site
Peel-yalgorup system	30 - 40km upstream

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Banksia Woodlands of the Swan Coastal Plain ecological community	Endangered	Community likely to occur within area
Clay Pans of the Swan Coastal Plain	Critically Endangered	Community likely to occur within area
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area
Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain ecological community	Critically Endangered	Community likely to occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Foraging, feeding or related behaviour known to occur within area
Calyptorhynchus banksii naso Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat known to occur within area
Calyptorhynchus baudinii Baudin's Cockatoo, Long-billed Black-Cockatoo [769]	Endangered	Roosting known to occur within area
Calyptorhynchus latirostris Carnaby's Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Species or species habitat known to occur within area

Name	Status	Type of Presence
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Foraging, feeding or related behaviour known to occur within area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat likely to occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
Limosa lapponica baueri Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat known to occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Bar-tailed Godwit (menzbieri) [86432]	Critically Endangered	Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat known to occur within area
Thalassarche cauta cauta Shy Albatross [82345]	Vulnerable	Species or species habitat likely to occur within area
Thalassarche cauta steadi White-capped Albatross [82344]	Vulnerable	Species or species habitat likely to occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area

Name	Status	Type of Presence
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Insects		
Neopasiphae simplicior A native bee [66821]	Critically Endangered	Species or species habitat likely to occur within area
Mammals		
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat likely to occur within area
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Vulnerable	Species or species habitat known to occur within area
Pseudocheirus occidentalis Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Species or species habitat likely to occur within area
Other		
Westralunio carteri Carter's Freshwater Mussel, Freshwater Mussel [86266]	Vulnerable	Species or species habitat may occur within area
Plants		
Andersonia gracilis Slender Andersonia [14470]	Endangered	Species or species habitat may occur within area
Austrostipa jacobiana [87809]	Critically Endangered	Species or species habitat may occur within area
Caladenia huegelii King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid [7309]	Endangered	Species or species habitat known to occur within area
Diuris drummondii Tall Donkey Orchid [4365]	Vulnerable	Species or species habitat known to occur within area
Diuris micrantha Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat known to occur within area
Diuris purdiei Purdie's Donkey-orchid [12950]	Endangered	Species or species habitat known to occur within area
Drakaea elastica Glossy-leaved Hammer Orchid, Glossy-leaved Hammer Orchid, Warty Hammer Orchid [16753]	Endangered	Species or species habitat known to occur within area
Drakaea micrantha Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat known to occur within area
Eleocharis keigheryi Keighery's Eleocharis [64893]	Vulnerable	Species or species habitat may occur within area
Eremophila glabra subsp. chlorella [84927]	Endangered	Species or species habitat likely to occur within area
Eucalyptus x balanites Cadda Road Mallee, Cadda Mallee [87816]	Endangered	Species or species habitat may occur within area

Name	Status	Type of Presence
Grevillea curviloba subsp. incurva Narrow curved-leaf Grevillea [64909]	Endangered	Species or species habitat may occur within area
Lepidosperma rostratum Beaked Lepidosperma [14152]	Endangered	Species or species habitat likely to occur within area
Macarthuria keigheryi Keighery's Macarthuria [64930]	Endangered	Species or species habitat likely to occur within area
Synaphea sp. Fairbridge Farm (D. Papenfus 696) Selena's Synaphea [82881]	Critically Endangered	Species or species habitat likely to occur within area
Synaphea sp. Serpentine (G.R. Brand 103) [86879]	Critically Endangered	Species or species habitat may occur within area
Thelymitra dedmaniarum Cinnamon Sun Orchid [65105]	Endangered	Species or species habitat may occur within area
Thelymitra stellata Star Sun-orchid [7060]	Endangered	Species or species habitat may occur within area
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Species or species habitat likely to occur within area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat likely to occur

Name	Threatened	Type of Presence
		within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat likely to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Sterna dougallii Roseate Tern [817]		Foraging, feeding or related behaviour likely to occur within area
Thalassarche cauta Shy Albatross [89224]	Vulnerable*	Species or species habitat likely to occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable*	Species or species habitat likely to occur within area
Migratory Marine Species		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area
Manta alfredi Reef Manta Ray, Coastal Manta Ray, Inshore Manta Ray, Prince Alfred's Ray, Resident Manta Ray [84994]		Species or species habitat may occur within area
Manta birostris Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]		Species or species habitat may occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Migratory Terrestrial Species		
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Arenaria interpres Ruddy Turnstone [872]		Foraging, feeding or related behaviour known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Roosting known to occur within area
Calidris alba Sanderling [875]		Foraging, feeding or related behaviour known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area
Calidris subminuta Long-toed Stint [861]		Roosting known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Foraging, feeding or related behaviour known to occur within area
Charadrius bicinctus Double-banded Plover [895]		Foraging, feeding or related behaviour known to occur within area
Charadrius dubius Little Ringed Plover [896]		Roosting known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Foraging, feeding or related behaviour known to occur within area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]		Roosting known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area
Numenius phaeopus Whimbrel [849]		Foraging, feeding or related behaviour known to occur within area

Name	Threatened	Type of Presence
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Phalaropus lobatus Red-necked Phalarope [838]		Foraging, feeding or related behaviour known to occur within area
Philomachus pugnax Ruff (Reeve) [850]		Roosting known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Foraging, feeding or related behaviour known to occur within area
Pluvialis squatarola Grey Plover [865]		Foraging, feeding or related behaviour known to occur within area
Tringa brevipes Grey-tailed Tattler [851]		Foraging, feeding or related behaviour known to occur within area
Tringa glareola Wood Sandpiper [829]		Roosting known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area
Tringa totanus Common Redshank, Redshank [835]		Foraging, feeding or related behaviour known to occur within area
Xenus cinereus Terek Sandpiper [59300]		Foraging, feeding or related behaviour known to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name
Commonwealth Land -

Listed Marine Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species

Name	Threatened	Type of Presence
Ardea alba Great Egret, White Egret [59541]		habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Breeding known to occur within area
Arenaria interpres Ruddy Turnstone [872]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Foraging, feeding or related behaviour known to occur within area
Calidris alba Sanderling [875]		Roosting known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Foraging, feeding or related behaviour known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area
Calidris subminuta Long-toed Stint [861]		Roosting known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area
Charadrius bicinctus Double-banded Plover [895]		Foraging, feeding or related behaviour known to occur within area
Charadrius dubius Little Ringed Plover [896]		Foraging, feeding or related behaviour known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Roosting known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Foraging, feeding or related behaviour known to occur within area
Charadrius ruficapillus Red-capped Plover [881]		Foraging, feeding or related behaviour known to occur within area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Roosting known to occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat likely to occur within area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Heteroscelus brevipes Grey-tailed Tattler [59311]		Foraging, feeding or related behaviour known to occur within area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Roosting known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]		Roosting known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area
Numenius phaeopus Whimbrel [849]		Foraging, feeding or related behaviour known to occur within area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Phalaropus lobatus Red-necked Phalarope [838]		Foraging, feeding or related behaviour known to occur within area
Philomachus pugnax Ruff (Reeve) [850]		Roosting known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Foraging, feeding or related behaviour known to occur within area

Name	Threatened	Type of Presence
Pluvialis squatarola Grey Plover [865]		Foraging, feeding or related behaviour known to occur within area
Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [1043]		Species or species habitat likely to occur within area
Recurvirostra novaehollandiae Red-necked Avocet [871]		Roosting known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat known to occur within area
Sterna dougallii Roseate Tern [817]		Foraging, feeding or related behaviour likely to occur within area
Thalassarche cauta Shy Albatross [89224]	Vulnerable*	Species or species habitat likely to occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable*	Species or species habitat likely to occur within area
Thinornis rubricollis Hooded Plover [59510]		Species or species habitat known to occur within area
Tringa glareola Wood Sandpiper [829]		Roosting known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area
Tringa totanus Common Redshank, Redshank [835]		Foraging, feeding or related behaviour known to occur within area
Xenus cinereus Terek Sandpiper [59300]		Foraging, feeding or related behaviour known to occur within area
Mammals		
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Vulnerable	Species or species habitat known to occur within area
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or

Name	Threatened	Type of Presence
Natator depressus		related behaviour known to occur within area
Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area

Extra Information

State and Territory Reserves	[Resource Information]
Name	State
Alfred Cove	WA
Balannup Lake	WA
Canning River	WA
Forrestdale Lake	WA
Gibbs Road	WA
Harry Waring Marsupial Reserve	WA
Piara	WA
Swan River	WA
Thomsons Lake	WA
Unnamed WA39752	WA
Unnamed WA44414	WA
Unnamed WA48291	WA
Unnamed WA49362	WA
Unnamed WA49363	WA
Unnamed WA49561	WA

Invasive Species	[Resource Information]
Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.	

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Streptopelia senegalensis Laughing Turtle-dove, Laughing Dove [781]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Funambulus pennantii Northern Palm Squirrel, Five-striped Palm Squirrel [129]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Asparagus plumosus Climbing Asparagus-fern [48993]		Species or species habitat likely to occur within area
Brachiaria mutica Para Grass [5879]		Species or species habitat may occur within

Name	Status	Type of Presence
		area
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Chrysanthemoides monilifera subsp. monilifera Boneseed [16905]		Species or species habitat likely to occur within area
Genista linifolia Flax-leaved Broom, Mediterranean Broom, Flax Broom [2800]		Species or species habitat likely to occur within area
Genista monspessulana Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large- leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892] Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Olea europaea Olive, Common Olive [9160]		Species or species habitat may occur within area
Opuntia spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Sagittaria platyphylla Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Solanum elaeagnifolium Silver Nightshade, Silver-leaved Nightshade, White Horse Nettle, Silver-leaf Nightshade, Tomato Weed, White Nightshade, Bull-nettle, Prairie-berry, Satansbos, Silver-leaf Bitter-apple, Silverleaf-nettle, Trompillo [12323] Tamarix aphylla Athel Pine, Athel Tree, Tamarisk, Athel Tamarisk, Athel Tamarix, Desert Tamarisk, Flowering Cypress, Salt Cedar [16018]		Species or species habitat likely to occur within area
Reptiles		

Name		Status	Type of Presence
Hemidactylus frenatus			
Asian House Gecko [1708]			Species or species habitat likely to occur within area

Nationally Important Wetlands		[Resource Information]
Name		State
Booragoon Swamp		WA
Gibbs Road Swamp System		WA
Swan-Canning Estuary		WA
Thomsons Lake		WA

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-32.10414 115.85615

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- [-Natural history museums of Australia](#)
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- [-Other groups and individuals](#)

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact Us](#) page.

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NatureMap Species Report

Created By Guest user on 16/06/2020

Kingdom	Animalia
Current Names Only	Yes
Core Datasets Only	Yes
Method	'By Circle'
Centre	115° 51' 22" E, 32° 06' 15" S
Buffer	10km

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
1.	24559 <i>Acanthagenys rufogularis</i> (Spiny-cheeked Honeyeater)			
2.	24260 <i>Acanthiza apicalis</i> (Broad-tailed Thornbill, Inland Thornbill)			
3.	24261 <i>Acanthiza chrysorrhoa</i> (Yellow-rumped Thornbill)			
4.	24262 <i>Acanthiza inornata</i> (Western Thornbill)			
5.	24580 <i>Acanthorhynchus superciliosus</i> (Western Spinebill)			
6.	25535 <i>Accipiter cirrocephalus</i> (Collared Sparrowhawk)			
7.	25536 <i>Accipiter fasciatus</i> (Brown Goshawk)			
8.	24283 <i>Accipiter fasciatus subsp. didimus</i> (Brown Goshawk)			
9.	24282 <i>Accipiter fasciatus subsp. fasciatus</i> (Brown Goshawk)			
10.	<i>Acentrogobius bifrenatus</i>			
11.	<i>Acerella falcipes</i>			
12.	42368 <i>Acritoscincus trilineatus</i> (Western Three-lined Skink)			
13.	25755 <i>Acrocephalus australis</i> (Australian Reed Warbler)			
14.	24831 <i>Acrocephalus australis subsp. gouldi</i> (Australian Reed Warbler)			
15.	41323 <i>Actitis hypoleucos</i> (Common Sandpiper)		IA	
16.	25544 <i>Aegotheles cristatus</i> (Australian Owllet-nightjar)			
17.	<i>Afurcagobius suppositus</i>			
18.	<i>Akamptogonus novae</i>			
19.	<i>Aldrichetta forsteri</i>			
20.	<i>Allothereua maculata</i>			
21.	<i>Anas mainae</i>			
22.	<i>Anas tepperi</i>			
23.	24310 <i>Anas castanea</i> (Chestnut Teal)			
24.	24312 <i>Anas gracilis</i> (Grey Teal)			
25.	24313 <i>Anas platyrhynchos</i> (Mallard)			
26.	<i>Anas platyrhynchos subsp. domesticus</i>			
27.	24315 <i>Anas rhynchotis</i> (Australasian Shoveler)			
28.	24316 <i>Anas superciliosa</i> (Pacific Black Duck)			
29.	47414 <i>Anhinga novaehollandiae</i> (Australasian Darter)			
30.	44629 <i>Anilius australis</i>			
31.	<i>Anoplocapros lenticularis</i>			
32.	24508 <i>Anous tenuirostris subsp. melanops</i> (Australian Lesser Noddy)		T	
33.	<i>Anser anser</i>			
34.	24561 <i>Anthochaera carunculata</i> (Red Wattlebird)			
35.	24562 <i>Anthochaera lunulata</i> (Western Little Wattlebird)			
36.	<i>Aploactisoma milesii</i>			
37.	<i>Apogon rueppellii</i>			
38.	24991 <i>Aprasia repens</i> (Sand-plain Worm-lizard)			
39.	25554 <i>Apus pacificus</i> (Fork-tailed Swift, Pacific Swift)		IA	
40.	24285 <i>Aquila audax</i> (Wedge-tailed Eagle)			
41.	<i>Arachnura higginsii</i>			
42.	<i>Araneus cyphoxis</i>			
43.	<i>Araneus eburneiventris</i>			
44.	<i>Araneus zenicaudatus</i>			
45.	24337 <i>Ardea garzetta subsp. nigripes</i> (Little Egret)			
46.	25558 <i>Ardea ibis</i> (Cattle Egret)			
47.	25559 <i>Ardea intermedia</i> (Intermediate Egret)			
48.	41324 <i>Ardea modesta</i> (great egret, white egret)			
49.	24340 <i>Ardea novaehollandiae</i> (White-faced Heron)			
50.	24341 <i>Ardea pacifica</i> (White-necked Heron)			
51.	25560 <i>Ardea sacra</i> (Eastern Reef Egret, Eastern Reef Heron)			
52.	25736 <i>Arenaria interpres</i> (Ruddy Turnstone)		IA	

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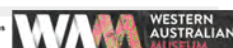


Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
53.	<i>Arenigobius bifrenatus</i>			
54.	<i>Argiope protensa</i>			
55.	<i>Argiope trifasciata</i>			
56.	<i>Arkys walckenaeri</i>			
57.	25568 <i>Artamus cinereus</i> (Black-faced Woodswallow)			
58.	24352 <i>Artamus cinereus</i> subsp. <i>melanops</i> (Black-faced Woodswallow)			
59.	24353 <i>Artamus cyanopterus</i> (Dusky Woodswallow)			
60.	<i>Artema atlanta</i>			
61.	<i>Artoria flavimana</i>			
62.	<i>Artoria linnaei</i>			
63.	<i>Artoria taenifera</i>			
64.	<i>Artoriopsis eccentrica</i>			
65.	<i>Artoriopsis expolita</i>			
66.	<i>Artoriopsis joergi</i>			
67.	<i>Atherinomorus vaigiensis</i>			
68.	<i>Atherinosoma wallacei</i>			
69.	<i>Aureocrypta lugubris</i>			
70.	<i>Austracantha minax</i>			
71.	47713 <i>Austronomus australis</i> (White-striped Free-tailed Bat)			
72.	24318 <i>Aythya australis</i> (Hardhead)			
73.	<i>Backobourkia heroine</i>			
74.	<i>Badumna insignis</i>			
75.	<i>Ballarra longipalpus</i>			
76.	<i>Barnardius zonarius</i>			
77.	24319 <i>Biziura lobata</i> (Musk Duck)			
78.	24345 <i>Botaurus poiciloptilus</i> (Australasian Bittern)		T	
79.	42380 <i>Brachyurophis fasciolatus</i> subsp. <i>fasciolatus</i> (Narrow-banded Shovel-nosed Snake)			
80.	42381 <i>Brachyurophis semifasciatus</i> (Southern Shovel-nosed Snake)			
81.	25713 <i>Cacatua galerita</i> (Sulphur-crested Cockatoo)			
82.	25714 <i>Cacatua pastinator</i> (Western Long-billed Corella)			
83.	25715 <i>Cacatua roseicapilla</i> (Galah)			
84.	25716 <i>Cacatua sanguinea</i> (Little Corella)			
85.	24729 <i>Cacatua tenuirostris</i> (Eastern Long-billed Corella)	Y		
86.	25598 <i>Cacomantis flabelliformis</i> (Fan-tailed Cuckoo)			
87.	24427 <i>Cacomantis flabelliformis</i> subsp. <i>flabelliformis</i> (Fan-tailed Cuckoo)			
88.	42307 <i>Cacomantis pallidus</i> (Pallid Cuckoo)			
89.	24779 <i>Calidris acuminata</i> (Sharp-tailed Sandpiper)		IA	
90.	24780 <i>Calidris alba</i> (Sanderling)		IA	
91.	25738 <i>Calidris canutus</i> (Red Knot, knot)		IA	
92.	24784 <i>Calidris ferruginea</i> (Curlew Sandpiper)		T	
93.	24786 <i>Calidris melanotos</i> (Pectoral Sandpiper)		IA	
94.	24787 <i>Calidris minuta</i> (Little Stint)			
95.	24788 <i>Calidris ruficollis</i> (Red-necked Stint)		IA	
96.	<i>Calidris</i> sp.			
97.	24789 <i>Calidris subminuta</i> (Long-toed Stint)		IA	
98.	24790 <i>Calidris tenuirostris</i> (Great Knot)		T	
99.	25717 <i>Calyptorhynchus banksii</i> (Red-tailed Black-Cockatoo)			
100.	24731 <i>Calyptorhynchus banksii</i> subsp. <i>naso</i> (Forest Red-tailed Black Cockatoo)		T	
101.	24733 <i>Calyptorhynchus baudinii</i> (Baudin's Cockatoo, White-tailed Long-billed Black Cockatoo)		T	
102.	24734 <i>Calyptorhynchus latirostris</i> (Camaby's Cockatoo, White-tailed Short-billed Black Cockatoo)		T	
103.	48400 <i>Calyptorhynchus</i> sp. (white-tailed black cockatoo)		T	
104.	<i>Carassius auratus</i>			
105.	34031 <i>Carcharodon carcharias</i> (Great White Shark)		T	
106.	25335 <i>Caretta caretta</i> (Loggerhead Turtle)		T	
107.	<i>Cercophonus sulcatus</i>			
108.	24188 <i>Chalinolobus gouldii</i> (Gould's Wattled Bat)			
109.	24187 <i>Chalinolobus morio</i> (Chocolate Wattled Bat)			
110.	25574 <i>Charadrius dubius</i> (Little Ringed Plover)		IA	
111.	25575 <i>Charadrius leschenaultii</i> (Greater Sand Plover)		T	
112.	24377 <i>Charadrius ruficapillus</i> (Red-capped Plover)			
113.	<i>Cheilodactylus gibbosus</i>			
114.	43380 <i>Chelodina colliei</i> (South-western Snake-necked Turtle)			
115.	24321 <i>Chenonetta jubata</i> (Australian Wood Duck, Wood Duck)			
116.	47909 <i>Cheramoeca leucosterna</i> (White-backed Swallow)			
117.	33939 <i>Cherax cainii</i> (Marron)			
118.	<i>Cherax destructor</i>			
119.	<i>Cherax preissii</i>			
120.	<i>Cherax quinquecarinatus</i>			

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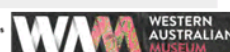


Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
121.	<i>Cherax</i> sp.			
122.	41332 <i>Chlidonias leucopterus</i> (White-winged Black Tern, white-winged tern)		IA	
123.	24980 <i>Christinus marmoratus</i> (Marbled Gecko)			
124.	<i>Chroicocephalus novaehollandiae</i>			
125.	25601 <i>Chrysococcyx lucidus</i> (Shining Bronze Cuckoo)			
126.	24432 <i>Chrysococcyx lucidus</i> subsp. <i>plagosus</i> (Shining Bronze Cuckoo)			
127.	24288 <i>Circus approximans</i> (Swamp Harrier)			
128.	24289 <i>Circus assimilis</i> (Spotted Harrier)			
129.	24774 <i>Cladorhynchus leucocephalus</i> (Banded Stilt)			
130.	<i>Clynotis albobarbatus</i>			
131.	<i>Cnidoglanis macrocephalus</i>			
132.	25675 <i>Colluricincla harmonica</i> (Grey Shrike-thrush)			
133.	24399 <i>Columba livia</i> (Domestic Pigeon)	Y		
134.	25568 <i>Coracina novaehollandiae</i> (Black-faced Cuckoo-shrike)			
135.	24362 <i>Coracina novaehollandiae</i> subsp. <i>novaehollandiae</i> (Black-faced Cuckoo-shrike)			
136.	<i>Cormocephalus auranthipes</i>			
137.	<i>Cormocephalus novaehollandiae</i>			
138.	<i>Cormocephalus rubiceps</i>			
139.	24416 <i>Corvus bennetti</i> (Little Crow)			
140.	25592 <i>Corvus coronoides</i> (Australian Raven)			
141.	24417 <i>Corvus coronoides</i> subsp. <i>perplexus</i> (Australian Raven)			
142.	24671 <i>Coturnix pectoralis</i> (Stubble Quail)			
143.	25701 <i>Coturnix ypsilophora</i> (Brown Quail)			
144.	24673 <i>Coturnix ypsilophora</i> subsp. <i>australis</i> (Brown Quail)			
145.	24420 <i>Cracticus nigrogularis</i> (Pied Butcherbird)			
146.	25595 <i>Cracticus tibicen</i> (Australian Magpie)			
147.	24422 <i>Cracticus tibicen</i> subsp. <i>dorsalis</i> (White-backed Magpie)			
148.	24423 <i>Cracticus tibicen</i> subsp. <i>tibicen</i> (Black-backed Magpie)			
149.	25598 <i>Cracticus torquatus</i> (Grey Butcherbird)			
150.	24424 <i>Cracticus torquatus</i> subsp. <i>torquatus</i> (Grey Butcherbird)			
151.	<i>Cratogeomys mugiloides</i>			
152.	25398 <i>Crinia georgiana</i> (Quacking Frog)			
153.	25399 <i>Crinia glauerti</i> (Clicking Frog)			
154.	25400 <i>Crinia insignifera</i> (Squelching Froglet)			
155.	25401 <i>Crinia pseudinsignifera</i> (Bleating Froglet)			
156.	<i>Cristiceps</i> sp.			
157.	<i>Crustulina bicruciat</i>			
158.	30893 <i>Cryptoblepharus buchananii</i>			
159.	25020 <i>Cryptoblepharus plagiocephalus</i>			
160.	<i>Cryptoerithus quocba</i>			
161.	30899 <i>Ctenophorus adelaidensis</i> (Southern Heath Dragon, Western Heath Dragon)			
162.	25027 <i>Ctenopus australis</i>			
163.	25039 <i>Ctenopus fallens</i>			
164.	25040 <i>Ctenopus gemmula</i> (Jewelled South-west Ctenopus (Swan Coastal Plain subpop P3), skink)			
165.	25047 <i>Ctenopus impar</i>			
166.	<i>Cyclosta trilobata</i>			
167.	24322 <i>Cygnus atratus</i> (Black Swan)			
168.	24323 <i>Cygnus olor</i> (Mute Swan)	Y		
169.	<i>Cyrtophora pamasia</i>			
170.	30901 <i>Dacelo novaeguineae</i> (Laughing Kookaburra)	Y		
171.	<i>Dactylopsus dactylopsus</i>			
172.	<i>Daphnia carinata</i>			
173.	25673 <i>Daphnoscilla chrysoptera</i> (Varied Sittella)			
174.	24092 <i>Dasyurus geoffroyi</i> (Chuditch, Western Quoll)		T	
175.	<i>Delena cancerides</i>			
176.	25766 <i>Delma fraseri</i> (Fraser's Legless Lizard)			
177.	24999 <i>Delma grayii</i>			
178.	25468 <i>Demansia psammophis</i> (Yellow-faced Whipsnake)			
179.	25296 <i>Demansia psammophis</i> subsp. <i>reticulata</i> (Yellow-faced Whipsnake)			
180.	24324 <i>Dendrocygna arcuata</i> (Wandering Whistling Duck, Chestnut Whistling Duck)			
181.	25346 <i>Dermochelys coriacea</i> (Leatherback Turtle)		T	
182.	25607 <i>Dicaeum hirundinaceum</i> (Mistletoebird)			
183.	<i>Dingosa serrata</i>			
184.	30836 <i>Diomedea exulans</i> subsp. <i>exulans</i> (Snowy Albatross)		T	
185.	44654 <i>Diplodactylus lateroides</i> (Speckled Stone Gecko)			
186.	24470 <i>Dromaius novaehollandiae</i> (Emu)			
187.	25096 <i>Egernia kingii</i> (King's Skink)			
188.	25100 <i>Egernia napoleonis</i>			
189.	<i>Egretta garzetta</i>			

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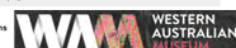


Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
190.	<i>Egretta novaehollandiae</i>			
191.	<i>Elanus axillaris</i>			
192.	25540 <i>Elanus caeruleus</i> (Black-shouldered Kite)			
193.	24290 <i>Elanus caeruleus</i> subsp. <i>axillaris</i> (Australian Black-shouldered Kite)			
194.	25250 <i>Elapognathus coronatus</i> (Crowned Snake)			
195.	47937 <i>Elseyornis melanops</i> (Black-fronted Dotterel)			
196.	<i>Eodelena convexa</i>			
197.	<i>Eodelena lapidicola</i>			
198.	<i>Eolophus rozeicapillus</i>			
199.	<i>Epinephelus</i> sp.			
200.	24567 <i>Epthianura albiglans</i> (White-fronted Chat)			
201.	<i>Eriophora biapicata</i>			
202.	<i>Erc aphanus</i>			
203.	<i>Erythrarchus decoris</i>			
204.	24379 <i>Erythronyx cinctus</i> (Red-kneed Dotterel)			
205.	<i>Ethmostigmus rubripes</i>			
206.	24368 <i>Eurostopodus argus</i> (Spotted Nightjar)			
207.	25591 <i>Eurystomus orientalis</i> (Dollarbird)			
208.	25621 <i>Falco berigora</i> (Brown Falcon)			
209.	24471 <i>Falco berigora</i> subsp. <i>berigora</i> (Brown Falcon)			
210.	25622 <i>Falco cenchroides</i> (Australian Kestrel, Nankeen Kestrel)			
211.	25623 <i>Falco longipennis</i> (Australian Hobby)			
212.	25624 <i>Falco peregrinus</i> (Peregrine Falcon)		S	
213.	24189 <i>Falsistrellus mackenziei</i> (Western False Pipistrelle, Western Falsistrelle)		P4	
214.	24041 <i>Felis catus</i> (Cat)	Y		
215.	25727 <i>Fulica atra</i> (Eurasian Coot)			
216.	24761 <i>Fulica atra</i> subsp. <i>australis</i> (Eurasian Coot)			
217.	30916 <i>Funambulus pennanti</i> (Indian Palm Squirrel)	Y		
218.	<i>Galaxias maculatus</i>			
219.	24761 <i>Gallinago hardwickii</i> (Latham's Snipe, Japanese snipe)		IA	
220.	24793 <i>Gallinago stenura</i> (Pin-tailed Snipe)		IA	
221.	25729 <i>Gallinula tenebrosa</i> (Dusky Moorhen)			
222.	24763 <i>Gallinula tenebrosa</i> subsp. <i>tenebrosa</i> (Dusky Moorhen)			
223.	25730 <i>Gallirallus philippensis</i> (Buff-banded Rail)			
224.	42314 <i>Gavicalis virescens</i> (Singing Honeyeater)			
225.	<i>Gea theridioides</i>			
226.	24959 <i>Gehyra variegata</i>			
227.	47954 <i>Gelochelidon nilotica</i> (Gull-billed Tern)		IA	
228.	<i>Geogarypus taylori</i>			
229.	24401 <i>Geopelia cuneata</i> (Diamond Dove)			
230.	25530 <i>Gerygone fusca</i> (Western Gerygone)			
231.	24271 <i>Gerygone fusca</i> subsp. <i>fusca</i> (Western Gerygone)			
232.	47962 <i>Glyciphila melanops</i> (Tawny-crowned Honeyeater)			
233.	24443 <i>Grallina cyanoleuca</i> (Magpie-lark)			
234.	<i>Gymnapistes marmoratus</i>			
235.	25627 <i>Haematopus fuliginosus</i> (Sooty Oystercatcher)			
236.	24487 <i>Haematopus longirostris</i> (Pied Oystercatcher)			
237.	24293 <i>Haliaeetus leucogaster</i> (White-bellied Sea-Eagle)			
238.	24295 <i>Haliastur sphenurus</i> (Whistling Kite)			
239.	25410 <i>Heleioporus eyrei</i> (Moaning Frog)			
240.	25119 <i>Hemiergis quadrilineata</i>			
241.	<i>Henicops dentatus</i>			
242.	24961 <i>Heteronotia binoclei</i> (Bynoe's Gecko)			
243.	47965 <i>Hieraaetus morphnoides</i> (Little Eagle)			
244.	25734 <i>Himantopus himantopus</i> (Black-winged Stilt)			
245.	24775 <i>Himantopus himantopus</i> subsp. <i>leucocephalus</i> (Black-winged Stilt)			
246.	<i>Hippocampus elongatus</i>			
247.	24491 <i>Hirundo neoxena</i> (Welcome Swallow)			
248.	<i>Hogna crispipes</i>			
249.	<i>Holconia westralia</i>			
250.	24215 <i>Hydromys chrysogaster</i> (Water-rat, Rakali)		P4	
251.	25366 <i>Hydrophis elegans</i> (Elegant Seasnake, Bar-bellied Seasnake)			
252.	42410 <i>Hydrophis ornatissimus</i> (Ornate Reef Seasnake, Sea Snake)			
253.	43384 <i>Hydrophis platurus</i> (Yellow-bellied Seasnake)			
254.	48587 <i>Hydroprogne caspia</i> (Caspian Tern)		IA	
255.	<i>Hyperlophus vittatus</i>			
256.	<i>Hyporhamphus regularis</i>			
257.	<i>Idiomma blackwalli</i>			
258.	<i>Idiosoma hirsutum</i>			
259.	48935 <i>Idiosoma sigillatum</i> (Swan Coastal Plain shield-backed trapdoor spider)		P3	

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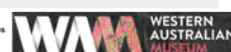


	Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
260.	48588	<i>Isodon fusciventer</i> (Quenda, southwestern brown bandicoot)		P4	
261.		<i>Isopoda leishmanni</i>			
262.	47975	<i>Ixobrychus dubius</i> (Australian Little Bittern)		P4	
263.		<i>Ixodes australiensis</i>			
264.		<i>Kangarosa ludwigi</i>			
265.		<i>Kangarosa properipes</i>			
266.		<i>Lampona brevipes</i>			
267.		<i>Lampona cylindrata</i>			
268.	25637	<i>Larus novaehollandiae</i> (Silver Gull)			
269.	24511	<i>Larus novaehollandiae</i> subsp. <i>novaehollandiae</i> (Silver Gull)			
270.	25638	<i>Larus pacificus</i> (Pacific Gull)			
271.		<i>Latrodectus hasseltii</i>			
272.	33982	<i>Leioproctus contrarius</i> (a short-tongued bee)		P3	
273.	25128	<i>Lerista christinae</i>			
274.	25131	<i>Lerista distinguenda</i>			
275.	25133	<i>Lerista elegans</i>			
276.	25147	<i>Lerista lineata</i> (Perth Slider, Lined Skink)		P3	
277.		<i>Leucocoe dromedaria</i>			Y
278.	25005	<i>Lialis burtonis</i>			
279.	25661	<i>Lichmera indistincta</i> (Brown Honeyeater)			
280.	24582	<i>Lichmera indistincta</i> subsp. <i>indistincta</i> (Brown Honeyeater)			
281.	25415	<i>Limnodynastes dorsalis</i> (Western Banjo Frog)			
282.	30932	<i>Limosa lapponica</i> (Bar-tailed Godwit)		IA	
283.	25741	<i>Limosa limosa</i> (Black-tailed Godwit)		IA	
284.	24797	<i>Limosa limosa</i> subsp. <i>melanuroides</i> (Black-tailed Godwit)		IA	
285.	25378	<i>Litoria adelaidensis</i> (Slender Tree Frog)			
286.	25388	<i>Litoria moorei</i> (Motorbike Frog)			
287.	25683	<i>Lonchura castaneothorax</i> (Chestnut-breasted Mannikin)			
288.		<i>Longepi woodman</i>			
289.		<i>Lophocitnia isura</i>			
290.		<i>Lycosa anadnae</i>			
291.		<i>Lycosa australicola</i>			
292.		<i>Lycosa gilberta</i>			
293.		<i>Lycosa lacertosa</i>			
294.	24132	<i>Macropus fuliginosus</i> (Western Grey Kangaroo)			
295.	24326	<i>Malacorhynchus membranaceus</i> (Pink-eared Duck)			
296.	25651	<i>Malurus lamberti</i> (Variegated Fairy-wren)			
297.	25654	<i>Malurus splendens</i> (Splendid Fairy-wren)			
298.	24583	<i>Manorina flavigula</i> (Yellow-throated Miner)			
299.		<i>Maratus pavonis</i>			
300.	25758	<i>Megalurus gramineus</i> (Little Grassbird)			
301.	47907	<i>Melanodryas cucullata</i> (Hooded Robin)			
302.	25663	<i>Melithreptus brevirostris</i> (Brown-headed Honeyeater)			
303.	24587	<i>Melithreptus chloropsis</i> (Western White-naped Honeyeater)			
304.	24738	<i>Melopsittacus undulatus</i> (Budgerigar)			
305.	25184	<i>Menetia greyii</i>			
306.	24598	<i>Merops ornatus</i> (Rainbow Bee-eater)			
307.		<i>Microcarbo melanoleucos</i>			
308.	25693	<i>Microeca fascians</i> (Jacky Winter)			
309.	25542	<i>Milvus migrans</i> (Black Kite)			
310.		<i>Missulena granulosa</i>			
311.		<i>Missulena occatoria</i>			
312.		<i>Mituliodon tarantulinus</i>			
313.		<i>Mitzoruga insularis</i>			
314.		<i>Molycris vokes</i>			
315.	25191	<i>Morethia lineocollata</i>			
316.	25192	<i>Morethia obscura</i>			
317.	48008	<i>Morus serrator</i> (Australasian Gannet)			
318.		<i>Mugil cephalus</i>			
319.	24223	<i>Mus musculus</i> (House Mouse)	Y		
320.	24042	<i>Mustela putorius</i> (European Polecat, Ferret)	Y		
321.		<i>Myandra bicincta</i>			
322.	25610	<i>Myiagra inquieta</i> (Restless Flycatcher)			
323.	25420	<i>Myobatrachus gouldii</i> (Turtle Frog)			
324.	24146	<i>Myrmecobius fasciatus</i> (Numbat, Walpurti)		T	
325.		<i>Nanometa gentilis</i>			
326.	25248	<i>Neelaps bimaculatus</i> (Black-naped Snake)			
327.	25249	<i>Neelaps calonotos</i> (Black-striped Snake, black-striped burrowing snake)		P3	
328.	33984	<i>Neopasiphae simplicior</i> (a short-tongued bee)		T	
329.	24738	<i>Neophema elegans</i> (Elegant Parrot)			

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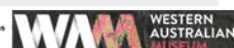


	Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
330.	24739	<i>Neophema petrophila</i> (Rock Parrot)			
331.		<i>Nephila edulis</i>			
332.		<i>Nicodamus mainae</i>			
333.	25747	<i>Ninox connivens</i> (Barking Owl)			
334.	48024	<i>Notamacropus eugenii</i> subsp. <i>derbianus</i> (Tammar Wallaby, Tammar)		P4	
335.	48022	<i>Notamacropus ima</i> (Western Brush Wallaby)		P4	
336.	25252	<i>Notechis scutatus</i> (Tiger Snake)			
337.		<i>Notiasemus glauerti</i>			
338.	24798	<i>Numenius madagascariensis</i> (Eastern Curlew)		T	
339.	25742	<i>Numenius phaeopus</i> (Whimbrel)		IA	
340.	25564	<i>Nycticorax caledonicus</i> (Rufous Night Heron)			
341.	24194	<i>Nyctophilus geoffroyi</i> (Lesser Long-eared Bat)			
342.	24742	<i>Nymphicus hollandicus</i> (Cockatiel)			
343.		<i>Ocristona leucocomis</i>			
344.	24407	<i>Ocyphaps lophotes</i> (Crested Pigeon)			
345.		<i>Oecobius navus</i>			
346.		<i>Ommatolius moreleti</i>			
347.		<i>Ommatolius moreleti</i>			
348.		<i>Ophisurus serpens</i>			
349.	24085	<i>Oryctolagus cuniculus</i> (Rabbit)	Y		
350.	24328	<i>Oxyura australis</i> (Blue-billed Duck)		P4	
351.	25680	<i>Pachycephala rufiventris</i> (Rufous Whistler)			
352.	24624	<i>Pachycephala rufiventris</i> subsp. <i>rufiventris</i> (Rufous Whistler)			
353.	24692	<i>Pachyptila belcheri</i> (Slender-billed Prion)			
354.	48591	<i>Pandion cristatus</i> (Osprey, Eastern Osprey)		IA	
355.		<i>Papillogobius punctatus</i>			
356.		<i>Paralamyctes cammoensis</i>			Y
357.	25253	<i>Parasuta gouldii</i>			
358.	25255	<i>Parasuta nigriceps</i>			
359.	25681	<i>Pardalotus punctatus</i> (Spotted Pardalote)			
360.	25682	<i>Pardalotus striatus</i> (Striated Pardalote)			
361.		<i>Pediana occidentalis</i>			
362.		<i>Pegasus volitans</i>			
363.		<i>Pelates sexlineatus</i>			
364.	24648	<i>Pelecanus conspicillatus</i> (Australian Pelican)			
365.	48060	<i>Petrochelidon ariel</i> (Fairy Martin)			
366.	48061	<i>Petrochelidon nigricans</i> (Tree Martin)			
367.	48066	<i>Petroica boodang</i> (Scarlet Robin)			
368.	24659	<i>Petroica goodenovii</i> (Red-capped Robin)			
369.	24683	<i>Phaethon rubricauda</i> (Red-tailed Tropicbird)		P4	
370.	25697	<i>Phalacrocorax carbo</i> (Great Cormorant)			
371.	24685	<i>Phalacrocorax fuscescens</i> (Black-faced Cormorant)			
372.	25698	<i>Phalacrocorax melanoleucos</i> (Little Pied Cormorant)			
373.	24686	<i>Phalacrocorax melanoleucos</i> subsp. <i>melanoleucos</i> (Little Pied Cormorant)			
374.	24687	<i>Phalacrocorax sulcirostris</i> (Little Black Cormorant)			
375.	25699	<i>Phalacrocorax varius</i> (Pied Cormorant)			
376.		<i>Phalacrocorax varius</i>			Y
377.	24409	<i>Phaps chalcoptera</i> (Common Bronzewing)			
378.	25587	<i>Phaps elegans</i> (Brush Bronzewing)			
379.		<i>Phenasteron longiconductor</i>			
380.	24802	<i>Philomachus pugnax</i> (Ruff, reeve)		IA	
381.		<i>Pholcus phalangioides</i>			
382.	48071	<i>Phylidonyris niger</i> (White-cheeked Honeyeater)			
383.	24596	<i>Phylidonyris novaehollandiae</i> (New Holland Honeyeater)			
384.		<i>Pinkfloydia harveii</i>			
385.		<i>Piona cumberlandensis</i>			
386.	24841	<i>Platalea flavipes</i> (Yellow-billed Spoonbill)			
387.	24842	<i>Platalea regia</i> (Royal Spoonbill)			
388.	25720	<i>Platycercus icterotis</i> (Western Rosella)			
389.	24747	<i>Platycercus spurius</i> (Red-capped Parrot)			
390.	25721	<i>Platycercus zonarius</i> (Australian Ringneck, Ring-necked Parrot)			
391.	24750	<i>Platycercus zonarius</i> subsp. <i>semitorquatus</i> (Twenty-eight Parrot)			
392.	24843	<i>Plegadis falcinellus</i> (Glossy Ibis)		IA	
393.	25509	<i>Pletholax gracilis</i> (Keeled Legless Lizard)			
394.	25007	<i>Pletholax gracilis</i> subsp. <i>gracilis</i> (Keeled Legless Lizard)			
395.	24382	<i>Pluvialis fulva</i> (Pacific Golden Plover)		IA	
396.	24383	<i>Pluvialis squatarola</i> (Grey Plover)		IA	
397.	25703	<i>Podargus strigoides</i> (Tawny Frogmouth)			
398.	24679	<i>Podargus strigoides</i> subsp. <i>brachypterus</i> (Tawny Frogmouth)			
399.	25704	<i>Podiceps cristatus</i> (Great Crested Grebe)			

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400.	<i>Podykippus collinus</i>			
401.	25510 <i>Pogona minor</i> (Dwarf Bearded Dragon)			
402.	24907 <i>Pogona minor</i> subsp. <i>minor</i> (Dwarf Bearded Dragon)			
403.	24681 <i>Poliocephalus poliocephalus</i> (Hoary-headed Grebe)			
404.	<i>Poltys laciniosus</i>			
405.	25722 <i>Polytelis anthopeplus</i> (Regent Parrot)			
406.	25731 <i>Porphyrio porphyrio</i> (Purple Swamphen)			
407.	24767 <i>Porphyrio porphyrio</i> subsp. <i>bellus</i> (Purple Swamphen)			
408.	24769 <i>Porzana fluminea</i> (Australian Spotted Crake)			
409.	25732 <i>Porzana pusilla</i> (Baillon's Crake)			
410.	24770 <i>Porzana pusilla</i> subsp. <i>palustris</i> (Baillon's Crake)			
411.	24771 <i>Porzana tabuensis</i> (Spotless Crake)			
412.	<i>Prionolepis nuchifasciata</i>			
413.	<i>Prionosternum scutatum</i>			
414.	<i>Pseudalampona woodman</i>			
415.	25511 <i>Pseudonaja affinis</i> (Dugite)			
416.	25259 <i>Pseudonaja affinis</i> subsp. <i>affinis</i> (Dugite)			
417.	42418 <i>Pseudonaja mengdeni</i> (Western Brown Snake)			
418.	25433 <i>Pseudophryne guentheri</i> (Crawling Toadlet)			
419.	48085 <i>Psittacula krameri</i> (Indian Ringnecked Parrot, Rose-ringed Parakeet)	Y		
420.	24703 <i>Pterodroma lessonii</i> (White-headed Petrel)			
421.	<i>Pterygotrigla polyommata</i>			
422.	24711 <i>Puffinus assimilis</i> subsp. <i>assimilis</i> (Little Shearwater)			
423.	42344 <i>Pumella albitrons</i> (White-fronted Honeyeater)			
424.	<i>Purpureicephalus spurius</i>			
425.	25008 <i>Pygopus lepidopus</i> (Common Scaly Foot)			
426.	24243 <i>Rattus fuscipes</i> (Western Bush Rat)			
427.	24244 <i>Rattus norvegicus</i> (Brown Rat)	Y		
428.	24245 <i>Rattus rattus</i> (Black Rat)	Y		
429.	<i>Raveniella arenacea</i>			
430.	<i>Raveniella cirrata</i>			
431.	<i>Raveniella peckorum</i>			
432.	<i>Raveniella subcirrata</i>			
433.	24778 <i>Recurvirostra novaehollandiae</i> (Red-necked Avocet)			
434.	48066 <i>Rhipidura albiscapa</i> (Grey Fantail)			
435.	25614 <i>Rhipidura leucophrys</i> (Willie Wagtail)			
436.	24454 <i>Rhipidura leucophrys</i> subsp. <i>leucophrys</i> (Willie Wagtail)			
437.	48237 <i>Rostratula australis</i> (Australian Painted Snipe)		T	
438.	<i>Scolopendra laeta</i>			
439.	<i>Scomberoides lysan</i>			
440.	25534 <i>Senicornis frontalis</i> (White-browed Scrubwren)			
441.	<i>Servaea melaina</i>			
442.	24145 <i>Setonix brachyurus</i> (Quokka)		T	
443.	<i>Sillago burrus</i>			
444.	<i>Simaetha tenuior</i>			
445.	25266 <i>Simoselaps bertholdi</i> (Jan's Banded Snake)			
446.	<i>Smeringopus natalensis</i>			
447.	30948 <i>Smicromis brevirostris</i> (Weebill)			
448.	<i>Solaenodolichopus pruvoti</i>			
449.	<i>Steatoda capensis</i>			
450.	24526 <i>Sterna hirundo</i> subsp. <i>hirundo</i> (Common Tern)		IA	Y
451.	24528 <i>Sterna hybrida</i> subsp. <i>javanica</i> (Whiskered Tern)			
452.	48594 <i>Sternula nereis</i> (Fairy Tern)			
453.	48595 <i>Sternula nereis</i> subsp. <i>nereis</i> (Fairy Tern)		T	
454.	24329 <i>Stictonetta naevosa</i> (Freckled Duck)			
455.	<i>Stigmatopora argus</i>			
456.	25597 <i>Strepera versicolor</i> (Grey Currawong)			
457.	25589 <i>Streptopelia chinensis</i> (Spotted Turtle-Dove)	Y		
458.	25590 <i>Streptopelia senegalensis</i> (Laughing Turtle-Dove)	Y		
459.	30950 <i>Streptopelia senegalensis</i> subsp. <i>senegalensis</i> (Laughing Turtle-Dove)	Y		
460.	25518 <i>Strophurus spinigerus</i>			
461.	24942 <i>Strophurus spinigerus</i> subsp. <i>spinigerus</i>			
462.	24946 <i>Strophurus strophurus</i>			
463.	<i>Supunna funerea</i>			
464.	<i>Supunna picta</i>			
465.	33992 <i>Synemon gratioia</i> (Graceful Sunmoth)		P4	
466.	<i>Synothele michaelsoni</i>			
467.	<i>Synothele rastelloides</i>			
468.	25705 <i>Tachybaptus novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
469.	24682 <i>Tachybaptus novaehollandiae</i> subsp. <i>novaehollandiae</i> (Australasian Grebe, Black-			

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Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
	throated Grebe)			
470.	24207 <i>Tachyglossus aculeatus</i> (Short-beaked Echidna)			
471.	25552 <i>Tadoma radjah</i> (Radjah Shelduck)			
472.	24331 <i>Tadoma tadornoides</i> (Australian Shelduck, Mountain Duck)			
473.	<i>Tamopsis darlingtoniana</i>			
474.	24167 <i>Tarsipes rostratus</i> (Honey Possum, Noolbenger)			
475.	<i>Tasmanicosa leuckartii</i>			
476.	<i>Tetraghnatha demissa</i>			
477.	<i>Tetraghnatha nitens</i>			
478.	48597 <i>Thalasseus bergii</i> (Crested Tern)		IA	
479.	48135 <i>Thinornis rubricollis</i> (Hooded Plover, Hooded Dotterel)		P4	
480.	48136 <i>Threskiornis moluccus</i> (Australian White Ibis)			
481.	24845 <i>Threskiornis spinicollis</i> (Straw-necked Ibis)			
482.	33994 <i>Throscodectes xiphos</i> (Stylet Bush Cricket, Stylet Throscot (Jandakot))		P1	Y
483.	25203 <i>Tiliqua occipitalis</i> (Western Bluetongue)			
484.	25519 <i>Tiliqua rugosa</i>			
485.	25204 <i>Tiliqua rugosa</i> subsp. <i>aspera</i>			
486.	25207 <i>Tiliqua rugosa</i> subsp. <i>rugosa</i>			
487.	<i>Tinytrema yarra</i>			
488.	25549 <i>Todiramphus sanctus</i> (Sacred Kingfisher)			
489.	24309 <i>Todiramphus sanctus</i> subsp. <i>sanctus</i> (Sacred Kingfisher)			
490.	<i>Torquigener pleurogramma</i>			
491.	48141 <i>Tribonyx ventralis</i> (Black-tailed Native-hen)			
492.	25723 <i>Trichoglossus haematodus</i> (Rainbow Lorikeet)			
493.	24755 <i>Trichoglossus haematodus</i> subsp. <i>moluccanus</i> (Rainbow Lorikeet)	Y		
494.	24754 <i>Trichoglossus haematodus</i> subsp. <i>rubritorquis</i> (Red-collared Lorikeet)			
495.	25521 <i>Trichosurus vulpecula</i> (Common Brushtail Possum)			
496.	24158 <i>Trichosurus vulpecula</i> subsp. <i>vulpecula</i> (Common Brushtail Possum)			
497.	24803 <i>Tringa brevipes</i> (Grey-tailed Tattler)		P4	
498.	24806 <i>Tringa glareola</i> (Wood Sandpiper)		IA	
499.	24808 <i>Tringa nebulana</i> (Common Greenshank, greenshank)		IA	
500.	24809 <i>Tringa stagnatilis</i> (Marsh Sandpiper, little greenshank)		IA	
501.	48147 <i>Turnix varius</i> (Painted Button-quail)			
502.	24851 <i>Turnix velox</i> (Little Button-quail)			
503.	24852 <i>Tyto alba</i> subsp. <i>delicatula</i> (Barn Owl)			
504.	24855 <i>Tyto novaehollandiae</i> subsp. <i>novaehollandiae</i> (Masked Owl (southwest))		P3	
505.	<i>Urocampus carinirostris</i>			
506.	<i>Urodacus novaehollandiae</i>			
507.	25577 <i>Vanellus miles</i> (Masked Lapwing)			
508.	24388 <i>Vanellus tricolor</i> (Banded Lapwing)			
509.	25218 <i>Varanus gouldii</i> (Bungarra or Sand Monitor)			
510.	25225 <i>Varanus rosenbergi</i> (Heath Monitor)			
511.	<i>Venator immansueta</i>			
512.	<i>Venatrix pullastra</i>			
513.	24208 <i>Vespadelus regulus</i> (Southern Forest Bat)			
514.	24040 <i>Vulpes vulpes</i> (Red Fox)	Y		
515.	34113 <i>Westralunio carteri</i> (Carter's Freshwater Mussel)		T	
516.	<i>Westrarchaea sinuosa</i>			
517.	41351 <i>Xenus cinereus</i> (Terek Sandpiper)		IA	
518.	<i>Zachria flavicoma</i>			
519.	25785 <i>Zosterops lateralis</i> (Grey-breasted White-eye, Silveryeye)			

Conservation Codes
 T - Rare or likely to become extinct
 X - Presumed extinct
 IA - Protected under international agreement
 S - Other specially protected fauna
 1 - Priority 1
 2 - Priority 2
 3 - Priority 3
 4 - Priority 4
 5 - Priority 5

[†] For NatureMap's purposes, species flagged as endemic are those whose records are wholly contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.



Appendix C

Conservation Significant Species and Likelihood of Occurrence Assessment





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Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
Birds					
<i>Actitis hypoleucos</i>	Common sandpiper	MI	MI	Edge of sheltered waters salt or fresh, e.g. estuaries, mangrove creeks, rocky coasts, near-coastal saltlakes (including saltwork ponds), river pools, lagoons, claypans, drying swamps, flood waters, dams and sewage ponds. Preferring situations wherelow perches are available (Johnstone & Storr 1998).	Possible (marginal habitat present)
<i>Anous stolidus</i>	Common noddy	MI	MI	Tropical and subtropical seas, cayes, reefs, buoys and piles (Pizzey & Knight 2012).	Unlikely (no suitable habitat)
<i>Anous tenuirostris melanops</i>	Australian lesser noddy	EN	VU	Very common in blue-water seas around the Abrolhos (endemic to this area, accidental occurrences on lower west coast of Australia) (Johnstone and Storr 1998).	Unlikely (no suitable habitat)
<i>Apus pacificus</i>	Pacific swift	MI	MI	Aerial, migratory species that is most often seen over inland plains and sometimes above open areas, foothills or in coastal areas. Sometimes occurs over settled areas, including towns, urban areas and cities (Pizzey & Knight 2012).	Possible (may opportunitically occur above the site, potential foraging habitat present)
<i>Ardea alba</i>	Eastern great egret	-	MA	Shallows of rivers, estuaries; tidal mudflats, freshwater wetlands; sewage ponds, irrigation areas and larger dams (Pizzey & Knight 2012).	Possible (potential habitat present)



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Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Ardea ibis</i>	Cattle egret	-	MA	Stock paddocks, pastures, croplands, garbage tips, wetlands, tidal mudflats, drains (Pizzey & Knight 2012).	Possible (potential habitat present)
<i>Ardena carneipes</i>	Flesh-footed shearwater	VU	MI	Marine species that breeds on islands off south coast from near Cape Leeuwin (Johnstone and Storr 1998).	Unlikely (no suitable habitat)
<i>Arenaria interpres</i>	Ruddy turnstone	MI	MI	Tidal mud and reef flats, sheltered rocky coasts, stony and seaweedy beaches and sandpits, dry coral ridges (Abrolhos) and pebbly shores of near-coastal saltlakes (including saltwork ponds) (Johnstone and Storr 1998).	Unlikely (no suitable habitat)
<i>Botaurus poiciloptilus</i>	Australasian bittern	EN	EN	In or over water, in tall reedbeds, sedges, rushes, cumbungi, lignum. Also occurs in ricefields, drains in tussocky paddocks and occasionally in saltmarshes and brackish wetlands.	Possible (marginal habitat present)
<i>Calidris acuminata</i>	Sharp-tailed sandpiper	MI	MI	Occurs in tidal mudflats, saltmarshes and mangroves, as well as, shallow fresh, brackish or saline inland wetlands. It is also known from floodwaters, irrigated pastures and crops, sewage ponds, saltfields.	Possible (marginal habitat present)
<i>Calidris alba</i>	Sanderling	MI	MI	Mainly steeply shelving sandy beaches exposed to ocean swell. Also sandy inlets, estuarine sandbanks and near-coastal saltlakes (including saltwork ponds) (Johnstone & Storr 1998).	Unlikely (no suitable habitat)



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Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Calidris canutus</i>	Red knot	EN	EN (MI)	Mud and sand flats in estuaries and on sheltered coasts. Also near-coastal saltlakes, including saltwork ponds.	Unlikely (no suitable habitat)
<i>Calidris ferruginea</i>	Curlew sandpiper	CR	CR (MI)	Mainly shallows of estuaries and near-coastal saltlakes (including saltwork ponds) and drying near-coastal freshwater lakes and swamps. Also beaches and near-coastal sewage ponds.	Unlikely (no suitable habitat)
<i>Calidris melanotos</i>	Pectoral sandpiper	MI	MI	Mainly fresh waters (swamps, lagoons, river pools, irrigation channels and sewage ponds); also samphire flats around estuaries and saltlakes (Johnstone & Storr 1998).	Possible (marginal habitat present)
<i>Calidris ruficollis</i>	Red-necked stint	MI	MI	Tidal mudflats, saltmarshes, sandy or shelly beaches, saline and freshwater wetlands (coastal and inland), saltfields, sewage ponds (Pizzey and Knight 2012).	Possible (marginal habitat present)
<i>Calidris subminuta</i>	Long-toed stint	MI	MI	Mainly freshwater swamps (especially when drying and where vegetation is short), river pools, lagoons and claypans; also brackish pools, sewage ponds and samphire flats around estuaries and saltlakes.	Possible (marginal habitat present)
<i>Calidris tenuirostris</i>	Great knot	CR	CR (MI)	Mud or sand flats in estuaries and on sheltered coasts. Also near-coastal saltlakes, including saltwork ponds.	Unlikely (no suitable habitat)



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Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Calyptorhynchus banksii naso</i>	Forest red-tailed black cockatoo	VU	VU	Eucalypt and Corymbia forests, often in hilly interior. More recently also observed in more open agricultural and suburban areas including Perth metropolitan area. Attracted to seeding Corymbia calophylla, Eucalyptus marginata, introduced Melia azdarach and Eucalyptus spp. trees.	Likely (potential habitat present)
<i>Calyptorhynchus baudinii</i>	Baudin's cockatoo	EN	EN	Mainly eucalypt forests. Attracted to seeding Corymbia calophylla, Banksia spp., Hakea spp., and to fruiting apples and pears (Johnstone and Storr 1998).	Unlikely (outside of modelled distribution, limited foraging habitat)
<i>Calyptorhynchus latirostris</i>	Carnaby's cockatoo	EN	EN	Mainly proteaceous scrubs and heaths and adjacent eucalypt woodlands and forests; also plantations of Pinus spp. Attracted to seeding Banksia spp., Dryandra spp., Hakea spp., Eucalyptus spp., Corymbia calophylla, Grevillea spp., and Allocasuarina spp. (Johnstone and Storr 1998).	Recorded (potential habitat present)
<i>Charadrius bicinctus</i>	Double-banded plover	MI	MI	Wide beaches, tidal mudflats, saltmarsh, wide and sparsely vegetated margins of shallow saline and freshwater wetlands, paddocks with sparse vegetation, ploughed fields, airfields.	Possible (potential habitat present)



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Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Charadrius dubius</i>	Little ringed plover	MI	MI	Open, muddy or sandy shores of lakes, swamps, tidal areas, sewage ponds or farm dams. Rare but regular summer migrant to Australia (Pizzey & Knight 2012).	Possible (potential habitat present)
<i>Charadrius leschenaultii</i>	Great sand plover	VU	VU (MI)	Wide sandy or shelly beaches, sandpits, tidal mudflats, reefs, sand cays, mangroves, saltmarsh, dune wilderness, bare paddocks, seldom far inland (Pizzey & Knight 2012).	Possible (potential habitat present)
<i>Charadrius mongolus</i>	Lesser sand plover	EN	EN (MI)	Sandy beaches and tidal estuarine flats. Also near-coastal saltlakes, including saltwork ponds (Johnstone & Storr 1998).	Unlikely (no suitable habitat)
<i>Charadrius ruficapillus</i>	Red-capped plover	-	MA	Broad, sandy and shelly beaches; bare margins of saline wetlands and lakes, inland and coastal; saltmarsh; tidal mudflats and sandflats; adjacent dunes; occasionally shallow freshwater wetlands, inland and coastal (Pizzey & Knight 2012).	Possible (potential habitat present)
<i>Chlidonias leucopterus</i>	White-winged black tern	MI	MI	Vegetated and open wetlands, brackish and saline lakes, saltfields, irrigated lands, sewage ponds and occasionally offshore.	Possible (potential habitat present)



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Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Diomedea amsterdamensis</i>	Amsterdam albatross	CR	EN (MI)	The Amsterdam albatross is a 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 and Higgins 1990)	Unlikely (no suitable habitat)
<i>Diomedea epomophora</i>	Southern royal albatross	VU	VU (MI)	Rare visitor to Western Australian seas; it breeds on subantarctic islands south of New Zealand (Johnstone and Storr 1998).	Unlikely (no suitable habitat)
<i>Diomedea exulans</i>	Wandering albatross	VU	VU (MI)	Marine, pelagic and aerial species. It breeds on Macquarie Island and feeds in Australian portions of the Southern Ocean (DoE 2018).	Unlikely (no suitable habitat)
<i>Diomedea sanfordi</i>	Northern royal albatross	EN	EN	Species is marine, pelagic and aerial. Habitat includes subantarctic, subtropical, and occasionally Antarctic waters (Marchant & Higgins 1990). Rare visitors to south Western Australian waters.	Unlikely (no suitable habitat)
<i>Falco peregrinus</i>	Peregrine falcon	OS	-	Mainly found around cliffs along coasts, rivers, ranges and around wooded watercourses and lakes (Johnstone and Storr 1998).	Possible (marginal habitat present)



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Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Gallinago hardwickii</i>	Latham's snipe	MI	MI	Soft, wet ground or shallow water with tussocks and other green or dead growth, wet parts of paddocks, seepage below dams, irrigated areas, scrub or open woodland from sea level to alpine bogs over 2000 m, samphire on saltmarshes and mangrove fringes. Rare visitor to Western Australia.	Possible (potential habitat present)
<i>Gallinago megala</i>	Swinhoe's snipe	MI	MI	Wet, grassy ground; edges of reedy swamps (Pizzey & Knight 2012).	Possible (potential habitat present)
<i>Gallinago stenura</i>	Pin-tailed snipe	MI	MI	Boggy edges of vegetated wetlands; sewage and other ponds; stubbles, grasslands with shrubs, pastures (Pizzey & Knight 2012).	Possible (potential habitat present)
<i>Gelochelidon nilotica</i>	Gull-billed tern	MI	MI	Beaches, mudflats; fresh, brackish wetlands, including far inland; grasslands, crops, ploughed fields, airfields (Pizzey & Knight 2012).	Possible (potential habitat present)
<i>Haliaeetus leucogaster</i>	White-bellied sea-eagle	-	MA	Coasts, islands, estuaries, inlets, large rivers, inland lakes and reservoirs (Pizzey & Knight 2012).	Unlikely (no suitable habitat)
<i>Heteroscelus brevipes</i>	Grey-tailed tattler	P4	MI	Tidal mud and reef flats, sheltered rocky coasts, stony and seaweedy beaches and sandpits, dry coral ridges (Abrolhos) and pebbly shores of near-coastal saltlakes (including saltwork ponds) (Johnstone and Storr 1998).	Unlikely (no suitable habitat)



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Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Himantopus himantopus</i>	Black-winged stilt	-	MA	Freshwater and saltwater marshes, mudflats, and the shallow edges of lakes and rivers (Birdlife Australia 2019).	Possible (potential habitat present)
<i>Hydroprogne caspia</i>	Caspian tern	MI	MI	Mainly sheltered areas, estuaries (when not laden with silt) and tidal creeks; occasionally near-coastal saltlakes (including saltwork ponds) and brackish pools in lower courses of rivers; rarely fresh waters.	Unlikely (no suitable habitat)
<i>Ixobrychus dubius</i>	Australian little bittern	P4	-	Dense vegetation surrounding/within freshwater pools, swamps and lagoons, well screened with trees. Shelters in dense beds of Typha spp., Baumea spp. and tall rushes in freshwater swamps around lakes and along rivers (Johnstone and Storr 1998).	Possible (marginal habitat present)
<i>Leipoa ocellata</i>	Mallefowl	VU	VU	Scrubs and thickets of Eucalyptus spp., Melaleuca lanceolata and Acacia linophylla; also other dense litter-forming shrublands. Attracted to fallen wheat in stubbles and along roads (Johnstone and Storr 1998).	Unlikely (locally extinct, no suitable habitat)
<i>Limosa lapponica</i>	Bar-tailed godwit	MI (& MI		Estuarine sand and mudflats and sandy beaches with loads of seaweed; also reef flats and near-coastal saltlakes (including saltwork ponds) (Johnstone and Storr 1998).	Unlikely (no suitable habitat)



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Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Limosa lapponica baueri</i>	Bar-tailed godwit	VU	VU	Estuarine sand and mudflats and sandy beaches with loads of seaweed; also reef flats and near-coastal saltlakes (including saltwork ponds) (Johnstone and Storr 1998).	Unlikely (no suitable habitat)
<i>Limosa lapponica menzbieri</i>	Bar-tailed godwit	CR	CR	Mainly coastal habitats such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays. Has also been recorded in coastal sewage farms and saltworks, saltlakes and brackish wetlands near coasts, sandy ocean beaches, rock platforms, and coral reef-flats (Higgins and Davies 1996).	Unlikely (no suitable habitat)
<i>Limosa limosa</i>	Black-tailed godwit	MI	MI	Tidal mudflats, estuaries, sewage ponds, shallow river margins, brackish or saline inland lakes, flooded pastures, airfields (Pizzey & Knight 2012).	Possible (potential habitat present)
<i>Macronectes giganteus</i>	Southern giant-petrel	MI	EN (MI)	Breeds on southern subantarctic and antarctic islands. May visit Western Australian waters from February to December (mostly June to September) (Johnstone and Storr 1998).	Unlikely (no suitable habitat)
<i>Macronectes halli</i>	Northern giant petrel	MI	VU (MI)	Breeds on subantarctic islands. May visit Western Australian water from February to September (Johnstone and Storr 1998).	Unlikely (no suitable habitat)



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Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Merops ornatus</i>	Rainbow bee-eater	-	MA	Open woodlands with sandy, loamy soil; sandridges, sandpits, riverbanks, road cuttings, beaches, dunes, cliffs, mangroves, rainforest, woodlands and golf courses (Pizzey & Knight 2012).	Possible (potential habitat present)
<i>Motacilla cinerea</i>	Grey wagtail	MI	MI	Mainly banks and rocks in fast-running fresh water habitats: rivers, creeks, streams and around waterfalls, both in forest and open country.	Unlikely (no suitable habitat)
<i>Numenius madagascariensis</i>	Eastern curlew	CR	CR (MI)	Mainly tidal mudflats; also reef flats, sandy beaches and rarely near-coastal lakes (including saltwork ponds) (Johnstone and Storr 1998).	Unlikely (no suitable habitat)
<i>Numenius minutus</i>	Little curlew	MI	MI	Dry grasslands, floodplains, margins of drying swamps; tidal mudflats, airfields, playing fields, crops, commercial saltfields, sewage ponds (Pizzey & Knight 2012).	Possible (potential habitat present)
<i>Numenius phaeopus</i>	Whimbrel	MI	MI	Estuaries, mangroves, tidal flats, coral cays, exposed reefs, flooded paddocks, sewage ponds, bare grasslands, sportsgrounds and lawns.	Possible (potential habitat present)
<i>Oxyura australis</i>	Blue-billed duck	P4	-	Mainly deeper freshwater swamps and lakes; occasionally saltlakes and estuaries freshened by flood waters (Johnstone and Storr 1998a).	Possible (marginal habitat present)



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Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Pachyptila turtur subantarctica</i>	Fairy prion	-	VU	Breeds on subantarctic islands and is presumed to frequent subtropical waters during non-breeding period (TSSC 2015).	Unlikely (no suitable habitat)
<i>Pandion cristatus</i>	Osprey	MI	MI	Coasts, estuaries, bays, inlets, islands, and surrounding waters; coral atolls, reefs, lagoons, rock cliffs, stacks (Pizzey & Knight 2012).	Unlikely (no suitable habitat)
<i>Phaethon rubricauda</i>	Red-tailed tropicbird	P4 (N	MI	Spend most of their lives at sea and rarely venture near land. This bird is normally found in tropical and subtropical seas around northern Australia. Though rarely seen in colder areas, a few pairs breed on Sugarloaf Rock, south of Cape Naturaliste (DPAW 2017b).	Unlikely (no suitable habitat)
<i>Phalaropus lobatus</i>	Red-necked phalarope	MI	MI	Shallow pools in commercial saltfields, tidal mudflats, beaches, saltmarshes, freshwater wetlands.	Possible (marginal habitat present)
<i>Philomachus pugnax</i>	Ruff	MI	MI	Fresh, brackish and saline wetlands; tidal mudflats, saltfields, sewage ponds (Pizzey & Knight 2012).	Possible (marginal habitat present)
<i>Plegadis falcinellus</i>	Glossy Ibis	MI	MI	Shallow and adjacent flats of freshwater lakes and swamps, also river pools, flooded samphire and sewage ponds.	Possible (marginal habitat present)



Conservation significant fauna likelihood of occurrence
Former Glen Iris Golf Course

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Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Pluvialis fulva</i>	Pacific golden plover	MI	MI	Estuaries, mudflats, saltmarshes, mangroves; rocky reefs and stranded seaweed on ocean shores; margins of shallow open inland swamps; sewage ponds, short-grass paddocks, sportsgrounds, airfields, ploughed land (Pizzey & Knight 2012).	Possible (potential habitat present)
<i>Pluvialis squatarola</i>	Grey Plover	MI	MI	Mudflats, saltmarsh, tidal reefs and estuaries, rarely inland (Pizzey and Knight 2012).	Unlikely (no suitable habitat)
<i>Puffinus carneipes</i>	Flesh-footed shearwater	MI	MI	Marine species that breeds on islands off south coast from near Cape Leeuwin (Johnstone and Storr 1998).	Unlikely (no suitable habitat)
<i>Recurvirostra novaehollandiae</i>	Red-necked avocet	-	MA	Estuaries, tidal mudflats; fresh, brackish and salt swamps and lakes; claypans, commercial saltfields and sewage ponds (Pizzey & Knight 2012).	Possible (marginal habitat present)
<i>Rostratula australis</i>	Australian painted snipe	EN	EN	Mainly shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans (Marchant and Higgins 1993).	Possible (marginal habitat present)
<i>Rostratula benghalensis</i>	Painted snipe	-	EN	Well vegetated shallows and margins of wetlands, dams, sewerage ponds, wet pastures, marshy areas, irrigation systems, lignum, tea tree scrub, open timber. Requires dense low cover (Morcombe 2004).	Unlikely (no suitable habitat)



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Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Sterna dougallii</i>	Roseate tern	MI	MI	Offshore waters, islands, coral reefs, sand cays, beaches, tidal inlets (Pizzey & Knight 2012).	Unlikely (no suitable habitat)
<i>Sterna hirundo hirundo</i>	n/a	MI	MI	Offshore waters, beaches, reefs, bays, estuaries, sandflats, saltfields, sewage ponds, freshwater wetlands.	Unlikely (no suitable habitat)
<i>Sternula nereis nereis</i>	Australian fairy tern	VU	VU	Sheltered blue-water seas close to land, estuaries (when free of silt) and near-coastal lakes (Johnstone and Storr 1998).	Unlikely (no suitable habitat)
<i>Thalassarche cauta cauta</i>	Shy albatross	VU	VU (MI)	Scarce visitor (late May to mid-October) to southwestern and western seas. Breeds on islands off Tasmania and south New Zealand (Johnstone and Storr 1998).	Possible (marginal habitat present)
<i>Thalassarche cauta steadi</i>	White-capped albatross	VU	VU (MI)	Scarce visitor (late May to mid-October) to southwestern and western seas. Breeds on islands off Tasmania and south New Zealand (Johnstone and Storr 1998).	Unlikely (no suitable habitat)
<i>Thalassarche impavida</i>	Campbell albatross	VU	VU (MI)	Scarce visitor to south western and western seas. Breeds on Campbell island.	Unlikely (no suitable habitat)
<i>Thalassarche melanophris</i>	Black-browed albatross	EN	VU (MI)	Seas of south and west coasts. Visitor to Western Australian mainland from January to early November (mostly May to September). Breeds on southern subantarctic and antarctic islands (Johnstone and Storr 1998).	Unlikely (no suitable habitat)



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Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Thalassarche steadi</i>	White-capped albatross	VU	VU (MI)	Marine species that occurs in subantarctic and subtropical waters. It reaches tropical areas associated with the cool Humboldt Current off South America (Marchant & Higgins 1990). The species has been noted in shelf-waters around breeding islands and over adjacent rises. During the non-breeding season, birds have been observed over continental shelves around continents. The species occurs both inshore and offshore (Marchant 1977) and enters harbours and bays (Jehl 1973). Birds gather to scavenge at commercial fishing grounds.	Unlikely (no suitable habitat)
<i>Thalasseus bergii</i>	Crested tern	MI	MI	Mainly blue-water seas (especially within 3 km of land), including southern estuaries in summer and autumn (when free of silt); also tidal creeks in north, but not penetrating far into larger estuaries.	Unlikely (no suitable habitat)
<i>Thinornis rubricollis</i>	Hooded plover	P4	VU	Margins and shallows of saltlakes, sandy and seaweedy beaches and estuaries; also dams (Johnstone & Storr 1998).	Possible (marginal habitat present)
<i>Tringa brevipes</i>	Grey-tailed tattler	P4 (N)	MI	Tidal mud and reef flats, sheltered rocky coasts, stony and seaweedy beaches and sandpits, dry coral ridges (Abrolhos) and pebbly shores of near-coastal saltlakes (including saltwork ponds) (Johnstone and Storr 1998).	Unlikely (no suitable habitat)



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Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Tringa glareola</i>	Wood sandpiper	MI	MI	Mainly shallow fresh waters (lagoons, swamps, claypans, river pools, dams, bore overflows and sewage ponds); occasionally brackish swamps, rarely saltlakes and estuaries.	Possible (potential habitat present)
<i>Tringa nebularia</i>	Common greenshank	MI	MI	Shallow fresh waters (claypans, lagoons, swamps, river pools, dams and sewage ponds) and salt waters (estuaries, mangrove creeks, lakes, samphire flats, reef flats and saltwork ponds).	Possible (potential habitat present)
<i>Tringa stagnatilis</i>	Marsh sandpiper	MI	MI	Mainly shallow fresh or brackish waters: swamps, lakes, river pools, soaks, sewage ponds and bore overflows. Occasionally estuaries and salt ponds, and rarely coasts.	Possible (potential habitat present)
<i>Tringa totanus</i>	Common redshank	MI	MI	Sheltered coastal wetlands such as bays, river estuaries, lagoons, inlets and saltmarsh (with bare open flats and banks of mud or sand). Also found around saltlakes, freshwater lagoons, artificial wetlands and saltworks and sewage farms (Higgins & Davies 1996).	Possible (marginal habitat present)
<i>Tyto novaehollandiae novaehollandiae</i>	Australian masked owl	P3	-	Forests, open woodlands, farmlands with large trees. E.g. river red gums, adjacent cleared country, timbered watercourses, paperbark woodlands and caves (Pizzey & Knight 2012).	Possible (marginal habitat present)



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Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Xenus cinereus</i>	Terek sandpiper	MI	MI	Tidal mudflats, estuaries; shores and reefs of islands; coastal swamps, commercial saltfields (Pizzey & Knight 2012).	Unlikely (no suitable habitat)
Invertebrates					
<i>Idiosoma sigillatum</i>	Swan Coastal Plain shield-backed trapdoor spider	P3	-	Widely distributed in sandy areas on the Swan Coastal Plain and on Rottnest Island (Prince 2003).	Possible (suitable habitat present. multiple records nearby.)
<i>Synemon gratiosa</i>	Graceful sunmoth	P4	-	Coastal heathland on Quindalup dunes where it is restricted to secondary sand dunes due to the abundance of the preferred host plant <i>Lomandra maritima</i> . Banksia woodland on Spearwood and Bassendean dunes, where the second known host plant <i>L. hermaphrodita</i> is widespread (DEC 2011).	Possible (hostplant recorded)
<i>Throscodectes xiphos</i>	Styler bush cricket	P1	-	Species poorly understood and documented. Known from Jandacot area, where it was originally collected in the axial leaf bases of grass trees (<i>Xanthorrhoea preisei</i>) (Invertebrate Solutions 2019).	Possible (suitable habitat present, single record nearby, poor knowledge of species exists.)
<i>Leioproctus contrarius</i>	a short-tongued bee	P3	-	Life history and habits are poorly documented/unknown. It has been recorded only on flowers of Goodeniaceae and possibly <i>Lechenaultia stenosepala</i> (Bamford 2003).	Unlikely (hostplants not recorded, one record in the wider area)



Conservation significant fauna likelihood of occurrence
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Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Westralunio carteri</i>	Carter's freshwater mussel	VU	VU	Occurs in greatest abundance in slower flowing streams with stable sediments that are soft enough for burrowing amongst woody debris and exposed tree roots. Salinity tolerance quite low (Morgan et al. 2011).	Unlikely (no suitable habitat)
<i>Neopasiphae simplicior</i>	a short-tongued bee	EN	CR	This species of native bee has been collected on flowers of Goodenia filiformis, Lobelia tenuior, Angianthus preissianus and Velleia sp. (Houston 2000).	Unlikely (hostplants not recorded, one record in the wider area)
Mammals					
<i>Hydromys chrysogaster</i>	Rakali	P4	-	Areas with permanent water, fresh, brackish or marine. Likely to occur in all major rivers and most of the larger streams as well as bodies of permanent water in the lower south west (Christensen et al. 1985).	Possible (marginal habitat present)
<i>Isoodon fusciventer</i>	Quenda	P4	-	Dense scrubby, often swampy, vegetation with dense cover up to one metre high (DEC 2012a)	Recorded (potential habitat present)
<i>Falsistrellus mackenziei</i>	Western false pipistrelle	P4	-	High rainfall forests dominated by jarrah, karri, marri, and tuart. Occupies hollow logs for breeding and resting (Van Dyck and Strahan 2008). Also known to utilise Banksia woodland on the Swan Coastal Plain (Hosken and O'Shea 1995).	Unlikely (no suitable habitat)



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Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Notamacropus eugenii derbianus</i>	Tammar wallaby	P4	-	Dry sclerophyll forest, Banksia spp. woodlands and shrublands, typically favouring dense low vegetation that provides dense cover (Christensen and Strahan 1983).	Unlikely (no suitable habitat)
<i>Notamacropus irma</i>	Western brush wallaby	P4	-	Dry sclerophyll forest, Banksia spp. woodlands and shrublands, typically favouring dense low vegetation that provides dense cover (Christensen and Strahan 1983).	Unlikely (no suitable habitat)
<i>Dasyurus geoffroii</i>	Chuditch	VU	VU	Wide range of habitats from woodlands, dry sclerophyll forests, riparian vegetation, beaches and deserts. Appears to utilise native vegetation along road sides in the wheatbelt (DEC 2012b).	Unlikely (no suitable habitat, now mostly restricted to darling scarp)
<i>Myrmecobius fasciatus</i>	Numbat	EN	EN	Generally dominated by Eucalyptus spp. that provide hollow logs and branches for shelter and termites for food (van Dyck & Strahan 2008).	Unlikely (no suitable habitat, locally extinct)
<i>Pseudocheirus occidentalis</i>	Western ringtail possum	CR	CR	On the Swan Coastal Plain in Agonis flexuosa woodlands and Agonis flexuosa/ Eucalyptus gomphocephala forests. Also Eucalyptus marginata forests (DBCA 2017).	Unlikely (locally extinct, no suitable habitat)
<i>Setonix brachyurus</i>	Quokka	VU	VU	On the mainland mostly dense streamside vegetation or shrubland and heath areas, particularly around swamps (Cronin 2007).	Unlikely (locally extinct, no suitable habitat)
Reptiles					



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Species name	Common name	Level of significance		Habitat	Likelihood of occurrence
		WA	EPBC Act		
<i>Lerista lineata</i>	Perth slider	P3	-	Sandy coastal heath and low scrubland. Banksia spp. woodland, Eucalyptus gomphocephala open woodland over deep sands, and coastal dunes immediately adjacent to the beach (Wilson and Swan 2017).	Possible (potential habitat present)
<i>Neelaps calonotos</i>	Black-striped snake	P3	-	Coastal and near-coastal dunes, sandplains supporting heathlands and Banksia spp. woodlands (Bush et al. 2002).	Possible (potential habitat present)
Note: CE=critically endangered, EN=endangered, VU=vulnerable, CD=conservation dependent, MI=migratory, OS=other specially protected, P1=Priority 1, P2=Priority 2, P3=Priority 3, P4=Priority 4. Species recorded or considered to potentially occur within the site are shaded green.					

Appendix D

Species List





Fauna List
Former Glen Iris Golf Course

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Category	Status	Species name	Common name	Record type
Birds				
	EN	<i>Anthochaera carunculata</i>	Red wattlebird	Sight
		<i>Calyptorhynchus latirostris</i>	Carnaby's cockatoo	Sight
		<i>Chenonetta jubata</i>	Australian wood duck	Sight
		<i>Corvus coronoides</i>	Australian raven	Sight
		<i>Cracticus tibicen</i>	Australian magpie	Sight
		<i>Fulica atra</i>	Eurasian coot	Sight
		<i>Grallina cyanoleuca</i>	Magpie-lark	Call
		<i>Phaps chalcoptera</i>	Common bronzewing	Sight
		<i>Phylidonyris novaehollandiae</i>	New Holland honeyeater	Sight
		<i>Rhipidura leucophrys</i>	Willie wagtail	Sight
		<i>Threskiornis spinicollis</i>	Straw-necked ibis	Sight
		<i>Trichoglossus haematodus</i>	Rainbow lorikeet	Call
		<i>Zosterops lateralis</i>	Grey-breasted white-eye	Call
Crustacean				
	*	<i>Cherax destructor</i>	Yabby	Shell
Fish				
	*	<i>Cyprinus rubrofuscus</i>	Koi fish	Sight
Mammals				
	P4	<i>Isoodon fusciventer</i>	Quenda	Diggings
	*DP	<i>Oryctolagus cuniculus</i>	Rabbit	Scat, diggings
Reptiles				
		<i>Chelodina colliei</i>	Snake-necked turtle	Sight

Note: * denotes introduced fauna species, DP=declared pest under the BAM Act, EN=Endangered under the EPBC Act, P4=Priority 4 in WA

Appendix C

Targeted Black Cockatoo Assessment





Targeted Black Cockatoo Assessment

Former Glen Iris Golf Course

Project No: EP20-009(13)

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June 2021

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Targeted Black Cockatoo Assessment

Former Glen Iris Golf Course



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1	March 2021	Melanie Schubert	MS	Rachel Weber	RAW
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Targeted Black Cockatoo Assessment

Former Glen Iris Golf Course



Executive Summary

ECP Acquisitions 6 Pty Ltd engaged Emerge Associates (Emerge) to conduct a 'targeted' threatened black cockatoo assessment in the former Glen Iris Golf Course which comprises Lots 6 and 7 Glen Iris Drive, Lots 3, 509 and 512 Dean Road and Lot 139 Imlah Court in Jandakot (referred to herein as the 'site').

As part of the assessment a desktop assessment of relevant background information was completed and a field survey was undertaken across the site on 11 March and 12 November 2020. During the field survey an assessment of habitat for threatened black cockatoo species was completed.

Outcomes of the survey include the following:

- The site occurs within the modelled distribution of Carnaby's cockatoo and forest red-tailed black cockatoo, but outside of the modelled distribution of Baudin's cockatoo. The site is also within the breeding range of forest red-tailed black cockatoo. Therefore, the habitat in the site is most relevant to Carnaby's cockatoo and forest red-tailed black cockatoo.
- Carnaby's cockatoo were recorded in the site. Both Carnaby's cockatoo and forest red-tailed black cockatoo are likely to occur within the site.
- Forest red-tailed black cockatoo nests have been recorded within 6 km of the site at Bibra Lake and Murdoch, with the most recent breeding record occurring in spring 2020 (BirdLife Australia 2021). The site contains 11 habitat trees of which none contain hollows suitable for use by black cockatoos for breeding. Therefore, the site does not currently provide breeding habitat for forest red-tailed black cockatoo black cockatoo.
- White-tailed black cockatoo (likely Carnaby's cockatoo) and forest red-tailed black cockatoo roosts have been recorded at 42 locations within 12 km of the site (BirdLife Australia 2021). No roosts or evidence of roosting by any species of black cockatoo was recorded within the site. Tall native and non-native trees within the site represent suitable roosting habitat.
- Extensive areas of native and non-native vegetation that provides foraging habitat for Carnaby's cockatoo and forest red-tailed black cockatoo occurs immediately adjacent to the site and in the wider area. A total of 4.76 ha of foraging habitat for Carnaby's cockatoo was mapped within the site of which 0.96 ha (20%) provides a high value resource, 0.16 ha (14%) provides a moderate value resource and 3.13 ha (66%) provides a low value resource. A total of 4.88 ha of foraging habitat for forest red-tailed black cockatoo was mapped in the site of which 0.59 ha (12%) provides a high value resource, 0.39 ha (8%) provides a moderate value resource and 3.90 ha (80%) provides a low value resource.
- Overall habitat quality was scored at three out of ten (low quality) for Carnaby's cockatoo with foraging habitat being the highest scoring component. Overall black cockatoo habitat quality was scored at five out of ten (moderate quality) for forest red-tailed black cockatoo with foraging habitat being the highest scoring component.

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Targeted Black Cockatoo Assessment
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Targeted Black Cockatoo Assessment

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Appendices

Appendix A

Additional Information

Appendix B

Black Cockatoo Foraging Plants

Appendix C

Black Cockatoo Habitat Quality Assessment (Emerge 2021)

Appendix D

Black Cockatoo Habitat Tree Data

Appendix E

Overall Habitat Quality Assessment

Targeted Black Cockatoo Assessment

Former Glen Iris Golf Course



Abbreviation Tables

Table A1: Abbreviations – Organisations

Organisations	
EPA	Environmental Protection Authority
DBCA	Department of Biodiversity, Conservation and Attractions
DPaW	Department of Parks and Wildlife (now DBCA)
DAWE	Department of Agriculture, Water and the Environment
WA Museum	Western Australian Museum

Table A2: Abbreviations – General terms

General terms	
EN	Endangered
VU	Vulnerable

Table A3: Abbreviations – Legislation

Legislation	
BC Act	Biodiversity Conservation Act 2016
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999

Table A4: Abbreviations – units of measurement

Units of measurement	
DBH	Diameter at breast height
cm	Centimetre
ha	Hectare
km	Kilometre
m	Metre

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Targeted Black Cockatoo Assessment

Former Glen Iris Golf Course



1 Introduction

1.1 Project background

Emerge Associates (Emerge) were engaged by ECP Acquisitions 6 Pty Ltd to characterise the black cockatoo habitat values within the former Glen Iris Golf Course which comprises Lots 6 and 7 Glen Iris Drive, Lots 3, 509 and 512 Dean Road and Lot 139 Imlah Court in Jandakot (referred to herein as the 'site'). These lots are located approximately 6 kilometres (km) south of the Perth Central Business District within the City of Cockburn.

The site is approximately 53.7 hectares (ha) in size and is surrounded by residential subdivision, with a railway to the north and Kwinana Freeway to the west. The site comprises two areas separated by Berrigan Drive. The location and extent of the site is shown in **Figure 1**.

1.2 Purpose and scope of work

The scope of work was specifically to conduct a terrestrial vertebrate fauna assessment to the standard required of a 'targeted' black cockatoo survey with reference to the Environmental Protection Authority's (EPA's) technical guidance (EPA 2020) and the *Environment Protection and Biodiversity Conservation Act* black cockatoo referral guidelines (DSEWPac 2012b).

As part of this scope of work, the following tasks were undertaken:

- Desktop assessment of relevant background information pertaining to the site and surrounds, including database and literature searches for black cockatoos.
- Field survey to identify potential habitat for species of black cockatoo.
- An assessment of the quality of black cockatoo habitat within the site.
- Mapping of black cockatoo habitat.
- Documentation of the desktop assessment, survey methodology and results into a report.

Targeted Black Cockatoo Assessment

Former Glen Iris Golf Course



2 Background

2.1 Environmental Context

Landform and soils influence fauna habitat and species at regional and local scales. The site occurs on the Swan Coastal Plain, which is the geomorphic unit that characterises much of the Perth metropolitan area.

The Swan Coastal Plain is approximately 500 km long and 20 to 30 km wide and is roughly bound by the Indian Ocean to the west and the Darling Scarp to the east. Broadly the Swan Coastal Plain consists of two sedimentary belts of different origin. Its eastern side has formed from the deposition of alluvial material washed down from the Darling Scarp, while its western side is comprised of three dune systems that run roughly parallel to the Indian Ocean coastline (Seddon 2004). These dune systems, referred to as Quindalup, Spearwood and Bassendean associations, represent a succession of coastal deposition that has occurred since the late Quaternary period (approximately two million years ago) (Kendrick *et al.* 1991) and, as a result, they contain soils at different stages of leaching and formation.

Soil mapping by Gozzard (2011) places the site in the Bassendean dunes which are 'old, low hills of quartz sand with numerous interdunal swamps and lakes'.

Vegetation mapping by Heddle *et al.* (1980) indicates the site lies within the 'Bassendean complex - central and south' which is described as supporting 'woodland of *Eucalyptus marginata* - *Allocasuarina fraseriana* - *Banksia* spp. to low woodland of *Melaleuca* spp. and sedgeland on the moister sites' (Beard 1990).

2.2 Threatened fauna

Certain fauna taxa that are considered to be rare or under threat warrant special protection under Commonwealth and/or State legislation. At a Commonwealth level, fauna taxa may be listed as 'threatened' under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Any action likely to have a significant impact on a taxon listed under the EPBC Act requires Ministerial approval.

In Western Australia fauna species may also be classed as 'threatened' under the *Biodiversity Conservation Act 2016* (BC Act). It is an offence to 'take' or 'disturb' threatened fauna without Ministerial approval.

Threatened fauna species listed under the EPBC Act and/or BC Act are assigned a conservation status according to attributes such as population size and geographic distribution. Further information on threatened species and their categories is provided in **Appendix A**.

Targeted Black Cockatoo Assessment

Former Glen Iris Golf Course



2.3 Black cockatoos

Three threatened species of black cockatoo occur in the south-west of WA (referred to herein collectively as 'black cockatoos'):

- *Calyptorhynchus latirostris* (Carnaby's cockatoo) which is listed as 'endangered' under the EPBC Act and the BC Act.
- *Calyptorhynchus baudinii* (Baudin's cockatoo) which is listed as 'endangered' under the EPBC Act and the BC Act.
- *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo) which is listed as 'vulnerable' under the EPBC Act and the BC Act.

Black cockatoo habitat is conventionally separated into breeding, roosting and foraging categories:

- Black cockatoos nest in hollows that form in trees which are usually more than ~200 years old. 'Breeding habitat' comprises 'habitat trees' which are trees of a species known to support black cockatoo breeding and which either have a suitably large enough nest hollow or have a large enough diameter at breast height (DBH) to indicate that a suitable nest hollow could develop in time (DSEWPaC 2012a). A minimum DBH for a habitat tree is defined as ≥50 centimetres (cm) for most tree species used by black cockatoos and ≥30 cm for *Eucalyptus wandoo* (wandoo) and *Eucalyptus salmonophloia* (salmon gum) (DSEWPaC 2012a). Breeding habitat is also generally expected to be located within 7 km of food and water resources (Saunders 1990).
- During the day and most often overnight black cockatoos congregate in a tree or group of trees to rest. 'Roosting habitat' consists of groups or individual tall trees used for roosting. Roosts generally comprise the tallest trees in an area and can include native and non-native trees (DSEWPaC 2012a). They are often located within 6 km of water and food resources, with additional foraging ranges within 12 km (Shah 2006; DSEWPaC 2012a; Le Roux 2017). The use of a particular roost may vary depending on availability of food and water resources.
- Black cockatoos feed on the fruit and seeds of a range of native and non-native plants species. 'Foraging habitat' is vegetation that contains plant species known to be foraged on by black cockatoos.

Each black cockatoo species has a defined breeding season, with Baudin's cockatoo breeding from August/September to February/March and Carnaby's cockatoo breeding from July/August to January/February (DSEWPaC 2012a). Forest red-tailed black cockatoo breeds in October/November but may breed in March/April if there is good autumn rainfall (DSEWPaC 2012a). There is also evidence that forest red-tail black cockatoos breed throughout the year, with peaks in April – June and August – October (Johnstone *et al.* 2013).

2.4 Previous surveys

No previous black cockatoo surveys are known to have been undertaken within the site.

Emerge have previously completed a Level 1 fauna assessment within the site (Emerge Associates 2020a).

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3 Methods

3.1 Desktop assessment

A search was conducted for records of black cockatoos and potential black cockatoo habitat mapping occurring within 10 km of the site using a range of publicly available regional studies and datasets. Detailed information on each dataset considered as part of the desktop review is provided in

Appendix A.

3.2 Field survey

A zoologist and an ecologist from Emerge visited the site on 11 March and 12 November 2020 during the day to conduct the field survey.

Transects were traversed across the site and potential black cockatoo breeding, night roosting and foraging habitat was recorded. If observed, the presence of black cockatoos within or near the site was noted. Active searches for secondary evidence of breeding, roosting and foraging activity such as chew marks, branch clippings, droppings, moulted feathers and chewed fruit were conducted.

3.2.1 Breeding habitat

A 'habitat tree' was defined as a native eucalypt that is typically known to support black cockatoo breeding such as marri, jarrah, blackbutt, tuart, wandoo, salmon gum or to a lesser extent flooded gum, with a DBH ≥ 50 cm or DBH ≥ 30 cm for wandoo or salmon gum. As any tree that has a suitable hollow may provide breeding habitat for black cockatoos, other tree species were also considered to be habitat trees if they contained a suitable hollow.

To be suitable for use as breeding habitat by black cockatoos it was considered a hollow must:

- have an entrance opening of at least 10 cm but preferably 20-30 cm (Saunders *et al.* 1982; Groom 2010; Johnstone *et al.* 2013).
- be located at least 3 m from the ground (Saunders 1979b; Johnstone and Storr 1998; Groom 2010; Saunders 2014).
- be located in a trunk or branch that is generally large enough to contain a hollow that has a floor diameter of at least 40 cm and depth of 50-200 cm such that it could house an adult black cockatoo and nestlings (Saunders 1979a; Johnstone and Storr 1998; Saunders 2014; DPaW 2015).
- have vertical or near vertical orientation (Johnstone and Kirkby 2008; Johnstone *et al.* 2013).

Occasionally, native eucalypts were encountered that met DBH requirements but did not contain a trunk/branch of a sufficient size to support a hollow suitable for use by black cockatoos. For example, the tree may have been less than 3 m tall or had a trunk that forked between 1.3 m and 3 m in height and after the fork no limbs had a diameter such that they could contain a suitable hollow. These trees were not recorded as habitat trees as the likelihood they would ever form a suitable hollow was low.

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Habitat trees were individually identified, and the attributes outlined in **Table 1** were recorded for each tree.

Table 1: Attributes recorded for each habitat tree in the site

Attribute	Description
Tag	Unique identifier on a metal tag was nailed to tree
Image	Trees were individually photographed
GPS location	The location was recorded using a handheld GPS unit
Tree species	Species and common name were identified
Diameter at breast height (DBH) (cm)	DBH was measured at breast height (1.3 metres) using a diameter tape
Hollows potentially suitable for breeding by a black cockatoo	Number of hollows potentially suitable for breeding by a black cockatoo recorded (assessed from ground level only)

Hollows that appeared potentially suitable for use by a black cockatoo from the ground were further inspected using a drone and/or a pole-mounted camera. During the hollow inspection the internal dimensions of the hollow were confirmed, if possible, and an assessment was made for signs of use such as chew marks around the hollow entrance, nesting material, feathers or the presence of birds within the hollow.

All recorded habitat trees were assigned to a category listed in **Table 2**.

Table 2: Habitat tree categories

Category	Specifications
Nest	The tree contains a hollow used by black cockatoos for breeding as confirmed by records of black cockatoos, their eggs or fledglings or other evidence of recent nesting activity by black cockatoos
Potential nest	The tree contains one or more hollows that are suitable for use by black cockatoos as breeding habitat as confirmed by internal hollow inspection [^] and evidence of use by an unidentified bird such as feathers, chew marks or nest material has been recorded within a hollow
Suitable hollow(s)	The tree contains one or more hollows that are suitable for use by black cockatoos as breeding habitat as confirmed by internal hollow inspection [^]
Potentially suitable hollow(s)	The tree contains or is suspected to contain one or more hollows that have the potential to be suitable for use by black cockatoos when either viewed from the ground or following an internal hollow inspection that was inconclusive [^]
No suitable hollow(s)	The tree does not contain hollow(s) that have the potential to be suitable for use by black cockatoos when viewed from the ground <u>or</u> contains hollows that were determined to be unsuitable for use by black cockatoos by internal inspection [^]

[^]Hollow determined to be suitable for use as breeding habitat by black cockatoos as listed above in **Section 3.2.1**.

3.2.2 Roosting habitat

The site was assessed for the presence of active or historical roosts and its potential to provide roosting habitat for black cockatoos.

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During the field survey the site was searched for secondary evidence of roosting activity, such as branch clippings, droppings or moulted feathers. No dusk roost survey was undertaken as no signs indicative of roosting were recorded (refer **Section 4.5**). Groups of tall native and non-native trees, if present, were assumed to provide potential roosting habitat.

3.2.3 Foraging habitat

Foraging habitat was identified by comparing the vegetation within the site to literature on plant species known to provide food consumed by black cockatoos (Davies 1966; Saunders 1980; Johnstone and Storr 1998; Johnstone and Kirkby 1999; Groom 2011; Johnstone *et al.* 2011; DSEWPac 2012a).

Foraging habitat was classified as providing a 'high', 'moderate' or 'low' value resource based on the proportion of 'primary' or 'secondary' food plants. Primary food plants were defined as those with historical and contemporary records of regular consumption by a black cockatoo species. Secondary food plants were defined as plants that black cockatoo species have been recorded consuming occasionally or that, based on their limited extent or agricultural origin, should not be considered a sustaining resource. Each patch of foraging habitat was assigned a percentage cover of primary and secondary food plants based on the preferences of each black cockatoo species. As it is not always possible to separate out food plants from non-food plants, mapped foraging habitat may also include vegetation comprising non-food plants. Classification of foraging habitat was completed such that the proportion of non-food plants was minimised as far as practicable. A list of plant species classified as primary or secondary food plants is provided as **Appendix B**.

Evidence of black cockatoo foraging, such as chewed fruits, was searched for within the site and allocated to a species where possible. The locations of black cockatoo foraging evidence within the site were recorded using a hand-held GPS unit.

3.3 Data analysis, presentation and mapping

Habitat trees were classified according to the scheme outlined in **Table 2** and mapped on aerial imagery. A complete summary of the recorded attributes of habitat trees was compiled in a tabular format.

Foraging habitat was described according to the dominant flora species or vegetation type present and mapped on aerial photography with the boundaries interpreted from aerial photography and notes taken in the field. The value of each patch of foraging habitat was mapped for each species of black cockatoo likely to occur in the site. The proportions of high, moderate and low value foraging habitat mapped within the site are reported in **Section 4.6**.

3.3.1 Overall black cockatoo habitat quality

As part of environmental impact assessment and offset calculation, the Department of Agriculture, Water and the Environment (DAWE) requires that a score out of ten is provided for the overall quality of black cockatoo habitat (DAWE 2020). DAWE does not provide a methodology for scoring 'overall black cockatoo habitat quality' but instead specifies that an assessment of quality should be undertaken by an experienced technical expert (DSEWPac 2012b).

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Emerge have developed a method to provide a systematic assessment of overall black cockatoo habitat quality. The method assesses and scores the condition, context and stocking rate of breeding, roosting and foraging habitat separately and then provides an overall quality score out of ten based on the highest score determined for these categories of habitat. The assessment methodology is detailed in **Appendix C**.

3.4 Nomenclature and sources of information

Taxonomy and nomenclature of scientific and common names for fauna species follow the *Western Australian Museum (WAM) Checklist of the Terrestrial Vertebrate Fauna of Western Australia* (WAM 2020). Where common names were not provided by the Western Australian Museum (2019); (WAM 2020), these have been derived from other sources. Literature listed in **Appendix A** represent the main publications used to identify fauna species and habitats within the site.

3.5 Survey limitations

It is important to note the specific constraints imposed on surveys and the degree to which these may have limited survey outcomes. An evaluation of the survey methodology against standard constraints outlined in the EPA's document *Technical Guidance – Terrestrial vertebrate fauna surveys for environmental impact assessment* (EPA 2020) is provided in **Table 3**.

Table 3: Evaluation of survey methodology against standard constraints outlined in the EPA's *Technical Guidance – Terrestrial vertebrate fauna surveys for environmental impact assessment* (EPA 2020)

Constraint	Degree of limitation	Details
Level of survey	No limitation	A targeted black cockatoo habitat survey was undertaken. The level of survey and survey effort are considered adequate to assess the black cockatoo habitat values within the site.
Scope	No limitation	The survey focused on black cockatoo habitat within the site.
Proportion of fauna identified, recorded and/or collected.	No limitation	The survey focused on identifying habitat for species of black cockatoo rather. One of the two species of black cockatoo known to occur in the vicinity of the site was recorded during the survey. Habitat was reviewed across the entire site. All habitat trees and all potentially suitable hollows were assessed. The extent of foraging habitat was resolved such that the proportion of non-food plants within mapped habitat was less than 25%.
Sources of information e.g. previously available information (whether historic or recent) as distinct from new data.	No limitation	Adequate information was available from database searches and previous surveys to place habitat in context.
The proportion of the task achieved and further work which might be needed.	No limitation	The targeted black cockatoo assessment was achieved in its entirety.
Experience level of personnel	No limitation	The field survey was led by and the report authored by a qualified zoologist with over three years' experience. Technical review was undertaken by an ecologist with over ten years' experience in environmental science in Western Australia.

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Table 3: Evaluation of survey methodology against standard constraints outlined in the EPA's Technical Guidance – Terrestrial vertebrate fauna surveys for environmental impact assessment (EPA 2020) (continued)

Constraint	Degree of limitation	Details
Suitability of timing, weather and season	No limitation	Survey timing is not of great importance for a black cockatoo habitat assessment (with exception of detecting active nests). Nevertheless, the survey was undertaken within the main breeding season for all three species of black cockatoo (refer to Section 2.3).
Completeness	No limitation	The desktop assessment, field survey and targeted black cockatoo habitat assessment was completed comprehensively.
Spatial coverage and access	No limitation	Site coverage was comprehensive (track logged).
	No limitation	All parts of the site could be accessed as required.
Survey intensity	No limitation	The intensity of the survey was adequate given the size of the site.
Influence of disturbance	No limitation	The western portion of the site is modified due to historical disturbance associated with quarrying activities. However, no recent disturbance was noted that may have affected outcomes of the survey.
Adequacy of resources	No limitation	All resources required to perform the survey were available. The guidance currently available from Commonwealth and State agencies on the assessment of black cockatoo habitat is limited and relies heavily on technical experts preparing their own methodology. In response this assessment applies an internally developed methodology that is considered to provide a systematic and balanced characterisation of black cockatoo habitat.

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4 Results

4.1 Desktop assessment

The results of the desktop assessment are summarised in **Table 4**, **Table 5** and **Table 6**, and shown in **Figure 2**. Detailed information on each dataset considered as part of the desktop review is provided in **Appendix A**.

Table 4: Summary of black cockatoo background review

Category		Site context	Source
Species distribution		- Site is not within the modelled distribution of Baudin's cockatoo. - Site is within the modelled distribution of Carnaby's cockatoo but not within its breeding range. - Site is within the modelled distribution of forest red-tailed black cockatoo and within its known breeding range.	(DoEE 2016a, c, b)
Breeding sites		- No nesting records occur within the site. - Breeding of forest red-tailed black cockatoo has been recorded within 6 km of the site in Bibra Lake and Murdoch, with the most recent breeding in spring 2020.	BirdLife Australia database search (2021)
Carnaby's cockatoo breeding areas (12 km radius surrounding breeding sites)		No confirmed or possible breeding areas intersect the site.	(Glossop <i>et al.</i> 2011)
Important bird areas for Carnaby's cockatoo		- None within the site. - None within 12 km of the site	(DPaW 2013)
Roost site		- None within the site. 42 roost sites within 12 km of the site (see Table 5 and Table 6): 18 associated with white-tailed[^] black cockatoos only 11 associated with forest red-tailed black cockatoos only 13 associated with white[^] and red-tailed black cockatoos	BirdLife Australia database search (2021), Peck <i>et al.</i> (2019)
Foraging habitat	White-tailed black cockatoo [^]	- No native foraging habitat mapped within the site. - Multiple parcels of potential native foraging habitat are mapped within the wider local area of the site. Extensive areas of potential native foraging habitat are mapped on the Darling Scarp approximately 16 km east of the site.	(Emerge Associates 2020b)
	White-tailed black cockatoo [^]	No pine plantations are mapped within 12 km of the site	(Forest Products Commission 2020)
	Forest red-tailed black cockatoo	- No native foraging habitat mapped within the site. - Multiple parcels of potential native foraging habitat are mapped within the wider local area of the site. Extensive areas of potential native foraging habitat are mapped on the Darling Scarp approximately 16 km east of the site.	(Emerge Associates 2020c)

[^]Carnaby's and/or Baudin's cockatoo

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Table 5: White-tailed black cockatoos recorded in roosts within 12 km of the site (Birdlife Australia (2021); (Peck et al. 2019)

Roost ID	Year and number of individuals									
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
ARMCHAR001	NS	NS	NS	NS	NS	NS	NS	0	3	0
ARMFORR001	NS	NS	NS	0	0	18	0	0	NS	0
ARMHARR001	NS	0	0	NS	0	1	3	0	0	0
CANFERR001	NS	NS	NS	5	0	0	0	0	0	NS
CANWILR001	0	0	0	0	68	0	0	0	0	0
COCBANR001	NS	NS	NS	NS	NS	45	NS	0	20	0
COCBANR002	NS	NS	NS	NS	53	NS	0	0	0	0
COCBANR003	NS	NS	NS	NS	NS	NS	NS	6	16	0
COCCOOR005	NS	NS	NS	NS	NS	NS	NS	38	0	0
COCHAMR001	0	169	215	0	168	68	101	0	0	0
COCHAMR002	NS	NS	NS	NS	NS	263	194	0	369	506
COCMUNR003	NS	NS	NS	NS	NS	NS	0	0	0	3
COCSPER001	0	2	NS	323	NS	0	0	40	0	NS
COCSPER002	NS	5	0	NS	NS	0	24	0	NS	NS
GOSCNVR001	0	19	NS	NS	0	0	0	0	NS	80
GOSCNVR002	NS	NS	26	52	0	0	151	0	0	0
GOSSOUR002	NS	NS	NS	NS	NS	NS	50	0	0	0
KWIWANR001	63	0	0	1	0	0	0	0	0	NS
KWIWANR002	NS	NS	NS	0	0	0	0	5	0	0
KWIWANR004	NS	NS	NS	NS	NS	NS	NS	73	0	0
MELBATR001	8	0	0	0	0	0	0	0	0	0
MELKARR002	0	0	0	NS	0	55	0	0	0	0
MELLEER001	0	0	12	0	70	0	0	0	15	2
MELMURR001	700	60	142	127	234	24	78	0	227	249
MELWINR001	NS	56	81	70	41	0	21	0	0	12
MELWINR003	117	130	NS	NS	NS	0	7	54	64	108

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Table 5: White-tailed black cockatoos recorded in roosts within 12 km of the site (Birdlife Australia (2021); (Peck et al. 2019) (continued)

Roost ID	Year and number of individuals									
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
MELWINR004	0	0	0	0	2	0	0	0	0	NS
SEROAKR004	45	3	0	0	50	0	26	2	33	NS
SEROAKR007	NS	NS	NS	NS	NS	NS	NS	2	0	NS
SOUCOMR001	408	645	558	301	402	460	242	289	470	563
SOUSALR001	12	0	0	0	5	0	0	0	2	0

NS = not surveyed

Table 6: Forest red-tailed black cockatoos recorded in roosts within 12 km of the site (Birdlife Australia (2021); (Peck et al. 2019)

Roost ID	Year and number of individuals					
	2014	2015	2016	2017	2018	2019
ARMCHAR001	NS	NS	NS	11	16	0
CANRIVR001	NS	NS	6	11	7	16
CANROSR001	NS	NS	0	0	14	2
CANWILR001	4	7	7	5	16	82
COCBANR001	NS	0	NS	6	17	0
COCBANR002	3	NS	32	24	109	15
COCCOCR001	NS	NS	NS	NS	15	102
COCCOOR001	NS	13	0	0	8	0
COCCOOR003	NS	NS	57	6	71	33
COCMUNR001	92	NS	73	0	365	259
COCMUNR003	NS	NS	38	0	108	0
COCSPER003	NS	NS	NS	35	12	0
FREWHIR001	0	NS	0	38	29	28
GOSCNVR001	2	0	0	0	NS	0
GOSCNVR002	0	4	0	0	0	0
GOSGOSR004	19	NS	31	32	79	0

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Table 6: Forest red-tailed black cockatoos recorded in roosts within 12 km of the site (Birdlife Australia (2021); (Peck et al. 2019) (continued)

Roost ID	Year and number of individuals					
	2014	2015	2016	2017	2018	2019
GOSSOUR002	NS	NS	0	36	208	15
MELLEER001	0	0	11	25	5	0
MELMURR001	199	33	125	209	441	214
MELWINR003	NS	0	0	0	1	0
MOSMOSR001	0	0	0	0	0	3
SOUCOMR001	0	0	0	0	0	1
SOUSALR001	2	0	0	0	8	0
VICWATR002	NS	NS	0	45	85	51

NS = not surveyed

4.2 General site conditions

The site is gently undulating and comprises sandy white-grey soils. Seven artificial lakes occur within the site that were sustained by irrigation at the time of the first survey day. During the second survey, only the southernmost lake contained water.

The site has been highly modified for use as a golf course and is dominated by non-native vegetation and unvegetated areas, with native vegetation present as individuals or small scattered patches. The artificial lakes are surrounded by either turf, riparian vegetation or planted trees and shrubs.

4.3 Species inventory

Approximately 20 Carnaby's cockatoo individuals were observed perching and foraging within trees in the central portion of the site during the day on 11 March 2020.

4.4 Breeding habitat

A total of 11 black cockatoo habitat trees were recorded within the site as shown in **Figure 3**.

All of the habitat trees were *Eucalyptus marginata* (jarrah). Two habitat trees were initially assessed to potentially contain suitable hollows based on the initial inspection from ground level. An internal hollow inspection determined that these hollows were not suitable for use by black cockatoos for breeding.

A summary of the habitat trees recorded within the site is provided in **Table 7** and an inventory in **Appendix D**.

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Table 7: Habitat trees recorded within the site

Category	No. trees	No. suitable hollows
Confirmed nest	0	-
Potential nest	0	-
Suitable hollow(s)	0	-
Potentially suitable hollow(s)	0	-
No suitable hollow(s)	11	0
Total	11	0

4.5 Roosting habitat

No roosts or secondary evidence of roosting were observed within the site during the survey. Native and non-native trees within the site have the potential to provide roosting habitat for black cockatoos.

4.6 Foraging habitat

A total of 4.76 ha of foraging habitat was mapped within the site for Carnaby's cockatoo and 4.88 ha for forest red-tailed black cockatoo as detailed in **Table 9** and shown in **Figure 4** and **Figure 5**. The foraging habitat occurs as scattered native trees and generally linear patches of native and non-native trees. The extent of foraging habitat by value category is detailed in **Table 9**.

Table 8: Foraging habitat quality

Foraging value	Black cockatoo species and foraging habitat area (ha) [^]	
	Carnaby's	Forest red-tailed
High	0.96 (20%)	0.59 (12%)
Moderate	0.67 (14%)	0.39 (8%)
Low	3.13 (66%)	3.90 (80%)
Total	4.76	4.88

[^]As the site is located outside of the range of Baudin's cockatoo foraging value for this species was not reported.

Primary food plants include *Banksia attenuata* (candlestick banksia), *Banksia menziesii* (firewood banksia) and **Tipuana tipu* (tipuana) whose fruits are consumed by Carnaby's cockatoo, jarrah and marri whose fruits are consumed by both Carnaby's cockatoo and forest red-tailed black cockatoo and **Melia azedarach* (Cape lilac) whose fruits are consumed by forest red-tailed black cockatoo. Secondary food plants include a range of species including *Allocasuarina fraseriana* (sheoak), *Casuarina obesa* (swamp sheoak), *Xanthorrhoea preissii* (grass tree), but predominantly comprise non-native eucalypt trees (**Eucalyptus* spp.).

A summary of dominant food plants within foraging habitat within the site is provided in **Table 8**.

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Table 9: Dominant primary and secondary black cockatoo foraging plants recorded within the site

Common name	Black cockatoo species and foraging habitat category	
	Carnaby's	Forest red-tailed
Candlestick banksia	Primary	Non-food
*Cape lilac	Secondary	Primary
*Eucalyptus spp.	Secondary	Secondary
Firewood banksia	Primary	Non-food
Grass tree	Secondary	Non-food
Jarra	Primary	Primary
Marri	Primary	Primary
Sheoak	Non-food	Secondary
Swan River blackbutt	Primary	Primary
*Swamp sheoak	Secondary	Non-food
*Tipuana	Primary	Non-food

*Denotes non-native species.

4.7 Overall quality

Overall habitat quality for Carnaby's cockatoo within the site scored three out of ten (low quality). The overall habitat quality for forest red-tailed black cockatoo scored five out of ten (moderate quality).

The outcome of the overall black cockatoo habitat quality assessment is provided in **Table 10** and summarised in **Table 11**. The full results of the quality assessment are provided in **Appendix E**.

Table 10: Overall habitat quality assessment scores

Habitat category	Black cockatoo species and score	
	Carnaby's	Forest red-tailed
Breeding	N/A*	3
Roosting	1	1
Foraging	3	5
Overall Score	3	5

*No breeding habitat score was assigned as the site is located outside of the species breeding range. No habitat score was assigned for Baudin's cockatoo as the site is located outside of the species distribution range.

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Table 11: Summary of attributes contributing to black cockatoo habitat quality scores

Habitat category	Quality component category	Black cockatoo species and attributes	
		Carnaby's	Forest red-tailed
Breeding	Site condition	N/A – site is located outside of its breeding range	The site supports habitat trees without suitable hollows.
	Site context		Three confirmed forest red-tailed black cockatoo nests occur within 6 km of the site and 2,236 ha of potential forest red-tailed foraging habitat is mapped within 6 km of the site.
	Species stocking rate		N/A – no evidence of breeding was recorded within the site.
Roosting	Site condition	The site supports potential roosting habitat.	The site supports potential roosting habitat.
	Site context	The site is located more than 1 km from a large white-tailed black cockatoo roost and more than 500 m from a small white-tailed black cockatoo roost.	The site is located more than 1 km from a large roost and more than 500 m from a small roost.
	Species stocking rate	N/A - no evidence of roosting was recorded within the site.	N/A - no evidence of roosting was recorded within the site.
Foraging	Site condition	The site supports foraging habitat that comprises 66% low value, 14% moderate value and 20% high value.	The site supports foraging habitat that comprises 80% low value, 8% moderate value and 12% high value.
	Site context	The site is located more than 6 km from a white-tailed black cockatoo nest.	Confirmed forest red-tailed black cockatoo nest sites occur within 6 km of the site, indicating the foraging habitat within the site may be used by the birds utilising the breeding sites.
	Species stocking rate	Limited evidence of Carnaby's cockatoo foraging was recorded. Nevertheless, it is likely that the species would forage in the site.	No evidence of foraging by forest red-tailed black cockatoos was recorded. Nevertheless, it is likely that the species would forage in the site.

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5 Discussion

Carnaby's cockatoo was observed foraging in trees within the site. A record for Carnaby's cockatoo was not surprising as this species is routinely sighted across the Swan Coastal Plain and foraging habitat occurs within the site and local area.

No record of forest red-tailed black cockatoo was made during the two site visits. It is likely that forest red-tailed black cockatoo would also occur in the site as this species is similarly common within its range. Chance observation of highly mobile species like black cockatoos could require frequent surveillance. Given foraging evidence or other signs of presence may not persist in the environment for particular long periods, or necessarily be noted by surveyors on a given day, the lack of records for forest red-tailed black cockatoo should not be taken as indication that the species would not occur.

5.1 Breeding habitat

As the 11 habitat trees recorded in the site do not contain hollows suitable for use by black cockatoos for breeding, the site does not currently provide breeding habitat for any of the three species of black cockatoo. The habitat trees and other large trees within the site have the potential to form suitable hollows in the future. However, it will likely take many tens of years for hollows to form that are large enough to be suitable for use by black cockatoos for breeding.

As the site is located outside of the expected breeding distribution of Carnaby's cockatoo and Baudin's cockatoo, the potential for the future formation of breeding habitat is most relevant to forest red-tailed black cockatoo.

5.2 Roosting habitat

No signs of roosting were observed during the field survey and the BirdLife Australia dataset does not include any roost records in the site. Therefore, there is no reason to suspect that roosting currently occurs in the site. Nevertheless, the site contains tall trees and a water source that, in combination, comprise roosting habitat which could be used by black cockatoos.

5.3 Foraging habitat

The foraging habitat within the site was predominantly classified as providing low value to Carnaby's cockatoo and forest tailed black cockatoo. This is due to the high cover of secondary food plants, in particular non-native eucalypts. While there are records of the consumption of non-native eucalypts by Carnaby's cockatoo and forest tailed black cockatoo (Groom 2011; DoEE 2017), these plants are arguably not as important food sources compared to primary food plants.

White-tailed black cockatoo (likely Carnaby's cockatoo) roosts occur within 6 km of the site and forest red-tailed black cockatoo roosts and nest sites occur within 6 km of the site. The foraging habitat within the site may be used by birds utilising the roosts and nesting in the local area. However, extensive areas of native and non-native vegetation that are dominated by primary food

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plants for Carnaby's cockatoo and forest red-tailed black cockatoo occur immediately adjacent to the site and in the wider area and would provide a larger and higher value foraging resource.

5.4 Overall quality

Developing an objective scoring system for relative and to some extent subjective concept like quality can be challenging. An ecological concept like habitat may have multiple attributes, which may be independent, interdependent or contrasting with other attributes and which vary in relevance in response to the changing species requirements or environmental conditions. Consequently, overall 'quality' must be assessed holistically to be properly understood.

The three conventional categories of black cockatoo habitat are intrinsically linked in that breeding and roosting activity is directly related to the availability of foraging and watering resources surrounding nests or roosts (Saunders 1990; Shah 2006; Le Roux 2017). Black cockatoos can also move over large distances within their range to access breeding and foraging habitat and will not necessarily return to the same locations within a year or across years (Saunders 1980; Johnstone and Kirkby 2008; Johnstone *et al.* 2017; Peck *et al.* 2019). Therefore, evaluating the overall quality of black cockatoo habitat requires acknowledgement of the interrelationships between the three habitat categories and the potential for use more than one category of habitat to be relevant to a site.

The method used in the assessment of overall quality selects the highest score of the three habitat categories to represent overall habitat quality (refer **Appendix C**). Adopting the highest score from a habitat category within a site avoids over or under estimating habitat quality because the most important value always drives, or is reflected in, the overall score.

Foraging habitat was the highest scoring category of habitat within the site for both Carnaby's cockatoo and forest red-tailed black cockatoos as the site does not currently provide breeding habitat and while roost habitat is present, roosting is not suspected to occur.

The foraging habitat within the site was further dominated by lower value secondary food plants. As there were no significant contextual factors to increase quality for Carnaby's cockatoo, a score of three (low quality) was applied. However, forest red-tailed black cockatoo nests are recorded within 6 km of the site. A nearby nest is considered to increase the quality of foraging habitat (from an impact assessment perspective) as it indicates foraging resource is within range of a nest such that it could contribute to support breeding activity. Accordingly, the overall quality of forest red-tailed black cockatoo foraging was scored five out of ten (moderate quality).

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6 Conclusions

The site occurs within the modelled distribution of Carnaby's cockatoo and forest red-tailed black cockatoo, but outside of the modelled distribution of Baudin's cockatoo. The site is also within the breeding range of forest red-tailed black cockatoo. Therefore, the habitat in the site is most relevant to Carnaby's cockatoo and forest red-tailed black cockatoo.

Carnaby's cockatoo were recorded in the site. Both Carnaby's cockatoo and forest red-tailed black cockatoo are likely to occur within the site.

Forest red-tailed black cockatoo nests have been recorded within 6 km of the site at Bibra Lake and Murdoch, with the most recent breeding record occurring in spring 2020 (BirdLife Australia 2021). The site contains 11 habitat trees of which none contain hollows suitable for use by black cockatoos for breeding. Therefore, the site does not currently provide breeding habitat for forest red-tailed black cockatoo black cockatoo.

White-tailed black cockatoo (likely Carnaby's cockatoo) and forest red-tailed black cockatoo roosts have been recorded at 42 locations within 12 km of the site (BirdLife Australia 2021). No roosts or evidence of roosting by any species of black cockatoo was recorded within the site. Tall native and non-native trees within the site represent suitable roosting habitat.

Extensive areas of native and non-native vegetation that provide foraging habitat for Carnaby's cockatoo and forest red-tailed black cockatoo occurs immediately adjacent to the site and in the wider area.

A total of 4.76 ha of foraging habitat for Carnaby's cockatoo was mapped within the site of which 0.96 ha (20%) provides a high value resource, 0.67 ha (14%) provides a moderate value resource and 3.13 ha (66%) provides a low value resource.

A total of 4.88 ha of foraging habitat for forest red-tailed black cockatoo was mapped in the site of which 0.59 ha (12%) provides a high value resource, 0.39 ha (8%) provides a moderate value resource and 3.90 ha (80%) provides a low value resource.

Overall habitat quality was scored at three out of ten (low) for Carnaby's cockatoo with foraging habitat being the highest scoring component.

Overall black cockatoo habitat quality was scored at five out of ten (moderate) for forest red-tailed black cockatoo foraging habitat being the highest scoring component.

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References

7.1 General references

Beard, J. S. 1990, *Plant Life of Western Australia*, Kangaroo Press Pty Ltd., Kenthurst, N.S.W.

Davies, S. J. J. F. 1966, *The movements of the White-tailed Black Cockatoo (Calyptorhynchus baudinii) in south-western Australia*, Western Australian Naturalist 10: 33-42.

Department of Environment and Energy (DoEE) 2016a, *Modelled distribution for Baudin's Cockatoo (Calyptorhynchus baudinii)*, Canberra.

Department of the Environment and Energy (DoEE) 2016b, *Modelled distribution for Carnaby's Cockatoo (Calyptorhynchus latirostris)*, Canberra.

Department of Environment and Energy (DoEE) 2016c, *Modelled distribution for Forest Red-tailed Black-Cockatoo (Calyptorhynchus banksii naso)*, Canberra.

Department of Environment and Energy (DoEE) 2017, *Revised draft referral guideline for three threatened black cockatoo species: Carnaby's Cockatoo (Endangered) Calyptorhynchus latirostris, Baudin's Cockatoo (Vulnerable) Calyptorhynchus baudinii and Forest Red-tailed Black Cockatoo (Vulnerable) Calyptorhynchus banksii naso*, Canberra, Australia.

Department of Parks and Wildlife (DPaW) 2013, *Carnaby's cockatoo (Calyptorhynchus latirostris) Recovery Plan*, Perth, Western Australia.

Department of Parks and Wildlife (DPaW) 2015, *How to design and place artificial hollows for Carnaby's cockatoo*, Perth.

Department of Sustainability Environment Water Populations and Communities (DSEWPaC) 2012a, *EPBC Act referral guidelines for three threatened black cockatoo species: Carnaby's cockatoo (endangered) Calyptorhynchus latirostris, Baudin's cockatoo (vulnerable) Calyptorhynchus baudinii and Forest red-tailed black cockatoo (vulnerable) Calyptorhynchus banksii naso*, Commonwealth of Australia, Canberra.

Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) 2012b, *EPBC Act referral guidelines for three threatened black cockatoo species: Carnaby's cockatoo (endangered) Calyptorhynchus latirostris, Baudin's cockatoo (vulnerable) Calyptorhynchus baudinii, Forest red-tailed black cockatoo (vulnerable) Calyptorhynchus banksii naso*, Commonwealth of Australia, Canberra.

Emerge Associates 2020a, *Level 1 Fauna Assessment - Former Glen Iris Golf Course*, EP20-009(04)--004 RAW, Version 1.

Emerge Associates 2020b, *Potential foraging habitat (Swan Coastal Plain) for the Carnaby's black cockatoo (Calyptorhynchus latirostris) - spatial dataset*, Version dated 13 February 2020.

Emerge Associates 2020c, *Potential foraging habitat (Swan Coastal Plain) for the forest red-tailed black cockatoo (Calyptorhynchus banksii naso) - spatial dataset*, Version dated 13 February 2020.

Targeted Black Cockatoo Assessment

Former Glen Iris Golf Course



Environmental Protection Authority (EPA) 2020, *Technical Guidance - Terrestrial vertebrate fauna surveys for environmental impact assessment*, Joondalup, Western Australia.

Forest Products Commission 2020, *Forest Products Commission Plantations (FPC-001)*.

Glossop, B., Clarke, K., Mitchell, D. and Barrett, G. 2011, *Methods for mapping Carnaby's cockatoo habitat*, Department of Environment and Conservation, Perth.

Gozzard, J. 2011, *Sea to scarp - geology, landscape, and land use planning in the southern Swan Coastal Plain*, Geological Survey of Western Australia.

Groom, C. 2010, *Artificial Hollows for Carnaby's Black Cockatoo: An investigation of the placement, use, monitoring and maintenance requirements of artificial hollows for Carnaby's black cockatoo*, Department of Environment and Conservation, Perth.

Groom, C. 2011, *Plants Used by Carnaby's Black Cockatoo*, Department of Environment and Conservation, Perth.

Heddl, E. M., Loneragan, O. W. and Havel, J. J. 1980, 'Vegetation Complexes of the Darling System Western Australia', in Department of Conservation and Environment (ed.), *Atlas of Natural Resources Darling System Western Australia*, Perth.

Johnstone, R., Kirby, T. and Sarti, K. 2013, *The breeding biology of the forest red-tailed black cockatoo Calyptorhynchus banksii naso Gould in south-western Australia. I. Characteristics of nest trees and nest hollows*, Pacific Conservation Biology, 19(2): 121-142.

Johnstone, R. E., Johnstone, C. and Kirkby, T. 2011, *Black Cockatoos on the Swan Coastal Plain: Carnaby's Cockatoo (Calyptorhynchus latirostris), Baudin's Cockatoo (Calyptorhynchus baudinii) and the Forest Red-tailed Black Cockatoo (Calyptorhynchus banksii naso) on the Swan Coastal Plain (Lancelin-Dunsborough), Western Australia. Studies on distribution, status, breeding, food, movements and historical changes.*, Department of Planning, Western Australia.

Johnstone, R. E. and Kirkby, T. 1999, *Food of the Red-tailed Forest Black Cockatoo Calyptorhynchus banksii naso in Western Australia*, Western Australian Naturalist, 22: 167-178.

Johnstone, R. E. and Kirkby, T. 2008, *Distribution, status, social organisation, movements and conservation of Baudin's Cockatoo (Calyptorhynchus baudinii) in South-west Western Australia*, Records of the Western Australian Museum, 25: 107-118.

Johnstone, R. E. and Storr, G. M. 1998, *Handbook of Western Australian Birds. Volume 1 - Non-Passerines (Emu to Dollarbird)*, Western Australian Museum, Perth.

Kendrick, G. W., Wyrwoll, K. H. and Szabo, B. J. 1991, *Pliocene-Pleistocene coastal events and history along the western margin of Australia*, Quaternary Science Reviews, 10: 419-439.

Le Roux, C. 2017, *Nocturnal roost tree, roost site and landscape characteristics of Carnaby's Black-Cockatoo (Calyptorhynchus latirostris) on the Swan Coastal Plain*, Edith Cowan University Research Online.

Targeted Black Cockatoo Assessment

Former Glen Iris Golf Course



Peck, A., Barret, G. and Williams, M. 2019, *The 2019 Great Cocky Count: a community-based survey for Carnaby's Black-Cockatoo (Calyptorhynchus latirostris), Baudin's Black-Cockatoo (Calyptorhynchus baudinii) and Forest Red-tailed Black-Cockatoo (Calyptorhynchus banksii naso)*, Birdlife Australia, Floreat, Western Australia.

Saunders, D. A. 1979a, *The Availability of Tree Hollows for Use as Nest Sites by White-tailed Black Cockatoos*, Australian Wildlife Research, 6: 205-216.

Saunders, D. A. 1979b, *Distribution and taxonomy of the white-tailed and yellow-tailed Black-Cockatoos* *Calyptorhynchus* spp., Emu, 79(215-227).

Saunders, D. A. 1980, *Food and Movements of the Short-billed Form of the White-tailed Black Cockatoo*, Australian Wildlife Research, 7: 257-269.

Saunders, D. A. 1990, *Problems of Survival in an Extensively Cultivated Landscape: the case of Carnaby's Cockatoo* *Calyptorhynchus funereus latirostris*, Biological Conservation, 54: 277-290.

Saunders, D. A., Mawson, P.R., Dawson, R. 2014, Use of tree hollows by Carnaby's Cockatoo and the fate of large hollow-bearing trees at Coomallo Creek, Western Australia 1969-2013., Biological Conservation, 177: 185-193.

Saunders, D. A., Smith, G. T. and Rowley, I. 1982, The availability and dimensions of Tree Hollows that Provide Nest Sites for Cockatoos (Psittaciformes) in Western Australia, Australian Wildlife Research, 9: 541-556.

Seddon, G. 2004, *A Sense of Place: a response to an environment, the Swan Coastal Plain Western Australia*, Blooming Books, Melbourne.

Shah, B. 2006, *Conservation of Carnaby's Black Cockatoo on the Swan Coastal Plain, Western Australia*, Birds Australia, Perth.

Western Australian Museum (WAM) 2020, *WA Museum Checklist of the Terrestrial Vertebrate Fauna of Western Australia*, Perth, Western Australia.

Western Australian Museum 2019, *WA Museum Checklist of the Terrestrial Vertebrate Fauna of Western Australia*, Perth, Western Australia.

7.2 Online references

Bureau of Meteorology (BoM) 2021, *Climate Averages*, viewed 15 February 2021, <<http://www.bom.gov.au/climate/data/>>.

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Figures



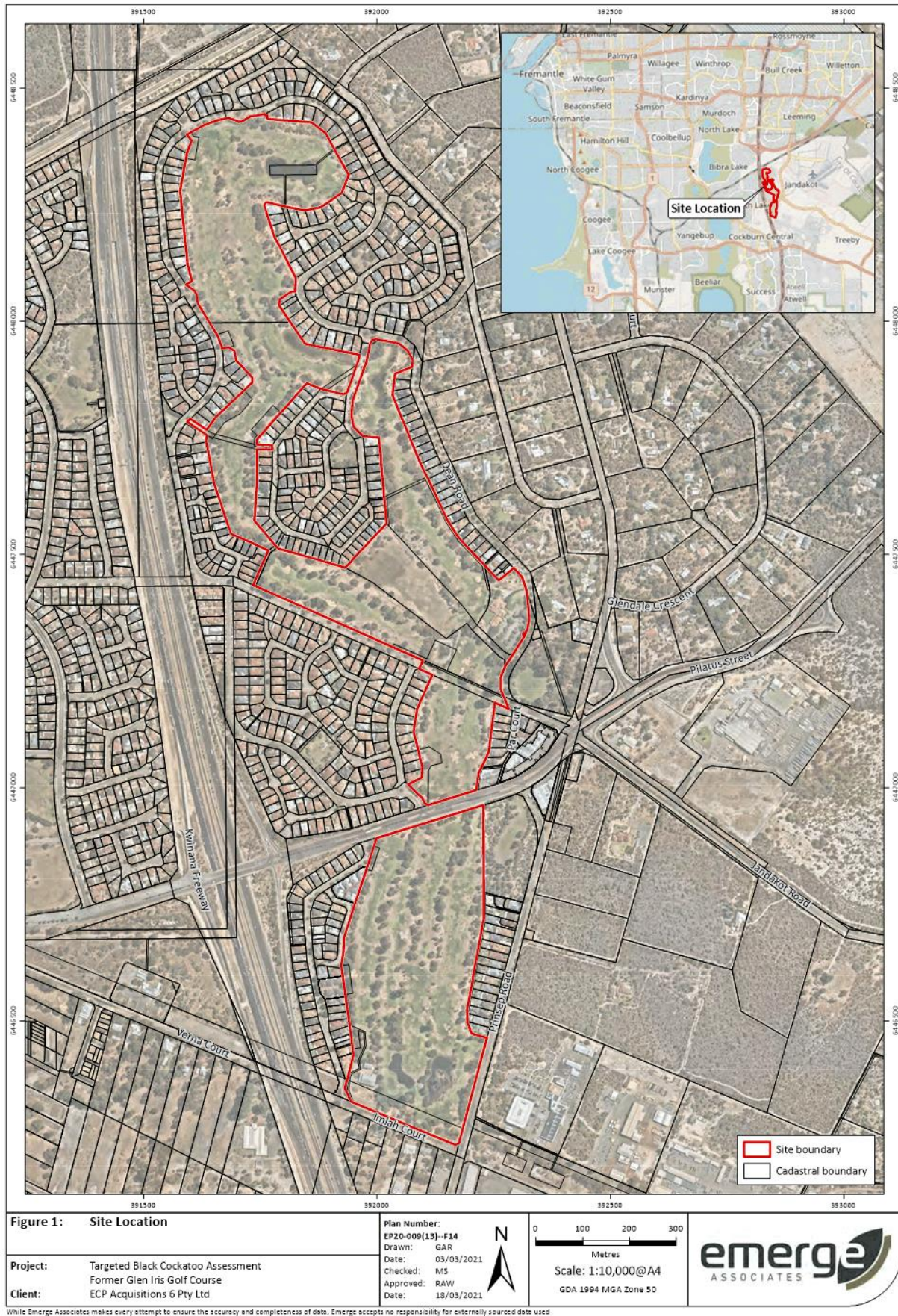
Figure 1: Site Location

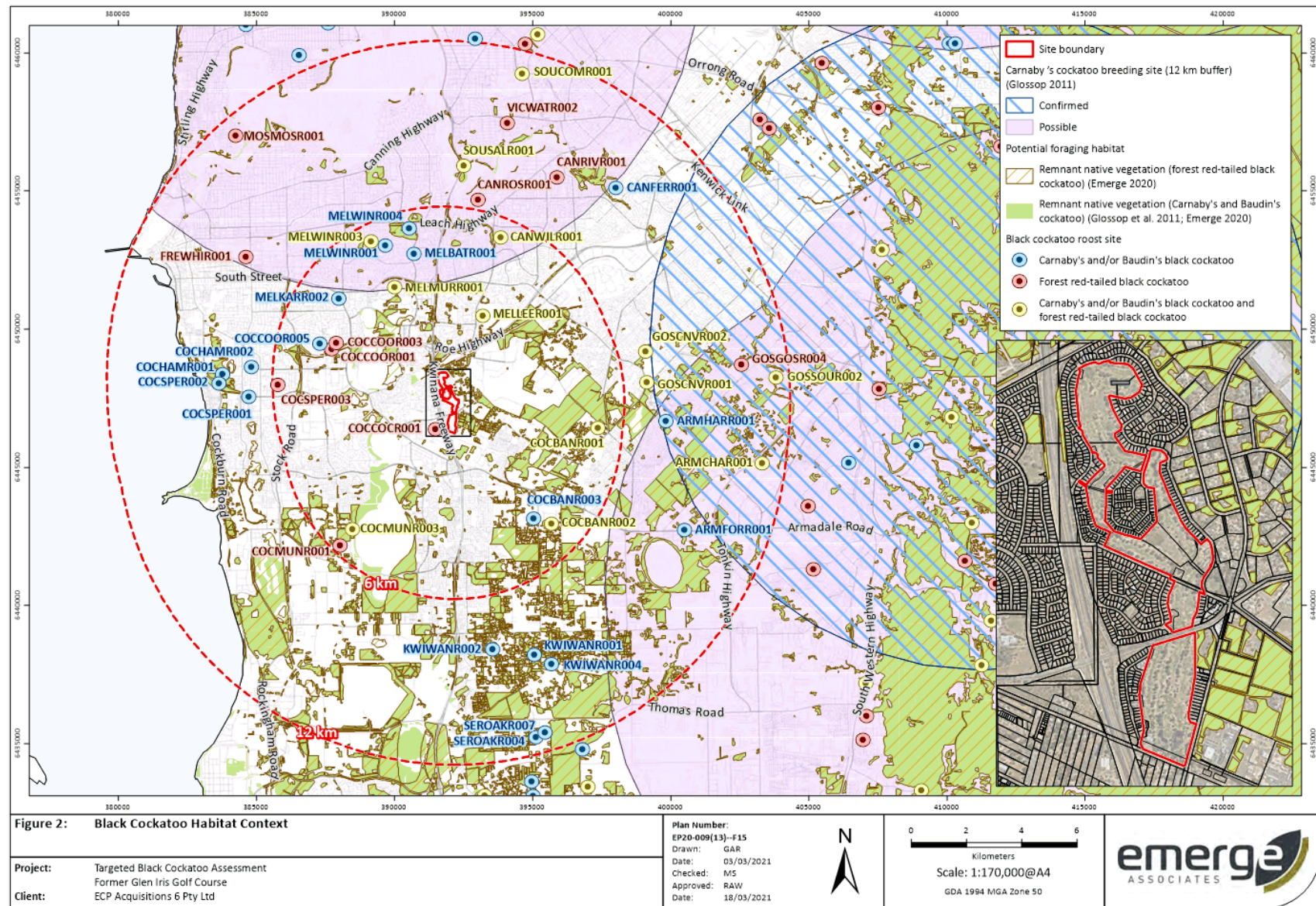
Figure 2: Black Cockatoo Habitat Context

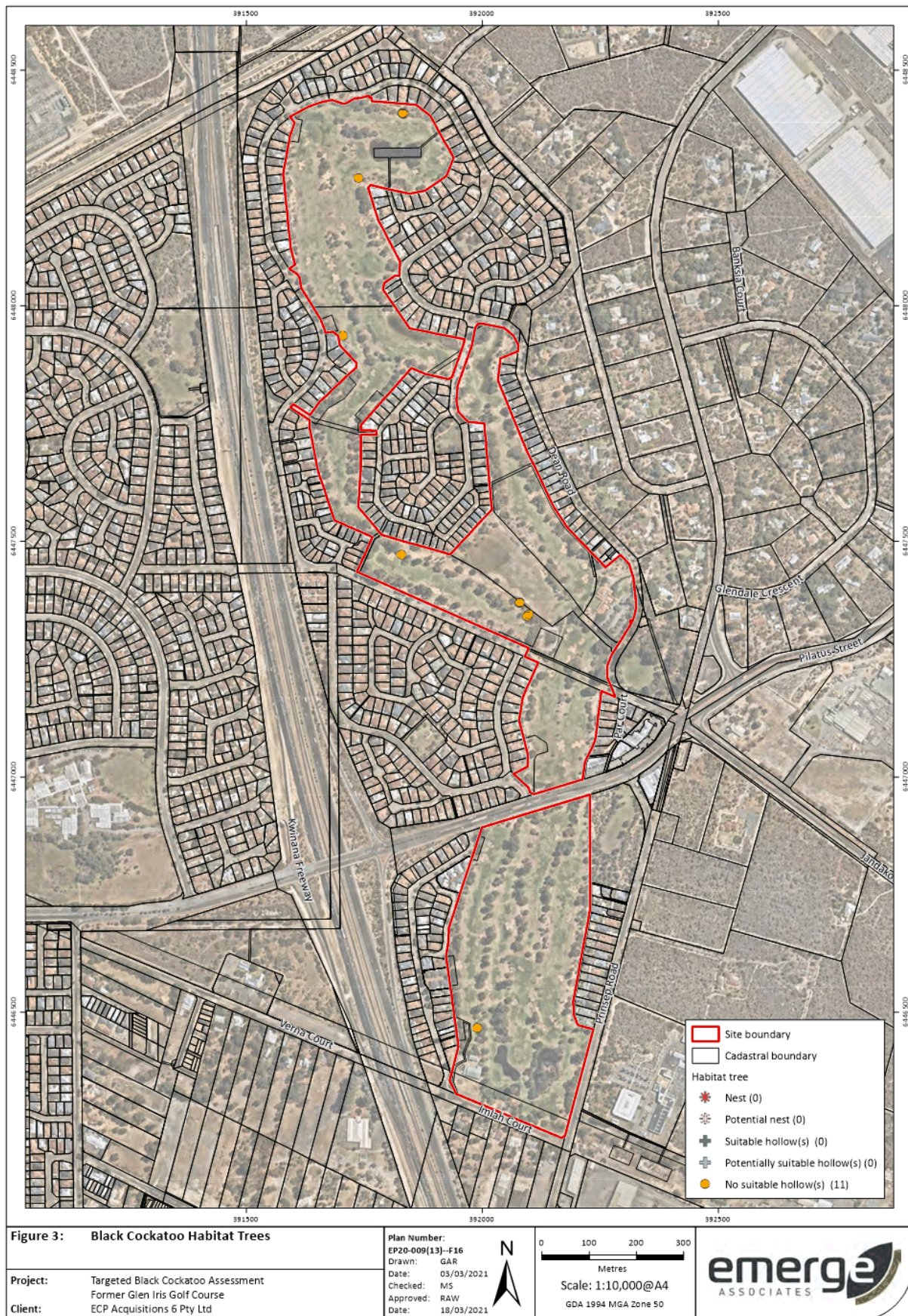
Figure 3: Black Cockatoo Habitat Trees

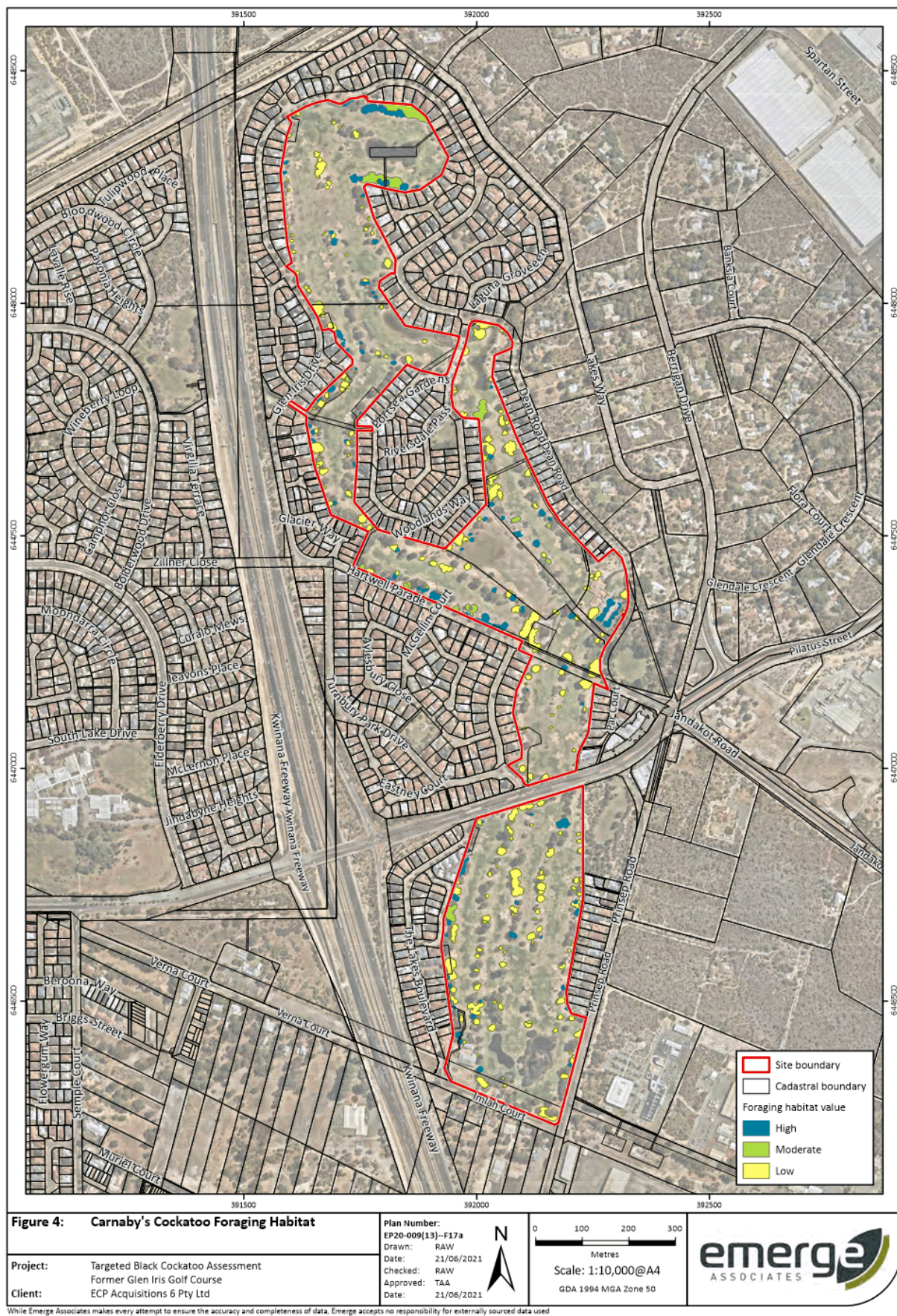
Figure 4: Carnaby's Cockatoo Foraging Habitat

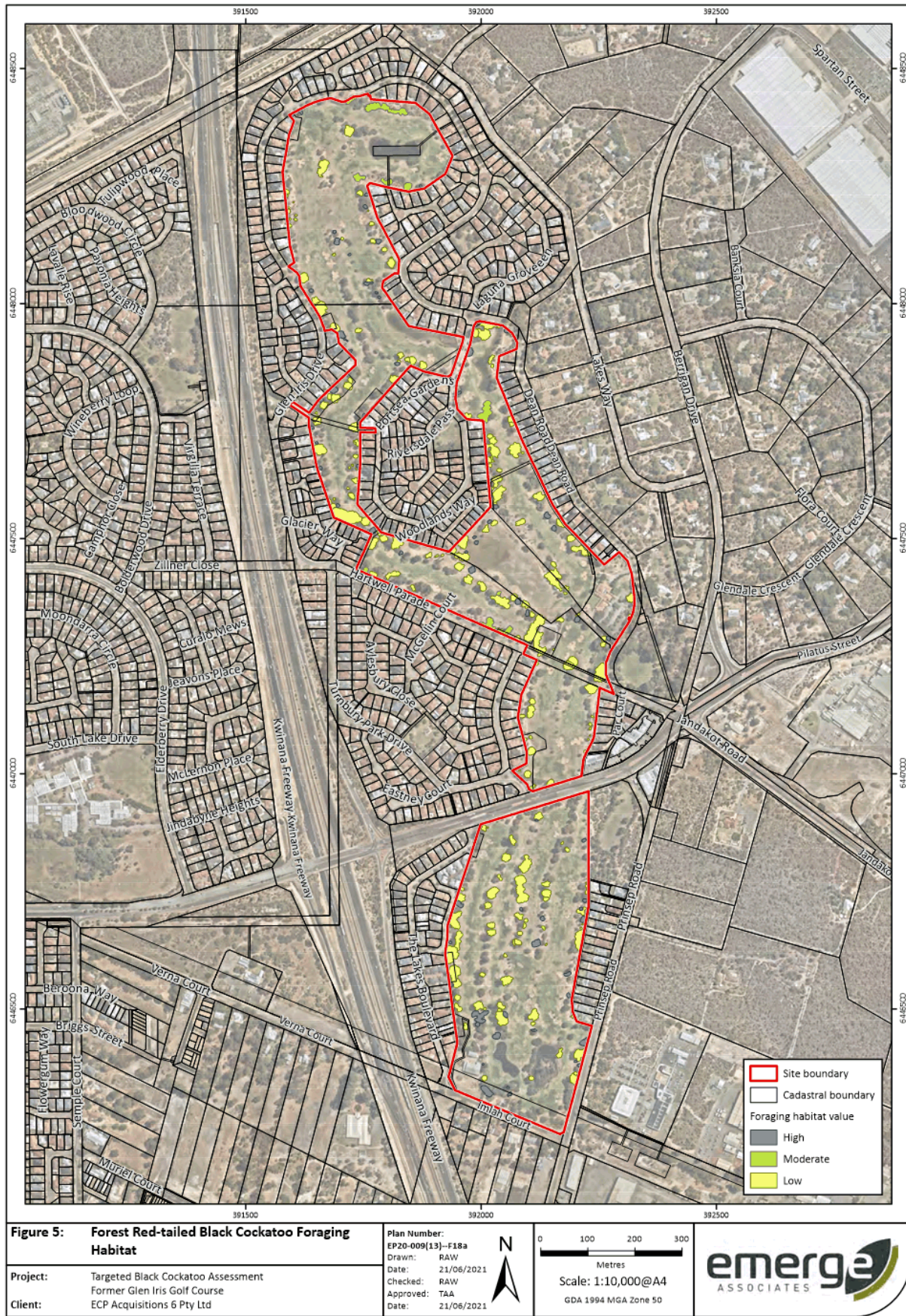
Figure 5: Forest Red-tailed Black Cockatoo Foraging Habitat











Appendix A

Additional Information



Additional Background Information



Conservation Significant Fauna

Threatened and priority fauna

Fauna species considered rare or under threat warrant special protection under Commonwealth and/or State legislation. At the Commonwealth level, fauna species can be listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) as 'threatened', 'migratory' or 'marine' as described in **Table 1**.

Migratory species comprise birds recognised under international treaties including:

- *Japan Australia Migratory Bird Agreement 1981* (JAMBA)
- *China Australia Migratory Bird Agreement 1998* (CAMBA)
- *Republic of Korea-Australia Migratory Bird Agreement 2007* (ROKAMBA)
- *Bonn Convention 1979* (The Convention on the Conservation of Migratory Species of Wild Animals).

Fauna species listed as threatened and migratory are protected in Australia as 'matters of national environmental significance' (MNES) under the EPBC Act.

Table 1: Definitions of conservation significant fauna species pursuant to the EPBC Act

Conservation Code	Category
X	Threatened Fauna – Extinct There is no reasonable doubt that the last member of the species has died.
EW [#]	Threatened Fauna – Extinct in the Wild Taxa which are known only to survive in cultivation, captivity or as a naturalised population outside its past range, or taxa which have not been recorded in its known and/or expected habitat despite appropriate exhaustive surveys.
CR [#]	Threatened Fauna – Critically Endangered Taxa which are considered to be facing an extremely high risk of extinction in the wild.
EN [#]	Threatened Fauna – Endangered Taxa which are considered to be facing a very high risk of extinction in the wild.
VU [#]	Threatened Fauna – Vulnerable Taxa which are considered to be facing a high risk of extinction in the wild.
Migratory [#]	Migratory Fauna All migratory species that are: (i) native species; and (ii) from time to time included in the appendices to the Bonn Convention; and (b) all migratory species from time to time included in annexes established under JAMBA, CAMBA and ROKAMBA; and All native species from time to time identified in a list established under, or an instrument made under, an international agreement approved by the Minister.
Ma	Marine Fauna Species in the list established under s248 of the EPBC Act

[#]matters of national environmental significance (MNES) under the EPBC Act

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In Western Australia, fauna taxa may be classed as 'threatened', 'extinct', or 'specially protected' under the *Biodiversity Conservation Act 2016* (BC Act), which is enforced by Department of Biodiversity Conservation and Attractions (DBCA) (DBCA 2019a). The definitions of these categories are provided in **Table 2**.

Table 2: Definitions of specially protected fauna schedules under the BC Act (DBCA 2019a)

Category	Conservation Code	Definition
Threatened	CR	Critically endangered Threatened species considered to be facing an extremely high risk of extinction in the wild in the immediate future.
	EN	Endangered Threatened species considered to be facing a very high risk of extinction in the wild in the near future.
	VU	Vulnerable Threatened species considered to be facing a high risk of extinction in the wild in the medium-term future.
Extinct	EX	Extinct Species where there is no reasonable doubt that the last member of the species has died.
	EW	Extinct in the wild 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. Note that no species are currently listed as EW.
Specially protected	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 Includes birds that subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and the Bonn Convention, relating to the protection of migratory birds.
	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.
	OS	Other specially protected species Fauna otherwise in need of special protection to ensure their conservation.

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Fauna species that may be threatened or near threatened but lack sufficient information to be legislatively listed may be added to the DBCA's *Priority Fauna List* (DBCA 2018). Species listed under priorities 1-3 comprise possible threatened species that do not meet survey criteria or are otherwise data deficient. Species listed under priority 4 are those 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 (DBCA 2019a).

Priority fauna species are considered during State approval processes. Priority fauna categories and definitions are listed in **Table 3** (DBCA 2019a).

Table 3: Definitions of priority fauna categories on DBCA's *Priority Fauna List* (DBCA 2019a)

Conservation Code	Category
P1	Priority 1 – Poorly known 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.
P2	Priority 2 – Poorly known 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.
P3	Priority 3 – Poorly known 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.
P4	(a) Priority 4 – Rare species 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) Priority 4 – Near Threatened Species that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable. (c) Priority 4 – Other Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

Additional Background Information



Black cockatoos

Three threatened species of black cockatoo occur on the Swan Coastal Plain (referred to herein collectively as 'black cockatoos'):

- *Calyptorhynchus latirostris* (Carnaby's cockatoo) which is listed as 'endangered' under the EPBC Act and the BC Act.
- *Calyptorhynchus baudinii* (Baudin's cockatoo) which is listed as 'endangered' under the EPBC Act and the BC Act.
- *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo) which is listed as 'vulnerable' under the EPBC Act and the BC Act.

There are a range of regional studies and spatial datasets available which provide information on black cockatoo records and potential habitat mapping. These are detailed below.

Species distribution and breeding range

Broad-scale maps are available for the modelled distribution of Baudin's cockatoo, Carnaby's cockatoo and forest red-tailed black cockatoo (DSEWPaC 2011; DoEE 2016a, b).

The modelled distribution maps also include 'known breeding areas' and 'predicted breeding range' for Baudin's cockatoo and 'breeding range' and 'non-breeding range' for Carnaby's cockatoo.

No breeding range modelling is available for forest red-tailed black cockatoo but the species is known to breed mainly in the jarrah forest region (DBCA 2017) and in small populations on the Swan Coastal Plain within the Baldivis, Stake Hill, Lake McLarty and Capel area and increasingly in the Perth metropolitan area (DAWE 2020).

Breeding habitat

Department of Environment and Conservation (DEC, now Department of Biodiversity, Conservation and Attractions (DBCA)) and fauna experts, have identified and mapped Carnaby's cockatoo habitat on the Swan Coastal Plain and Jarrah Forest regions (Glossop *et al.* 2011). This dataset includes mapping of Carnaby's cockatoo breeding sites based on point records of breeding from a range of sources. Breeding sites were classified as 'confirmed' where eggs or chicks were recorded and 'possible' where observations relating to Carnaby's cockatoo breeding that did not include actual records of eggs or chicks (e.g. chewed hollows or records of breeding or nesting behaviour by an expert observer).

A 12 km buffer applies to each site to 'reflect the flexible use of these areas by cockatoos and to indicate the important zone for access to potential feeding habitat' (Glossop *et al.* 2011). Glossop *et al.* (2011) state that the areas mapped in the dataset are not a comprehensive record of Carnaby's cockatoo breeding and that many nesting sites are not known.

While this dataset only applies to Carnaby's cockatoo, the information it contains is also applicable for Baudin's cockatoo and forest red-tailed black cockatoo as they have similar breeding habitat requirements. That is, breeding sites that are suitable for Carnaby's cockatoo may also be suitable for

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Baudin's cockatoo and forest red-tailed black cockatoo, if located within their distribution/breeding ranges.

BirdLife Australia also maintain a database of confirmed black cockatoo breeding sites which is accessible via a paid search system. BirdLife Australia have advised that their database is comprised of data collected during surveys by staff and volunteers of which most (>99%) surveys are of Carnaby's cockatoo. They have also advised that the dataset is not comprehensive and that an absence of known nests does not necessarily indicate a lack of breeding activity.

The Carnaby's cockatoo recovery plan also identifies 13 'important bird areas' for Carnaby's cockatoo, which are identified as 'sites of global bird conservation importance' (DPaW 2013). These 'important bird areas' comprise sites supporting at least 20 breeding pairs or 1% of the population regularly utilising an area in the non-breeding part of the range.

Confirmed roost sites

BirdLife Australia undertakes annual monitoring of black cockatoo overnight roost sites as part of the annual 'Great Cocky Count' community-based survey. Information gathered from these monitoring events provides roost locations and recorded black cockatoo numbers (Peck *et al.* 2019).

Native foraging habitat

Glossop *et al.* (2011) also mapped 'areas requiring investigation as Carnaby's cockatoo feeding habitat' for the Swan Coastal Plain and Jarrah Forest regions, based on regional vegetation mapping that may contain plant species known to be foraged upon by Carnaby's cockatoo. Note that this dataset does not include observations or point records of Carnaby's cockatoo feeding. This dataset represents areas of vegetation that may potentially provide foraging habitat for Carnaby's cockatoo.

Given this dataset was created in 2011 and in order to account for clearing of native vegetation that has occurred since this time, Emerge have updated this dataset using the current native vegetation extent as provided by DPIRD (2019a) to only show potential foraging habitat that currently exists (Emerge Associates 2020a).

Pine plantations also provide an important food source for Carnaby's cockatoo, but were not included in the Glossop *et al.* (2011) dataset. Mapping of pine plantations is available from the Forest Products Commission (Forest Products Commission 2020).

The Glossop *et al.* (2011) dataset is broadly applicable to other black cockatoos as many plant species that are foraged upon by Carnaby's cockatoo are also consumed by Baudin's cockatoo (e.g. fruit of *Banksia* spp., *Corymbia calophylla* (marri) and *Eucalyptus marginata* (jarrah)) and forest red-tailed black cockatoo (e.g. jarrah and marri fruit). However, using the Glossop *et al.* (2011) potential foraging habitat dataset for forest red-tailed cockatoos likely overestimates available foraging habitat as it includes multiple plant species that are not consumed by this species (e.g. *Banksia* spp.), and to a lesser extent the foraging value is also over-estimated for Baudin's cockatoo.

Emerge Associates (2020b) have used a similar methodology to Glossop *et al.* (2011) to define potential foraging habitat for forest-red tailed cockatoos. Specifically, DBCA (2019b) regional vegetation complex mapping has been used to determine which areas of remnant vegetation

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support plant species known to be foraged upon by forest red-tailed cockatoos, including *Allocasuarina fraseriana* (sheoak), *Corymbia calophylla* (marri), *Eucalyptus gomphocephala* (tuart) and *Eucalyptus marginata* (jarrah). Where these vegetation complexes intersect remnant vegetation mapped by DPIRD (2019b) they were considered to represent potential foraging habitat for forest red-tailed cockatoos.

Additional Background Information



References

General references

department of biodiversity Conservation and Attractions (DBCA) 2017, *Fauna Profile - Forest red-tailed black cockatoo *Calyptorhynchus banksii naso**, Perth, Western Australia.

Department of Biodiversity, Conservation and Attractions (DBCA) 2018, *Threatened and Priority Fauna List 15 February 2018*, Perth.

Department of Biodiversity Conservation and Attractions (DBCA) 2019a, *Conservation Codes for Western Australian Flora and Fauna - last updated 3 January 2019*.

Department of Biodiversity Conservation and Attractions (DBCA) 2019b, *Vegetation Complexes - South West forest region of Western Australia (DBCA-047)*, Kensington.

Department of Environment and Energy (DoEE) 2016a, *Modelled distribution for Baudin's Cockatoo (*Calyptorhynchus baudinii*)*, Canberra.

Department of Environment and Energy (DoEE) 2016b, *Modelled distribution for Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso*)*, Canberra.

Department of Parks and Wildlife (DPaW) 2013, *Carnaby's Cockatoo (*Calyptorhynchus latirostris*) Recovery Plan*.

Department of Primary Industries and Regional Development (DPIRD) 2019a, *Current Extent of Native Vegetation - Western Australia*, Perth, Western Australia.

Department of Primary Industries and Regional Development (DPIRD) 2019b, *Native Vegetation Extent Dataset (DPIRD-005)*, Perth.

Department of Sustainability, Environment, Water, Population and Communities (DSEWPac) 2011, *Modelled distribution of Carnaby's black cockatoo (*Calyptorhynchus latirostris*)*, Commonwealth of Australia, Canberra, Australian Capital Territory.

Emerge Associates 2020a, *Potential foraging habitat (Swan Coastal Plain) for the Carnaby's black cockatoo (*Calyptorhynchus latirostris*) - spatial dataset*, Version dated 13 February 2020.

Emerge Associates 2020b, *Potential foraging habitat (Swan Coastal Plain) for the forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*) - spatial dataset*, Version dated 13 February 2020.

Forest Products Commission 2020, *Forest Products Commission Plantations (FPC-001)*.

Glossop, B., Clarke, K., Mitchell, D. and Barrett, G. 2011, *Methods for mapping Carnaby's cockatoo habitat*, Department of Environment and Conservation, Perth.

Peck, A., Barret, G. and Williams, M. 2019, *The 2019 Great Cocky Count: a community-based survey for Carnaby's Black-Cockatoo (*Calyptorhynchus latirostris*), Baudin's Black-Cockatoo (*Calyptorhynchus baudinii*) and Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso*)*, Birdlife Australia, Floreat, Western Australia.

Appendix B

Black Cockatoo Foraging Plants





Black Cockatoo Foraging Plants

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Species name	Common name	Foraging category as assigned by Emerge			Literature references
		CBC	BBC	FRTBC	
<i>Acacia baileyana</i>	Cootamundra wattle	Secondary			Groom 2011
<i>Acacia pentadenia</i>	Karri wattle	Secondary			Groom 2011
<i>Acacia saligna</i>	Orange wattle	Secondary			Groom 2011
<i>Agonis flexuosa</i>	Peppermint tree	Secondary			Groom 2011
<i>Allocasuarina fraseriana</i>	Sheoak		Secondary	Secondary	Johnstone & Storr 1998; Johnstone et al. 2010; Johnstone 2017; DoEE 2017
<i>Allocasuarina spp.</i>		Secondary		Secondary	Johnstone et al. 2010; Groom 2011; DSEWPac 2012; DoEE 2017
<i>Anigozanthos flavidus</i>	Tall kangaroo paw		Secondary		Johnstone et al. 2010; DSEWPac 2012; DoEE 2017
<i>Araucaria heterophylla</i>	Norfolk island pine	Secondary			Groom 2011; DoEE 2017
<i>Banksia ashbyi</i>	Ashby's banksia	Primary	Secondary		Saunders 1980; Groom 2011; DoEE 2017
<i>Banksia attenuata</i>	Slender banksia	Primary	Secondary		Saunders 1980; Johnstone et al. 2010; Groom 2011; DoEE 2017
<i>Banksia baxteri</i>	Baxter's banksia	Primary	Secondary		Johnstone et al. 2010; Groom 2011; DoEE 2017
<i>Banksia carlinoides</i>	Pink dryandra	Primary	Secondary		Johnstone et al. 2010; Groom 2011; DoEE 2017
<i>Banksia coccinea</i>	Scarlet banksia	Primary	Secondary		Johnstone et al. 2010; Groom 2011; DoEE 2017
<i>Banksia dallanneyi</i>	Couch honeypot dryandra	Primary	Secondary		Groom 2011; DoEE 2017
<i>Banksia ericifolia</i>	Heath-leaved banksia	Primary	Secondary		Johnstone et al. 2010; Groom 2011; DoEE 2017
<i>Banksia fraseri</i>		Primary	Secondary		Johnstone et al. 2010; Groom 2011; DoEE 2017
<i>Banksia gardneri</i>	Prostrate banksia	Primary	Secondary		Groom 2011; DoEE 2017
<i>Banksia grandis</i>	Bull banksia	Primary	Secondary		Saunders 1980; Johnstone & Storr 1998; Johnstone et al. 2010; Groom 2011; DoEE 2017
<i>Banksia hookeriana</i>	Hooker's banksia	Primary	Secondary		Johnstone et al. 2010; Groom 2011; DoEE 2017
<i>Banksia ilicifolia</i>	Holly banksia	Primary	Secondary		Johnstone et al. 2010; Groom 2011; Johnstone & Storr 1998; DoEE 2017
<i>Banksia kippistiana</i>		Primary	Secondary		Groom 2011; DoEE 2017
<i>Banksia leptophylla</i>		Primary	Secondary		Groom 2011; DoEE 2017
<i>Banksia lindleyana</i>	Porcupine banksia	Primary	Secondary		Johnstone et al. 2010; DoEE 2017



Black Cockatoo Foraging Plants

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Species name	Common name	Foraging category as assigned by Emerge			Literature references
		CBC	BBC	FRTBC	
<i>Banksia littoralis</i>	Swamp banksia	Primary	Secondary		Saunders 1980; Groom 2011; Johnstone & Storr 1998; Johnstone et al. 2010; DoEE 2017
<i>Banksia menziesii</i>	Firewood banksia	Primary	Secondary		Saunders 1980; Johnstone et al. 2010; Groom 2011; DoEE 2017
<i>Banksia mucronulata</i>	Swordfish dryandra	Primary	Secondary		Groom 2011; DoEE 2017
<i>Banksia nivea</i>	Honeypot dryandra	Primary	Secondary		Saunders 1980; Groom 2011; DoEE 2017
<i>Banksia nobilis</i>	Golden dryandra	Primary	Secondary		Saunders 1980; Groom 2011; DoEE 2017
<i>Banksia praemorsa</i>	Cut-leaf banksia	Primary	Secondary		Saunders 1980; Johnstone et al. 2010; Groom 2011; DoEE 2017
<i>Banksia prionotes</i>	Acorn banksia	Primary	Secondary		Johnstone et al. 2010; Groom 2011; DoEE 2017
<i>Banksia prolata</i>		Primary	Secondary		Johnstone et al. 2010; DoEE 2017
<i>Banksia quercifolia</i>	Oak-leaved banksia	Primary	Secondary		Johnstone & Storr 1998; Johnstone et al. 2010; Groom 2011; DoEE 2017
<i>Banksia sessilis</i>	Parrot bush	Primary	Secondary		Saunders 1980; Johnstone & Storr 1998; Johnstone et al. 2010; Groom 2011; DoEE 2017
<i>Banksia speciosa</i>	Showy banksia	Primary	Secondary		Johnstone et al. 2010; Groom 2011; DoEE 2017
<i>Banksia spp.</i>		Primary	Secondary		Saunders 1979; DSEWPac 2012; DoEE 2017
<i>Banksia squarrosa</i>	Pingle	Primary	Secondary		Johnstone et al. 2010; Groom 2011; DoEE 2017
<i>Banksia tricuspis</i>	Pine banksia	Primary	Secondary		Groom 2011; DoEE 2017
<i>Banksia undata</i>	Urchin dryandra	Primary	Secondary		Groom 2011; DoEE 2017
<i>Banksia verticillata</i>	Granite banksia	Primary	Secondary		Saunders 1980; Groom 2011; DoEE 2017
<i>Brassica campestris</i>	Canola	Secondary			Groom 2011; DoEE 2017
<i>Callistemon spp.</i>		Secondary	Secondary		Johnstone et al. 2010; DoEE 2017
<i>Callistemon viminalis</i>	Captain cook bottlebrush	Secondary			Groom 2011
<i>Callitris sp.</i>		Secondary			Johnstone et al. 2010; Groom 2011
<i>Carya illinoensis</i>	Pecan	Primary	Secondary		Johnstone et al. 2010; Groom 2011; Groom 2014; DoEE 2017
<i>Casuarina cunninghamiana</i>	River sheoak	Secondary			Groom 2011
<i>Citrullus lanatus</i>	Pie or afghan melon	Secondary			Johnstone et al. 2010; Groom 2011



Black Cockatoo Foraging Plants

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Species name	Common name	Foraging category as assigned by Emerge			Literature references
		CBC	BBC	FRTBC	
<i>Corymbia calophylla</i>	Marri	Primary	Primary	Primary	Johnstone & Storr 1998; Johnstone & Kirkby 1999; Johnstone et al. 2010; DSEWPac 2012; DoEE 2017; Johnstone 2017; Saunders 1979; Johnstone & Kirkby 2008
<i>Corymbia citriodora</i>	Lemon scented gum	Secondary	Secondary	Secondary	Johnstone et al. 2010; DSEWPac 2012; Groom 2011; Johnstone 2017
<i>Corymbia ficifolia</i>	Red flowering gum	Secondary			Groom 2011
<i>Corymbia haematoxylon</i>	Mountain marri	Secondary		Secondary	Groom 2011; DoEE 2012; DoEE 2017
<i>Corymbia maculata</i>	Spotted gum	-	-	-	-
<i>Darwinia citriodora</i>	Lemon-scented darwinia	Secondary	Secondary		Groom 2011; Johnstone et al. 2010
<i>Diospyros sp.</i>	Sweet persimmon	Secondary	Secondary		Johnstone et al. 2010; Groom 2011; DSEWPac 2012; DoEE 2017
<i>Eremophila glabra</i>	Tarbush	Secondary			Groom 2011
<i>Erodium aureum</i>		Secondary			Groom 2011
<i>Erodium botrys</i>	Long storksbill	Secondary	Secondary		Groom 2011; Johnstone & Storr 1998; Johnstone et al. 2010
<i>Erodium spp.</i>		Secondary	Secondary		Johnstone et al. 2010; DoEE 2017
<i>Eucalyptus accedens</i>	Powderbark	-	-	-	-
<i>Eucalyptus caesia</i>	Silver princess	Secondary		Secondary	Johnstone et al. 2010; Groom 2011; DSEWPac 2012; DoEE 2017; Johnstone 2017
<i>Eucalyptus camaldulensis</i>	River red gum			Secondary	DoEE 2012; DoEE 2017
<i>Eucalyptus decipiens</i>	Red heart/moit			Secondary	Johnstone 2017
<i>Eucalyptus diversicolor</i>	Karri			Primary	Johnstone et al. 2010; DSEWPac 2012; DoEE 2017; Johnstone & Storr 1998
<i>Eucalyptus erythrocorys</i>	Illyarrie	Secondary		Secondary	DSEWPac 2012; DoEE 2017; Johnstone 2017, Johnstone et al. 2010
<i>Eucalyptus globulus</i>	Tasmanian blue gum	-	-	-	-
<i>Eucalyptus gomphocephala</i>	Tuart	Secondary		Secondary	Johnstone et al. 2010; Groom 2011; DSEWPac 2012; DoEE 2017
<i>Eucalyptus grandis</i>	Flooded gum, rose gum			Secondary	DoEE 2012; DoEE 2017



Black Cockatoo Foraging Plants

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Species name	Common name	Foraging category as assigned by Emerge			Literature references
		CBC	BBC	FRTBC	
<i>Eucalyptus lehmannii</i>	Bushy yate			Secondary	Johnstone 2017
<i>Eucalyptus leucoxylon</i>	Yellow gum	Secondary			Groom 2014
<i>Eucalyptus longicornis</i>	Red morrell	-	-	-	-
<i>Eucalyptus loxophleba</i>	York gum	Secondary			Johnstone et al. 2010; Groom 2011; DSEWPac 2012; DoEE 2017
<i>Eucalyptus marginata</i>	Jarrah	Primary	Secondary	Primary	Saunders 1980; Johnstone et al. 2010; Groom 2011; DSEWPac 2012; DoEE 2017; Johnstone & Storr 1998; Johnstone & Kirkby 1999; Johnstone 2017
<i>Eucalyptus megacarpa</i>	Bullich	-	-	-	-
<i>Eucalyptus occidentalis</i>	Swamp yate	-	-	-	-
<i>Eucalyptus patens</i>	Blackbutt	Primary		Primary	Johnstone & Storr 1998; Johnstone & Kirkby 1999; Johnstone et al. 2010; DSEWPac 2012; DoEE 2017; Johnstone 2017; Groom 2011
<i>Eucalyptus pleurocarpa</i>	Tallerack	Secondary			Groom 2011
<i>Eucalyptus preissiana</i>	Bell-fruited mallee	Secondary			Groom 2011
<i>Eucalyptus robusta</i>	Swamp mahogany	Secondary			Johnstone et al. 2010; Groom 2011
<i>Eucalyptus rudis</i>	Flooded gum	-	-	-	-
<i>Eucalyptus salmonophloia</i>	Salmon gum	Primary			Johnstone et al. 2010; Groom 2011; DSEWPac 2012; DSEWPac 2012; DoEE 2017
<i>Eucalyptus salubris</i>	Gimlet	-	-	-	-
<i>Eucalyptus staeri</i>	Albany blackbutt			Secondary	Johnstone & Storr 1998
<i>Eucalyptus todtiana</i>	Coastal blackbutt	Secondary			Saunders 1980; Johnstone et al. 2010; Groom 2011; Johnstone & Kirkby 2008
<i>Eucalyptus wandoo</i>	Wandoo	Primary	Secondary	Primary	Saunders 1980; Johnstone et al. 2010; Groom 2011; DSEWPac 2012; DoEE 2017
<i>Ficus sp.</i>	Fig	Secondary			Groom 2011
<i>Grevillea armigera</i>	Prickly toothbrushes	Primary			Groom 2011
<i>Grevillea bipinnatifida</i>	Fuschia grevillea	Primary			Groom 2011



Black Cockatoo Foraging Plants

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Species name	Common name	Foraging category as assigned by Emerge			Literature references
		CBC	BBC	FRTBC	
<i>Grevillea hookeriana</i>	Red toothbrushes	Primary			Groom 2011
<i>Grevillea hookeriana subsp. apiculata</i>	Black toothbrushes	Primary			Groom 2011
<i>Grevillea paniculata</i>	Kerosene bush	Primary			Groom 2011
<i>Grevillea paradoxa</i>	Bottlebrush grevillea	Primary			Groom 2011
<i>Grevillea petrophiloides</i>	Pink poker	Primary			Groom 2011
<i>Grevillea robusta</i>	Silky oak	Primary			Johnstone et al. 2010; Groom 2011
<i>Grevillea spp.</i>		Primary			Saunders 1979; Johnstone et al. 2010; DSEWPac 2012; DoEE 2017
<i>Grevillea wilsonii</i>	Native fuchsia		Secondary		Johnstone et al. 2010
<i>Hakea auriculata</i>		Primary			Saunders 1980; Groom 2011
<i>Hakea candolleana</i>		Primary			Groom 2011
<i>Hakea circumalata</i>	Coastal hakea	Primary			Groom 2011
<i>Hakea commutata</i>		Primary			Groom 2011
<i>Hakea conchifolia</i>	Shell-leaved hakea	Primary			Groom 2011
<i>Hakea costata</i>	Ribbed hakea	Primary			Groom 2011
<i>Hakea cristata</i>	Snail hakea	Primary	Secondary		Groom 2011; Johnstone et al. 2010
<i>Hakea cucullata</i>	Snail hakea	Primary			Groom 2011
<i>Hakea cyclocarpa</i>	Ramshorn	Primary			Saunders 1980; Groom 2011
<i>Hakea eneabba</i>		Primary			Groom 2011
<i>Hakea erinacea</i>	Hedgehog hakea	Primary	Secondary		Johnstone et al. 2010; Groom 2011
<i>Hakea falcata</i>	Sickle hakea	Primary			Groom 2011
<i>Hakea flabellifolia</i>	Fan-leaved hakea	Primary			Groom 2011
<i>Hakea gilbertii</i>		Primary			Saunders 1980; Groom 2011
<i>Hakea incrassata</i>	Golfball or marble hakea	Primary			Johnstone et al. 2010; Groom 2011
<i>Hakea lasiantha</i>	Woolly flowered hakea	Primary			Johnstone et al. 2010; Groom 2011
<i>Hakea lasianthoides</i>		Primary	Secondary		Johnstone et al. 2010; Groom 2011
<i>Hakea laurina</i>	Pin-cushion hakea	Primary			Johnstone et al. 2010; Groom 2011
<i>Hakea lissocarpa</i>	Honeybush	Primary	Secondary		Saunders 1980; Johnstone et al. 2010; Groom 2011
<i>Hakea marginata</i>			Secondary		Johnstone et al. 2010



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Species name	Common name	Foraging category as assigned by Emerge			Literature references
		CBC	BBC	FRTBC	
<i>Hakea megalosperma</i>	Lesueur hakea	Primary			Groom 2011
<i>Hakea multilineata</i>	Grass leaf hakea	Primary			Groom 2011
<i>Hakea neospathulata</i>		Primary			Groom 2011
<i>Hakea obliqua</i>	Needles and corks	Primary			Saunders 1980; Groom 2011
<i>Hakea oleifolia</i>	Dungyn	Primary			Groom 2011
<i>Hakea pandanicaarpa subsp. crassifolia</i>	Thick-leaved hakea	Primary			Groom 2011
<i>Hakea petiolaris</i>	Sea urchin hakea	Primary			Groom 2011
<i>Hakea polyanthema</i>		Primary			Groom 2011
<i>Hakea preissii</i>	Needle tree	Primary			Groom 2011
<i>Hakea prostrata</i>	Harsh hakea	Primary	Secondary		Saunders 1980; Johnstone et al. 2010; Groom 2011
<i>Hakea psilorrhyncha</i>		Primary			Groom 2011
<i>Hakea ruscifolia</i>	Candle hakea	Primary	Secondary		Saunders 1980; Groom 2011; Johnstone et al. 2010
<i>Hakea scoparia</i>	Kangaroo bush	Primary			Groom 2011
<i>Hakea smilacifolia</i>		Primary			Groom 2011
<i>Hakea spp.</i>		Primary	Secondary		Saunders 1979; DSEWPac 2012; DoEE 2017
<i>Hakea stenocarpa</i>	Narrow-fruited hakea	Primary	Secondary		Johnstone et al. 2010; Groom 2011
<i>Hakea sulcata</i>	Furrowed hakea	Primary			Groom 2011
<i>Hakea trifurcata</i>	Two-leaved hakea	Primary	Secondary		Saunders 1980; Johnstone et al. 2010; Groom 2011
<i>Hakea undulata</i>	Wavy-leaved hakea	Primary	Secondary		Saunders 1980; Johnstone et al. 2010; Groom 2011
<i>Hakea varia</i>	Variable-leaved hakea	Primary	Secondary		Saunders 1980; Groom 2011
<i>Harpephyllum caffrum</i>	Kaffir plum			Secondary	Johnstone 2017
<i>Helianthus annuus</i>	Sunflower	Secondary			Johnstone et al. 2010; Groom 2011
<i>Hibiscus sp.</i>	Hibiscus	Secondary			Groom 2011
<i>Isopogon scabriusculus</i>		Secondary			Groom 2011
<i>Jacaranda mimosifolia</i>	Jacaranda	Secondary	Secondary		Johnstone et al. 2010; Groom 2011



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Species name	Common name	Foraging category as assigned by Emerge			Literature references
		CBC	BBC	FRTBC	
<i>Jacksonia furcellata</i>	Grey stinkwood	Secondary			Groom 2011
<i>Kingia australis</i>	Kingia		Secondary		Johnstone et al. 2010
<i>Lambertia inermis</i>	Chittick	Secondary			Johnstone & Storr 1998; Groom 2011
<i>Lambertia multiflora</i>	Many-flowered honeysuckle	Secondary			Saunders 1980; Groom 2011
<i>Liquidamber styraciflua</i>	Liquid amber	Primary		Secondary	Johnstone et al. 2010; Groom 2011; Groom 2014; Personal observation
<i>Lupinus sp.</i>	Lupin	Secondary			Saunders 1980; Groom 2011
<i>Macadamia integrifolia</i>	Macadamia	Primary	Secondary		Johnstone et al. 2010; Grooms 2011; Groom 2014
<i>Malus domestica</i>	Apple	Secondary	Secondary		Johnstone et al. 2010; Johnstone & Storr 1998; DSEWPac 2012; DoEE 2017; Groom 2011
<i>Melaleuca leuropoma</i>		Secondary			Saunders 1980; Groom 2011
<i>Melia azedarach</i>	Cape lilac or white cedar	Secondary		Primary	Johnstone et al. 2010; Groom 2011
<i>Mesomeleana spp.</i>		Secondary			Johnstone et al. 2010; Groom 2011
<i>Olea europea</i>	Olive			Secondary	Johnstone 2017
<i>Persoonia longifolia</i>	Snottygobble			Secondary	Johnstone & Storr 1998; Johnstone & Kirkby 1999; Johnstone et al. 2010; DSEWPac 2012; DoEE 2017
<i>Pinus canariensis</i>	Canary island pine	Primary			Johnstone et al. 2010; Groom 2011
<i>Pinus caribea</i>	Caribbean pine	Primary			Johnstone et al. 2010; Groom 2011
<i>Pinus pinaster</i>	Pinaster or maritime pine	Primary			Groom 2011
<i>Pinus radiata</i>	Radiata pine	Primary	Secondary		Johnstone et al. 2010; Groom 2011
<i>Pinus spp.</i>		Primary	Secondary		Johnstone & Storr 1998; Saunders 1979; Johnstone et al. 2010; DSEWPac 2012; DoEE 2017
<i>Protea 'Pink Ice'</i>		Secondary			Groom 2011
<i>Protea repens</i>		Secondary			Groom 2011
<i>Protea spp.</i>		Secondary			Johnstone et al. 2010



Black Cockatoo Foraging Plants

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Species name	Common name	Foraging category as assigned by Emerge			Literature references
		CBC	BBC	FRTBC	
<i>Prunus amygdalus</i>	Almond tree	Secondary			Johnstone & Storr 1998; Johnstone et al. 2010; Groom 2011; DoEE 2017
<i>Pyrus communis</i>	European pear		Secondary		Johnstone & Storr 1998; Johnstone et al. 2010; DSEWPaC 2012; DoEE 2017
<i>Quercus spp.</i>	Oak		Secondary		Johnstone et al. 2010
<i>Raphanus raphanistrum</i>	Wild radish	Secondary			Groom 2011; DoEE 2017
<i>Reedia spathacea</i>			Secondary		Johnstone et al. 2010
<i>Rumex hypogaeus</i>	Doublegee	Secondary			Saunders 1980
<i>Stenocarpus sinuatus</i>		Secondary			Johnstone et al. 2010
<i>Syzygium smithii</i>	Lilly pilly	Secondary			Groom 2014
<i>Tipuana tipu</i>	Tipu or rosewood tree	Primary			Groom 2011, Groom 2014
<i>Xanthorrhoea preissii</i>	Grass tree	Secondary	Secondary		Groom 2011; Johnstone et al. 2010
<i>Xylomelum occidentale</i>	Woody pear	Secondary			Groom 2014

CBC=Carnaby's cockatoo, BBC=Baudin's cockatoo and FRTBC=Forest red-tailed black cockatoo

References

Department of the Environment and Energy (DoEE) 2017, 'Revised draft referral guideline for three threatened black cockatoo species: Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-tailed Black Cockatoo, Commonwealth of Australia.

Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) 2012, EPBC Act referral guidelines for three threatened black cockatoo species, Australian Government, Canberra.

Groom, C. 2011, Plants Used by Carnaby's Black Cockatoo, Department of Environment and Conservation, Perth.

Groom C. J., Mawson P. R., Roberts J. D. and Mitchell N. J. 2014, Meeting an expanding human population's needs whilst conserving a threatened parrot species in an urban environment, WIT Transactions on Ecology and The Environment, 191: 1199-1212.

Johnstone, R. E. and Storr, G. M. 1998, *Handbook of Western Australian Birds. Volume 1 - Non-Passerines (Emu to Dollarbird)*, Western Australian Museum, Perth.

Johnstone, R. E. and Kirkby, T. 1999, Food of the Red-tailed Forest Black Cockatoo *Calyptorhynchus banksii naso* in Western Australia, Western Australian Naturalist, 22: 167-178.

Johnstone, R. E. and Kirkby, T. 2008, Distribution, status, social organisation, movements and conservation of Baudin's cockatoo (*Calyptorhynchus baudinii*) in South-west Western Australia, Records of the Western Australian Museum, 25: 107-118.

Johnstone, R. E. and Storr, G. M. 1998, *Handbook of Western Australian Birds. Volume 1 - Non-Passerines (Emu to Dollarbird)*, Western Australian Museum, Perth.

Johnstone, R. E., Johnstone, C. and Kirkby, T. 2010, Black Cockatoos on the Swan Coastal Plain: Carnaby's Cockatoo (*Calyptorhynchus latirostris*), Baudin's Cockatoo (*Calyptorhynchus baudinii*) and the Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) on the Swan Coastal Plain (Lancelin-Dunsborough), Western Australia. Studies on distribution, status, breeding, food, movements and historical changes., Department of Planning, Western Australia.

Johnstone, R. E., Kirkby, T. and Sarti, K. 2017, The distribution, status movements and diet of the forest red-tailed black cockatoo in the south-west with emphasis on the greater Perth region, Western Australia, The West Australian Naturalist, 30(4): 193-219.

Saunders, D. A. 1979, Distribution and taxonomy of the white-tailed and yellow-tailed Black-Cockatoos *Calyptorhynchus* spp., Emu, 79(215-227).

Appendix C

Black Cockatoo Habitat Quality Assessment (Emerge 2021)



Black Cockatoo Habitat Quality Assessment



Introduction

As part of environmental impact assessment and offset calculation, the Department of Agriculture, Water and the Environment (DAWE) requires that a score out of ten is provided for the overall quality of black cockatoo habitat within a site (DAWE 2020). DAWE does not provide a methodology for scoring habitat quality, specifying instead that an assessment of quality should be undertaken by an experienced technical expert (DSEWPac 2012).

Emerge Associates (Emerge) have developed this method to provide a systematic assessment of overall black cockatoo habitat quality. Black cockatoo habitat is conventionally separated into breeding, roosting and foraging categories. Our method assesses and scores the quality of breeding, roosting and foraging habitat separately and then provides an overall quality score (out of ten) based on the highest score determined for the respective habitat categories.

Methodology

The International Organization for Standardization defines 'quality' as the *"degree to which a set of inherent characteristics fulfils requirements"* (ISO 9000 2020). Developing an objective scoring system for quality is therefore challenging, as quality is both relative and, to some extent, subjective. An ecological value like habitat may also have a wide range of characteristics, with varying relevance to the requirements of a species and that may be independent, interdependent or contrasting with other characteristics, such that habitat quality must be assessed holistically to be properly understood.

The three categories of black cockatoo habitat are intrinsically linked in that breeding and roosting activity is directly related to the availability of foraging and watering resources surrounding nests or roosts (Saunders 1990; Shah 2006; Le Roux 2017). Black cockatoos can also move over large distances within their range to access breeding and foraging habitat and will not necessarily return to the same locations within a year or across years (Saunders 1980; Johnstone and Kirkby 2008; Johnstone *et al.* 2017; Peck *et al.* 2019). Therefore, evaluating the overall quality of black cockatoo habitat requires acknowledgement of the relationships between the different habitat categories and the potential for use of all habitats within a site, given the condition of each habitat, the sites' location and the history of use of habitat within a site by black cockatoos.

While breeding, roosting and foraging habitat are interrelated, we suggest that the different habitat categories should not be scored cumulatively as this can overestimate quality. That is, if a site contains multiple categories of habitat it does not necessarily contain greater quality habitat. For example, a site that contains a roost is not necessarily of higher overall quality if it also contains breeding habitat.

Alternatively, averaging the scores from all three habitat categories can act to underestimate habitat, since certain types of habitat are recorded less frequently than others and therefore their absence would act to devalue quality. For example, the likelihood of recording a roost is generally low compared to recording foraging or breeding habitat but a site that lacks a roost is not necessarily of lower overall quality.

Black Cockatoo Habitat Quality Assessment



Hence, our scoring system selects the highest habitat category score to represent overall habitat quality. Adopting the highest score from any habitat category within a site avoids over or under estimating habitat quality because the most important value always drives, or is reflected in, the overall score.

To provide a score for each habitat category, the following three 'quality components' are considered as recommended by DAWE (DAWE 2020):

- Site condition which is the *"condition of a site in relation to the ecological requirements of a threatened species or ecological community. This includes considerations such as vegetation condition and structure, the diversity of habitat species present, and the number of relevant habitat features"*.
- Site context which is the *"relative importance of a site in terms of its position in the landscape, taking into account the connectivity needs of a threatened species or ecological community. This includes considerations such as movement patterns of the species, the proximity of the site in relation to other areas of suitable habitat, and the role of the site in relation to the overall population or extent of a species or community"*.
- Species stocking rate which is the *"usage and/or density of a species at a particular site...It includes considerations such as survey data for a site in regards to a particular species population or, in the case of a threatened ecological community this may be a number of different populations. It also includes consideration of the role of the site population in regards to the overall species population viability or community extent"*.

A habitat quality assessment should aim to combine current information on the status of black cockatoos and habitat characteristics within a site with the best available information regarding the status of black cockatoo populations and black cockatoo habitat within areas surrounding a site. Black cockatoo habitat assessments for a given site don't typically allow scope for physical survey of areas surrounding a site and so the ability to obtain new information is usually limited to that which can be obtained within a site. Therefore, we considered that, when assessing the above components, site condition is best defined from a current survey, site context is best defined from literature and relevant databases (Glossop *et al.* 2011; DPaW 2013; DoEE 2016a, c, b; Peck *et al.* 2019) and information on species stocking rate is best obtained from a combination of current survey, previous survey or databases (Glossop *et al.* 2011; DPaW 2013; DoEE 2016a, c, b; Peck *et al.* 2019).

Method

The *Habitat Scoring Tool* provided as **Plate 1** is an *Excel* spreadsheet document that is used to determine a quality score for each habitat category component by answering queries about habitat within and surrounding the site. The *Habitat Scoring Tool* shows the attributes measured within each habitat category and quality component. An overall score from one to ten is assigned for each species, with 1-3 being low, 4-6 being moderate, 7 being moderate – high and 8-10 being high.

The highest score of 10 is reserved for habitat that has an active nest(s) as it provides the best confirmation that the site and/or surrounding area provides sufficient resources and is therefore worthy of a higher quality score. Foraging habitat scores a maximum total of eight as it is an essential

Black Cockatoo Habitat Quality Assessment

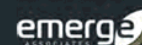


requirement for black cockatoos, particularly to support breeding. Roosting habitat scores a maximum total of seven as it is more transient than the other habitat components.

A quality score is calculated for each habitat category by summing maximum scores for each query. Because maximum scores are selected, multiple answers may be provided for any query where appropriate without exaggerating the quality score. For key confirmed habitat such as roosts or nests, the scoring tool ensures that relevant, higher scores are achieved irrespective of whether all preceding queries have been answered positively (for example a roost always scores 8 irrespective of whether other quality criteria have been met).

The highest score from any of the three habitat categories is then adopted as the overall score for black cockatoo habitat quality within the site.

Black Cockatoo Habitat Quality Assessment



Black Cockatoo Habitat Quality Assessment - Scoring Tool (Baudin's cockatoo)

<insert site name>

		Query	Answer	Weighting	Site score	Sum	
Breeding habitat	Site condition	1.1	The site contains habitat trees with either:			1.0	
			no/suitable hollow(s)	y	1.0		1.0
			suitable hollow(s)	n	4.0		0.0
			suitable hollow(s) that have signs of use by black cockatoos	n	5.0	0.0	
	Site context	1.2	The site contains habitat trees and is located within 6 km of a black cockatoo nest(s) (active, historical or potential)	y	1.0	1.0	2.0
			The site contains habitat trees and is located within 6 km of either:				
			>2,000 ha of native vegetation that provides foraging habitat	y	1.0	1.0	
		>10,000 ha of native vegetation that provides foraging habitat	n	2.0	0.0		
Species stocking rate	1.4	The site contains habitat tree(s) that support(s) an active nest(s)	n	Maximum score (10)	0.0	0.0	
Score out of a maximum of 10						3	
Roosting habitat	Site condition	2.1	The site contains trees suitable for roosting and a water source or a water source exists nearby	y	1.0	1.0	
	Site context	2.2	The site is located within 1 km of a large roost (>150 individuals) or 500 m of a small roost (< 150 individuals)(used within last 5 years)	n	3.0	0.0	
	Species stocking rate	2.3	The site contains a roost (used within last 5 years)	n	7.0	0.0	
	Score out of a maximum of 7						1
Foraging habitat	Site condition	3.1	Within the site the proportion of foraging habitat that is:				
			low value	90%	1.0	0.9	1.4
			moderate value	1%	3.0	0.0	
			high value	10%	5.0	0.5	
	Site context	3.2	The site is located within 6 km of a nest(s) (active, historical or potential)	y	2.0	2.0	2.0
	Species stocking rate	3.4	The site is likely to support foraging by the species	y	1.0	1.0	1.0
	Score out of a maximum of 8						4

SUMMARY		
Habitat category	Score	Habitat quality
Breeding	3	Low
Roosting	1	Low
Foraging	4	Moderate
Overall habitat quality score		
	4	Moderate

Note:

1. Within the breeding category, a score of 10 applies if an active nest(s) occurs within the site, regardless of the answer to other queries in this category.
2. Within the roosting category, a score of 7 applies if a roost occurs within the site, regardless of the answer to other queries in this category.
3. The overall habitat quality score consists of the highest score from each habitat category.

Plate 1: Black Cockatoo Habitat Scoring Tool (Baudin's cockatoo example)

Black Cockatoo Habitat Quality Assessment



References

General references

- Department of Environment and Energy (DoEE) 2016a, *Modelled distribution for Baudin's Cockatoo (Calyptorhynchus baudinii)*, Canberra.
- Department of the Environment and Energy (DoEE) 2016b, *Modelled distribution for Carnaby's Cockatoo (Calyptorhynchus latirostris)*, Canberra.
- Department of Environment and Energy (DoEE) 2016c, *Modelled distribution for Forest Red-tailed Black-Cockatoo (Calyptorhynchus banksii naso)*, Canberra.
- Department of Parks and Wildlife (DPAW) 2013, *Carnaby's cockatoo (Calyptorhynchus latirostris) Recovery Plan*, Perth, Western Australia.
- Department of Sustainability Environment Water Populations and Communities (DSEWPaC) 2012, *EPBC Act referral guidelines for three threatened black cockatoo species: Carnaby's cockatoo (endangered) Calyptorhynchus latirostris, Baudin's cockatoo (vulnerable) Calyptorhynchus baudinii and Forest red-tailed black cockatoo (vulnerable) Calyptorhynchus banksii naso*, Commonwealth of Australia, Canberra.
- Glossop, B., Clarke, K., Mitchell, D. and Barrett, G. 2011, *Methods for mapping Carnaby's cockatoo habitat*, Department of Environment and Conservation, Perth.
- Johnstone, R. E. and Kirkby, T. 2008, *Distribution, status, social organisation, movements and conservation of Baudin's Cockatoo (Calyptorhynchus baudinii) in South-west Western Australia*, Records of the Western Australian Museum, 25: 107-118.
- Johnstone, R. E., Kirkby, T. and Sarti, K. 2017, *The distribution, status movements and diet of the forest red-tailed black cockatoo in the south-west with emphasis on the greater Perth region, Western Australia*, The West Australian Naturalist, 30(4): 193-219.
- Le Roux, C. 2017, *Nocturnal roost tree, roost site and landscape characteristics of Carnaby's Black-Cockatoo (Calyptorhynchus latirostris) on the Swan Coastal Plain*, Edith Cowan University Research Online.
- Peck, A., Barret, G. and Williams, M. 2019, *The 2019 Great Cocky Count: a community-based survey for Carnaby's Black-Cockatoo (Calyptorhynchus latirostris), Baudin's Black-Cockatoo (Calyptorhynchus baudinii) and Forest Red-tailed Black-Cockatoo (Calyptorhynchus banksii naso)*, Birdlife Australia, Floreat, Western Australia.
- Saunders, D. A. 1980, *Food and Movements of the Short-billed Form of the White-tailed Black Cockatoo*, Australian Wildlife Research, 7: 257-269.
- Saunders, D. A. 1990, *Problems of Survival in an Extensively Cultivated Landscape: the case of Carnaby's Cockatoo Calyptorhynchus funereus latirostris*, Biological Conservation, 54: 277-290.

Black Cockatoo Habitat Quality Assessment



Shah, B. 2006, *Conservation of Carnaby's Black Cockatoo on the Swan Coastal Plain, Western Australia*, Birds Australia, Perth.

Department of Environment and Energy (DoEE) 2016a, *Modelled distribution for Baudin's Cockatoo (Calyptorhynchus baudinii)*, Canberra.

Online references

Department of Agriculture, Water and the Environment (DAWE) 2020, *How to use the Offsets assessment* guide, viewed 9 June 2020, < <https://www.environment.gov.au/epbc/publications/epbc-act-environmental-offsets-policy>>.

ISO 9000:2015, *Quality management systems — Fundamentals and vocabulary*, International Organization for Standardization, Geneva, viewed 30 June 2020, <<https://www.iso.org/obp/ui/#iso:std:iso:9000:ed-4:v1:en>, 2020.06.30>.

Appendix D

Black Cockatoo Habitat Tree Data





Black Cockatoo Habitat Tree Inventory
Former Glen Iris Golf Course

Page 1 of 1

Tag No.	Easting	Northing	DBH (cm)	Species	Category	Notes
1	391990	6446466	75	Eucalyptus marginata	No suitable hollow(s)	
2	392097	6447344	67	Eucalyptus marginata	No suitable hollow(s)	
3	392099	6447344	61	Eucalyptus marginata	No suitable hollow(s)	
4	391830	6447470	68	Eucalyptus marginata	No suitable hollow(s)	
5	392080	6447370	89	Eucalyptus marginata	No suitable hollow(s)	
6	392079	6447368	86	Eucalyptus marginata	No suitable hollow(s)	
7	391737	6448274	105	Eucalyptus marginata	No suitable hollow(s)	Internal hollow inspection undertaken but hollow(s) not suitable for black cockatoos
8	391836	6448409	81	Eucalyptus marginata	No suitable hollow(s)	
9	391835	6448406	58	Eucalyptus marginata	No suitable hollow(s)	
10	391831	6448405	87	Eucalyptus marginata	No suitable hollow(s)	Internal hollow inspection undertaken but hollow(s) not suitable for black cockatoos
11	391705	6447935	93	Eucalyptus marginata	No suitable hollow(s)	

Appendix E

Overall Habitat Quality Assessment





Black Cockatoo Habitat Quality Assessment - Scoring Tool (Carnaby's cockatoo)
Former Glen Iris Golf Course

		Query	Answer	Weighting	Site score	Sum
Breeding habitat	Site condition	1.1	The site contains habitat trees with either:			
			no suitable hollow(s)	N/A	1.0	0.0
			suitable hollow(s)	N/A	4.0	0.0
			suitable hollow(s) that have signs of use by black cockatoos	N/A	5.0	0.0
	Site context	1.2	The site contains habitat trees and is located within 6 km of a black cockatoo nest(s) (active, historical or potential)	N/A	1.0	0.0
			The site contains habitat trees and is located within 6 km of either:			
		1.3	>2,000 ha of native vegetation that provides foraging habitat	N/A	1.0	0.0
			>10,000 ha of native vegetation that provides foraging habitat	N/A	2.0	0.0
Species stocking rate	1.4	The site contains habitat tree(s) that support(s) an active nest(s)	N/A	Maximum score (10)	0.0	
Score out of a maximum of 10						0
Roosting habitat	Site condition	2.1	The site contains trees suitable for roosting and a water source or a water source exists nearby	y	1.0	1.0
	Site context	2.2	The site is located within 1 km of a large roost (≥150 individuals) or 500 m of a small roost (< 150 individuals)(used within last 5 years)	n	3.0	0.0
	Species stocking rate	2.3	The site contains a roost (used within last 5 years)	n	7.0	0.0
	Score out of a maximum of 7					
Foraging habitat	Site condition	3.1	Within the site the proportion of foraging habitat that is:			
			low value	66%	1.0	0.7
			moderate value	14%	3.0	0.4
			high value	20%	5.0	1.0
	Site context	3.2	The site is located within 6 km of a nest(s) (active, historical or potential)	n	2.0	0.0
	Species stocking rate	3.4	The site is likely to support foraging by the species	y	1.0	1.0
Score out of a maximum of 8						3
SUMMARY						
Habitat category				Score	Habitat quality	
Breeding				N/A	N/A	
Roosting				1	Low	
Foraging				3	Moderate	
Overall habitat quality score				3	Moderate	

Note:

1. Within the breeding category, a score of 10 applies if an active nest(s) occurs within the site, regardless of the answer to other queries in this category
2. Within the roosting category, a score of 7 applies if a roost occurs within the site, regardless of the answer to other queries in this category.
3. The overall habitat quality score consists of the highest score from each habitat category.



Black Cockatoo Habitat Quality Assessment - Scoring Tool (forest red-tailed black cockatoo)
Former Glen Iris Golf Course

		Query	Answer	Weighting	Site score	Sum	
Breeding habitat	Site condition	1.1	The site contains habitat trees with either:				
			no suitable hollow(s)	y	1.0	1.0	
			suitable hollow(s)	n	4.0	0.0	
			suitable hollow(s) that have signs of use by black cockatoos	n	5.0	0.0	
	Site context	1.2	The site contains habitat trees and is located within 6 km of a black cockatoo nest(s) (active, historical or potential)	y	1.0	1.0	
			The site contains habitat trees and is located within 6 km of either:				
		1.3	>2,000 ha of native vegetation that provides foraging habitat	y	1.0	1.0	
			>10,000 ha of native vegetation that provides foraging habitat	n	2.0	0.0	
Species stocking rate	1.4	The site contains habitat tree(s) that support(s) an active nest(s)	n	Maximum score (10)	0.0	0.0	
Score out of a maximum of 10						3	
Roosting habitat	Site condition	2.1	The site contains trees suitable for roosting and a water source or a water source exists nearby	y	1.0	1.0	1.0
	Site context	2.2	The site is located within 1 km of a large roost (≥150 individuals) or 500 m of a small roost (< 150 individuals)(used within last 5 years)	n	3.0	0.0	0.0
	Species stocking rate	2.3	The site contains a roost (used within last 5 years)	n	7.0	0.0	0.0
	Score out of a maximum of 7						1
Foraging habitat	Site condition	3.1	Within the site the proportion of foraging habitat that is:				
			low value	80%	1.0	0.8	1.6
			moderate value	8%	3.0	0.2	
			high value	12%	5.0	0.6	
	Site context	3.2	The site is located within 6 km of a nest(s) (active, historical or potential)	y	2.0	2.0	2.0
	Species stocking rate	3.4	The site is likely to support foraging by the species	y	1.0	1.0	1.0
Score out of a maximum of 8						5	
SUMMARY							
Habitat category				Score	Habitat quality		
Breeding				3	Low		
Roosting				1	Low		
Foraging				5	Moderate		
Overall habitat quality score				5	Moderate		

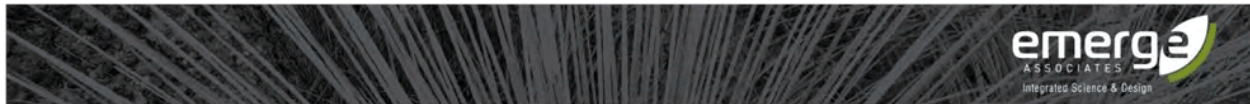
Note:

1. Within the breeding category, a score of 10 applies if an active nest(s) occurs within the site, regardless of the answer to other queries in this category
2. Within the roosting category, a score of 7 applies if a roost occurs within the site, regardless of the answer to other queries in this category.
3. The overall habitat quality score consists of the highest score from each habitat category.

Appendix D

Arboricultural Assessment





Document Reference: EP20-009(12)--011B TAA

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17 September 2021

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Delivered by email to: jarrod@acumends.com.au

Dear Jarrod

ARBORICULTURAL ASSESSMENT – FORMER GLEN IRIS GOLF COURSE

1 INTRODUCTION

Acumen Development Solutions, on behalf of ECP Acquisitions 6 Pty Ltd, engaged Emerge Associates (Emerge) to conduct an arboricultural assessment within the former Glen Iris Golf Course, which comprises Lots 6 and 7 Glen Iris Drive, Lots 3, 509 and 512 Dean Road and Lot 139 Imlah Court, Jandakot (referred to herein as the 'site').

A separate assessment was previously undertaken to map black cockatoo habitat trees¹ (Emerge Associates 2021). The purpose of this arboricultural assessment was to provide information on attributes of all large trees within the site to inform tree retention.

The location of the site is shown in **Figure 1**.

2 METHODS

2.1 Field survey

The field survey was completed by subcontracted qualified arborist from Arborite².

The survey was completed by the arborist over multiple dates in January and February 2021. During the survey the site was traversed on foot. The arborist recorded the attributes outlined in **Table 1** for all trees with a trunk diameter at breast height (DBH) of 30 centimetres (cm) or greater, including habitat trees previously assessed by Emerge Associates (2021). In some instances, a single location was recorded for groups of similar juvenile or semi-mature trees (with DBH ≥ 30 cm).

¹ Native eucalypts with a trunk 'diameter at breast height' (DBH) of ≥ 50 centimetres (cm).

² David Cuddihy, Graduate Certificate Arboriculture (Australian Qualifications Framework (AQF) Level 8)

Table 1: Attributes assessed for each tree

Attribute	Notes
Unique id	Aluminium tag number
Spatial location	XY coordinates using GPS receiver $\pm 5\text{m}^{\wedge}$
Image	Oblique digital photograph (12 megapixel or greater)
Species name	Using WA herbarium nomenclature
Common name	Using WA herbarium nomenclature
Height	1-5 m, 1-10 m, 10-15 m, 15-20 m, 20-25 m, 25 +m
Canopy spread (width)	1-5 m, 1-10 m, 10-15 m, 15-20 m
Trunk diameter	Diameter at breast height (DBH) (cm)
Health	Excellent, good, average, poor, dead
Age	Juvenile, semi-mature, mature
Useful life expectancy	25+ years, 15-25 years, 5-15 years, <5 years
Retention value	Low, medium, high
Notes	Safety concerns, tree defects, pruning requirements, further ecologist/arborist assessment recommended etc.

2.2 Health

Tree health was determined by the arborist according to scheme outlined in **Table 2**.

Table 2: Tree health rating descriptions

Tree Health Rating	Description
Excellent	Tree with >90% of original canopy present. Less than 5% epicormic growth and deadwood. No history of failures or pruning wounds. Well-formed canopy.
Good	Tree with 75-90% of original canopy present. Epicormic growth less than 10% of remaining canopy. Some dead branchlets, minor limb failures and pruning wounds. Minor canopy imbalance.
Average	Tree with 50– 75% of original canopy present. Some epicormic growth. Some major dead stems and major deadwood up to 30%. History of larger limb failure and canopy imbalance.
Poor	Major canopy die-back with major stems deceased. Structurally unsound, history of large limb failure. Hazardous tree.
Dead	Tree dead or transient. Less than 5 years useful life expectancy.

2.3 Useful life expectancy

Useful life expectancy (ULE) is an estimate of the number of years a tree is expected to remain alive. ULE is a method of assessing the relative importance of individual trees and the amenity value that can be realised for the remaining duration of the trees' lifespan. In conjunction with landscape significance, ULE helps making informed decisions on the retention value of trees on site.

ULE was determined by the arborist who considered the age of the tree, the average life span of the species and any local environmental modifying factors that may influence life span.

2.4 Retention value

There is always a compromise between retaining trees on a development site and the economic imperatives of land development. Establishing priorities for the retention of trees is an important part of the planning process if amenity is to be sustained in the long term.

Retention value was classified 'high', 'medium', 'low' and 'very low' by the arborist. Arborite's method for classifying retention value contrasts ULE with landscape significance, as outlined in **Table 3**. Landscape significance of trees was determined by the arborist using the criteria outlined in **Table 4**.

Table 3: Tree retention matrix

Useful life expectancy (ULE)	Landscape significance						
	1	2	3	4	5	6	7
Long - Greater than 25 years	High						
Medium - 15 to 25 years			Medium				
Short - 5 to 15 years				Low			
Transient - Less than 5 years					Very low		
Dead or potentially hazardous							

Table 4: Criteria for rating landscape significance of trees

Significance rating	Criteria
1 - Significant	- The subject tree is listed as a heritage item with a local, state or national level of significance. - The subject tree forms part of the curtilage of a Heritage item and has a known or documented association with that item. - The subject tree is a commemorative planting having been planted by an important historical person (s) or to commemorate an important historical event. - The subject tree is scheduled as a threatened species. - The tree is a locally indigenous species, representative of the original vegetation of the area and is known as an important food, shelter or nesting tree for endangered or threatened fauna species. - The subject tree is a remnant tree, being a tree in existence prior to development of the area. - The subject tree has a very large live crown size exceeding 300 m² with normal to dense foliage cover, is located in a visually prominent in the landscape, exhibits very good form and habit typical of the species and makes a significant contribution to the amenity and visual character of the area by creating a sense of place or creating a sense of identity. - The tree is visually prominent in view from surrounding areas, being a landmark or visible from a considerable distance.
2 - Very high	- The tree has a strong historical association with a heritage item. (building/structure/artifact/garden etc) within or adjacent the property and/or exemplifies a particular era or style of landscape design associated with the original development of the site. - The subject tree is listed on a local Significant Tree Register. - The tree is a locally-indigenous species and representative of the original vegetation of the area and the tree is located within a defined biodiversity corridor or has known wildlife habitat value. - The subject tree has a very large live crown size exceeding 200 m²; a crown density exceeding 70% Crown Cover (normal-dense), is a very good representative of the species in terms of its form and branching habit or is aesthetically distinctive and makes a positive contribution to the visual character and the amenity of the area.
3- High	- The tree has a suspected historical association with a heritage item or landscape supported by anecdotal or visual evidence. - The tree is a locally-indigenous species and representative of the original vegetation of the area. - The subject tree has a large live crown size exceeding 100 m². - The tree is a good representative of the species in terms of its form and branching habit with minor deviations from normal (e.g. crown distortion/suppression) with a crown density of at least 70% Crown Cover (normal). - The subject tree is visible from the street and surrounding properties and makes a positive contribution to the visual character and the amenity of the area.
4 - Moderate	- The subject tree has a medium live crown size exceeding 40 m². - The tree is a fair representative of the species, exhibiting moderate deviations from typical form (distortion/suppression etc) with a crown density of more than 50% Crown Cover (thinning to normal). - The tree makes a fair contribution to the visual character and amenity of the area.

Table 4: Criteria for rating landscape significance of trees (continued)

Significance rating	Criteria
4 - Moderate	- The tree is visible from surrounding properties, but is not visually prominent – view may be partially obscured by other vegetation or built forms. - The tree has no known or suspected historical association.
5- Low	- The subject tree has a small live crown size of less than 40 m² and can be replaced within the short term with new tree planting. - The tree is a poor representative of the species, showing significant deviations from the typical form and branching habit with a crown density of less than 50% Crown Cover (sparse). - The subject tree is not visible from surrounding properties (visibility obscured) and makes a negligible contribution or has a negative impact on the amenity and visual character of the area.
6 - Very low	- The subject tree is listed as an environment weed in the relevant Local Government Area, being invasive, or a nuisance species. - The subject tree is scheduled as exempt (not protected) under the provisions of the local Council's due to its species, nuisance or position relative to buildings or other structures.
7 - Insignificant	The tree is a declared pest or environmental weed.

2.5 Spatial location

Following the survey, the spatial location of high and medium retention value trees was updated using data supplied by project surveyors MNG.

3 RESULTS

A total of 1,215 trees were recorded within the site, comprising 80 species and 26 unidentified trees. (including one 'unknown' category which was not assigned species). Nine species are native to the local area and 72 species are non-native³. The unidentified trees are also non-native. The locations of native and non-native trees within the site are shown in **Figure 2**.

A summary of the ten most common species in the site is provided in **Table 5**.

Table 5: Ten most common tree species in the site

Species name	Common name	No. individuals
<i>*Eucalyptus camaldulensis</i>	River red-gum	158
<i>*Corymbia maculata</i>	Spotted gum	106
<i>*Eucalyptus grandis</i>	Rose gum	102
<i>*Eucalyptus leucoxylon</i>	Yellow gum	72
<i>*Eucalyptus sp.</i>	Gum	59
<i>*Eucalyptus cladocalyx</i>	Sugar gum	56
<i>*Eucalyptus citriodora</i>	Lemon-scented gum	42
<i>Banksia attenuata</i>	Slender banksia	41
<i>*Acacia sp.</i>	Wattle	36
<i>*Ficus microcarpa</i>	Chinese banyan	36

Ninety-seven (97) trees were classified as having 'high' retention value, 375 were classified as having 'medium' retention value and the remaining 743 trees were classified as having 'low' retention value. The

³ Non-native species denoted by an asterisk (*) in text and raw data.

retention value of each tree is shown in **Figure 3**. Note only three of the retention value categories outlined in **Section 2.4** were applied (that is no trees were classified as having a very low retention value).

The data recorded for each tree is provided as **Attachment 1**.

Summary and closing

We trust that this letter provides sufficient details on the trees within the site. Should you have any questions regarding the content of this letter, please do not hesitate to contact the undersigned.

Yours sincerely
Emerge Associates



Tom Atkinson
PRINCIPAL ENVIRONMENTAL CONSULTANT

cc: nil

Encl: Figure 1: Site Location
Figure 2: Tree Species
Figure 3: Retention Value
Attachment 1: Tree Inventory Data and Photos

References

Emerge Associates 2021, *Targeted Black Cockatoo Assessment - Former Glen Iris Golf Course*, EP20-009(13)--009A MS, Version A.

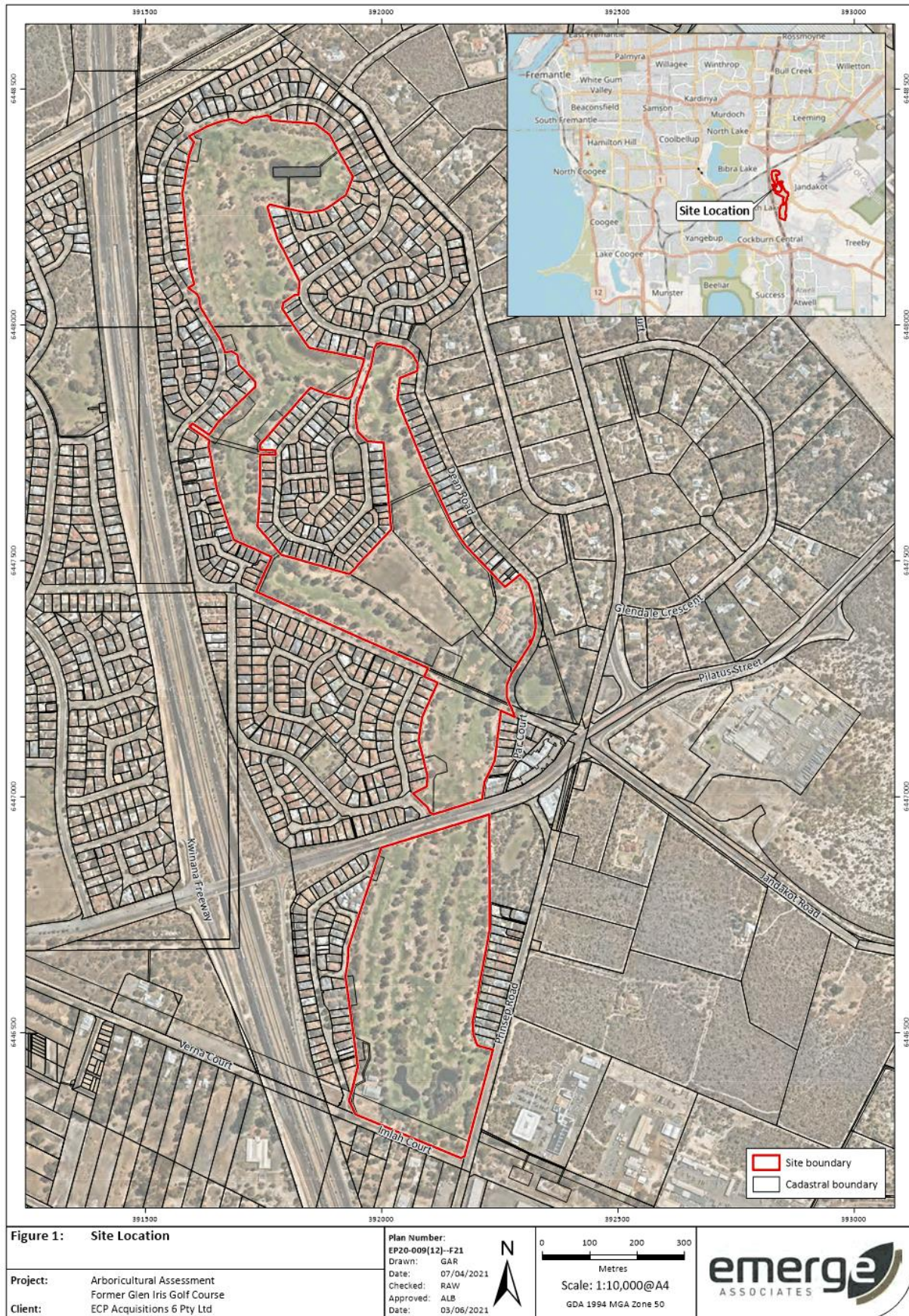
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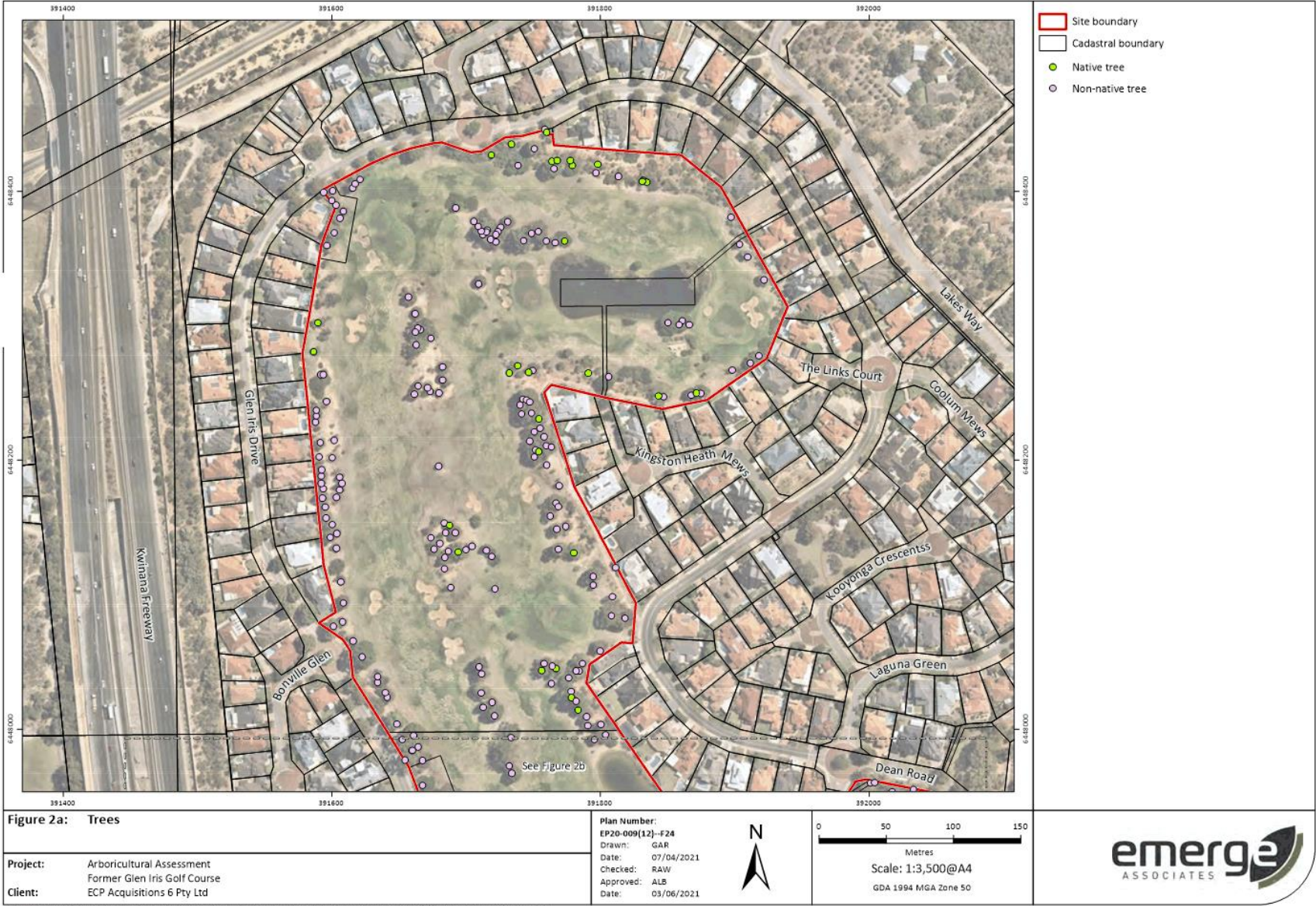


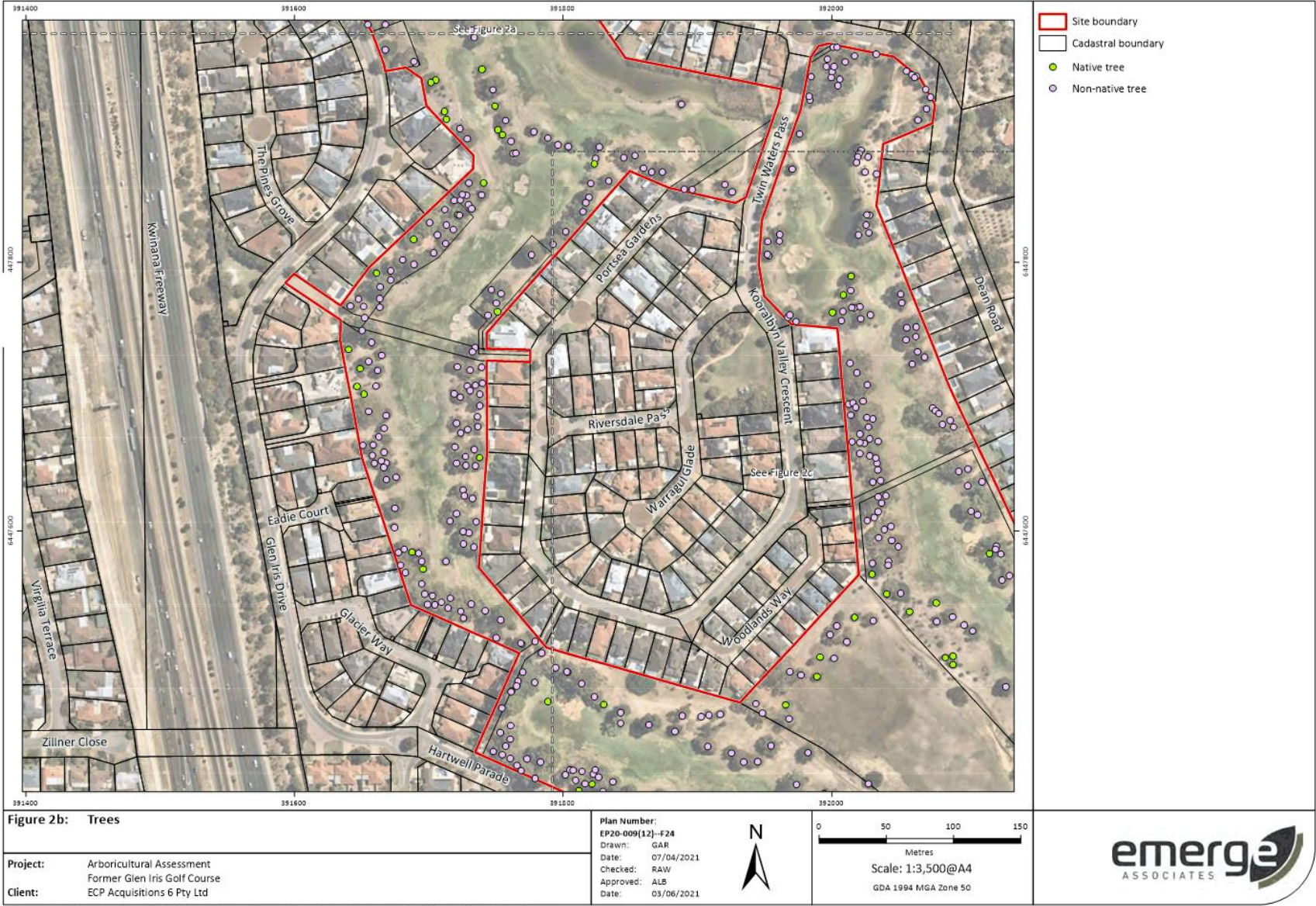
Figure 1: Site Location

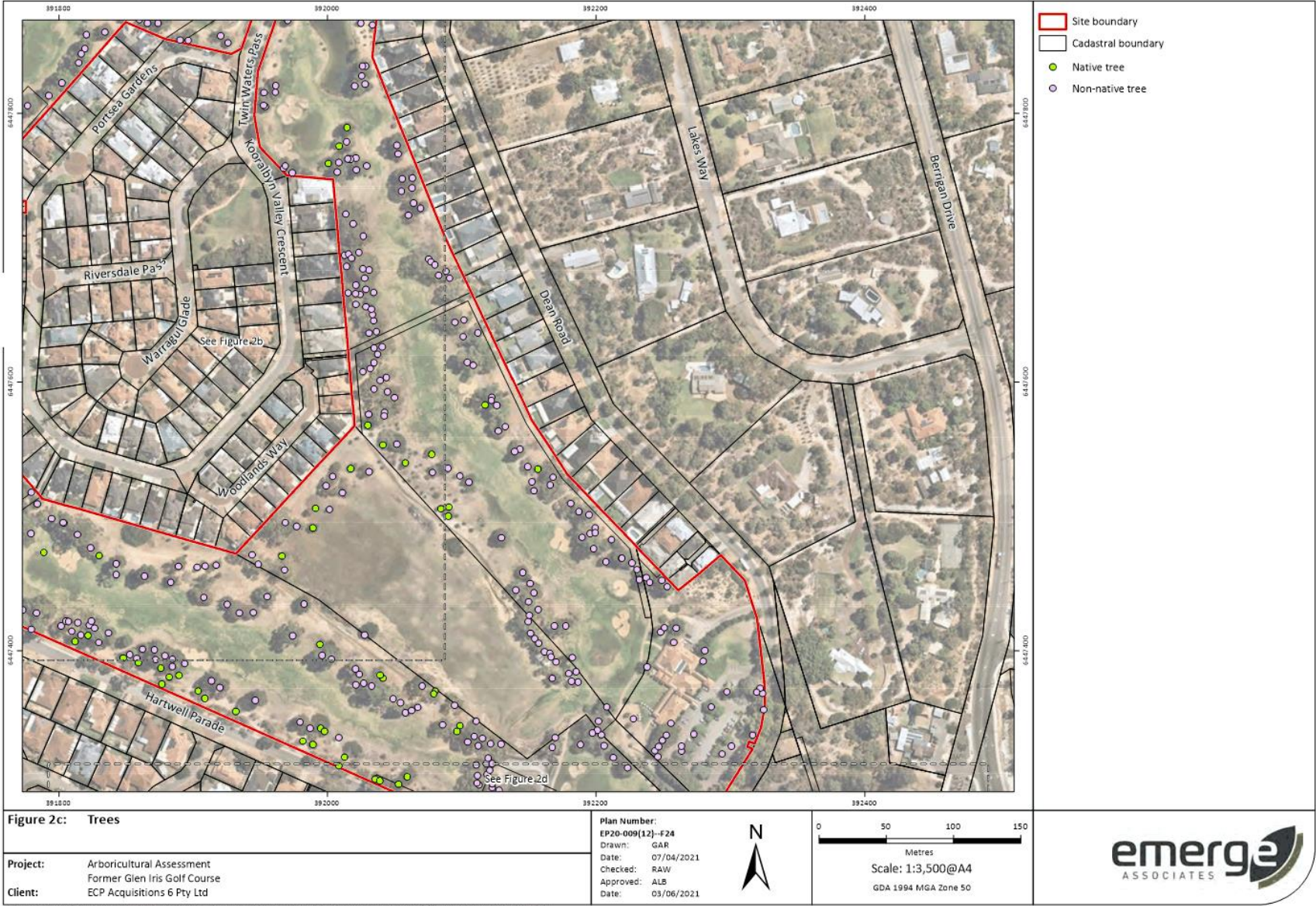
Figure 2: Tree Species

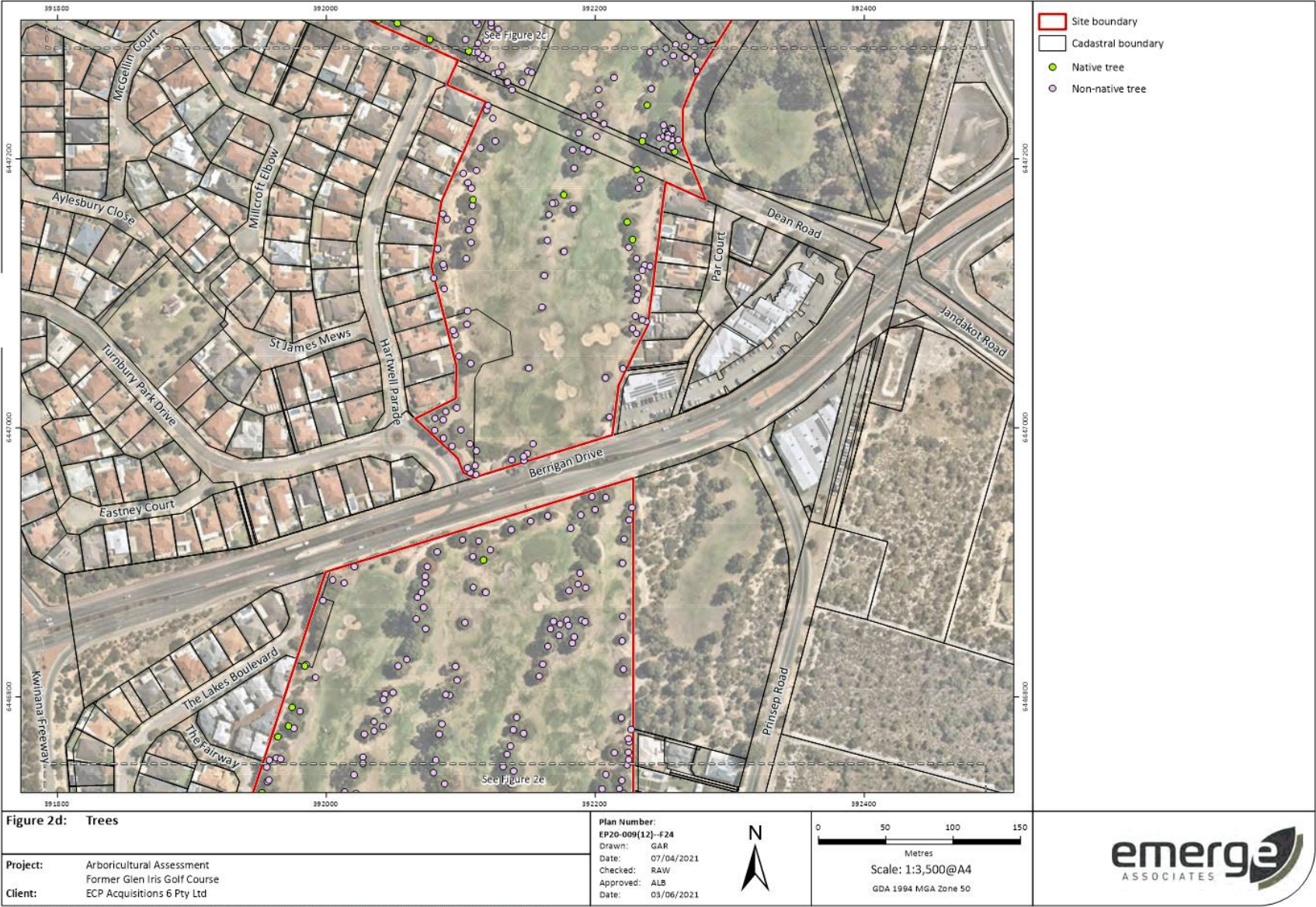
Figure 3: Retention Value

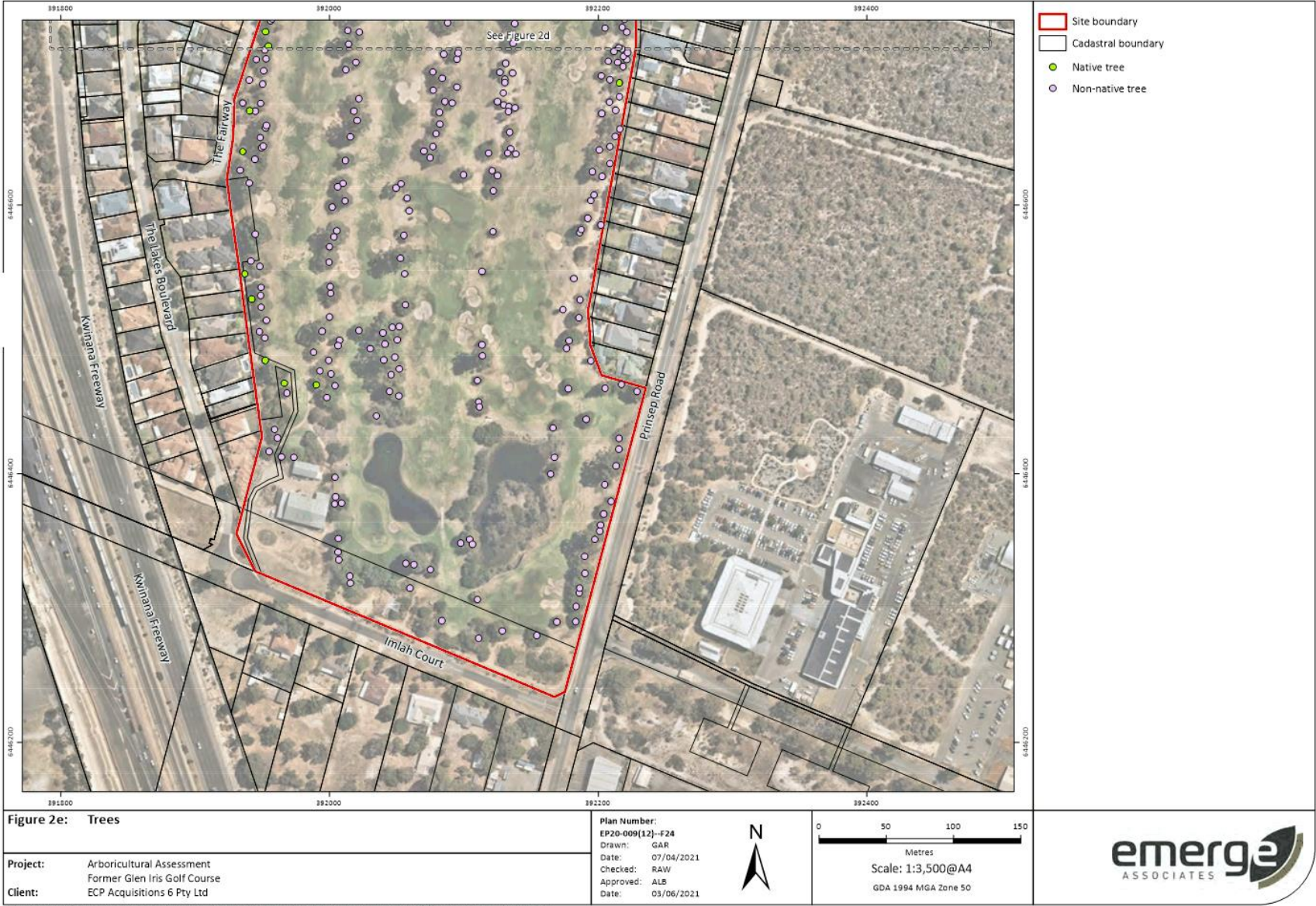


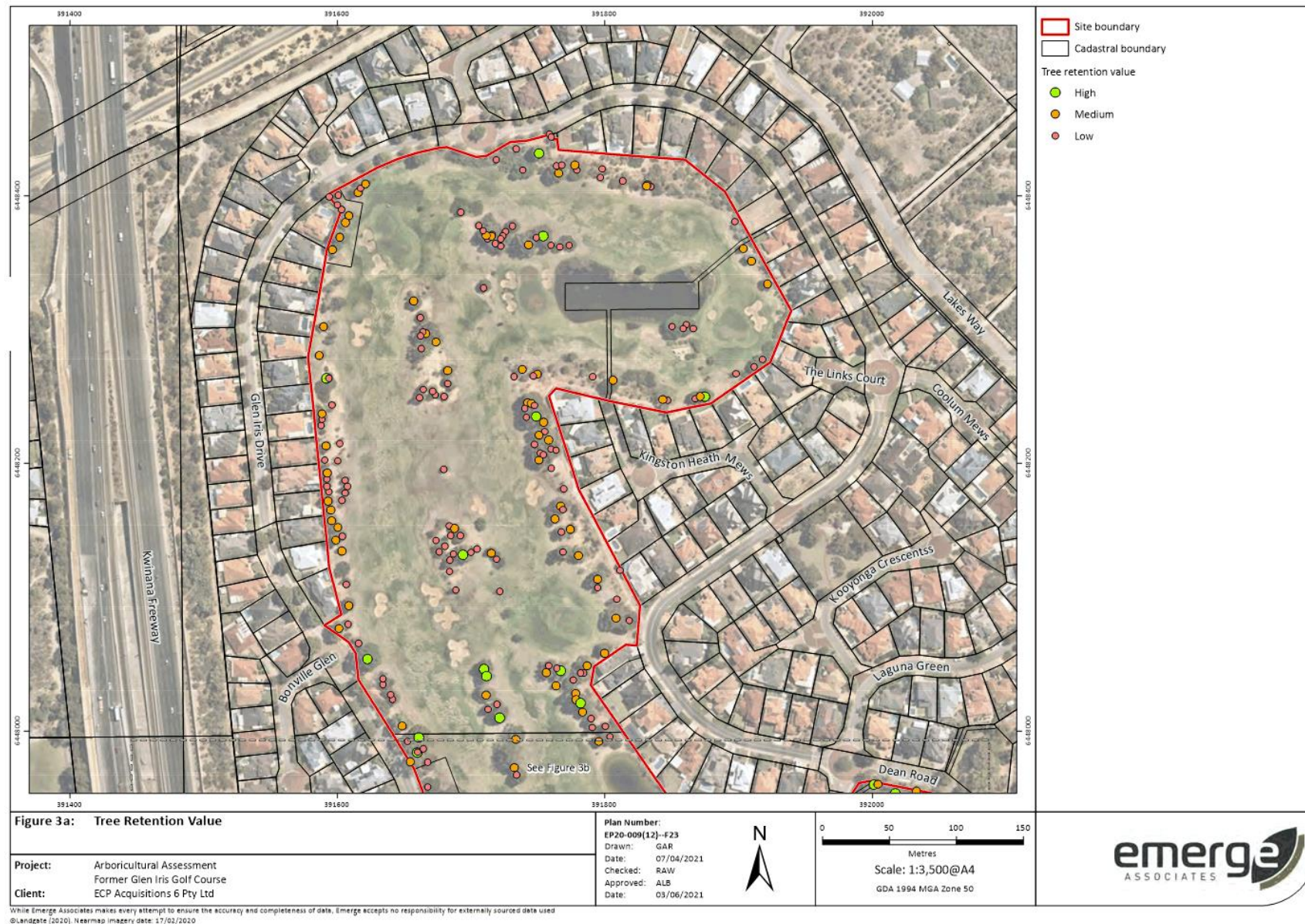


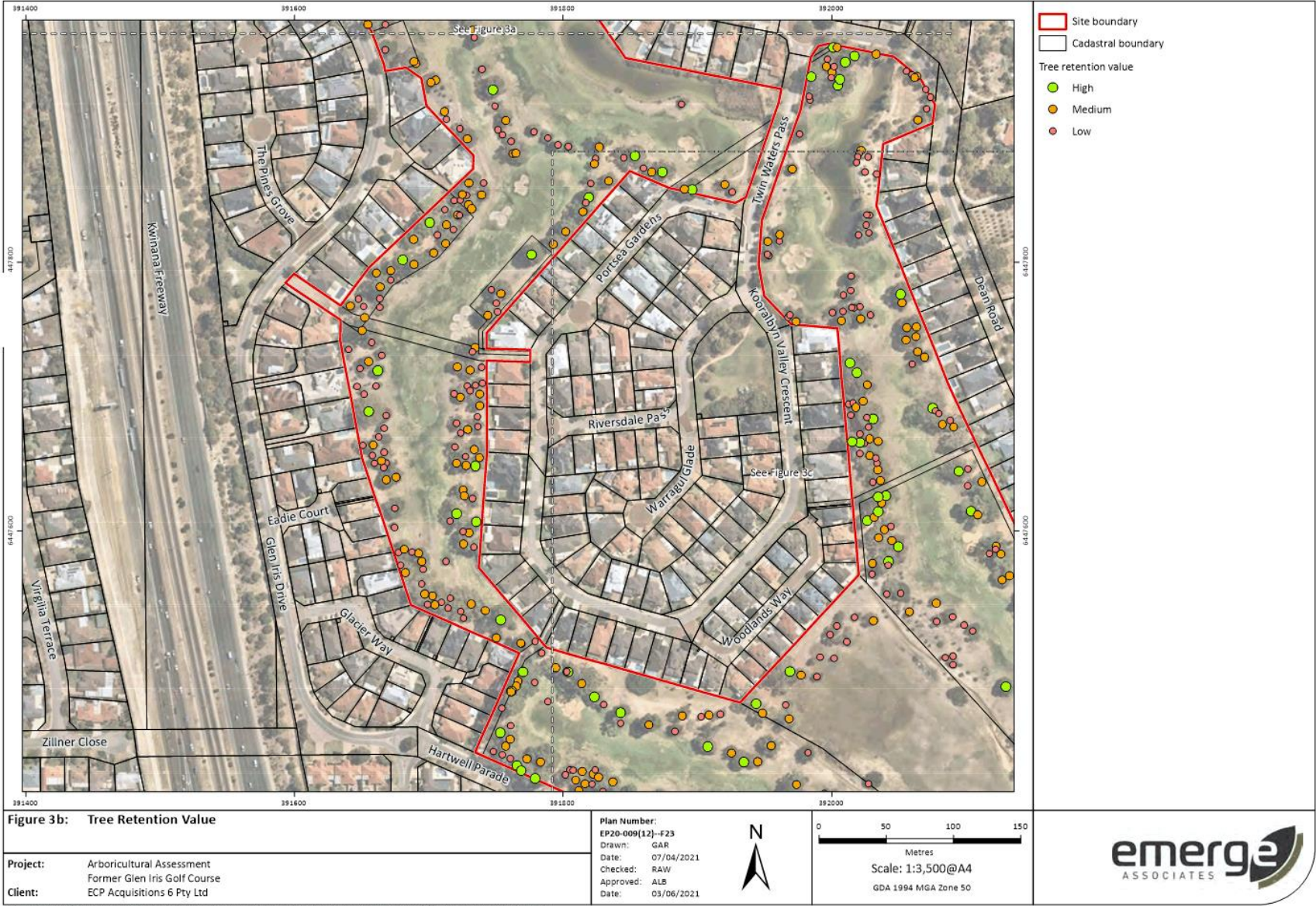


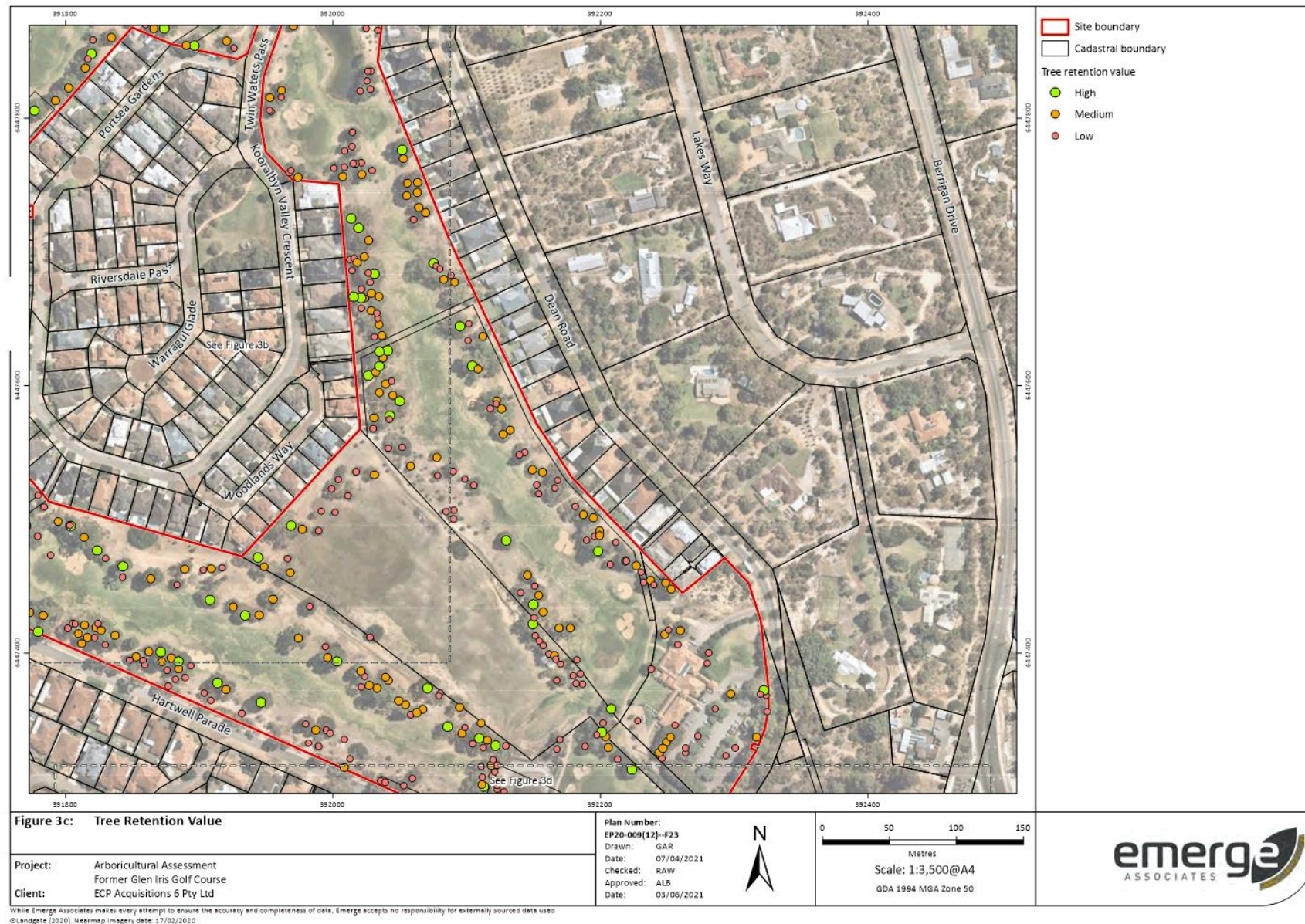


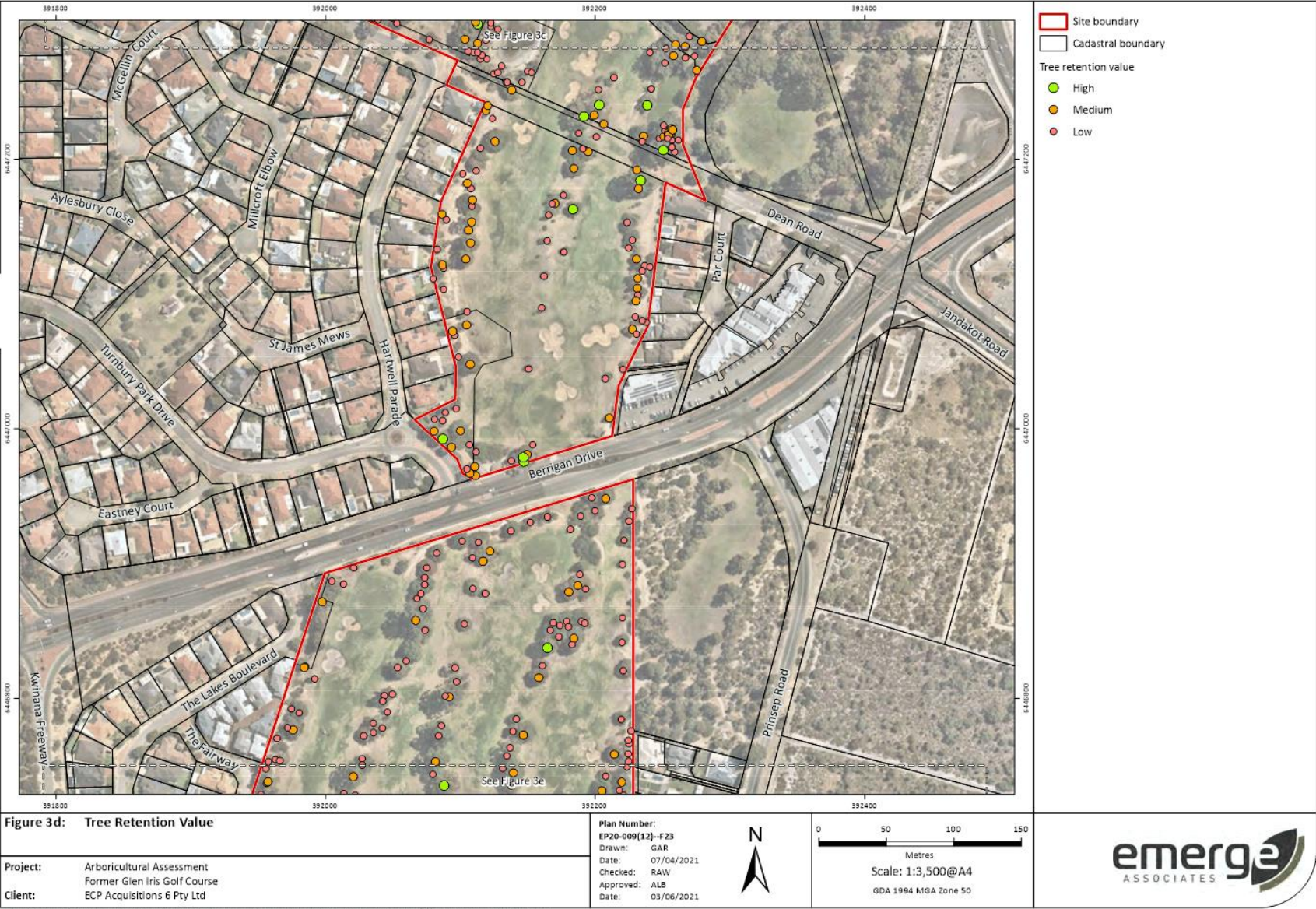


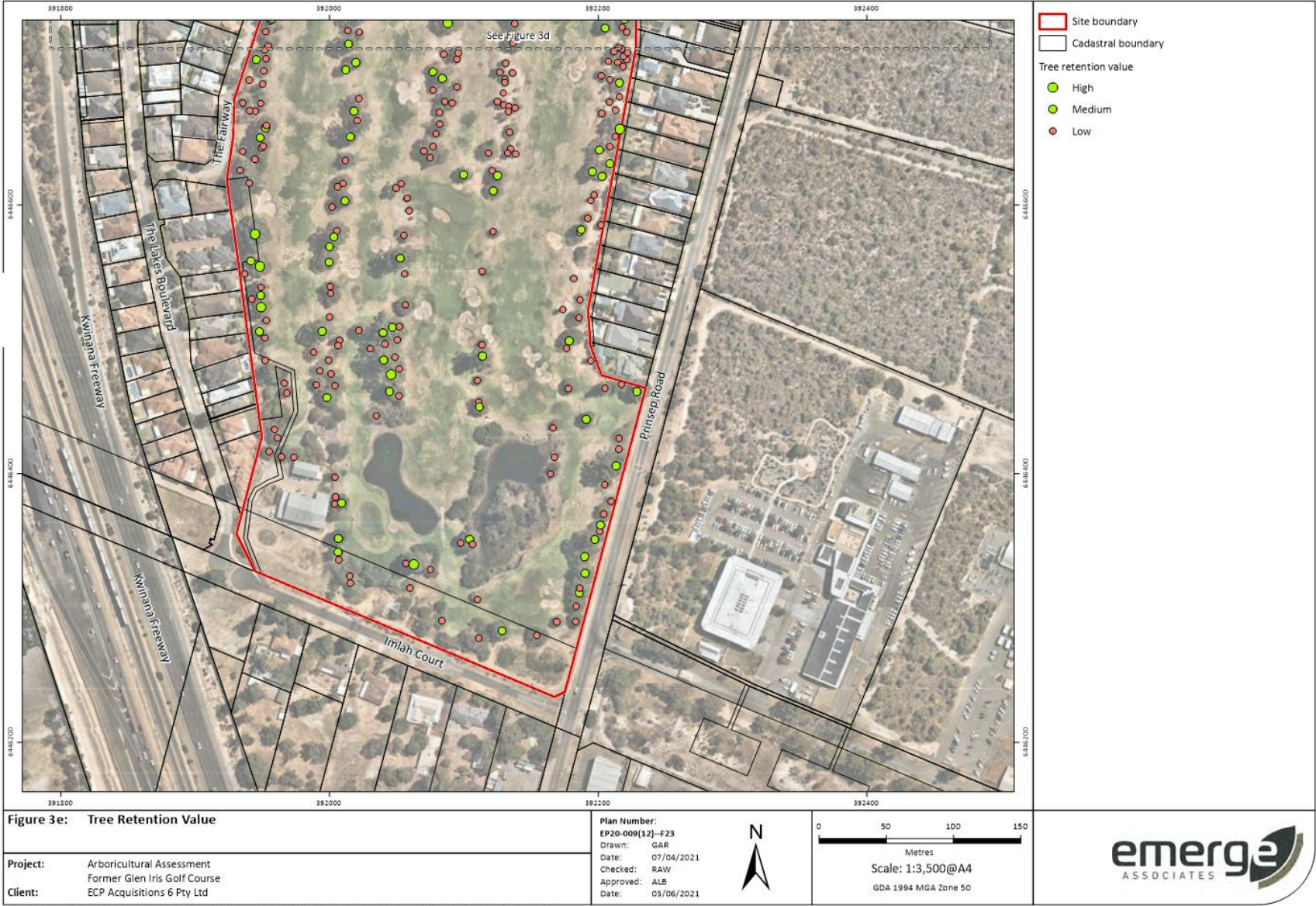












Attachment A

Tree Inventory Data and Photos





Tree Inventory
FORMER GLEN IRIS GOLF COURSE

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Tag No.	Species name	No. Individuals	Height (m)	Width (m)	Health	Age	ULE	Retention Value	DBH (m)	Black cockatoo habitat tree
1	<i>Eucalyptus marginata</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.75	Yes
2	<i>Eucalyptus marginata</i>	1	10-15	5-10	Poor	Mature	15-25	Medium	0.67	Yes
3	<i>Eucalyptus marginata</i>	1	5-10	5-10	Poor	Mature	15-25	Low	0.61	Yes
4	<i>Eucalyptus marginata</i>	1	5-10	5-10	Poor	Mature	5-15	Low	0.68	Yes
5	<i>Eucalyptus marginata</i>	1	5-10	5-10	Poor	Mature	5-15	Low	0.89	Yes
6	<i>Eucalyptus marginata</i>	1	5-10	5-10	Poor	Mature	5-15	Low	0.86	Yes
7	<i>Eucalyptus marginata</i>	1	10-15	5-10	Poor	Mature	5-15	Medium	1.05	Yes
8	<i>Eucalyptus marginata</i>	1	10-15	5-10	Average	Mature	15-25	Medium	0.81	Yes
9	<i>Eucalyptus marginata</i>	1	5-10	5-10	Average	Mature	15-25	Low	0.58	Yes
10	<i>Eucalyptus marginata</i>	1	10-15	5-10	Average	Mature	15-25	Medium	0.87	Yes
11	<i>Eucalyptus marginata</i>	1	5-10	5-10	Excellent	Mature	25+	Medium	0.93	Yes
N/A	<i>Melaleuca sp.</i>	1	5-10	10-15	Good	Mature	25+	High	0.2	No
12	<i>Melaleuca raphiophylla</i>	1	1-5	1-5	Poor	Mature	0-5	Low	0.6	No
13	<i>Eucalyptus grandis</i>	1	20-25	15-20	Good	Mature	25+	High	1	No
14	<i>Eucalyptus camaldulensis</i>	1	15-20	5-10	Good	Semi-mature	15-25	Medium	0.4	No
15	<i>Eucalyptus camaldulensis</i>	1	5-10	10-15	Average	Semi-mature	15-25	Low	0.3	No
16	<i>Eucalyptus camaldulensis</i>	1	15-20	10-15	Average	Semi-mature	15-25	Low	0.55	No
17	<i>Corymbia maculata</i>	1	5-10	1-5	Good	Juvenile	25+	Low	0.15	No
18	<i>Corymbia maculata</i>	1	15-20	10-15	Average	Semi-mature	15-25	Medium	0.55	No
22	<i>Eucalyptus robusta</i>	1	5-10	1-5	Poor	Juvenile	5-15	Low	0.2	No
23	<i>Eucalyptus grandis</i>	1	20-25	10-15	Average	Semi-mature	15-25	Medium	0.5	No
24	<i>Eucalyptus grandis</i>	1	10-15	1-5	Poor	Juvenile	5-15	Low	0.2	No
25	<i>Eucalyptus robusta</i>	1	5-10	1-5	Average	Juvenile	15-25	Low	0.25	No
26	<i>Eucalyptus grandis</i>	1	15-20	1-5	Average	Juvenile	15-25	Low	0.25	No
27	<i>Eucalyptus grandis</i>	1	15-20	5-10	Average	Semi-mature	25+	Medium	0.45	No
28	<i>Eucalyptus grandis</i>	1	5-10	1-5	Average	Juvenile	25+	Low	0.25	No
29	<i>Eucalyptus grandis</i>	1	5-10		Average	Juvenile	25+	Low	0.25	No
30	<i>Eucalyptus grandis</i>	1	20-25	15-20	Average	Mature	15-25	Medium	0.75	No
31	<i>Eucalyptus grandis</i>	1	20-25	10-15	Average	Mature	15-25	Medium	0.6	No
32	<i>Eucalyptus camaldulensis</i>	1	5-10	5-10	Average	Juvenile	25+	Low	0.4	No



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Tag No.	Species name	No. Individuals	Height (m)	Width (m)	Health	Age	ULE	Retention Value	DBH (m)	Black cockatoo habitat tree
33	<i>Eucalyptus camaldulensis</i>	1	5-10	1-5	Average	Juvenile	25+	Low	0.3	No
34	<i>Eucalyptus grandis</i>	1	5-10	5-10	Average	Juvenile	15-25	Low	0.3	No
38	<i>Erythrina sykksei</i>	1	10-15	10-15	Average	Mature	15-25	Medium	0.75	No
39	<i>Platanus x acerifolia</i>	1	10-15	5-10	Average	Mature	15-25	Low	0.5	No
40	<i>Melaleuca quinquenervia</i>	15	10-15	5-10	Average	Semi-mature	15-25	Low	0.4	No
41	<i>Melaleuca quinquenervia</i>	1	10-15	10-15	Good	Mature	25+	Medium	0.75	No
42	<i>Melaleuca quinquenervia</i>	1	5-10	5-10	Average	Semi-mature	25+	Low	0.55	No
43	<i>Melia azaderach</i>	1	10-15	5-10	Average	Semi-mature	25+	Low	0.45	No
44	<i>Erythrina sykksei</i>	1	10-15	10-15	Average	Mature	15-25	Medium	0.7	No
58	<i>Morus alba</i>	1	1-5	1-5	Average	Mature	15-25	Low	0.25	No
59	<i>Ficus microcarpa</i>	1	10-15	10-15	Good	Semi-mature	25+	Medium	0.5	No
60	<i>Ficus microcarpa</i>	1	10-15	10-15	Good	Semi-mature	25+	Medium	0.5	No
61	<i>Ficus microcarpa</i>	1	10-15	10-15	Good	Semi-mature	25+	Medium	0.55	No
62	<i>Ficus microcarpa</i>	1	10-15	10-15	Good	Semi-mature	25+	Medium	0.75	No
63	<i>Robinia pseudoacacia 'umbraculifera'</i>	6	1-5	1-5	Poor	Semi-mature		Low	0.2	No
64	<i>Tipuana tipu</i>	2	5-10	5-10	Poor	Semi-mature	0-5	Low	0.25	No
65	<i>Ulmus parvifolia</i>	1	5-10	1-5	Dead	Juvenile	0-5	Low	0.25	No
66	<i>Tipuana tipu</i>	5	5-10	5-10	Poor	Juvenile	0-5	Low	0.25	No
67	<i>Tipuana tipu</i>	1	5-10	5-10	Poor	Semi-mature	0-5	Low	0.35	No
68	<i>Pheonix canariensis</i>	1	5-10	1-5	Average	Mature	15-25	Medium	0.6	No
69	<i>Schefflera actinophylla</i>	1	5-10	5-10	Average	Mature	5-15	Low	0.6	No
70	<i>Eucalyptus citriodora</i>	1	15-20	10-15	Average	Mature	5-15	High	0.75	No
71	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Average	Mature	5-15	Low	0.55	No
72	<i>Hibiscus tiliaceus</i>	1	10-15	10-15	Average	Mature	15-25	Low	0.65	No
73	<i>Eucalyptus citriodora</i>	1	15-20	10-15	Average	Semi-mature	15-25	Medium	0.55	No
74	<i>Lagunaria patersonia</i>	1	5-10	1-5	Poor	Juvenile	0-5	Low	0.2	No
75	<i>Tipuana tipu</i>	4	5-10	5-10	Average	Juvenile	5-15	Low	0.3	No
76	<i>Robinia pseudoacacia 'umbraculifera'</i>	5	1-5	1-5	Average	Semi-mature	5-15	Low	0.2	No
77	<i>Robinia pseudoacacia 'umbraculifera'</i>	8	5-10	5-10	Average	Semi-mature	5-15	Low	0.3	No
78	<i>Ficus microcarpa</i>	1	5-10	5-10	Good	Semi-mature	25+	Medium	0.5	No



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Tag No.	Species name	No. Individuals	Height (m)	Width (m)	Health	Age	ULE	Retention Value	DBH (m)	Black cockatoo habitat tree
79	<i>Ficus microcarpa</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.45	No
80	<i>Ficus microcarpa</i>	1	5-10	5-10	Average	Semi-mature	25+	Medium	0.35	No
81	<i>Schinus molle</i>	1	1-5	1-5	Average	Semi-mature	5-15	Low	0.25	No
82	<i>Ficus microcarpa</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.4	No
83	<i>Ficus microcarpa</i>	3	1-5	1-5	Poor	Juvenile	0-5	Low	0.2	No
84	<i>Allocasuarina sp.</i>	8	15-20	5-10	Good	Mature	25+	Medium	0.65	No
85	<i>Pheonix canariensis</i>	1	5-10	5-10	Average	Juvenile	25+	Low	0.8	No
86	<i>Eucalyptus camaldulensis</i>	1	20-25	5-10	Average	Semi-mature	25+	Medium	0.5	No
87	<i>Agonis flexuosa</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.5	No
88	<i>Cupressus sp.</i>	1	5-10	5-10	Average	Juvenile	15-25	Low	0.25	No
89	<i>Syagrus romanzoffiana</i>	1	1-5	1-5	Poor	Juvenile	5-15	Low	0.2	No
90	<i>Syagrus romanzoffiana</i>	1	5-10	1-5	Average	Semi-mature	15-25	Low	0.35	No
91	<i>Melaleuca raphiophylla</i>	1	5-10	10-15	Average	Mature	15-25	High	0.8	No
92	<i>Unknown</i>	1	10-15	5-10	Average	Mature	15-25	Medium	0.5	No
93	<i>Banksia sp.</i>	1	1-5	1-5	Average	Semi-mature	15-25	Low	0.3	No
94	<i>Melaleuca raphiophylla</i>	4	1-5	1-5	Good	Semi-mature	25+	Medium	0.4	No
95	<i>Eucalyptus grandis</i>	1	20-25	15-20	Good	Mature	25+	High	1.2	No
96	<i>Ficus microcarpa</i>	1	5-10	5-10	Good	Semi-mature	25+	Medium	0.5	No
97	<i>Acacia saligna</i>	1	5-10	1-5	Poor	Semi-mature	0-5	Low	0.4	No
98	<i>Schinus terebinthifolia</i>	1	1-5	5-10	Average	Juvenile	15-25	Low	0.3	No
99	<i>Acacia sp.</i>	1	1-5	5-10	Average	Semi-mature	15-25	Low	0.3	No
100	<i>Banksia attenuata</i>	1	1-5	5-10	Poor	Semi-mature	0-5	Low	0.45	No
101	<i>Eucalyptus leucoxyton</i>	1	5-10	5-10	Good	Semi-mature	25+	Medium	0.45	No
102	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Juvenile	25+	Low	0.45	No
103	<i>Acacia sp.</i>	1	1-5	5-10	Average	Semi-mature	15-25	Low	0.25	No
104	<i>Aruacaria columnaris</i>	1	5-10	1-5	Average	Juvenile	25+	Low	0.2	No
105	<i>Eucalyptus sp.</i>	1	10-15	5-10	Good	Juvenile	25+	Medium	0.4	No
106	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Good	Juvenile	25+	Medium	0.3	No
107	<i>Eucalyptus camaldulensis</i>	1	10-15	1-5	Average	Juvenile	15-25	Low	0.3	No
108	<i>Eucalyptus camaldulensis</i>	1	5-10	1-5	Good	Juvenile	25+	Medium	0.2	No



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Tag No.	Species name	No. Individuals	Height (m)	Width (m)	Health	Age	ULE	Retention Value	DBH (m)	Black cockatoo habitat tree
109	<i>Eucalyptus grandis</i>	1	5-10	1-5	Good	Juvenile	25+	Low	0.2	No
110	<i>Tipuana tipu</i>	1	1-5	5-10	Average	Semi-mature	15-25	Low	0.3	No
111	<i>Eucalyptus platypus</i>	1	1-5	1-5	Good	Juvenile	25+	Low	0.15	No
112	<i>Eucalyptus camaldulensis</i>	1	10-15	1-5	Good	Juvenile	25+	Medium	0.25	No
113	<i>Eucalyptus cladocalyx</i>	1	5-10	1-5	Average	Juvenile	15-25	Low	0.2	No
114	<i>Olea europaea</i>	1	1-5	1-5	Good	Semi-mature	15-25	Low	0.25	No
115	<i>Ficus microcarpa</i>	1	1-5	1-5	Average	Juvenile	25+	Low	0.35	No
116	<i>Arucaria heterophylla</i>	1	5-10	1-5	Average	Juvenile	25+	Medium	0.4	No
117	<i>Eucalyptus citriodora</i>	1	15-20	5-10	Average	Semi-mature	25+	Low	0.35	No
118	<i>Eucalyptus citriodora</i>	1	15-20	5-10	Good	Semi-mature	25+	High	0.5	No
119	<i>Eucalyptus citriodora</i>	1	15-20	5-10	Good	Semi-mature	25+	Medium	0.35	No
120	<i>Eucalyptus citriodora</i>	1	15-20	10-15	Good	Semi-mature	25+	High	0.5	No
121	<i>Ficus microcarpa</i>	1	1-5	1-5	Average	Semi-mature	15-25	Low	0.25	No
122	<i>Ficus microcarpa</i>	1	5-10	5-10	Good	Semi-mature	25+	Low	0	No
123	<i>Eucalyptus citriodora</i>	1	10-15	5-10	Average	Juvenile	25+	Medium	0.3	No
124	<i>Eucalyptus citriodora</i>	1	5-10	1-5	Good	Juvenile	25+	Medium	0.2	No
125	<i>Eucalyptus citriodora</i>	1	10-15	5-10	Good	Juvenile	25+	Medium	0.3	No
126	<i>Tipuana tipu</i>	1	1-5	1-5	Poor	Juvenile	0-5	Low	0.2	No
127	<i>Ulmus parvifolia</i>	8	1-5	5-10	Average	Juvenile	5-15	Low	0.2	No
128	<i>Corymbia maculata</i>	1	10-15	5-10	Good	Juvenile	25+	Medium	0.45	No
129	<i>Corymbia maculata</i>	1	10-15	5-10	Excellent	Semi-mature	25+	High	0.5	No
130	<i>Corymbia maculata</i>	1	5-10	5-10	Good	Semi-mature	25+	Medium	0.45	No
131	<i>Olea europaea</i>	1	1-5	1-5	Average	Semi-mature	15-25	Low	0.2	No
132	<i>Jacaranda mimosifolia</i>	1	5-10	1-5	Poor	Semi-mature	0-5	Low	0.2	No
133	<i>Acacia sp.</i>	1	5-10	5-10	Poor	Mature	0-5	Low	0.3	No
134	<i>Cupressus sp.</i>	3	1-5	1-5	Poor	Semi-mature	0-5	Low	0.35	No
135	<i>Eucalyptus citriodora</i>	1	15-20	10-15	Average	Semi-mature	15-25	Medium	0.5	No
136	<i>Eucalyptus grandis</i>	1	15-20	10-15	Average	Semi-mature	25+	Medium	0.8	No
137	<i>Eucalyptus sp.</i>	1	1-5	1-5	Average	Juvenile	15-25	Low	0.1	No
138	<i>Eucalyptus cladocalyx</i>	1	5-10	1-5	Good	Juvenile	25+	Low	0.15	No



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Tag No.	Species name	No. Individuals	Height (m)	Width (m)	Health	Age	ULE	Retention Value	DBH (m)	Black cockatoo habitat tree
139	<i>Eucalyptus camaldulensis</i>	1	10-15	1-5	Average	Juvenile	25+	Medium	0.3	No
140	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Good	Juvenile	25+	Medium	0.4	No
141	<i>Ficus microcarpa</i>	1	1-5	5-10	Average	Juvenile	15-25	Low	0.3	No
142	<i>Eucalyptus grandis</i>	1	15-20	10-15	Good	Semi-mature	25+	Medium	0.5	No
143	<i>Cupressus sp.</i>	1	1-5	5-10	Average	Semi-mature	5-15	Low	0.3	No
144	<i>Acacia sp.</i>	1	1-5	1-5	Average	Semi-mature	15-25	Low	0.2	No
145	<i>Cupressus sp.</i>	1	1-5	1-5	Average	Semi-mature	5-15	Low	0.3	No
146	<i>Eucalyptus grandis</i>	1	15-20	10-15	Good	Semi-mature	25+	Medium	0.5	No
147	<i>Cupressus sp.</i>	1	1-5	1-5	Average	Semi-mature	5-15	Low	0.3	No
148	<i>Eucalyptus grandis</i>	1	15-20	10-15	Average	Semi-mature	25+	Medium	0.75	No
149	<i>Ficus microcarpa</i>	1	1-5	1-5	Good	Juvenile	25+	Medium	0.2	No
150	<i>Eucalyptus grandis</i>	1	15-20	10-15	Good	Semi-mature	25+	Medium	0.5	No
151	<i>Acacia sp.</i>	1	1-5	10-15	Average	Mature	5-15	Low	0.4	No
152	<i>Cupressus sp.</i>	1	1-5	1-5	Poor	Semi-mature	0-5	Low	0.2	No
153	<i>Grevillea robusta</i>	1	5-10	1-5	Good	Juvenile	15-25	Medium	0.2	No
154	<i>Banksia attenuata</i>	1	5-10	5-10	Average	Semi-mature	5-15	Medium	0.45	No
155	<i>Acacia sp.</i>	1	5-10	1-5	Average	Juvenile	5-15	Low	0.25	No
156	<i>Aruacaria heterophylla</i>	1	5-10	1-5	Good	Juvenile	25+	Medium	0.25	No
157	<i>Cupressus sp.</i>	1	5-10	1-5	Poor	Semi-mature	0-5	Low	0.3	No
158	<i>Eucalyptus leucoxylon</i>	1	5-10	10-15	Average	Mature	5-15	Low	0.55	No
159	<i>Erythrina sykei</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.6	No
160	<i>Ficus microcarpa</i>	1	5-10	10-15	Good	Semi-mature	25+	Medium	0.6	No
161	<i>Eucalyptus camaldulensis</i>	1	10-15	1-5	Average	Juvenile	25+	Medium	0.25	No
162	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Semi-mature	25+	Medium	0.45	No
163	<i>Eucalyptus platypus</i>	1	1-5	1-5	Good	Juvenile	25+	Low	0.15	No
164	<i>Ulmus parvifolia</i>	1	5-10	10-15	Good	Mature	15-25	Medium	0.35	No
165	<i>Syagrus romanzoffiana</i>	1	10-15	1-5	Average	Semi-mature	15-25	Low	0.3	No
166	<i>Eucalyptus camaldulensis</i>	1	5-10	10-15	Average	Semi-mature	15-25	Low	0.75	No
167	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Juvenile	15-25	Low	0.35	No
168	<i>Ulmus parvifolia</i>	4	1-5	1-5	Average	Juvenile	15-25	Low	0.2	No



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Tag No.	Species name	No. Individuals	Height (m)	Width (m)	Health	Age	ULE	Retention Value	DBH (m)	Black cockatoo habitat tree
169	<i>Eucalyptus sp.</i>	1	5-10	1-5	Average	Juvenile	25+	Low	0.15	No
170	<i>Eucalyptus camaldulensis</i>	1	10-15	10-15	Poor	Semi-mature	5-15	Low	0.5	No
171	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Poor	Semi-mature	5-15	Low	0.35	No
172	<i>Eucalyptus camaldulensis</i>	1	15-20	10-15	Average	Mature	15-25	Low	0.5	No
176	<i>Eucalyptus camaldulensis</i>	1	5-10	1-5	Average	Juvenile	5-15	Low	0.3	No
177	<i>Eucalyptus camaldulensis</i>	1	1-5	1-5	Good	Juvenile	25+	Low	0.1	No
178	<i>Eucalyptus camaldulensis</i>	3	5-10	1-5	Average	Juvenile	15-25	Low	0.2	No
179	<i>Fraxinus ornus</i>	1	1-5	1-5	Average	Juvenile		Low	0.1	No
180	<i>Callistemon sp.</i>	1	1-5	1-5	Poor	Juvenile	0-5	Low	0.1	No
181	<i>Eucalyptus camaldulensis</i>	6	5-10	1-5	Average	Juvenile	15-25	Low	0.25	No
182	<i>Melaleuca raphiophylla</i>	1	1-5	1-5	Average	Mature	5-15	Low	0.6	No
183	<i>Eucalyptus camaldulensis</i>	1	15-20	10-15	Average	Mature	15-25	Medium	0.6	No
184	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Mature	15-25	Low	0.65	No
185	<i>Eucalyptus camaldulensis</i>	1	15-20	5-10	Average	Mature	15-25	Low	0.55	No
186	<i>Eucalyptus camaldulensis</i>	1	5-10	10-15	Average	Juvenile	5-15	Low	0.35	No
187	<i>Ficus microcarpa</i>	1	10-15	10-15	Good	Mature	25+	Medium	0.75	No
188	<i>Eucalyptus camaldulensis</i>	1	15-20	10-15	Good	Mature	25+	High	0.75	No
189	<i>Platanus x acerifolia</i>	1	5-10	1-5	Average	Juvenile	15-25	Low	0.2	No
190	<i>Eucalyptus camaldulensis</i>	1	10-15	10-15	Good	Semi-mature	25+	Medium	0.6	No
191	<i>Eucalyptus camaldulensis</i>	1	5-10	1-5	Average	Juvenile	15-25	Low	0.2	No
192	<i>Eucalyptus camaldulensis</i>	1	5-10	1-5	Average	Juvenile	15-25	Low	0.2	No
193	<i>Eucalyptus camaldulensis</i>	1	20-25	10-15	Average	Mature	15-25	Medium	0.65	No
194	<i>Eucalyptus camaldulensis</i>	1	1-5	1-5	Poor	Semi-mature	5-15	Low	0.4	No
195	<i>Eucalyptus camaldulensis</i>	1	10-15	1-5	Average	Juvenile	25+	Low	0.3	No
196	<i>Ficus carica</i>	1	1-5	1-5	Good	Semi-mature	15-25	Low	0.2	No
197	<i>Eucalyptus camaldulensis</i>	1	10-15	1-5	Average	Juvenile	25+	Low	0.25	No
198	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Semi-mature	25+	Low	0.35	No
199	<i>Platanus x acerifolia</i>	1	15-20	10-15	Excellent	Mature	25+	High	0.6	No
200	<i>Syzygium smithii</i>	1	10-15	5-10	Excellent	Mature	25+	Low	0.4	No
201	<i>Eucalyptus patens</i>	1	5-10	5-10	Average	Mature	5-15	Medium	0.5	No



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202	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Mature	5-15	Medium	0.5	No
203	<i>Eucalyptus globulus</i>	1	15-20	10-15	Good	Mature	25+	High	1.2	No
204	<i>Archontophoenix cunninghamiana</i>	1	5-10	1-5	Excellent	Semi-mature	25+	Low	0.2	No
205	<i>Lagerstroemia indica</i>	1	1-5	5-10	Good	Semi-mature	15-25	Low	0.2	No
206	<i>Fraxinus sp.</i>	1	5-10	5-10	Poor	Mature	0-5	Low	0.3	No
207	<i>Ulmus parvifolia</i>	1	1-5	1-5	Good	Juvenile	15-25	Low	0.2	No
208	<i>Eucalyptus citriodora</i>	1	20-25	10-15	Excellent	Mature	25+	High	0.7	No
209	<i>Eucalyptus camaldulensis</i>	1	15-20	15-20	Good	Mature	25+	High	1.2	No
210	<i>Syagrus romanzoffiana</i>	1	5-10	1-5	Average	Semi-mature	5-15	Low	0.3	No
211	<i>Eucalyptus citriodora</i>	1	5-10	5-10	Good	Juvenile	25+	Medium	0.4	No
212	<i>Jacaranda mimosifolia</i>	1	5-10	5-10	Good	Semi-mature	15-25	Medium	0.2	No
213	<i>Syagrus romanzoffiana</i>	1	5-10	1-5	Poor	Juvenile	5-15	Low	0.25	No
214	<i>Tipuana tipu</i>	1	5-10	5-10	Excellent	Semi-mature	25+	Low	0.4	No
215	<i>Ulmus parvifolia</i>	1	5-10	5-10	Good	Mature	25+	Medium	0.4	No
216	<i>Erythrina sykesii</i>	1	5-10	5-10	Average	Semi-mature	15-25	Low	0.6	No
217	<i>Ficus sp.</i>	1	5-10	5-10	Good	Semi-mature	25+	Medium	0.6	No
218	<i>Cinnamomum camphora</i>	1	10-15	10-15	Good	Semi-mature	25+	Medium	0.6	No
219	<i>Melaleuca raphiophylla</i>	1	1-5	1-5	Average	Juvenile	15-25	Low	0.2	No
220	<i>Agonis flexuosa</i>	1	10-15	10-15	Good	Mature	25+	High	0.8	No
221	<i>Eucalyptus sp.</i>	1	5-10	5-10	Good	Semi-mature	15-25	Medium	0.4	No
222	<i>Eucalyptus sp.</i>	1	5-10	5-10	Average	Semi-mature	15-25	Low	0.4	No
223	<i>Poplar lombardi</i>	1	10-15	1-5	Excellent	Semi-mature	15-25	Low	0.4	No
224	<i>Cinnamomum camphora</i>	1	1-5	1-5	Good	Juvenile	15-25	Low	0.2	No
225	<i>Ficus microcarpa</i>	1	1-5	1-5	Good	Juvenile	25+	Low	0.35	No
226	<i>Jacaranda mimosifolia</i>	1	1-5	1-5	Average	Juvenile	15-25	Low	0.2	No
227	<i>Araucaria heterophylla</i>	1	5-10	1-5	Average	Juvenile	5-15	Low	0.3	No
228	<i>Cinnamomum camphora</i>	1	1-5	1-5	Good	Juvenile	25+	Low	0.2	No
229	<i>Unknown</i>	1	10-15	10-15	Excellent	Semi-mature	25+	High	0.5	No
230	<i>Syagrus romanzoffiana</i>	1	5-10	1-5	Average	Semi-mature	15-25	Low	0.2	No
231	<i>Syagrus romanzoffiana</i>	1	10-15	1-5	Average	Semi-mature	15-25	Low	0.2	No



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232	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Semi-mature	15-25	Low	0.6	No
233	<i>Eucalyptus sp.</i>	1	5-10	1-5	Poor	Juvenile	5-15	Low	0.3	No
234	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Semi-mature	15-25	Low	0.5	No
235	<i>Eucalyptus cladocalyx</i>	1	15-20	5-10	Good	Mature	25+	Medium	0.6	No
236	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Semi-mature	25+	Medium	0.5	No
237	<i>Eucalyptus camaldulensis</i>	1	15-20	10-15	Excellent	Semi-mature	25+	High	0.5	No
238	<i>Eucalyptus camaldulensis</i>	1	5-10	5-10	Average	Juvenile	25+	Low	0.5	No
239	<i>Eucalyptus camaldulensis</i>	1	10-15	10-15	Average	Mature	15-25	Medium	0.8	No
240	<i>Corymbia maculata</i>	1	10-15	5-10	Excellent	Semi-mature	25+	High	0.4	No
241	<i>Eucalyptus leucoxylon</i>	1	5-10	10-15	Good	Mature	25+	Medium	0.7	No
242	<i>Eucalyptus cladocalyx</i>	1	15-20	10-15	Average	Mature	5-15	Low	0.9	No
243	<i>Liquidambar styraciflua</i>	1	5-10	1-5	Poor	Juvenile	0-5	Low	0.25	No
244	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Good	Mature	25+	Medium	0.6	No
245	<i>Pinus radiata</i>	1	15-20	10-15	Excellent	Mature	25+	High	1.2	No
246	<i>Banksia attenuata</i>	1	1-5	1-5	Average	Semi-mature	5-15	Low	0.2	No
247	<i>Banksia attenuata</i>	1	1-5	1-5	Average	Juvenile	5-15	Low	0.2	No
248	<i>Banksia attenuata</i>	1	1-5	1-5	Average	Juvenile	5-15	Low	0.2	No
249	<i>Acacia sp.</i>	1	5-10	10-15	Poor	Mature	5-15	Low	0.7	No
250	<i>Eucalyptus cladocalyx</i>	1	5-10	5-10	Poor	Semi-mature	5-15	Low	0.5	No
251	<i>Tipuana tipu</i>	1	5-10	5-10	Good	Juvenile	25+	Low	0.4	No
252	<i>Eucalyptus grandis</i>	1	5-10	5-10	Poor	Semi-mature	0-5	Low	0.5	No
253	<i>Melaleuca raphiophylla</i>	1	5-10	5-10	Average	Semi-mature	15-25	Medium	0.4	No
254	<i>Banksia attenuata</i>	1	5-10	1-5	Average	Semi-mature	15-25	Medium	0.3	No
255	<i>Melaleuca raphiophylla</i>	1	5-10	5-10	Average	Mature	15-25	Low	0.6	No
256	<i>Acacia sp.</i>	1	5-10	10-15	Average	Semi-mature	5-15	Low	0.5	No
257	<i>Eucalyptus marginata</i>	1	5-10	5-10	Poor	Semi-mature	5-15	Low	0.5	No
258	<i>Corymbia maculata</i>	1	15-20	5-10	Good	Semi-mature	25+	High	0.6	No
259	<i>Corymbia citriodora</i>	1	15-20	10-15	Good	Semi-mature	25+	Medium	0.4	No
260	<i>Eucalyptus sp.</i>	1	1-5	1-5	Poor	Juvenile	5-15	Low	0.3	No
261	<i>Eucalyptus leucoxylon</i>	1	10-15	5-10	Good	Mature	25+	High	0.6	No



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262	<i>Eucalyptus cladocalyx</i>	1	15-20	5-10	Average	Mature	15-25	Medium	0.8	No
263	<i>Eucalyptus citriodora</i>	1	15-20	5-10	Good	Semi-mature	25+	Medium	0.4	No
264	<i>Eucalyptus camaldulensis</i>	1	15-20	5-10	Good	Semi-mature	25+	Medium	0.4	No
265	<i>Eucalyptus grandis</i>	1	15-20	5-10	Average	Semi-mature	25+	Low	0.4	No
266	<i>Eucalyptus citriodora</i>	1	15-20	5-10	Excellent	Semi-mature	25+	High	0.4	No
267	<i>Eucalyptus camaldulensis</i>	1	20-25	10-15	Average	Mature	15-25	Medium	0.6	No
268	<i>Eucalyptus citriodora</i>	1	20-25	5-10	Excellent	Semi-mature	25+	High	0.5	No
269	<i>Eucalyptus cladocalyx</i>	1	15-20	10-15	Average	Mature	25+	Medium	0.6	No
270	<i>Eucalyptus citriodora</i>	1	20-25	15-20	Good	Mature	25+	High	1	No
271	<i>Eucalyptus citriodora</i>	1	20-25	10-15	Excellent	Semi-mature	25+	High	0.7	No
272	<i>Eucalyptus botryoides</i>	1	10-15	5-10	Good	Juvenile	25+	Medium	0.4	No
273	<i>Ulmus parvifolia</i>	1	1-5	1-5	Average	Juvenile	15-25	Low	0.1	No
274	<i>Eucalyptus camaldulensis</i>	1	15-20	15-20	Average	Mature	15-25	Medium	0.9	No
275	Unknown	1	5-10	5-10	Average	Semi-mature	5-15	Medium	0.5	No
276	<i>Eucalyptus camaldulensis</i>	1	10-15	10-15	Average	Semi-mature	5-15	Low	0.6	No
277	<i>Eucalyptus cladocalyx</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.5	No
278	<i>Eucalyptus cladocalyx</i>	1	5-10	5-10	Average	Juvenile	15-25	Low	0.4	No
279	<i>Eucalyptus grandis</i>	1	10-15	5-10	Poor	Juvenile	5-15	Low	0.45	No
280	<i>Eucalyptus citriodora</i>	1	20-25	5-10	Good	Semi-mature	25+	High	0.5	No
281	<i>Eucalyptus citriodora</i>	1	20-25	10-15	Excellent	Mature	25+	High	0.8	No
282	<i>Agonis flexuosa</i>	1	1-5	5-10	Average	Juvenile	5-15	Low	0.3	No
283	<i>Grevillea robusta</i>	1	5-10	1-5	Good	Juvenile	15-25	Medium	0.2	No
284	<i>Eucalyptus sp.</i>	1	5-10	5-10	Good	Semi-mature	15-25	Medium	0.5	No
285	<i>Agonis flexuosa</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.3	No
286	<i>Eucalyptus grandis</i>	1	15-20	10-15	Good	Mature	25+	High	0.7	No
287	<i>Agonis flexuosa</i>	1	1-5	1-5	Average	Juvenile	5-15	Low	0.2	No
288	<i>Ficus microcarpa</i>	1	10-15	5-10	Good	Juvenile	15-25	Low	0.4	No
289	<i>Ficus microcarpa</i>	1	5-10	5-10	Average	Juvenile	15-25	Low	0.4	No
290	<i>Eucalyptus grandis</i>	1	5-10	1-5	Average	Juvenile	5-15	Low	0.2	No
291	<i>Eucalyptus botryoides</i>	1	15-20	10-15	Good	Semi-mature	25+	Medium	0.5	No



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292	<i>Corymbia ficifolia</i>	1	10-15	5-10	Good	Juvenile	15-25	Medium	0.4	No
293	<i>Eucalyptus citriodora</i>	1	20-25	15-20	Good	Mature	25+	Medium	1	No
294	<i>Eucalyptus grandis</i>	1	20-25	15-20	Good	Mature	25+	High	1	No
295	<i>Corymbia maculata</i>	1	15-20	5-10	Good	Semi-mature	25+	High	0.45	No
296	<i>Allocasuarina sp.</i>	1	15-20	10-15	Good	Semi-mature	25+	Medium	0.6	No
297	<i>Eucalyptus botryoides</i>	1	15-20	10-15	Excellent	Semi-mature	25+	Medium	0.5	No
298	<i>Eucalyptus botryoides</i>	1	5-10	5-10	Poor	Semi-mature	5-15	Low	0.4	No
299	<i>Allocasuarina sp.</i>	1	10-15	1-5	Average	Semi-mature	15-25	Low	0.4	No
300	<i>Allocasuarina sp.</i>	1	5-10	1-5	Average	Juvenile	25+	Low	0.3	No
301	<i>Allocasuarina sp.</i>	1	5-10	1-5	Average	Juvenile	15-25	Low	0.2	No
302	<i>Allocasuarina sp.</i>	1	10-15	5-10	Average	Semi-mature	15-25	Low	0.4	No
303	<i>Eucalyptus marginata</i>	1	1-5	5-10	Average	Semi-mature	5-15	Low	0.4	No
304	<i>Allocasuarina fraseriana</i>	1	10-15	1-5	Average	Semi-mature	15-25	Low	0.4	No
305	<i>Eucalyptus patens</i>	1	5-10	10-15	Average	Mature	5-15	Low	0.8	No
306	<i>Allocasuarina fraseriana</i>	1	10-15	5-10	Average	Mature	15-25	Low	0.5	No
307	<i>Allocasuarina sp.</i>	1	15-20	5-10	Good	Mature	15-25	Medium	0.8	No
308	<i>Allocasuarina sp.</i>	1	5-10	1-5	Average	Semi-mature	5-15	Low	0.4	No
309	<i>Allocasuarina sp.</i>	1	5-10	1-5	Average	Semi-mature	5-15	Low	0.4	No
310	<i>Melaleuca quinquenervia</i>	1	5-10	5-10	Poor	Semi-mature	5-15	Low	0.5	No
311	<i>Melia azaderach</i>	1	5-10	5-10	Poor	Juvenile	5-15	Low	0.4	No
312	<i>Corymbia ficifolia</i>	1	1-5	1-5	Good	Juvenile	15-25	Medium	0.3	No
313	<i>Melaleuca quinquenervia</i>	1	5-10	5-10	Good	Mature	25+	Low	0.5	No
314	<i>Melaleuca quinquenervia</i>	1	5-10	5-10	Good	Mature	25+	Medium	0.5	No
315	<i>Melaleuca quinquenervia</i>	1	5-10	5-10	Good	Mature	15-25	Medium	0.5	No
316	<i>Melia azaderach</i>	1	10-15	5-10	Good	Mature	25+	Low	0.6	No
317	<i>Cupressus sp.</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.3	No
318	<i>Cupressus sp.</i>	1	1-5	1-5	Poor	Juvenile	5-15	Low	0.2	No
319	<i>Eucalyptus grandis</i>	1	20-25	15-20	Excellent	Mature	25+	High	0.9	No
320	<i>Eucalyptus citriodora</i>	1	15-20	5-10	Good	Semi-mature	25+	Medium	0.6	No
321	<i>Eucalyptus camaldulensis</i>	1	15-20	5-10	Average	Semi-mature	25+	Medium	0.6	No



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322	<i>Eucalyptus grandis</i>	1	15-20	10-15	Excellent	Semi-mature	25+	High	0.6	No
323	<i>Eucalyptus grandis</i>	1	15-20	10-15	Excellent	Semi-mature	25+	High	0.6	No
324	<i>Eucalyptus citriodora</i>	1	10-15	1-5	Good	Juvenile	25+	Low	0.2	No
325	<i>Eucalyptus cladocalyx</i>	1	5-10	5-10	Average	Juvenile	15-25	Low	0.3	No
326	<i>Eucalyptus cladocalyx</i>	1	1-5	5-10	Average	Juvenile	5-15	Low	0.2	No
327	<i>Eucalyptus citriodora</i>	1	15-20	15-20	Good	Mature	25+	High	0.9	No
328	<i>Eucalyptus citriodora</i>	1	15-20	5-10	Good	Semi-mature	25+	Medium	0.3	No
329	<i>Eucalyptus citriodora</i>	1	20-25	10-15	Excellent	Semi-mature	25+	High	0.5	No
330	<i>Eucalyptus citriodora</i>	1	15-20	10-15	Excellent	Semi-mature	25+	High	0.6	No
331	<i>Eucalyptus camaldulensis</i>	1	15-20	15-20	Average	Mature	15-25	Medium	0.8	No
332	<i>Melia azaderach</i>	1	5-10	5-10	Good	Juvenile	25+	Low	0.4	No
333	<i>Melaleuca quinquenervia</i>	1	5-10	1-5	Average	Juvenile	25+	Low	0.3	No
334	<i>Eucalyptus citriodora</i>	1	10-15	5-10	Excellent	Juvenile	25+	Medium	0.3	No
335	<i>Melaleuca quinquenervia</i>	1	5-10	1-5	Good	Juvenile	25+	Medium	0.3	No
336	<i>Melaleuca quinquenervia</i>	1	5-10	1-5	Good	Juvenile	25+	Low	0.2	No
337	<i>Melaleuca quinquenervia</i>	1	5-10	1-5	Excellent	Juvenile	25+	Low	0.3	No
338	<i>Melaleuca quinquenervia</i>	1	5-10	1-5	Excellent	Juvenile	25+	Low	0.3	No
339	<i>Melaleuca quinquenervia</i>	10	5-10	1-5	Good	Semi-mature	25+	Medium	0.35	No
340	<i>Eucalyptus camaldulensis</i>	1	5-10	1-5	Excellent	Juvenile	25+	Medium	0.3	No
341	<i>Eucalyptus camaldulensis</i>	1	5-10	1-5	Average	Juvenile	15-25	Low	0.3	No
342	<i>Eucalyptus camaldulensis</i>	1	5-10	1-5	Average	Juvenile	15-25	Low	0.2	No
343	<i>Eucalyptus platypus</i>	1	1-5	5-10	Good	Juvenile	25+	Low	0.2	No
344	<i>Eucalyptus camaldulensis</i>	1	5-10	1-5	Excellent	Juvenile	25+	Low	0.2	No
345	<i>Olea europaea</i>	1	1-5	1-5	Good	Semi-mature	15-25	Low	0.2	No
346	<i>Syagrus romanzoffiana</i>	4	5-10	1-5	Average	Juvenile	25+	Low	0.3	No
347	<i>Eucalyptus robusta</i>	1	10-15	5-10	Good	Juvenile	25+	Low	0.45	No
348	<i>Melaleuca quinquenervia</i>	1	5-10	1-5	Good	Juvenile	15-25	Low	0.3	No
349	<i>Melaleuca quinquenervia</i>	1	5-10	5-10	Excellent	Semi-mature	25+	Low	0.5	No
350	<i>Tipuana tipu</i>	1	5-10	1-5	Average	Juvenile	25+	Low	0.2	No
351	<i>Eucalyptus robusta</i>	4	10-15	1-5	Average	Juvenile	15-25	Low	0.3	No



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Tag No.	Species name	No. Individuals	Height (m)	Width (m)	Health	Age	ULE	Retention Value	DBH (m)	Black cockatoo habitat tree
352	<i>Eucalyptus sp.</i>	1	15-20	10-15	Good	Mature	25+	High	0.7	No
353	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Good	Mature	25+	Medium	0.5	No
354	<i>Eucalyptus grandis</i>	1	15-20	10-15	Good	Mature	25+	Medium	0.8	No
355	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Good	Mature	25+	Medium	0.5	No
356	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Good	Mature	25+	Medium	0.6	No
357	<i>Eucalyptus citriodora</i>	1	10-15	5-10	Good	Semi-mature	25+	Medium	0.55	No
358	<i>Corymbia maculata</i>	1	10-15	5-10	Excellent	Juvenile	25+	Medium	0.4	No
359	<i>Corymbia maculata</i>	1	10-15	5-10	Excellent	Semi-mature	25+	Medium	0.4	No
360	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Average	Semi-mature	15-25	Low	0.3	No
361	<i>Eucalyptus citriodora</i>	1	20-25	10-15	Excellent	Mature	25+	High	0.8	No
362	<i>Corymbia ficifolia</i>	1	5-10	1-5	Average	Semi-mature	5-15	Low	0.3	No
363	<i>Eucalyptus camaldulensis</i>	1	5-10	5-10	Poor	Juvenile	5-15	Low	0.2	No
364	<i>Eucalyptus globulus</i>	1	15-20	10-15	Average	Mature	15-25	Medium	0.7	No
365	<i>Eucalyptus camaldulensis</i>	1	5-10	10-15	Average	Mature	15-25	Low	0.5	No
366	<i>Eucalyptus cladocalyx</i>	1	15-20	10-15	Average	Mature	15-25	Medium	0.9	No
367	<i>Eucalyptus globulus</i>	1	15-20	10-15	Average	Mature	15-25	High	1.5	No
368	<i>Eucalyptus cladocalyx</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.3	No
369	<i>Eucalyptus cladocalyx</i>	1	10-15	5-10	Poor	Semi-mature	0-5	Low	0.5	No
370	<i>Eucalyptus robusta</i>	1	10-15	5-10	Good	Semi-mature	25+	Medium	0.4	No
371	<i>Eucalyptus nicholii</i>	1	15-20	10-15	Average	Mature	15-25	High	0.9	No
372	<i>Eucalyptus cladocalyx</i>	1	15-20	10-15	Average	Mature	15-25	Medium	0.6	No
373	<i>Eucalyptus grandis</i>	1	15-20	10-15	Good	Mature	25+	Medium	0.9	No
374	<i>Eucalyptus grandis</i>	1	15-20	5-10	Average	Mature	5-15	Low	1	No
375	<i>Eucalyptus camaldulensis</i>	1	10-15	10-15	Average	Mature	15-25	Medium	0.6	No
376	<i>Melaleuca raphiophylla</i>	1	5-10	5-10	Poor	Mature	5-15	Low	0.4	No
377	<i>Corymbia maculata</i>	1	10-15	1-5	Excellent	Semi-mature	25+	Medium	0.4	No
378	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Good	Mature	25+	Medium	0.5	No
379	<i>Eucalyptus patens</i>	1	5-10	1-5	Average	Semi-mature	5-15	Low	0.4	No
380	<i>Eucalyptus patens</i>	1	1-5	1-5	Average	Juvenile	5-15	Low	0.3	No
381	<i>Corymbia maculata</i>	1	10-15	5-10	Excellent	Semi-mature	25+	Medium	0.4	No



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Tag No.	Species name	No. Individuals	Height (m)	Width (m)	Health	Age	ULE	Retention Value	DBH (m)	Black cockatoo habitat tree
382	<i>Eucalyptus patens</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.3	No
383	<i>Banksia sp.</i>	1	5-10	5-10	Average	Mature	5-15	Medium	0.5	No
384	<i>Eucalyptus grandis</i>	1	15-20	10-15	Average	Mature	15-25	Low	0.7	No
385	<i>Eucalyptus sp.</i>	1	5-10	10-15	Poor	Mature	5-15	Low	0.9	No
386	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Poor	Semi-mature	5-15	Low	0.4	No
387	<i>Eucalyptus sp.</i>	1	10-15	10-15	Average	Mature	5-15	Low	0.6	No
388	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Good	Juvenile	25+	Medium	0.3	No
389	<i>Eucalyptus grandis</i>	1	15-20	10-15	Good	Semi-mature	25+	Medium	0.5	No
390	<i>Corymbia maculata</i>	1	10-15	1-5	Good	Semi-mature	25+	Medium	0.3	No
391	<i>Eucalyptus botryoides</i>	1	5-10	5-10	Average	Juvenile	15-25	Low	0.3	No
392	<i>Eucalyptus sp.</i>	1	10-15	10-15	Average	Mature	5-15	Low	0.5	No
393	<i>Eucalyptus grandis</i>	1	15-20	10-15	Excellent	Mature	25+	High	0.7	No
394	<i>Corymbia maculata</i>	1	10-15	5-10	Excellent	Juvenile	25+	Medium	0.3	No
395	<i>Eucalyptus grandis</i>	1	5-10	1-5	Poor	Juvenile	5-15	Low	0.2	No
396	<i>Acacia sp.</i>	1	5-10	10-15	Poor	Mature	5-15	Low	0.4	No
397	<i>Eucalyptus grandis</i>	1	10-15	5-10	Excellent	Semi-mature	25+	Medium	0.4	No
398	<i>Eucalyptus grandis</i>	1	5-10	5-10	Poor	Juvenile	5-15	Low	0.2	No
399	<i>Eucalyptus grandis</i>	1	10-15	5-10	Excellent	Juvenile	25+	Medium	0.3	No
400	<i>Eucalyptus sp.</i>	1	5-10	5-10	Good	Juvenile	25+	Low	0.2	No
401	<i>Eucalyptus sp.</i>	1	10-15	5-10	Average	Semi-mature	5-15	Low	0.4	No
402	<i>Eucalyptus sp.</i>	1	15-20	5-10	Good	Semi-mature	25+	Medium	0.4	No
403	<i>Eucalyptus sp.</i>	1	10-15	1-5	Average	Semi-mature	15-25	Low	0.4	No
404	<i>Eucalyptus sp.</i>	1	15-20	10-15	Average	Mature	25+	Medium	0.6	No
405	<i>Eucalyptus sp.</i>	1	15-20	10-15	Excellent	Mature	25+	Medium	0.6	No
406	<i>Eucalyptus robusta</i>	1	5-10	5-10	Average	Semi-mature	15-25	Low	0.5	No
407	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Semi-mature	15-25	Low	0.5	No
408	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Mature	15-25	Low	0.7	No
409	<i>Brachychiton populneus</i>	1	5-10	1-5	Good	Juvenile	15-25	Medium	0.3	No
410	<i>Eucalyptus camaldulensis</i>	1	5-10	5-10	Average	Semi-mature	25+	Medium	0.6	No
411	<i>Eucalyptus citriodora</i>	1	15-20	10-15	Excellent	Semi-mature	25+	High	0.6	No



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Tag No.	Species name	No. Individuals	Height (m)	Width (m)	Health	Age	ULE	Retention Value	DBH (m)	Black cockatoo habitat tree
412	<i>Eucalyptus sp.</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.5	No
413	<i>Melia azaderach</i>	1	5-10	5-10	Average	Juvenile	15-25	Low	0.3	No
414	<i>Eucalyptus camaldulensis</i>	1	10-15	10-15	Average	Mature	15-25	Medium	0.9	No
415	<i>Eucalyptus camaldulensis</i>	1	15-20	10-15	Average	Mature	15-25	Medium	0.8	No
416	<i>Corymbia citriodora</i>	1	15-20	10-15	Excellent	Semi-mature	25+	High	0.6	No
417	<i>Corymbia calophylla</i>	1	5-10	1-5	Excellent	Juvenile	25+	Low	0.2	No
418	<i>Corymbia citriodora</i>	1	25+	10-15	Excellent	Mature	25+	High	0.8	No
419	<i>Eucalyptus robusta</i>	1	5-10	5-10	Average	Semi-mature	15-25	Medium	0.7	No
420	<i>Corymbia calophylla</i>	1	1-5	1-5	Average	Juvenile	5-15	Low	0.2	No
421	<i>Corymbia calophylla</i>	1	5-10	1-5	Poor	Juvenile	5-15	Low	0.35	No
422	<i>Eucalyptus sp.</i>	1	5-10	1-5	Average	Juvenile	5-15	Low	0.3	No
423	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Mature	5-15	Low	0.6	No
424	<i>Eucalyptus cladocalyx</i>	1	10-15	10-15	Average	Mature	5-15	Low	0.6	No
425	<i>Agonis flexuosa</i>	1	5-10	5-10	Average	Juvenile	15-25	Low	0.4	No
426	<i>Corymbia calophylla</i>	1	1-5	1-5	Average	Juvenile	15-25	Low	0.2	No
427	<i>Eucalyptus camaldulensis</i>	1	5-10	5-10	Excellent	Juvenile	25+	Medium	0.4	No
428	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Juvenile	15-25	Low	0.3	No
429	<i>Eucalyptus camaldulensis</i>	1	15-20	10-15	Average	Semi-mature	15-25	Low	0.5	No
430	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Juvenile	15-25	Low	0.3	No
431	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Juvenile	5-15	Low	0.35	No
432	<i>Eucalyptus camaldulensis</i>	1	15-20	10-15	Good	Juvenile	25+	Medium	0.4	No
433	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Juvenile	5-15	Low	0.4	No
434	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Juvenile	5-15	Low	0.35	No
435	<i>Ulmus parvifolia</i>	1	1-5	5-10	Good	Juvenile	15-25	Low	0.2	No
436	<i>Eucalyptus camaldulensis</i>	1	15-20	10-15	Average	Mature	15-25	High	0.7	No
437	<i>Corymbia maculata</i>	1	10-15	5-10	Excellent	Semi-mature	25+	Medium	0.4	No
438	<i>Corymbia maculata</i>	1	5-10	5-10	Average	Juvenile	15-25	Low	0.3	No
439	<i>Eucalyptus grandis</i>	1	15-20	10-15	Excellent	Semi-mature	25+	High	0.6	No
440	<i>Robinia sp.</i>	1	5-10	1-5	Average	Juvenile	5-15	Low	0.2	No
441	<i>Eucalyptus robusta</i>	1	10-15	5-10	Good	Mature	25+	High	0.6	No



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Tag No.	Species name	No. Individuals	Height (m)	Width (m)	Health	Age	ULE	Retention Value	DBH (m)	Black cockatoo habitat tree
442	<i>Corymbia maculata</i>	1	10-15	5-10	Excellent	Juvenile	25+	Medium	0.2	No
443	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Semi-mature	15-25	Low	0.4	No
444	<i>Corymbia maculata</i>	1	15-20	5-10	Good	Semi-mature	25+	Medium	0.4	No
445	<i>Eucalyptus camaldulensis</i>	1	15-20	10-15	Good	Mature	25+	Medium	0.6	No
446	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Good	Semi-mature	25+	Medium	0.5	No
447	<i>Eucalyptus grandis</i>	1	20-25	10-15	Average	Semi-mature	15-25	Medium	0.6	No
448	<i>Eucalyptus marginata</i>	1	5-10	5-10	Average	Semi-mature	15-25	Medium	0.5	No
449	<i>Banksia attenuata</i>	1	1-5	1-5	Good	Juvenile	25+	Medium	0.2	No
450	<i>Corymbia maculata</i>	1	10-15	5-10	Good	Juvenile	25+	Medium	0.4	No
451	<i>Eucalyptus grandis</i>	1	10-15	5-10	Poor	Semi-mature	0-5	Low	0.5	No
452	<i>Corymbia maculata</i>	1	15-20	5-10	Average	Semi-mature	5-15	Low	0.4	No
453	<i>Corymbia maculata</i>	1	15-20	10-15	Good	Semi-mature	15-25	Medium	0.5	No
454	<i>Eucalyptus grandis</i>	1	15-20	10-15	Excellent	Semi-mature	25+	High	0.5	No
455	<i>Corymbia maculata</i>	1	10-15	5-10	Good	Semi-mature	25+	Medium	0.4	No
456	<i>Allocasuarina fraseriana</i>	1	5-10	1-5	Average	Semi-mature	5-15	Low	0.4	No
457	<i>Eucalyptus grandis</i>	1	15-20	10-15	Good	Mature	15-25	Medium	0.6	No
458	<i>Eucalyptus camaldulensis</i>	1	10-15	10-15	Excellent	Semi-mature	25+	Medium	0.6	No
459	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Excellent	Semi-mature	25+	Medium	0.5	No
460	<i>Eucalyptus leucoxylon</i>	1	10-15	10-15	Excellent	Mature	25+	High	0.8	No
461	<i>Ficus microcarpa</i>	1	10-15	5-10	Excellent	Juvenile	25+	Medium	0.4	No
462	<i>Eucalyptus leucoxylon</i>	1	10-15	10-15	Excellent	Mature	25+	High	0.6	No
463	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Good	Juvenile	25+	Low	0.3	No
464	<i>Eucalyptus camaldulensis</i>	1	10-15	1-5	Good	Juvenile	25+	Medium	0.4	No
465	<i>Eucalyptus camaldulensis</i>	1	5-10	1-5	Good	Juvenile	25+	Low	0.2	No
466	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Excellent	Semi-mature	25+	Medium	0.4	No
467	<i>Ficus microcarpa</i>	1	5-10	5-10	Good	Semi-mature	25+	Low	0.3	No
468	<i>Eucalyptus botryoides</i>	1	15-20	10-15	Average	Mature	15-25	Medium	0.75	No
469	<i>Eucalyptus cladocalyx</i>	1	10-15	10-15	Poor	Mature	5-15	Low	0.6	No
470	<i>Corymbia maculata</i>	1	15-20	5-10	Excellent	Semi-mature	25+	High	0.45	No
471	<i>Eucalyptus leucoxylon</i>	1	5-10	10-15	Excellent	Mature	25+	High	0.7	No



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Tag No.	Species name	No. Individuals	Height (m)	Width (m)	Health	Age	ULE	Retention Value	DBH (m)	Black cockatoo habitat tree
472	<i>Eucalyptus grandis</i>	1	20-25	10-15	Average	Mature	15-25	Medium	1	No
473	<i>Corymbia maculata</i>	1	15-20	10-15	Excellent	Semi-mature	25+	High	0.4	No
474	<i>Eucalyptus cladocalyx</i>	1	10-15	10-15	Average	Semi-mature	15-25	Low	0.45	No
475	<i>Eucalyptus camaldulensis</i>	1	10-15	10-15	Average	Mature	15-25	Medium	0.6	No
476	<i>Olea europaea</i>	1	5-10	5-10	Excellent	Semi-mature	15-25	Low	0.3	No
477	<i>Olea europaea</i>	1	5-10	5-10	Excellent	Semi-mature	15-25	Low	0.3	No
478	<i>Lophostemon confertus</i>	1	10-15	5-10	Average	Semi-mature	15-25	Low	0.4	No
479	<i>Eucalyptus marginata</i>	1	5-10	5-10	Poor	Semi-mature	0-5	Low	0.5	No
480	<i>Eucalyptus grandis</i>	1	20-25	10-15	Excellent	Mature	25+	High	0.8	No
481	<i>Eucalyptus grandis</i>	1	20-25	10-15	Good	Mature	25+	Medium	1	No
482	<i>Eucalyptus grandis</i>	1	20-25	10-15	Good	Mature	15-25	Medium	0.7	No
483	<i>Eucalyptus cladocalyx</i>	1	20-25	10-15	Excellent	Mature	25+	High	0.75	No
484	<i>Eucalyptus grandis</i>	1	20-25	10-15	Good	Mature	15-25	Medium	0.7	No
485	Unknown	1	5-10	1-5	Good	Juvenile	15-25	Low	0.2	No
486	<i>Eucalyptus spathulata</i>	1	5-10	5-10	Poor	Semi-mature	5-15	Low	0.4	No
487	<i>Araucaria columnaris</i>	1	10-15	5-10	Excellent	Semi-mature	25+	High	0.4	No
488	<i>Corymbia maculata</i>	1	10-15	5-10	Excellent	Semi-mature	25+	Medium	0.4	No
489	<i>Corymbia maculata</i>	1	15-20	5-10	Good	Semi-mature	25+	Medium	0.4	No
490	<i>Eucalyptus cladocalyx</i>	1	1-5	5-10	Average	Juvenile	5-15	Low	0.3	No
491	<i>Eucalyptus citriodora</i>	1	15-20	10-15	Average	Mature	5-15	Low	0.65	No
492	<i>Lophostemon confertus</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.4	No
493	<i>Eucalyptus citriodora</i>	1	20-25	10-15	Good	Semi-mature	25+	High	0.6	No
494	<i>Eucalyptus citriodora</i>	1	20-25	10-15	Excellent	Mature	25+	High	0.6	No
495	<i>Corymbia maculata</i>	1	15-20	10-15	Excellent	Semi-mature	25+	Medium	0.4	No
496	<i>Eucalyptus sp.</i>	1	20-25	15-20	Good	Mature	25+	Medium	0.7	No
497	<i>Corymbia maculata</i>	1	20-25	15-20	Excellent	Mature	25+	High	0.9	No
498	<i>Eucalyptus camaldulensis</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.4	No
499	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Juvenile	5-15	Low	0.4	No
500	<i>Eucalyptus sp.</i>	1	10-15	5-10	Average	Semi-mature	5-15	Low	0.4	No
501	<i>Eucalyptus camaldulensis</i>	1	15-20	10-15	Good	Mature	25+	Medium	0.7	No



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502	<i>Corymbia maculata</i>	1	10-15	5-10	Excellent	Semi-mature	25+	Medium	0.3	No
503	<i>Banksia attenuata</i>	1	1-5	5-10	Good	Semi-mature	25+	Medium	0.3	No
504	<i>Corymbia maculata</i>	1	10-15	1-5	Good	Semi-mature	25+	Medium	0.4	No
505	<i>Corymbia maculata</i>	1	10-15	1-5	Good	Semi-mature	25+	Medium	0.3	No
506	<i>Eucalyptus robusta</i>	1	10-15	10-15	Good	Mature	25+	Medium	0.8	No
507	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Mature	15-25	Low	0.5	No
508	<i>Banksia attenuata</i>	2	1-5	1-5	Average	Semi-mature	15-25	Low	0.3	No
509	<i>Corymbia maculata</i>	1	5-10	1-5	Good	Juvenile	15-25	Low	0.4	No
510	<i>Angophora costata</i>	1	10-15	1-5	Excellent	Semi-mature	25+	Medium	0.4	No
511	<i>Eucalyptus gomphocephala</i>	1	5-10	5-10	Good	Semi-mature	25+	Medium	0.5	No
512	<i>Banksia attenuata</i>	2	5-10	5-10	Average	Semi-mature	5-15	Low	0.3	No
513	<i>Corymbia maculata</i>	1	10-15	5-10	Excellent	Semi-mature	25+	Medium	0.3	No
514	<i>Corymbia maculata</i>	1	5-10	1-5	Average	Juvenile	5-15	Low	0.3	No
515	<i>Banksia attenuata</i>	2	5-10	5-10	Average	Mature	0-5	Low	0.5	No
516	<i>Corymbia maculata</i>	1	15-20	10-15	Excellent	Mature	25+	High	0.6	No
517	<i>Corymbia maculata</i>	1	15-20	10-15	Excellent	Semi-mature	25+	Medium	0.4	No
518	<i>Corymbia maculata</i>	1	10-15	10-15	Excellent	Semi-mature	25+	Medium	0.5	No
519	<i>Banksia sp.</i>	1	1-5	1-5	Average	Semi-mature	15-25	Low	0.3	No
520	<i>Banksia attenuata</i>	2	1-5	5-10	Average	Semi-mature	5-15	Low	0.4	No
521	<i>Eucalyptus marginata</i>	1	10-15	5-10	Average	Mature	5-15	Low	0.6	No
522	<i>Eucalyptus marginata</i>	1	5-10	5-10	Poor	Mature	5-15	Low	0.6	No
523	<i>Corymbia maculata</i>	1	10-15	5-10	Excellent	Semi-mature	25+	Medium	0.4	No
524	<i>Corymbia maculata</i>	1	15-20	10-15	Excellent	Mature	25+	High	0.5	No
525	<i>Jacaranda mimosifolia</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.3	No
526	<i>Banksia attenuata</i>	1	1-5	1-5	Poor	Semi-mature	0-5	Low	0.2	No
527	<i>Banksia attenuata</i>	2	1-5	5-10	Average	Semi-mature	5-15	Low	0.3	No
528	<i>Corymbia maculata</i>	1	15-20	10-15	Excellent	Mature	25+	High	0.5	No
529	<i>Corymbia maculata</i>	1	15-20	5-10	Good	Semi-mature	25+	Medium	0.5	No
530	<i>Banksia attenuata</i>	10	1-5	1-5	Poor	Semi-mature	5-15	Low	0.2	No
531	<i>Corymbia maculata</i>	1	15-20	10-15	Excellent	Mature	25+	High	0.6	No



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Tag No.	Species name	No. Individuals	Height (m)	Width (m)	Health	Age	ULE	Retention Value	DBH (m)	Black cockatoo habitat tree
532	<i>Callistemon sp.</i>	1	1-5	5-10	Good	Semi-mature	15-25	Low	0.2	No
533	<i>Banksia attenuata</i>	3	1-5	1-5	Average	Semi-mature	5-15	Low	0.2	No
534	<i>Corymbia maculata</i>	1	5-10	1-5	Excellent	Juvenile	25+	Medium	0.4	No
535	<i>Banksia sp.</i>	1	1-5	1-5	Average	Semi-mature	5-15	Low	0.3	No
536	<i>Eucalyptus marginata</i>	1	1-5	1-5	Average	Juvenile	5-15	Low	0.3	No
537	<i>Banksia attenuata</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.3	No
538	<i>Unknown</i>	1	5-10	1-5	Poor	Juvenile	0-5	Low	0.2	No
539	<i>Banksia sp.</i>	1	5-10	5-10	Good	Mature	15-25	Medium	0.4	No
540	<i>Banksia attenuata</i>	4	1-5	1-5	Average	Semi-mature	5-15	Low	0.2	No
541	<i>Allocasuarina fraseriana</i>	1	5-10	5-10	Poor	Semi-mature	0-5	Low	0.4	No
542	<i>Banksia attenuata</i>	1	1-5	5-10	Average	Semi-mature	5-15	Low	0.2	No
543	<i>Allocasuarina fraseriana</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.6	No
544	<i>Allocasuarina fraseriana</i>	1	5-10	5-10	Average	Mature	5-15	Low	0.8	No
545	<i>Allocasuarina fraseriana</i>	1	5-10	5-10	Average	Mature	5-15	Low	0.7	No
546	<i>Melia azaderach</i>	1	5-10	5-10	Good	Juvenile	25+	Low	0.3	No
547	<i>Eucalyptus citriodora</i>	1	10-15	5-10	Good	Juvenile	25+	Medium	0.5	No
548	<i>Corymbia ficifolia</i>	1	5-10	5-10	Excellent	Semi-mature	15-25	Medium	0.5	No
549	<i>Eucalyptus citriodora</i>	1	20-25	15-20	Excellent	Mature	25+	High	0.8	No
550	<i>Eucalyptus camaldulensis</i>	1	15-20	15-20	Good	Mature	15-25	Medium	0.85	No
551	<i>Eucalyptus camaldulensis</i>	1	15-20	10-15	Average	Mature	15-25	Medium	0.7	No
552	<i>Eucalyptus camaldulensis</i>	1	15-20	5-10	Average	Semi-mature	15-25	Low	0.5	No
553	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Juvenile	15-25	Low	0.3	No
554	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Juvenile	15-25	Low	0.4	No
555	<i>Eucalyptus camaldulensis</i>	1	15-20	10-15	Average	Mature	15-25	Low	0.7	No
556	<i>Eucalyptus camaldulensis</i>	1	15-20	10-15	Average	Semi-mature	5-15	Low	0.6	No
557	<i>Eucalyptus camaldulensis</i>	1	15-20	5-10	Average	Mature	15-25	Medium	0.5	No
558	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Mature	15-25	Low	0.5	No
559	<i>Eucalyptus camaldulensis</i>	1	15-20	10-15	Good	Mature	25+	Medium	0.6	No
560	<i>Eucalyptus camaldulensis</i>	1	15-20	10-15	Average	Mature	15-25	Medium	1.1	No
561	<i>Eucalyptus camaldulensis</i>	1	15-20	15-20	Average	Mature	5-15	Low	0.7	No



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Tag No.	Species name	No. Individuals	Height (m)	Width (m)	Health	Age	ULE	Retention Value	DBH (m)	Black cockatoo habitat tree
562	<i>Eucalyptus marginata</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.5	No
563	<i>Eucalyptus citriodora</i>	1	15-20	10-15	Good	Semi-mature	25+	Medium	0.5	No
564	<i>Eucalyptus grandis</i>	1	10-15	5-10	Average	Juvenile	15-25	Low	0.4	No
565	<i>Eucalyptus grandis</i>	1	10-15	5-10	Average	Juvenile	15-25	Low	0.4	No
566	<i>Corymbia maculata</i>	1	15-20	10-15	Good	Semi-mature	25+	Medium	0.6	No
567	<i>Allocasuarina fraseriana</i>	1	10-15	5-10	Poor	Mature	0-5	Low	0.5	No
568	<i>Corymbia maculata</i>	1	10-15	5-10	Good	Semi-mature	25+	Medium	0.4	No
569	<i>Corymbia maculata</i>	1	10-15	5-10	Good	Semi-mature	25+	Medium	0.4	No
570	<i>Agonis flexuosa</i>	1	1-5	5-10	Good	Juvenile	15-25	Low	0.2	No
571	<i>Schinus molle</i>	1	5-10	10-15	Good	Mature	15-25	Low	0.7	No
572	<i>Ficus microcarpa</i>	1	5-10	10-15	Excellent	Semi-mature	25+	Medium	0.6	No
573	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Good	Semi-mature	25+	Medium	0.3	No
574	<i>Eucalyptus cladocalyx</i>	1	10-15	5-10	Average	Juvenile	5-15	Low	0.3	No
575	<i>Ulmus parvifolia</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.2	No
576	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Good	Semi-mature	25+	Medium	0.45	No
577	<i>Melia azaderach</i>	1	5-10	1-5	Good	Juvenile	25+	Low	0.2	No
578	<i>Eucalyptus leucoxylon</i>	1	1-5	5-10	Average	Juvenile	15-25	Low	0.2	No
579	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.2	No
580	<i>Corymbia ficifolia</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.2	No
581	<i>Corymbia maculata</i>	1	15-20	10-15	Excellent	Semi-mature	25+	Medium	0.5	No
582	<i>Eucalyptus cladocalyx</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.5	No
583	<i>Corymbia maculata</i>	1	5-10	1-5	Good	Juvenile	25+	Low	0.2	No
584	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.3	No
585	<i>Eucalyptus citriodora</i>	1	20-25	15-20	Excellent	Mature	25+	High	1	No
586	<i>Eucalyptus marginata</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.3	No
587	<i>Banksia attenuata</i>	1	1-5	1-5	Average	Juvenile	5-15	Low	0.2	No
588	<i>Robinia sp.</i>	1	5-10	1-5	Good	Juvenile	15-25	Low	0.1	No
589	<i>Quercus robur</i>	1	10-15	10-15	Excellent	Juvenile	25+	High	0.4	No
590	<i>Banksia ilicifolia</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.4	No
591	<i>Eucalyptus robusta</i>	1	10-15	5-10	Good	Semi-mature	15-25	Medium	0.5	No



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Tag No.	Species name	No. Individuals	Height (m)	Width (m)	Health	Age	ULE	Retention Value	DBH (m)	Black cockatoo habitat tree
592	<i>Corymbia calophylla</i>	1	10-15	5-10	Good	Juvenile	15-25	Low	0.4	No
593	<i>Cupressus</i> sp.	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.4	No
594	<i>Ulmus parvifolia</i>	1	5-10	10-15	Good	Juvenile	25+	Low	0.3	No
595	<i>Eucalyptus grandis</i>	1	20-25	10-15	Average	Mature	15-25	Medium	0.8	No
596	<i>Corymbia citriodora</i>	1	15-20	10-15	Good	Mature	15-25	Medium	0.6	No
597	<i>Angophora costata</i>	1	10-15	10-15	Excellent	Semi-mature	25+	Medium	0.4	No
598	<i>Eucalyptus camaldulensis</i>	1	10-15	1-5	Good	Juvenile	25+	Low	0.3	No
599	<i>Callistemon</i> sp.	1	5-10	5-10	Good	Juvenile	15-25	Low	0.2	No
600	<i>Eucalyptus spathulata</i>	1	5-10	5-10	Average	Juvenile	15-25	Low	0.2	No
601	<i>Eucalyptus spathulata</i>	1	5-10	5-10	Average	Juvenile	15-25	Low	0.2	No
602	<i>Eucalyptus grandis</i>	1	15-20	10-15	Good	Mature	25+	Medium	0.7	No
603	<i>Corymbia calophylla</i>	1	10-15	5-10	Good	Semi-mature	15-25	Medium	0.5	No
604	<i>Jacaranda mimosifolia</i>	1	5-10	5-10	Good	Juvenile	15-25	Low	0.2	No
605	<i>Corymbia maculata</i>	1	15-20	10-15	Excellent	Semi-mature	25+	Medium	0.5	No
606	<i>Corymbia citriodora</i>	1	15-20	5-10	Excellent	Mature	25+	High	0.6	No
607	<i>Eucalyptus grandis</i>	1	20-25	15-20	Good	Mature	25+	Medium	1	No
608	<i>Corymbia calophylla</i>	1	10-15	10-15	Good	Mature	25+	Medium	0.6	No
609	<i>Corymbia maculata</i>	1	10-15	5-10	Good	Semi-mature	25+	Medium	0.4	No
610	<i>Eucalyptus leucoxylon</i>	1	5-10	10-15	Excellent	Semi-mature	25+	Medium	0.5	No
611	<i>Corymbia maculata</i>	1	5-10	5-10	Good	Juvenile	15-25	Low	0.2	No
612	<i>Eucalyptus</i> sp.	1	15-20	10-15	Excellent	Mature	25+	High	0.7	No
613	<i>Eucalyptus robusta</i>	1	10-15	10-15	Average	Mature	5-15	Medium	1	No
614	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Average	Semi-mature	15-25	Low	0.35	No
615	<i>Eucalyptus camaldulensis</i>	1	15-20	10-15	Average	Mature	15-25	Low	0.6	No
616	<i>Banksia attenuata</i>	1	5-10	5-10	Average	Semi-mature	15-25	Medium	0.3	No
617	<i>Eucalyptus camaldulensis</i>	1	10-15	10-15	Average	Semi-mature	5-15	Low	0.6	No
618	<i>Eucalyptus robusta</i>	1	10-15	5-10	Good	Juvenile	15-25	Low	0.4	No
619	<i>Eucalyptus</i> sp.	1	10-15	5-10	Average	Juvenile	15-25	Low	0.5	No
620	<i>Eucalyptus</i> sp.	1	15-20	10-15	Good	Mature	25+	Medium	0.65	No
621	<i>Corymbia maculata</i>	1	15-20	10-15	Excellent	Semi-mature	25+	Medium	0.4	No



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622	<i>Eucalyptus sp.</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.4	No
623	<i>Eucalyptus sp.</i>	1	10-15	10-15	Good	Semi-mature	25+	Medium	0.5	No
624	<i>Eucalyptus sp.</i>	1	10-15	10-15	Good	Mature	25+	Medium	0.6	No
625	<i>Banksia ilicifolia</i>	1	5-10	1-5	Average	Semi-mature	5-15	Low	0.3	No
626	<i>Corymbia maculata</i>	1	15-20	10-15	Excellent	Mature	25+	Medium	0.5	No
627	<i>Corymbia maculata</i>	1	15-20	10-15	Good	Mature	15-25	Medium	0.6	No
628	<i>Eucalyptus sp.</i>	1	15-20	10-15	Excellent	Mature	25+	High	0.6	No
629	<i>Eucalyptus sp.</i>	1	15-20	10-15	Excellent	Mature	15-25	Medium	0.6	No
630	<i>Eucalyptus sp.</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.4	No
631	<i>Corymbia maculata</i>	1	10-15	5-10	Excellent	Juvenile	25+	Low	0.3	No
632	<i>Corymbia calophylla</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.4	No
633	<i>Corymbia maculata</i>	1	15-20	10-15	Good	Mature	25+	Medium	0.8	No
634	<i>Eucalyptus grandis</i>	1	15-20	10-15	Good	Mature	25+	Medium	0.75	No
635	<i>Eucalyptus sp.</i>	1	10-15	5-10	Good	Juvenile	25+	Low	0.3	No
636	<i>Corymbia maculata</i>	1	5-10	1-5	Good	Juvenile	25+	Low	0.2	No
637	<i>Eucalyptus leucoxylon</i>	1	5-10	10-15	Good	Semi-mature	25+	Medium	0.5	No
638	<i>Eucalyptus nicholii</i>	1	10-15	5-10	Average	Mature	15-25	Medium	0.6	No
639	<i>Eucalyptus camaldulensis</i>	1	10-15	1-5	Average	Juvenile	15-25	Low	0.2	No
640	<i>Eucalyptus citriodora</i>	1	10-15	5-10	Poor	Semi-mature	5-15	Low	0.4	No
641	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Juvenile	15-25	Low	0.2	No
642	<i>Eucalyptus cladocalyx</i>	1	10-15	5-10	Good	Juvenile	15-25	Low	0.3	No
643	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Good	Semi-mature	25+	Medium	0.4	No
644	<i>Eucalyptus leucoxylon</i>	1	5-10	10-15	Good	Mature	25+	Medium	0.5	No
645	<i>Grevillea robusta</i>	1	5-10	1-5	Poor	Juvenile	0-5	Low	0.2	No
646	<i>Eucalyptus cladocalyx</i>	1	10-15	5-10	Good	Semi-mature	25+	Medium	0.3	No
647	<i>Eucalyptus sp.</i>	1	10-15	1-5	Good	Juvenile	25+	Low	0.3	No
648	<i>Eucalyptus camaldulensis</i>	1	10-15	10-15	Average	Mature	15-25	Low	0.5	No
649	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Good	Semi-mature	25+	Medium	0.4	No
650	<i>Lophostemon confertus</i>	1	10-15	5-10	Poor	Juvenile	5-15	Low	0.4	No
651	<i>Eucalyptus leucoxylon</i>	1	1-5	5-10	Good	Juvenile	15-25	Low	0.3	No



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652	<i>Eucalyptus cladocalyx</i>	1	10-15	5-10	Good	Semi-mature	25+	Low	0.45	No
653	<i>Corymbia maculata</i>	1	10-15	5-10	Good	Semi-mature	25+	Medium	0.4	No
654	<i>Corymbia calophylla</i>	1	5-10	10-15	Good	Semi-mature	25+	Medium	0.55	No
655	<i>Eucalyptus camaldulensis</i>	1	15-20	10-15	Good	Mature	25+	High	0.5	No
656	<i>Corymbia maculata</i>	1	15-20	5-10	Excellent	Semi-mature	25+	Medium	0.4	No
657	<i>Eucalyptus camaldulensis</i>	1	15-20	5-10	Good	Semi-mature	25+	Low	0.4	No
658	<i>Eucalyptus camaldulensis</i>	1	5-10	5-10	Good	Semi-mature	25+	Medium	0.3	No
659	<i>Brachychiton populneus</i>	1	5-10	1-5	Excellent	Juvenile	25+	Medium	0.2	No
660	<i>Eucalyptus camaldulensis</i>	1	10-15	10-15	Good	Mature	25+	Medium	0.5	No
661	<i>Eucalyptus camaldulensis</i>	1	10-15	10-15	Good	Semi-mature	25+	Low	0.5	No
662	<i>Eucalyptus cladocalyx</i>	1	15-20	15-20	Good	Mature	25+	High	0.7	No
663	<i>Eucalyptus camaldulensis</i>	1	15-20	5-10	Average	Semi-mature	15-25	Low	0.3	No
664	<i>Eucalyptus sp.</i>	1	15-20	10-15	Good	Mature	25+	High	0.7	No
665	<i>Corymbia maculata</i>	1	15-20	10-15	Excellent	Semi-mature	25+	Medium	0.45	No
666	<i>Araucaria columnaris</i>	1	5-10	1-5	Good	Juvenile	25+	Low	0.2	No
667	<i>Eucalyptus citriodora</i>	1	10-15	5-10	Good	Semi-mature	25+	Medium	0.4	No
668	<i>Lophostemon confertus</i>	1	10-15	10-15	Excellent	Mature	25+	Low	0.6	No
669	<i>Robinia sp.</i>	1	5-10	1-5	Poor	Semi-mature	0-5	Low	0.2	No
670	<i>Eucalyptus sp.</i>	1	10-15	5-10	Average	Mature	25+	Medium	1	No
671	<i>Eucalyptus patens</i>	1	5-10	5-10	Average	Juvenile	15-25	Low	0.5	No
672	<i>Banksia attenuata</i>	1	5-10	1-5	Average	Semi-mature	5-15	Low	0.35	No
673	<i>Banksia attenuata</i>	1	5-10	5-10	Good	Semi-mature	15-25	Medium	0.3	No
674	<i>Eucalyptus marginata</i>	1	10-15	10-15	Good	Mature	25+	Medium	0.7	No
675	<i>Corymbia citriodora</i>	1	15-20	10-15	Good	Mature	25+	Medium	0.6	No
676	<i>Corymbia citriodora</i>	1	15-20	10-15	Good	Mature	25+	Medium	0.7	No
677	<i>Erythrina sykesii</i>	1	5-10	5-10	Good	Mature	25+	Low	0.6	No
678	<i>Eucalyptus leucoxydon</i>	1	5-10	5-10	Good	Mature	15-25	Low	0.55	No
679	<i>Corymbia citriodora</i>	1	20-25	10-15	Excellent	Mature	25+	High	0.9	No
680	<i>Corymbia citriodora</i>	1	15-20	10-15	Good	Semi-mature	25+	Medium	0.4	No
681	<i>Corymbia citriodora</i>	1	10-15	5-10	Average	Semi-mature	5-15	Low	0.4	No



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Tag No.	Species name	No. Individuals	Height (m)	Width (m)	Health	Age	ULE	Retention Value	DBH (m)	Black cockatoo habitat tree
682	<i>Corymbia citriodora</i>	1	15-20	5-10	Average	Semi-mature	15-25	Low	0.45	No
683	<i>Corymbia citriodora</i>	1	10-15	1-5	Average	Semi-mature	5-15	Low	0.4	No
684	<i>Corymbia citriodora</i>	1	15-20	10-15	Excellent	Mature	25+	High	0.6	No
685	<i>Eucalyptus camaldulensis</i>	1	15-20	10-15	Average	Mature	25+	Medium	0.6	No
686	<i>Corymbia maculata</i>	1	10-15	10-15	Excellent	Mature	25+	High	0.6	No
687	<i>Eucalyptus nicholii</i>	1	10-15	10-15	Excellent	Mature	25+	High	0.7	No
688	<i>Eucalyptus nicholii</i>	1	5-10	10-15	Average	Mature	25+	Medium	0.6	No
689	<i>Corymbia maculata</i>	1	10-15	5-10	Good	Semi-mature	15-25	Low	0.3	No
690	<i>Corymbia maculata</i>	1	15-20	5-10	Poor	Semi-mature	5-15	Low	0.4	No
691	<i>Eucalyptus nicholii</i>	1	10-15	10-15	Excellent	Mature	25+	High	0.8	No
692	<i>Eucalyptus nicholii</i>	1	10-15	10-15	Good	Mature	25+	Medium	0.6	No
694	<i>Eucalyptus nicholii</i>	1	5-10	5-10	Good	Semi-mature	25+	Medium	0.4	No
695	<i>Corymbia maculata</i>	1	10-15	5-10	Average	Semi-mature	15-25	Low	0.4	No
696	<i>Allocasuarina fraseriana</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.5	No
697	<i>Eucalyptus nicholii</i>	1	15-20	10-15	Good	Mature	15-25	High	1.3	No
698	<i>Banksia attenuata</i>	1	5-10	1-5	Average	Semi-mature	5-15	Low	0.3	No
699	<i>Eucalyptus nicholii</i>	1	10-15	5-10	Good	Mature	25+	Medium	0.7	No
700	<i>Banksia ilicifolia</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.3	No
701	<i>Banksia attenuata</i>	2	5-10	1-5	Average	Semi-mature	5-15	Low	0.3	No
702	<i>Leptospermum laevigatum</i>	1	5-10	5-10	Average	Mature	5-15	Low	0.3	No
703	<i>Eucalyptus nicholii</i>	1	15-20	5-10	Good	Mature	25+	Medium	0.7	No
704	<i>Eucalyptus sp.</i>	1	10-15	5-10	Good	Semi-mature	25+	Medium	0.5	No
705	<i>Cupressus sp.</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.4	No
706	<i>Callistemon sp.</i>	1	5-10	5-10	Average	Mature	5-15	Low	0.4	No
707	<i>Cupressus sp.</i>	1	5-10	5-10	Average	Mature	5-15	Low	0.6	No
708	<i>Callistemon sp.</i>	1	1-5	5-10	Average	Mature	5-15	Low	0.4	No
709	<i>Eucalyptus sideroxylon</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.3	No
710	<i>Melia azaderach</i>	1	1-5	1-5	Average	Juvenile	5-15	Low	0.2	No
711	<i>Eucalyptus leucoxylon</i>	1	1-5	5-10	Average	Semi-mature	5-15	Low	0.4	No
712	<i>Unknown</i>	1	5-10	5-10	Poor	Mature	0-5	Low	0.7	No



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Tag No.	Species name	No. Individuals	Height (m)	Width (m)	Health	Age	ULE	Retention Value	DBH (m)	Black cockatoo habitat tree
713	<i>Eucalyptus grandis</i>	1	15-20	15-20	Excellent	Mature	25+	High	0.8	No
714	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Average	Juvenile	15-25	Low	0.2	No
715	<i>Corymbia maculata</i>	1	10-15	5-10	Excellent	Semi-mature	25+	Medium	0.4	No
716	Unknown	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.3	No
717	<i>Corymbia maculata</i>	1	10-15	5-10	Excellent	Semi-mature	25+	Medium	0.4	No
718	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.2	No
719	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Excellent	Semi-mature	25+	Medium	0.2	No
720	<i>Corymbia maculata</i>	1	10-15	5-10	Excellent	Semi-mature	25+	Medium	0.4	No
721	<i>Eucalyptus leucoxylon</i>	1	1-5	5-10	Average	Semi-mature	5-15	Low	0.35	No
722	<i>Eucalyptus sideroxylon</i>	1	5-10	5-10	Good	Semi-mature	25+	Medium	0.4	No
723	<i>Eucalyptus nicholii</i>	1	5-10	5-10	Excellent	Semi-mature	25+	Medium	0.5	No
724	<i>Eucalyptus citriodora</i>	1	10-15	5-10	Excellent	Juvenile	25+	Medium	0.2	No
725	<i>Corymbia maculata</i>	1	10-15	5-10	Excellent	Semi-mature	25+	Medium	0.4	No
726	<i>Eucalyptus camaldulensis</i>	1	5-10	1-5	Good	Juvenile	25+	Low	0.2	No
727	<i>Eucalyptus cladocalyx</i>	1	5-10	1-5	Excellent	Juvenile	25+	Low	0.2	No
728	<i>Corymbia maculata</i>	1	10-15	5-10	Good	Semi-mature	25+	Low	0.3	No
729	Unknown	1	5-10	5-10	Poor	Mature	0-5	Low	0.5	No
730	<i>Eucalyptus camaldulensis</i>	1	10-15	1-5	Good	Juvenile	25+	Low	0.2	No
731	<i>Eucalyptus cladocalyx</i>	1	5-10	5-10	Good	Juvenile	25+	Low	0.2	No
732	<i>Eucalyptus camaldulensis</i>	1	5-10	1-5	Good	Juvenile	25+	Low	0.2	No
733	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Good	Semi-mature	25+	Medium	0.4	No
734	<i>Eucalyptus camaldulensis</i>	2	10-15	5-10	Good	Juvenile	25+	Low	0.2	No
735	<i>Eucalyptus sideroxylon</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.4	No
736	<i>Eucalyptus camaldulensis</i>	1	5-10	1-5	Good	Juvenile	25+	Low	0.2	No
737	<i>Corymbia maculata</i>	1	10-15	5-10	Good	Semi-mature	25+	Medium	0.3	No
738	<i>Eucalyptus camaldulensis</i>	1	10-15	1-5	Good	Juvenile	25+	Low	0.2	No
739	<i>Eucalyptus cladocalyx</i>	1	5-10	5-10	Good	Juvenile	25+	Low	0.2	No
740	<i>Eucalyptus camaldulensis</i>	1	15-20	10-15	Good	Mature	25+	Medium	0.5	No
741	<i>Eucalyptus leucoxylon</i>	1	1-5	5-10	Average	Semi-mature	5-15	Low	0.2	No
742	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Average	Semi-mature	15-25	Low	0.2	No



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Tag No.	Species name	No. Individuals	Height (m)	Width (m)	Health	Age	ULE	Retention Value	DBH (m)	Black cockatoo habitat tree
743	<i>Banksia attenuata</i>	1	5-10	5-10	Good	Mature	15-25	Medium	0.3	No
744	<i>Banksia attenuata</i>	15	5-10	5-10	Good	Mature	15-25	Medium	0.3	No
745	<i>Ficus microcarpa</i>	7	5-10	5-10	Good	Semi-mature	15-25	Medium	0.3	No
746	<i>Corymbia maculata</i>	1	10-15	5-10	Good	Mature	25+	Medium	0.4	No
747	<i>Eucalyptus sideroxylon</i>	1	5-10	5-10	Good	Semi-mature	25+	Medium	0.4	No
748	<i>Melaleuca quinquenervia</i>	1	5-10	5-10	Good	Semi-mature	25+	Medium	0.5	No
749	<i>Unknown</i>	2	5-10	5-10	Poor	Semi-mature	0-5	Low	0.3	No
750	<i>Fraxinus ornus</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.2	No
751	<i>Syzygium smithii</i>	2	5-10	5-10	Good	Juvenile	15-25	Low	0.2	No
752	<i>Melia azaderach</i>	1	10-15	10-15	Good	Mature	25+	Low	0.7	No
753	<i>Corymbia maculata</i>	1	15-20	5-10	Good	Semi-mature	25+	Medium	0.5	No
754	<i>Melia azaderach</i>	1	5-10	5-10	Good	Semi-mature	25+	Low	0.4	No
755	<i>Eucalyptus sideroxylon</i>	1	10-15	5-10	Good	Semi-mature	15-25	Medium	0.4	No
756	<i>Eucalyptus leucoxylon</i>	1	5-10	10-15	Good	Mature	25+	Medium	0.5	No
757	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.3	No
758	<i>Eucalyptus grandis</i>	1	15-20	10-15	Excellent	Semi-mature	25+	Medium	0.4	No
759	<i>Eucalyptus sp.</i>	1	5-10	5-10	Good	Juvenile	15-25	Low	0.3	No
760	<i>Eucalyptus botryoides</i>	1	5-10	5-10	Good	Juvenile	15-25	Low	0.2	No
761	<i>Eucalyptus sideroxylon</i>	1	10-15	5-10	Good	Semi-mature	25+	Medium	0.4	No
762	<i>Eucalyptus grandis</i>	1	15-20	10-15	Good	Juvenile	25+	Low	0.3	No
763	<i>Eucalyptus sideroxylon</i>	1	5-10	5-10	Good	Semi-mature	25+	Medium	0.4	No
764	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Average	Mature	5-15	Low	0.3	No
765	<i>Callistemon sp.</i>	1	1-5	5-10	Average	Semi-mature	5-15	Low	0.3	No
766	<i>Eucalyptus cladocalyx</i>	1	5-10	5-10	Good	Juvenile	15-25	Low	0.2	No
767	<i>Schinus molle</i>	1	1-5	5-10	Average	Semi-mature	5-15	Low	0.2	No
768	<i>Eucalyptus cladocalyx</i>	1	5-10	5-10	Good	Juvenile	15-25	Low	0.3	No
769	<i>Eucalyptus cladocalyx</i>	1	5-10	5-10	Good	Juvenile	15-25	Low	0.3	No
770	<i>Eucalyptus camaldulensis</i>	1	5-10	1-5	Average	Juvenile	5-15	Low	0.2	No
771	<i>Eucalyptus leucoxylon</i>	1	1-5	5-10	Average	Semi-mature	5-15	Low	0.3	No
772	<i>Corymbia calophylla</i>	1	5-10	5-10	Average	Juvenile	15-25	Medium	0.3	No



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773	<i>Eucalyptus leucoxydon</i>	1	5-10	5-10	Average	Semi-mature	15-25	Low	0.4	No
774	<i>Corymbia maculata</i>	1	5-10	1-5	Good	Juvenile	15-25	Low	0.2	No
775	<i>Eucalyptus leucoxydon</i>	1	5-10	5-10	Average	Juvenile	15-25	Low	0.25	No
776	<i>Acacia sp.</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.2	No
777	<i>Schinus molle</i>	1	1-5	5-10	Good	Juvenile	15-25	Low	0.2	No
778	<i>Eucalyptus sideroxylon</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.3	No
779	<i>Acacia sp.</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.3	No
780	<i>Eucalyptus sideroxylon</i>	1	10-15	5-10	Average	Semi-mature	5-15	Low	0.3	No
781	<i>Corymbia calophylla</i>	1	15-20	10-15	Good	Semi-mature	25+	High	0.6	No
782	<i>Eucalyptus sideroxylon</i>	1	10-15	5-10	Average	Juvenile	15-25	Low	0.3	No
783	<i>Eucalyptus camaldulensis</i>	1	10-15	1-5	Good	Juvenile	15-25	Low	0.25	No
784	<i>Eucalyptus cladocalyx</i>	1	5-10	5-10	Excellent	Juvenile	25+	Medium	0.2	No
785	<i>Fraxinus sp.</i>	3	1-5	1-5	Poor	Semi-mature	0-5	Low	0.1	No
786	<i>Melia azaderach</i>	4	5-10	1-5	Poor	Juvenile	0-5	Low	0.2	No
787	<i>Eucalyptus camaldulensis</i>	1	5-10	1-5	Good	Juvenile	5-15	Low	0.2	No
788	<i>Allocasuarina fraseriana</i>	1	5-10	1-5	Average	Juvenile	5-15	Low	0.2	No
789	<i>Acacia sp.</i>	1	10-15	10-15	Average	Mature	5-15	Low	0.6	No
790	<i>Corymbia maculata</i>	1	15-20	10-15	Excellent	Mature	25+	High	0.5	No
791	<i>Banksia attenuata</i>	3	5-10	1-5	Average	Semi-mature	5-15	Low	0.2	No
792	<i>Eucalyptus sp.</i>	1	5-10	1-5	Poor	Semi-mature	5-15	Low	0.3	No
793	<i>Banksia attenuata</i>	3	5-10	1-5	Average	Mature	5-15	Low	0.3	No
794	<i>Eucalyptus grandis</i>	1	10-15	5-10	Good	Semi-mature	25+	Medium	0.5	No
795	<i>Banksia attenuata</i>	1	1-5	1-5	Poor	Semi-mature	5-15	Low	0.2	No
796	<i>Corymbia calophylla</i>	1	5-10	1-5	Average	Juvenile	5-15	Low	0.3	No
797	<i>Banksia attenuata</i>	1	5-10	5-10	Average	Mature	5-15	Low	0.3	No
798	<i>Eucalyptus marginata</i>	8	5-10	5-10	Average	Juvenile	15-25	Medium	0.3	No
799	<i>Banksia attenuata</i>	8	1-5	1-5	Average	Semi-mature	5-15	Low	0.2	No
800	<i>Corymbia ficifolia</i>	1	1-5	1-5	Average	Juvenile	5-15	Low	0.2	No
801	<i>Corymbia ficifolia</i>	1	1-5	1-5	Average	Juvenile	5-15	Low	0.2	No
802	<i>Eucalyptus sp.</i>	2	1-5	5-10	Good	Juvenile	15-25	Low	0.3	No



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Tag No.	Species name	No. Individuals	Height (m)	Width (m)	Health	Age	ULE	Retention Value	DBH (m)	Black cockatoo habitat tree
803	<i>Eucalyptus sp.</i>	1	5-10	5-10	Excellent	Semi-mature	25+	Medium	0.4	No
804	<i>Eucalyptus sp.</i>	1	5-10	5-10	Excellent	Semi-mature	25+	Medium	0.4	No
805	<i>Eucalyptus sp.</i>	1	10-15	5-10	Good	Semi-mature	25+	Medium	0.4	No
806	<i>Schinus molle</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.4	No
807	<i>Schinus molle</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.3	No
808	<i>Unknown</i>	1	5-10	1-5	Poor	Juvenile	5-15	Low	0.2	No
809	<i>Unknown</i>	1	10-15	1-5	Average	Semi-mature	15-25	Low	0.3	No
810	<i>Erythrina sykei</i>	1	10-15	10-15	Good	Mature	15-25	Low	0.6	No
811	<i>Unknown</i>	1	10-15	1-5	Good	Semi-mature	15-25	Low	0.2	No
812	<i>Erythrina sykei</i>	1	10-15	10-15	Average	Mature	15-25	Low	0.7	No
813	<i>Melaleuca quinquenervia</i>	1	10-15	10-15	Excellent	Mature	25+	High	0.9	No
814	<i>Lophostemon confertus</i>	1	5-10	1-5	Average	Juvenile	5-15	Low	0.2	No
815	<i>Lophostemon confertus</i>	1	10-15	5-10	Good	Semi-mature	15-25	Low	0.4	No
816	<i>Eucalyptus marginata</i>	1	10-15	10-15	Average	Semi-mature	15-25	Medium	0.75	No
817	<i>Eucalyptus marginata</i>	1	5-10	5-10	Average	Semi-mature	15-25	Medium	0.5	No
818	<i>Ficus microcarpa</i>	1	10-15	10-15	Excellent	Semi-mature	25+	Medium	0.6	No
819	<i>Banksia attenuata</i>	10	5-10	1-5	Poor	Semi-mature	5-15	Low	0.2	No
820	<i>Corymbia ficifolia</i>	1	5-10	5-10	Good	Semi-mature	15-25	Medium	0.4	No
821	<i>Banksia attenuata</i>	2	1-5	1-5	Poor	Semi-mature	5-15	Low	0.2	No
822	<i>Eucalyptus marginata</i>	1	5-10	1-5	Average	Juvenile	5-15	Low	0.2	No
823	<i>Melaleuca preissiana</i>	1	5-10	10-15	Average	Mature	5-15	Low	0.4	No
824	<i>Schinus molle</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.5	No
825	<i>Corymbia maculata</i>	1	10-15	1-5	Average	Juvenile	5-15	Low	0.3	No
826	<i>Eucalyptus sp.</i>	1	15-20	10-15	Excellent	Mature	25+	High	0.7	No
827	<i>Corymbia maculata</i>	1	10-15	5-10	Average	Juvenile	5-15	Low	0.3	No
828	<i>Eucalyptus grandis</i>	1	15-20	10-15	Good	Mature	25+	Medium	0.7	No
829	<i>Acacia sp.</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.4	No
830	<i>Eucalyptus grandis</i>	1	10-15	1-5	Excellent	Juvenile	25+	Low	0.2	No
831	<i>Acacia sp.</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.3	No
832	<i>Acacia sp.</i>	1	5-10	1-5	Average	Juvenile	5-15	Low	0.2	No



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Tag No.	Species name	No. Individuals	Height (m)	Width (m)	Health	Age	ULE	Retention Value	DBH (m)	Black cockatoo habitat tree
833	<i>Eucalyptus grandis</i>	1	10-15	5-10	Good	Juvenile	25+	Low	0.2	No
834	<i>Acacia sp.</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.3	No
835	<i>Eucalyptus grandis</i>	1	10-15	1-5	Excellent	Juvenile	25+	Low	0.2	No
836	<i>Eucalyptus grandis</i>	1	10-15	5-10	Good	Juvenile	25+	Low	0.3	No
837	<i>Eucalyptus grandis</i>	1	15-20	10-15	Good	Semi-mature	25+	Medium	0.4	No
838	<i>Eucalyptus grandis</i>	1	15-20	10-15	Good	Semi-mature	25+	Medium	0.4	No
839	<i>Acacia sp.</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.2	No
840	<i>Corymbia ficifolia</i>	1	1-5	5-10	Average	Semi-mature	5-15	Low	0.3	No
841	<i>Jacaranda mimosifolia</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.3	No
842	<i>Cupressus sp.</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.5	No
843	<i>Eucalyptus sp.</i>	1	15-20	5-10	Good	Mature	25+	Medium	0.5	No
844	<i>Eucalyptus sp.</i>	1	15-20	5-10	Good	Mature	25+	Medium	0.5	No
845	<i>Eucalyptus sp.</i>	1	10-15	1-5	Average	Juvenile	15-25	Low	0.3	No
846	<i>Eucalyptus sp.</i>	1	10-15	1-5	Average	Juvenile	5-15	Low	0.3	No
847	<i>Eucalyptus sp.</i>	1	15-20	15-20	Excellent	Mature	25+	High	0.7	No
848	<i>Eucalyptus grandis</i>	1	15-20	10-15	Good	Semi-mature	25+	Low	0.3	No
849	<i>Corymbia calophylla</i>	1	10-15	10-15	Good	Semi-mature	15-25	Medium	0.4	No
850	<i>Jacaranda mimosifolia</i>	1	10-15	1-5	Average	Juvenile	5-15	Low	0.2	No
851	<i>Eucalyptus sp.</i>	1	10-15	10-15	Good	Mature	25+	Medium	0.7	No
852	<i>Eucalyptus sp.</i>	1	10-15	5-10	Good	Semi-mature	15-25	Medium	0.4	No
853	<i>Eucalyptus sp.</i>	1	10-15	5-10	Good	Semi-mature	15-25	Low	0.5	No
854	<i>Eucalyptus sp.</i>	1	10-15	10-15	Good	Semi-mature	25+	Medium	0.5	No
855	<i>Callistemon sp.</i>	1	1-5	5-10	Average	Semi-mature	5-15	Low	0.2	No
856	<i>Corymbia calophylla</i>	1	5-10	5-10	Poor	Semi-mature	0-5	Low	0.3	No
857	<i>Eucalyptus sp.</i>	1	5-10	1-5	Average	Juvenile	15-25	Low	0.3	No
858	<i>Angophora costata</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.4	No
859	<i>Eucalyptus camaldulensis</i>	1	5-10	1-5	Average	Juvenile	5-15	Low	0.2	No
860	<i>Corymbia ficifolia</i>	1	1-5	1-5	Poor	Juvenile	0-5	Low	0.2	No
861	<i>Eucalyptus grandis</i>	1	10-15	5-10	Excellent	Juvenile	25+	Medium	0.4	No
862	<i>Corymbia ficifolia</i>	1	5-10	5-10	Average	Juvenile	15-25	Low	0.2	No



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Tag No.	Species name	No. Individuals	Height (m)	Width (m)	Health	Age	ULE	Retention Value	DBH (m)	Black cockatoo habitat tree
863	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Good	Mature	25+	Medium	0.5	No
864	<i>Eucalyptus nicholii</i>	1	10-15	5-10	Poor	Mature	5-15	Low	0.6	No
865	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Good	Semi-mature	15-25	Medium	0.3	No
866	<i>Eucalyptus grandis</i>	1	15-20	10-15	Average	Semi-mature	15-25	Low	0.5	No
867	<i>Corymbia calophylla</i>	1	10-15	10-15	Excellent	Semi-mature	15-25	Medium	0.5	No
868	<i>Eucalyptus grandis</i>	1	10-15	10-15	Good	Semi-mature	25+	Medium	0.5	No
869	<i>Cupressus sp.</i>	2	5-10	1-5	Poor	Juvenile	5-15	Low	0.2	No
870	<i>Corymbia maculata</i>	1	5-10	1-5	Good	Juvenile	25+	Low	0.2	No
871	<i>Eucalyptus camaldulensis</i>	1	10-15	1-5	Average	Juvenile	15-25	Low	0.3	No
872	<i>Corymbia citriodora</i>	1	10-15	10-15	Good	Semi-mature	15-25	Medium	0.5	No
873	<i>Eucalyptus nicholii</i>	1	10-15	10-15	Average	Mature	5-15	Low	0.8	No
874	<i>Eucalyptus nicholii</i>	1	10-15	10-15	Average	Mature	15-25	Medium	0.7	No
875	<i>Eucalyptus nicholii</i>	1	10-15	10-15	Good	Mature	15-25	Medium	0.6	No
876	<i>Eucalyptus nicholii</i>	1	10-15	10-15	Average	Mature	5-15	Low	0.6	No
877	<i>Acacia sp.</i>	1	5-10	1-5	Average	Semi-mature	5-15	Low	0.3	No
878	<i>Erythrina sykarai</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.4	No
879	<i>Corymbia calophylla</i>	1	10-15	5-10	Excellent	Semi-mature	25+	High	0.4	No
880	<i>Jacaranda mimosifolia</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.3	No
881	<i>Quercus robur</i>	1	5-10	1-5	Excellent	Juvenile	25+	Medium	0.1	No
882	<i>Corymbia calophylla</i>	1	10-15	5-10	Good	Semi-mature	25+	Medium	0.5	No
883	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.2	No
884	<i>Corymbia maculata</i>	1	15-20	5-10	Good	Semi-mature	25+	Medium	0.4	No
885	<i>Corymbia calophylla</i>	1	10-15	5-10	Good	Semi-mature	25+	Medium	0.5	No
886	<i>Corymbia maculata</i>	1	15-20	10-15	Excellent	Mature	25+	High	0.7	No
887	<i>Corymbia calophylla</i>	1	5-10	5-10	Good	Semi-mature	25+	Medium	0.3	No
888	<i>Eucalyptus cladocalyx</i>	1	10-15	1-5	Good	Juvenile	25+	Low	0.2	No
889	<i>Eucalyptus cladocalyx</i>	1	10-15	5-10	Average	Juvenile	5-15	Low	0.3	No
890	<i>Corymbia maculata</i>	1	10-15	5-10	Good	Semi-mature	15-25	Low	0.3	No
891	Unknown	1	5-10	10-15	Average	Semi-mature	15-25	Low	0.4	No
892	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Good	Mature	15-25	Medium	0.4	No



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Tag No.	Species name	No. Individuals	Height (m)	Width (m)	Health	Age	ULE	Retention Value	DBH (m)	Black cockatoo habitat tree
893	<i>Ficus microcarpa</i>	1	5-10	5-10	Good	Juvenile	5-15	Low	0.2	No
894	<i>Eucalyptus utilis</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.3	No
895	<i>Eucalyptus sideroxylon</i>	1	5-10	5-10	Excellent	Semi-mature	25+	Medium	0.3	No
896	<i>Corymbia maculata</i>	1	10-15	10-15	Excellent	Mature	25+	High	0.6	No
897	<i>Eucalyptus sideroxylon</i>	1	10-15	5-10	Good	Mature	15-25	Medium	0.5	No
898	<i>Eucalyptus grandis</i>	1	15-20	10-15	Good	Mature	25+	High	0.6	No
899	<i>Eucalyptus sideroxylon</i>	1	10-15	10-15	Good	Mature	25+	Medium	0.5	No
900	<i>Corymbia maculata</i>	1	10-15	1-5	Good	Juvenile	15-25	Low	0.1	No
901	<i>Corymbia citriodora</i>	1	15-20	10-15	Excellent	Mature	25+	High	0.5	No
902	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Mature	5-15	Low	0.6	No
903	<i>Eucalyptus camaldulensis</i>	1	15-20	10-15	Average	Mature	15-25	Medium	0.7	No
904	<i>Eucalyptus camaldulensis</i>	1	5-10	1-5	Excellent	Juvenile	15-25	Low	0.1	No
905	<i>Eucalyptus marginata</i>	1	5-10	5-10	Good	Semi-mature	25+	Medium	0.4	No
906	<i>Corymbia maculata</i>	1	10-15	10-15	Excellent	Semi-mature	25+	Medium	0.4	No
907	<i>Eucalyptus globulus</i>	1	10-15	10-15	Average	Mature	5-15	Low	0.9	No
908	<i>Corymbia maculata</i>	1	15-20	10-15	Excellent	Mature	25+	High	0.6	No
909	<i>Eucalyptus grandis</i>	1	15-20	10-15	Good	Semi-mature	15-25	Low	0.4	No
910	<i>Eucalyptus grandis</i>	1	15-20	10-15	Good	Semi-mature	15-25	Medium	0.5	No
911	<i>Eucalyptus sp.</i>	1	15-20	10-15	Excellent	Mature	25+	Medium	0.5	No
912	<i>Ulmus parvifolia</i>	1	5-10	10-15	Average	Mature	15-25	Low	0.5	No
913	<i>Platanus acerifolia</i>	1	10-15	10-15	Excellent	Mature	25+	Medium	0.5	No
914	<i>Acacia sp.</i>	8	5-10	10-15	Poor	Semi-mature	0-5	Low	0.3	No
915	<i>Schinus terebinthifolia</i>	1	5-10	5-10	Poor	Juvenile	5-15	Low	0.2	No
916	<i>Melia azaderach</i>	1	5-10	5-10	Good	Semi-mature	25+	Low	0.4	No
917	<i>Melia azaderach</i>	3	5-10	5-10	Average	Semi-mature	15-25	Low	0.5	No
918	<i>Ficus microcarpa</i>	3	5-10	5-10	Good	Juvenile	15-25	Low	0.3	No
919	<i>Melia azaderach</i>	3	10-15	5-10	Average	Semi-mature	5-15	Low	0.5	No
920	<i>Unknown</i>	1	10-15	10-15	Good	Semi-mature	15-25	Medium	0.5	No
921	<i>Liquidambar styraciflua</i>	1	10-15	10-15	Good	Mature	25+	Medium	0.4	No
922	<i>Toona australis</i>	1	5-10	5-10	Good	Semi-mature	15-25	Medium	0.4	No



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Tag No.	Species name	No. Individuals	Height (m)	Width (m)	Health	Age	ULE	Retention Value	DBH (m)	Black cockatoo habitat tree
923	<i>Ulmus parvifolia</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.2	No
924	<i>Melia azaderach</i>	1	5-10	5-10	Average	Juvenile	15-25	Low	0.3	No
925	<i>Lagenaria patersonia</i>	1	10-15	5-10	Good	Mature	15-25	Low	0.5	No
926	<i>Jacaranda mimosifolia</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.4	No
927	<i>Tipuana tipu</i>	1	10-15	5-10	Average	Semi-mature	5-15	Low	0.3	No
928	<i>Ulmus parvifolia</i>	1	5-10	5-10	Excellent	Juvenile	25+	Low	0.2	No
929	<i>Tipuana tipu</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.5	No
930	<i>Acacia sp.</i>	1	5-10	5-10	Poor	Mature	0-5	Low	0.4	No
931	<i>Agonis flexuosa</i>	1	5-10	5-10	Average	Semi-mature	15-25	Low	0.5	No
932	<i>Allocasuarina fraseriana</i>	1	5-10	1-5	Poor	Semi-mature	0-5	Low	0.4	No
933	<i>Banksia attenuata</i>	1	1-5	5-10	Average	Mature	5-15	Low	0.3	No
934	<i>Eucalyptus grandis</i>	1	15-20	10-15	Average	Semi-mature	15-25	Low	0.55	No
935	<i>Eucalyptus citriodora</i>	1	10-15	10-15	Good	Semi-mature	25+	Medium	0.4	No
936	<i>Platanus acerifolia</i>	1	10-15	5-10	Poor	Juvenile	5-15	Low	0.2	No
937	<i>Eucalyptus citriodora</i>	1	15-20	10-15	Excellent	Semi-mature	25+	High	0.5	No
938	<i>Banksia attenuata</i>	1	5-10	5-10	Average	Mature	5-15	Low	0.4	No
939	<i>Corymbia maculata</i>	1	15-20	10-15	Excellent	Semi-mature	25+	Medium	0.5	No
940	<i>Eucalyptus cladocalyx</i>	1	15-20	10-15	Average	Semi-mature	15-25	Low	0.6	No
941	<i>Eucalyptus marginata</i>	1	10-15	5-10	Average	Juvenile	15-25	Low	0.6	No
942	<i>Corymbia citriodora</i>	1	15-20	10-15	Excellent	Mature	25+	High	0.6	No
943	<i>Corymbia citriodora</i>	1	15-20	5-10	Good	Semi-mature	25+	Medium	0.4	No
944	<i>Eucalyptus grandis</i>	1	25+	10-15	Good	Mature	25+	High	1.3	No
945	<i>Eucalyptus grandis</i>	1	15-20	10-15	Average	Mature	15-25	Low	0.8	No
946	<i>Eucalyptus grandis</i>	1	15-20	10-15	Average	Mature	15-25	Low	0.7	No
947	<i>Corymbia citriodora</i>	1	10-15	5-10	Average	Semi-mature	15-25	Low	0.4	No
948	<i>Eucalyptus marginata</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.4	No
949	<i>Ficus microcarpa</i>	1	10-15	10-15	Good	Semi-mature	15-25	Low	0.5	No
950	<i>Corymbia maculata</i>	1	10-15	5-10	Good	Semi-mature	15-25	Low	0.45	No
951	<i>Corymbia citriodora</i>	1	10-15	10-15	Good	Semi-mature	25+	Medium	0.5	No
952	<i>Corymbia maculata</i>	1	15-20	10-15	Good	Mature	25+	Medium	0.5	No



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953	<i>Corymbia citriodora</i>	1	15-20	10-15	Good	Semi-mature	15-25	Low	0.7	No
954	<i>Eucalyptus cladocalyx</i>	4	10-15	5-10	Good	Juvenile	15-25	Low	0.2	No
955	<i>Banksia attenuata</i>	2	5-10	5-10	Average	Semi-mature	5-15	Low	0.3	No
956	<i>Corymbia citriodora</i>	1	10-15	1-5	Good	Juvenile	15-25	Low	0.2	No
957	<i>Eucalyptus sp.</i>	1	5-10	5-10	Good	Juvenile	15-25	Low	0.3	No
958	<i>Eucalyptus camaldulensis</i>	4	10-15	5-10	Good	Juvenile	15-25	Low	0.3	No
959	<i>Corymbia maculata</i>	1	10-15	1-5	Good	Juvenile	15-25	Low	0.3	No
960	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.4	No
961	<i>Corymbia maculata</i>	1	10-15	5-10	Good	Semi-mature	15-25	Medium	0.4	No
962	<i>Eucalyptus sp.</i>	1	5-10	5-10	Poor	Semi-mature	0-5	Low	0.3	No
963	<i>Corymbia maculata</i>	1	10-15	1-5	Good	Juvenile	15-25	Low	0.3	No
964	<i>Eucalyptus marginata</i>	1	1-5	5-10	Good	Juvenile	5-15	Low	0.2	No
965	<i>Eucalyptus marginata</i>	1	10-15	10-15	Average	Mature	5-15	Low	0.6	No
966	<i>Corymbia citriodora</i>	1	5-10	1-5	Good	Juvenile	15-25	Low	0.2	No
967	<i>Eucalyptus grandis</i>	1	15-20	10-15	Good	Semi-mature	25+	Medium	0.5	No
968	<i>Eucalyptus cladocalyx</i>	1	5-10	1-5	Average	Juvenile	5-15	Low	0.2	No
969	<i>Eucalyptus camaldulensis</i>	2	10-15	5-10	Average	Juvenile	5-15	Low	0.3	No
970	<i>Corymbia citriodora</i>	1	5-10	1-5	Good	Juvenile	15-25	Low	0.2	No
971	<i>Cupressus sp.</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.4	No
972	<i>Banksia attenuata</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.3	No
973	<i>Eucalyptus nicholii</i>	1	10-15	10-15	Good	Mature	25+	Medium	0.7	No
974	<i>Banksia attenuata</i>	2	1-5	1-5	Good	Juvenile	5-15	Low	0.2	No
975	<i>Acacia sp.</i>	1	5-10	10-15	Average	Mature	5-15	Low	0.5	No
976	<i>Banksia attenuata</i>	2	5-10	1-5	Average	Semi-mature	5-15	Low	0.2	No
977	<i>Platanus acerifolia</i>	1	5-10	1-5	Average	Juvenile	5-15	Low	0.2	No
978	<i>Corymbia maculata</i>	1	5-10	1-5	Good	Juvenile	15-25	Low	0.2	No
979	<i>Banksia attenuata</i>	1	5-10	1-5	Average	Mature	15-25	Medium	0.3	No
980	<i>Eucalyptus nicholii</i>	1	5-10	5-10	Good	Semi-mature	25+	Medium	0.5	No
981	<i>Corymbia citriodora</i>	1	10-15	5-10	Good	Juvenile	15-25	Low	0.3	No
982	<i>Liquidambar styraciflua</i>	1	5-10	1-5	Poor	Juvenile	0-5	Low	0.1	No



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983	<i>Platanus acerifolia</i>	1	5-10	5-10	Poor	Juvenile	0-5	Low	0.2	No
984	<i>Ficus microcarpa</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.4	No
985	<i>Ficus microcarpa</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.4	No
986	<i>Ficus microcarpa</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.4	No
987	<i>Eucalyptus leucoxylon</i>	1	5-10	10-15	Average	Mature	5-15	Low	0.6	No
988	<i>Jacaranda mimosifolia</i>	1	5-10	5-10	Poor	Juvenile	0-5	Low	0.2	No
989	<i>Acacia sp.</i>	1	5-10	10-15	Poor	Mature	0-5	Low	0.8	No
990	<i>Corymbia maculata</i>	1	10-15	1-5	Average	Juvenile	5-15	Low	0.3	No
991	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.5	No
992	<i>Araucaria heterophylla</i>	1	10-15	5-10	Average	Juvenile	15-25	Low	0.3	No
993	<i>Eucalyptus grandis</i>	1	15-20	10-15	Average	Mature	15-25	Medium	1.3	No
994	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.2	No
995	<i>Cinnamomum camphora</i>	1	5-10	10-15	Good	Semi-mature	15-25	Low	0.6	No
996	<i>Corymbia citriodora</i>	1	15-20	10-15	Average	Mature	25+	Low	0.7	No
997	<i>Eucalyptus cladocalyx</i>	1	10-15	1-5	Average	Juvenile	15-25	Low	0.3	No
998	<i>Eucalyptus cladocalyx</i>	1	10-15	5-10	Average	Juvenile	15-25	Low	0.4	No
999	<i>Eucalyptus cladocalyx</i>	1	10-15	5-10	Average	Semi-mature	5-15	Low	0.4	No
1000	<i>Corymbia ficifolia</i>	1	5-10	1-5	Good	Juvenile	15-25	Low	0.2	No
1017	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Juvenile	15-25	Low	0.3	No
1019	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Good	Juvenile	15-25	Low	0.4	No
1020	<i>Eucalyptus cladocalyx</i>	1	10-15	1-5	Good	Juvenile	15-25	Low	0.3	No
1021	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.3	No
1022	<i>Fraxinus sp.</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.2	No
1023	<i>Eucalyptus grandis</i>	1	15-20	10-15	Average	Semi-mature	15-25	Low	0.5	No
1024	<i>Eucalyptus grandis</i>	1	15-20	10-15	Average	Semi-mature	15-25	Medium	0.5	No
1025	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.5	No
1026	<i>Corymbia maculata</i>	1	10-15	5-10	Good	Semi-mature	15-25	Low	0.4	No
1027	<i>Eucalyptus grandis</i>	1	15-20	10-15	Average	Semi-mature	15-25	Medium	0.7	No
1028	<i>Eucalyptus nicholii</i>	1	10-15	5-10	Good	Mature	25+	Medium	0.6	No
1029	<i>Corymbia maculata</i>	1	10-15	5-10	Good	Juvenile	25+	Medium	0.35	No



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1030	<i>Corymbia citriodora</i>	1	15-20	10-15	Average	Semi-mature	15-25	Low	0.7	No
1031	<i>Eucalyptus leucoxylon</i>	1	5-10	10-15	Good	Semi-mature	25+	Medium	0.5	No
1032	<i>Eucalyptus grandis</i>	1	15-20	10-15	Average	Mature	15-25	Low	0.6	No
1033	<i>Corymbia maculata</i>	1	15-20	10-15	Excellent	Mature	25+	Medium	0.55	No
1034	<i>Erythrina syzkseii</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.5	No
1035	<i>Platanus acerifolia</i>	1	10-15	5-10	Average	Semi-mature	5-15	Low	0.3	No
1036	<i>Eucalyptus leucoxylon</i>	1	5-10	10-15	Average	Mature	5-15	Low	0.5	No
1037	<i>Corymbia maculata</i>	1	15-20	10-15	Excellent	Mature	25+	Medium	0.5	No
1038	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.3	No
1039	<i>Cupressus sp.</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.4	No
1040	<i>Eucalyptus grandis</i>	1	20-25	10-15	Good	Mature	15-25	Medium	0.7	No
1041	<i>Eucalyptus leucoxylon</i>	1	5-10	10-15	Good	Mature	15-25	Medium	0.6	No
1042	<i>Eucalyptus nicholii</i>	1	10-15	10-15	Good	Mature	25+	Medium	0.8	No
1043	<i>Erythrina syzkseii</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.4	No
1044	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Average	Mature	5-15	Low	0.5	No
1045	<i>Brachychiton acerifolius</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.2	No
1046	<i>Eucalyptus grandis</i>	1	20-25	15-20	Average	Mature	15-25	Medium	0.6	No
1047	<i>Liquidambar styraciflua</i>	1	10-15	5-10	Good	Juvenile	15-25	Low	0.3	No
1048	<i>Melia azaderach</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.5	No
1049	<i>Melia azaderach</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.4	No
1050	<i>Melia azaderach</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.35	No
1051	<i>Melia azaderach</i>	1	5-10	5-10	Average	Juvenile	15-25	Low	0.3	No
1052	<i>Melia azaderach</i>	1	5-10	5-10	Poor	Juvenile	5-15	Low	0.3	No
1053	<i>Unknown</i>	1	10-15	10-15	Average	Mature	5-15	Low	0.5	No
1054	<i>Ficus microcarpa</i>	1	10-15	10-15	Excellent	Semi-mature	15-25	Medium	0.6	No
1055	<i>Melia azaderach</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.3	No
1056	<i>Corymbia maculata</i>	1	15-20	10-15	Excellent	Mature	25+	High	0.8	No
1057	<i>Araucaria heterophylla</i>	1	10-15	1-5	Poor	Juvenile	5-15	Low	0.2	No
1058	<i>Melia azaderach</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.4	No
1059	<i>Acacia sp.</i>	1	10-15	5-10	Poor	Mature	0-5	Low	0.6	No



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Tag No.	Species name	No. Individuals	Height (m)	Width (m)	Health	Age	ULE	Retention Value	DBH (m)	Black cockatoo habitat tree
1060	<i>Corymbia maculata</i>	1	15-20	5-10	Good	Mature	25+	Medium	0.5	No
1061	<i>Eucalyptus camaldulensis</i>	1	15-20	15-20	Good	Mature	25+	High	0.8	No
1063	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Juvenile	5-15	Low	0.3	No
1064	<i>Eucalyptus grandis</i>	1	15-20	10-15	Good	Mature	15-25	Medium	0.8	No
1065	<i>Melia azaderach</i>	2	10-15	5-10	Average	Juvenile	5-15	Low	0.4	No
1066	<i>Unknown</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.2	No
1067	<i>Corymbia citriodora</i>	1	15-20	5-10	Average	Semi-mature	15-25	Low	0.5	No
1068	<i>Eucalyptus leucoxylon</i>	1	5-10	1-5	Average	Juvenile	5-15	Low	0.2	No
1069	<i>Platanus acerifolia</i>	1	10-15	5-10	Average	Semi-mature	5-15	Low	0.3	No
1070	<i>Corymbia maculata</i>	1	10-15	5-10	Good	Mature	15-25	Medium	0.5	No
1071	<i>Eucalyptus grandis</i>	1	20-25	15-20	Good	Mature	25+	Medium	0.8	No
1072	<i>Platanus acerifolia</i>	1	5-10	5-10	Poor	Semi-mature	0-5	Low	0.3	No
1073	<i>Unknown</i>	1	5-10	10-15	Good	Mature	15-25	Low	0.5	No
1074	<i>Tipuana tipu</i>	1	10-15	5-10	Average	Semi-mature	5-15	Low	0.3	No
1075	<i>Eucalyptus grandis</i>	1	20-25	15-20	Good	Mature	15-25	Medium	1	No
1076	<i>Eucalyptus leucoxylon</i>	1	5-10	10-15	Average	Mature	15-25	Low	0.55	No
1077	<i>Brachychiton acerifolius</i>	1	5-10	1-5	Average	Semi-mature	5-15	Low	0.3	No
1078	<i>Callistemon sp.</i>	1	5-10	1-5	Average	Semi-mature	5-15	Low	0.2	No
1079	<i>Corymbia citriodora</i>	1	10-15	5-10	Good	Juvenile	25+	Low	0.5	No
1080	<i>Platanus acerifolia</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.35	No
1081	<i>Acacia sp.</i>	3	5-10	1-5	Average	Juvenile	5-15	Low	0.2	No
1082	<i>Eucalyptus grandis</i>	4	10-15	5-10	Average	Juvenile	15-25	Low	0.3	No
1083	<i>Liquidambar styraciflua</i>	1	5-10	1-5	Average	Juvenile	5-15	Low	0.2	No
1084	<i>Acacia sp.</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.4	No
1085	<i>Eucalyptus grandis</i>	1	10-15	5-10	Average	Juvenile	25+	Low	0.3	No
1086	<i>Cupressus sp.</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.4	No
1087	<i>Acacia sp.</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.4	No
1088	<i>Eucalyptus grandis</i>	1	10-15	5-10	Good	Juvenile	15-25	Low	0.3	No
1089	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.5	No
1090	<i>Eucalyptus grandis</i>	1	10-15	5-10	Average	Juvenile	15-25	Low	0.3	No



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Tag No.	Species name	No. Individuals	Height (m)	Width (m)	Health	Age	ULE	Retention Value	DBH (m)	Black cockatoo habitat tree
1091	<i>Eucalyptus grandis</i>	1	10-15	5-10	Average	Juvenile	15-25	Medium	0.3	No
1092	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Good	Mature	15-25	Medium	0.5	No
1093	<i>Acacia sp.</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.2	No
1094	<i>Eucalyptus sp.</i>	1	5-10	5-10	Average	Juvenile	15-25	Low	0.3	No
1095	<i>Eucalyptus patens</i>	1	1-5	5-10	Average	Juvenile	5-15	Low	0.2	No
1096	<i>Eucalyptus camaldulensis</i>	1	10-15	15-20	Good	Mature	25+	High	0.8	No
1097	<i>Corymbia citriodora</i>	1	10-15	5-10	Good	Semi-mature	15-25	Low	0.3	No
1098	<i>Eucalyptus grandis</i>	1	15-20	10-15	Good	Mature	15-25	Medium	0.6	No
1099	<i>Eucalyptus grandis</i>	1	15-20	10-15	Average	Mature	15-25	Low	0.8	No
1100	<i>Lagenaria patersonia</i>	1	5-10	1-5	Poor	Juvenile	0-5	Low	0.2	No
1101	<i>Eucalyptus grandis</i>	1	20-25	10-15	Good	Mature	25+	Medium	0.9	No
1102	<i>Erythrina sykei</i>	1	5-10	5-10	Poor	Juvenile	0-5	Low	0.3	No
1103	<i>Eucalyptus camaldulensis</i>	3	5-10	1-5	Average	Juvenile	15-25	Low	0.25	No
1104	<i>Eucalyptus camaldulensis</i>	1	5-10	1-5	Average	Mature	5-15	Low	0.5	No
1105	<i>Cupressus sp.</i>	1	5-10	5-10	Poor	Semi-mature	0-5	Low	0.5	No
1106	<i>Callistemon sp.</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.2	No
1107	<i>Ulmus parvifolia</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.3	No
1108	<i>Corymbia calophylla</i>	1	5-10	5-10	Good	Juvenile	15-25	Medium	0.3	No
1109	<i>Eucalyptus cladocalyx</i>	1	5-10	1-5	Good	Juvenile	15-25	Low	0.2	No
1110	<i>Eucalyptus camaldulensis</i>	1	10-15	10-15	Good	Mature	15-25	Medium	0.7	No
1111	<i>Ficus microcarpa</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.4	No
1112	<i>Eucalyptus cladocalyx</i>	1	5-10	1-5	Average	Juvenile	15-25	Low	0.2	No
1113	<i>Eucalyptus cladocalyx</i>	3	5-10	1-5	Average	Juvenile	15-25	Low	0.2	No
1114	<i>Acacia sp.</i>	1	5-10	5-10	Poor	Semi-mature	0-5	Low	0.4	No
1115	<i>Eucalyptus nicholii</i>	1	5-10	5-10	Dead	Semi-mature	0-5	Low	0.4	No
1116	<i>Acacia sp.</i>	1	5-10	5-10	Poor	Semi-mature	0-5	Low	0.3	No
1117	<i>Corymbia maculata</i>	1	10-15	5-10	Excellent	Mature	25+	Medium	0.4	No
1118	<i>Unknown</i>	1	5-10	1-5	Poor	Juvenile	0-5	Low	0.1	No
1119	<i>Araucaria heterophylla</i>	1	10-15	5-10	Poor	Semi-mature	0-5	Low	0.4	No
1120	<i>Eucalyptus leucoxylon</i>	1	10-15	10-15	Good	Mature	15-25	Medium	0.7	No



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1121	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.4	No
1122	<i>Eucalyptus leucoxylon</i>	1	10-15	10-15	Good	Mature	15-25	Medium	0.6	No
1123	<i>Acacia sp.</i>	1	10-15	5-10	Good	Semi-mature	5-15	Low	0.5	No
1124	<i>Ficus microcarpa</i>	1	10-15	5-10	Good	Semi-mature	15-25	Low	0.5	No
1125	<i>Acacia sp.</i>	1	10-15	5-10	Average	Mature	5-15	Low	0.7	No
1126	<i>Eucalyptus cladocalyx</i>	1	5-10	1-5	Average	Juvenile	5-15	Low	0.2	No
1127	<i>Eucalyptus sp.</i>	1	15-20	10-15	Good	Semi-mature	25+	Medium	0.5	No
1128	<i>Acacia sp.</i>	1	10-15	1-5	Poor	Juvenile	5-15	Low	0.2	No
1129	<i>Eucalyptus grandis</i>	1	15-20	5-10	Good	Juvenile	15-25	Low	0.4	No
1130	<i>Acacia sp.</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.3	No
1131	<i>Eucalyptus cladocalyx</i>	3	10-15	1-5	Average	Juvenile	5-15	Low	0.2	No
1132	<i>Eucalyptus grandis</i>	1	10-15	5-10	Average	Juvenile	15-25	Low	0.3	No
1133	<i>Corymbia maculata</i>	1	15-20	10-15	Excellent	Mature	25+	High	0.8	No
1134	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.4	No
1135	<i>Eucalyptus leucoxylon</i>	1	5-10	10-15	Good	Mature	15-25	Medium	0.5	No
1136	<i>Toona australis</i>	1	5-10	5-10	Good	Juvenile	5-15	Low	0.2	No
1137	<i>Eucalyptus nicholii</i>	1	10-15	10-15	Good	Mature	25+	Medium	0.8	No
1138	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.4	No
1139	<i>Corymbia citriodora</i>	1	15-20	10-15	Average	Semi-mature	5-15	Low	0.5	No
1140	<i>Cinnamomum camphora</i>	1	10-15	5-10	Average	Juvenile	5-15	Low	0.3	No
1141	<i>Eucalyptus leucoxylon</i>	1	5-10	10-15	Average	Mature	5-15	Low	0.5	No
1142	<i>Eucalyptus grandis</i>	1	15-20	10-15	Good	Semi-mature	25+	Medium	0.5	No
1143	<i>Corymbia citriodora</i>	1	5-10	5-10	Good	Juvenile	15-25	Low	0.3	No
1145	<i>Ficus microcarpa</i>	1	5-10	10-15	Good	Semi-mature	15-25	Low	0.6	No
1146	<i>Eucalyptus cladocalyx</i>	1	5-10	5-10	Good	Juvenile	15-25	Low	0.25	No
1147	<i>Platanus acerifolia</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.2	No
1148	<i>Eucalyptus cladocalyx</i>	1	5-10	5-10	Average	Juvenile	15-25	Low	0.35	No
1149	<i>Corymbia ficifolia</i>	1	1-5	5-10	Average	Juvenile	15-25	Low	0.35	No
1150	<i>Melia azaderach</i>	1	1-5	5-10	Poor	Juvenile	5-15	Low	0.3	No
1151	<i>Cupressus sempervirens</i>	1	5-10	1-5	Poor	Juvenile	5-15	Low	0.15	No



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1152	<i>Araucaria heterophylla</i>	1	10-15	5-10	Average	Juvenile	15-25	Low	0.35	No
1153	<i>Eucalyptus grandis</i>	1	5-10	5-10	Good	Juvenile	15-25	Low	0.25	No
1154	<i>Eucalyptus camaldulensis</i>	1	5-10	1-5	Average	Juvenile	15-25	Low	0.2	No
1155	<i>Schinus molle</i>	1	5-10	5-10	Average	Semi-mature	15-25	Low	0.45	No
1156	<i>Eucalyptus camaldulensis</i>	1	5-10	5-10	Average	Juvenile	15-25	Low	0.3	No
1157	<i>Jacaranda mimosifolia</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.35	No
1158	<i>Liquidambar styraciflua</i>	1	5-10	1-5	Average	Juvenile	5-15	Low	0.15	No
1159	<i>Eucalyptus platypus</i>	1	1-5	5-10	Good	Juvenile	15-25	Low	0.3	No
1160	<i>Eucalyptus cladocalyx</i>	1	10-15	5-10	Good	Juvenile	15-25	Low	0.25	No
1161	<i>Melia azaderach</i>	1	10-15	10-15	Average	Mature	5-15	Low	0.5	No
1162	<i>Eucalyptus leucoxylon</i>	1	1-5	1-5	Average	Juvenile	5-15	Low	0.15	No
1163	<i>Corymbia maculata</i>	1	10-15	10-15	Excellent	Semi-mature	25+	Medium	0.45	No
1164	<i>Ulmus parvifolia</i>	1	5-10	10-15	Good	Semi-mature	15-25	Medium	0.35	No
1165	<i>Fraxinus sp.</i>	1	5-10	10-15	Average	Mature	15-25	Medium	0.4	No
1166	<i>Unknown</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.25	No
1167	<i>Unknown</i>	1	5-10	1-5	Poor	Semi-mature	0-5	Low	0.15	No
1168	<i>Cupressus sp.</i>	1	5-10	1-5	Poor	Semi-mature	0-5	Low	0.35	No
1169	<i>Eucalyptus grandis</i>	1	20-25	15-20	Average	Mature	15-25	Medium	0.65	No
1170	<i>Olea europaea</i>	1	5-10	5-10	Excellent	Semi-mature	25+	Low	0.3	No
1171	<i>Melia azaderach</i>	1	10-15	5-10	Good	Semi-mature	15-25	Low	0.35	No
1172	<i>Agonis flexuosa</i>	1	5-10	10-15	Good	Mature	25+	Medium	0.7	No
1173	<i>Eucalyptus cladocalyx</i>	1	10-15	5-10	Average	Juvenile	5-15	Low	0.4	No
1174	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Good	Semi-mature	25+	Medium	0.4	No
1175	<i>Eucalyptus cladocalyx</i>	1	10-15	5-10	Good	Juvenile	15-25	Low	0.35	No
1176	<i>Cupressus sp.</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.45	No
1177	<i>Eucalyptus grandis</i>	1	5-10	1-5	Good	Juvenile	15-25	Low	0.2	No
1178	<i>Eucalyptus grandis</i>	1	5-10	1-5	Good	Juvenile	15-25	Low	0.2	No
1179	<i>Agonis flexuosa</i>	1	5-10	5-10	Average	Mature	15-25	Low	0.6	No
1180	<i>Platanus acerifolia</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.4	No
1181	<i>Schinus terebinthifolia</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.4	No



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1182	<i>Erythrina sykksei</i>	1	10-15	10-15	Excellent	Mature	15-25	Low	0.65	No
1183	<i>Eucalyptus nicholii</i>	1	10-15	10-15	Good	Semi-mature	15-25	Medium	0.5	No
1184	<i>Acacia sp.</i>	1	10-15	5-10	Poor	Mature	0-5	Low	0.8	No
1185	<i>Platanus acerifolia</i>	1	10-15	10-15	Good	Semi-mature	15-25	Medium	0.5	No
1186	<i>Eucalyptus leucoxylon</i>	1	10-15	10-15	Good	Mature	25+	Medium	0.75	No
1187	<i>Eucalyptus grandis</i>	1	20-25	10-15	Good	Mature	25+	Medium	0.85	No
1188	<i>Melia azaderach</i>	1	5-10	1-5	Poor	Juvenile	0-5	Low	0.25	No
1189	<i>Liquidambar styraciflua</i>	1	5-10	5-10	Excellent	Juvenile	15-25	Medium	0.3	No
1190	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Good	Mature	15-25	Low	0.5	No
1191	<i>Melia azaderach</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.4	No
1192	<i>Melia azaderach</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.3	No
1193	<i>Eucalyptus grandis</i>	1	20-25	10-15	Good	Mature	25+	Medium	1.35	No
1194	<i>Brachychiton acerifolius</i>	1	5-10	1-5	Average	Juvenile	5-15	Low	0.35	No
1195	<i>Melia azaderach</i>	1	10-15	5-10	Average	Semi-mature	5-15	Low	0.45	No
1196	<i>Fraxinus sp.</i>	1	5-10	10-15	Good	Semi-mature	15-25	Medium	0.35	No
1197	<i>Platanus acerifolia</i>	1	10-15	10-15	Good	Mature	25+	Medium	0.6	No
1198	<i>Unknown</i>	1	5-10	5-10	Average	Mature	5-15	Low	0.35	No
1199	<i>Araucaria heterophylla</i>	1	10-15	5-10	Average	Semi-mature	5-15	Low	0.5	No
1200	<i>Jacaranda mimosifolia</i>	1	5-10	5-10	Good	Semi-mature	5-15	Low	0.35	No
1201	<i>Liquidambar styraciflua</i>	1	5-10	1-5	Good	Juvenile	5-15	Low	0.25	No
1202	<i>Acacia sp.</i>	1	5-10	5-10	Poor	Mature	0-5	Low	0.6	No
1203	<i>Ficus microcarpa</i>	1	10-15	10-15	Good	Mature	15-25	Medium	0.5	No
1204	<i>Corymbia maculata</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.45	No
1205	<i>Washingtonia robusta</i>	1	10-15	1-5	Average	Semi-mature	15-25	Low	0.5	No
1206	<i>Eucalyptus patens</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.4	No
1207	<i>Brachychiton acerifolius</i>	1	5-10	1-5	Poor	Juvenile	0-5	Low	0.25	No
1208	<i>Melia azaderach</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.45	No
1209	<i>Corymbia maculata</i>	1	10-15	5-10	Good	Mature	25+	Medium	0.45	No
1210	<i>Platanus acerifolia</i>	1	5-10	5-10	Good	Juvenile	15-25	Low	0.2	No
1211	<i>Platanus acerifolia</i>	1	5-10	5-10	Good	Juvenile	15-25	Low	0.25	No



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1212	<i>Eucalyptus sp.</i>	1	10-15	1-5	Excellent	Juvenile	25+	Low	0.25	No
1213	<i>Corymbia ficifolia</i>	1	1-5	5-10	Average	Juvenile	5-15	Low	0.2	No
1214	<i>Corymbia ficifolia</i>	1	5-10	5-10	Average	Semi-mature	15-25	Medium	0.4	No
1215	<i>Corymbia maculata</i>	1	10-15	10-15	Good	Semi-mature	25+	Medium	0.55	No
1216	<i>Eucalyptus camaldulensis</i>	1	10-15	10-15	Good	Semi-mature	25+	Medium	0.65	No
1217	<i>Eucalyptus camaldulensis</i>	1	10-15	10-15	Average	Semi-mature	25+	Medium	0.5	No
1218	<i>Eucalyptus camaldulensis</i>	1	10-15	10-15	Average	Semi-mature	15-25	Low	0.5	No
1219	<i>Eucalyptus camaldulensis</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.35	No
1220	<i>Eucalyptus camaldulensis</i>	1	10-15	15-20	Good	Mature	25+	High	1	No
1221	<i>Eucalyptus cladocalyx</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.15	No
1222	<i>Eucalyptus camaldulensis</i>	1	10-15	1-5	Average	Juvenile	5-15	Low	0.2	No
1223	<i>Unknown</i>	1	1-5	5-10	Average	Juvenile	5-15	Low	0.15	No
1224	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Juvenile	5-15	Low	0.3	No
1225	<i>Corymbia calophylla</i>	1	10-15	10-15	Average	Mature	15-25	Medium	0.55	No
1226	<i>Eucalyptus cladocalyx</i>	1	5-10	1-5	Average	Juvenile	15-25	Low	0.15	No
1227	<i>Cinnamomum camphora</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.35	No
1228	<i>Corymbia ficifolia</i>	1	5-10	5-10	Poor	Juvenile	0-5	Low	0.5	No
1229	<i>Corymbia citriodora</i>	1	5-10	5-10	Average	Juvenile	15-25	Low	0.25	No
1230	<i>Eucalyptus camaldulensis</i>	1	5-10	1-5	Poor	Juvenile	5-15	Low	0.2	No
1231	<i>Eucalyptus cladocalyx</i>	1	5-10	1-5	Average	Juvenile	5-15	Low	0.2	No
1232	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Juvenile	5-15	Low	0.25	No
1233	<i>Eucalyptus camaldulensis</i>	1	5-10	1-5	Average	Juvenile	15-25	Low	0.25	No
1234	<i>Eucalyptus camaldulensis</i>	1	10-15	5-10	Average	Semi-mature	15-25	Low	0.4	No
1237	<i>Eucalyptus cladocalyx</i>	1	5-10	5-10	Good	Juvenile	15-25	Low	0.35	No
1238	<i>Eucalyptus patens</i>	1	5-10	5-10	Average	Juvenile	5-15	Low	0.4	No
1239	<i>Unknown</i>	1	10-15	10-15	Good	Mature	25+	Medium	0.65	No
1240	<i>Melia azaderach</i>	1	5-10	5-10	Good	Semi-mature	15-25	Low	0.5	No
1241	<i>Eucalyptus sp.</i>	1	5-10	5-10	Poor	Juvenile	0-5	Low	0.2	No
1242	<i>Corymbia maculata</i>	1	15-20	10-15	Excellent	Mature	15-25	Medium	0.5	No
1243	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Average	Mature	5-15	Low	0.6	No



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Tag No.	Species name	No. Individuals	Height (m)	Width (m)	Health	Age	ULE	Retention Value	DBH (m)	Black cockatoo habitat tree
1244	<i>Eucalyptus camaldulensis</i>	1	5-10	1-5	Poor	Semi-mature	0-5	Low	0.55	No
1245	<i>Corymbia ficifolia</i>	1	5-10	1-5	Average	Juvenile	5-15	Low	0.2	No
1246	<i>Eucalyptus camaldulensis</i>	1	5-10	1-5	Poor	Semi-mature	0-5	Low	0.45	No
1247	<i>Eucalyptus leucoxylon</i>	1	10-15	10-15	Good	Mature	25+	Medium	0.5	No
1248	<i>Eucalyptus platypus</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.25	No
1249	<i>Eucalyptus camaldulensis</i>	1	5-10	1-5	Poor	Juvenile	5-15	Low	0.25	No
1250	<i>Eucalyptus camaldulensis</i>	1	5-10	1-5	Poor	Juvenile	5-15	Low	0.25	No
1251	<i>Erythrina sykei</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.55	No
1252	<i>Eucalyptus leucoxylon</i>	1	5-10	5-10	Poor	Semi-mature	0-5	Low	0.4	No
1253	<i>Jacaranda mimosifolia</i>	1	5-10	5-10	Good	Semi-mature	5-15	Low	0.3	No
1254	<i>Melia azaderach</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.5	No
1255	<i>Lagenaria patersonia</i>	1	5-10	1-5	Good	Juvenile	5-15	Low	0.2	No
1256	<i>Unknown</i>	1	5-10	5-10	Average	Semi-mature	5-15	Low	0.3	No
1257	<i>Eucalyptus sp.</i>	1	5-10	5-10	Poor	Mature	5-15	Low	0.6	No
1258	<i>Acacia sp.</i>	1	5-10	5-10	Poor	Juvenile	0-5	Low	0.25	No



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Tag No.	Photo
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2	
3	



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Tag No.	Photo
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6	



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Tag No.	Photo
7	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy field under a blue sky with scattered clouds.
8	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is surrounded by tall grass and other vegetation, with a blue sky and clouds visible in the background.
9	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is surrounded by other vegetation, with a blue sky and clouds visible in the background.



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Tag No.	Photo
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11	
12	



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Tag No.	Photo
13	
14	
15	
16	



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Tag No.	Photo
33	A photograph of two trees with light-colored bark and dense green foliage. A red tag at the bottom left reads "Tree ID 33" and a red tag at the bottom right reads "Tree ID 34".
34	A photograph of two trees with light-colored bark and dense green foliage. A red tag at the bottom left reads "Tree ID 33" and a red tag at the bottom right reads "Tree ID 34".
38	A photograph of a single tree with a dark trunk and dense green foliage. A red tag at the bottom center reads "Tree ID 38".
39	A photograph of a single tree with a dark trunk and dense green foliage. A red tag at the bottom center reads "Tree ID 39".



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Tag No.	Photo
40	A close-up photograph of a tree trunk with thick, gnarled bark. A red tag at the bottom center reads "Tree ID 40 (x15)".
41	A photograph of a large tree with a thick trunk and dense green foliage. Two red tags are visible at the bottom: "Tree ID 42" on the left and "Tree ID 41" on the right.
42	A photograph of a large tree with a thick trunk and dense green foliage, similar to the previous one. Two red tags are visible at the bottom: "Tree ID 42" on the left and "Tree ID 41" on the right.
44	A photograph of a tree with a thick trunk and dense green foliage. A red tag at the bottom center reads "Tree ID 44".



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Tag No.	Photo
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60	
61	



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Tag No.	Photo
62	 A large, mature tree with a thick trunk and dense green foliage, standing in a grassy area. A red tag at the bottom reads "Tree ID 59-62".
63	 A tree with a thick trunk and green leaves, situated next to a yellow wall and a paved path. A red tag at the bottom reads "Tree ID 63".
64	 A tree with a thick trunk and sparse, brownish leaves, standing in a grassy area. A red tag at the bottom reads "Tree ID 64".
65	 A tree with a thick trunk and sparse, brownish leaves, standing in a grassy area. A red tag at the bottom reads "Tree ID 65".



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Tag No.	Photo
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68	
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Tag No.	Photo
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71	
72	
73	



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Tag No.	Photo
75	A photograph of a tree with green foliage and a red tag labeled "Tree ID 75" at its base. The tree is situated in a dry, open area with other vegetation in the background.
76	A photograph of a tree with green foliage and a red tag labeled "Tree ID 76" at its base. The tree is located in a courtyard area with a building and other trees in the background.
77	A photograph of a tree with green foliage and a red tag labeled "Tree ID 77" at its base. The tree is in a line of trees along a path or road.
78	A photograph of a tree with green foliage and a red tag labeled "Tree ID 78" at its base. The tree is in a sandy area, possibly a golf course fairway or bunker.



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Tag No.	Photo
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Tag No.	Photo
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89	
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Tag No.	Photo
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93	
94	



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Tag No.	Photo
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97	
98	



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Tag No.	Photo
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100	
101	
102	



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Tag No.	Photo
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104	
105	
106	



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Tag No.	Photo
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108	
109	
110	



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Tag No.	Photo
111	 A photograph of a large, dense, rounded tree with green foliage. A red tag at the bottom center reads "Tree ID 111".
112	 A photograph of a tall, slender tree with a light-colored trunk and a canopy of green leaves. A red tag at the bottom center reads "Tree ID 112".
113	 A photograph showing two trees. On the left is a tall, slender tree (Tree ID 113) and on the right is a shorter, denser tree (Tree ID 112). Red tags at the bottom identify them as "Tree ID 113" and "Tree ID 112".
114	 A photograph of a large, dense, rounded tree with green foliage, similar to Tree ID 111. A red tag at the bottom center reads "Tree ID 114".



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Tag No.	Photo
115	
116	
117	
118	



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Tag No.	Photo
119	 A tall, slender tree with a dense canopy of green leaves, standing against a clear blue sky. A red tag at the bottom of the image reads "Tree ID 117-120".
120	 A tall, slender tree with a dense canopy of green leaves, standing against a clear blue sky. A red tag at the bottom of the image reads "Tree ID 117-120".
121	 A medium-sized tree with a dense canopy of green leaves, standing against a clear blue sky. A red tag at the bottom of the image reads "Tree ID 121".
122	 A medium-sized tree with a dense canopy of green leaves, standing against a clear blue sky. A red tag at the bottom of the image reads "Tree ID 122".



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Tag No.	Photo
123	 A photograph of a tall, slender tree with a dense canopy of green leaves. The tree is set against a clear blue sky with some light clouds. A red tag with the text 'Tree ID 123-125' is visible at the base of the tree.
124	 A photograph of a tall, slender tree with a dense canopy of green leaves. The tree is set against a clear blue sky with some light clouds. A red tag with the text 'Tree ID 123-125' is visible at the base of the tree.
125	 A photograph of a tall, slender tree with a dense canopy of green leaves. The tree is set against a clear blue sky with some light clouds. A red tag with the text 'Tree ID 123-125' is visible at the base of the tree.
126	 A photograph of a tree with a more spread-out canopy than the previous ones. The tree is set against a clear blue sky with some light clouds. A red tag with the text 'Tree ID 126' is visible at the base of the tree.



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Tag No.	Photo
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129	
130	



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Tag No.	Photo
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132	
133	
134	



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Tag No.	Photo
135	
136	
137	
138	



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Tag No.	Photo
139	
140	
141	
142	



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Tag No.	Photo
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145	
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Tag No.	Photo
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149	
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Tag No.	Photo
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153	
154	



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Tag No.	Photo
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157	
158	



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Tag No.	Photo
159	 A large, mature tree with a dense canopy of green leaves, standing in a grassy area under a clear blue sky. A red tag at the bottom reads "Tree ID 159".
160	 A large, mature tree with a dense canopy of green leaves, standing in a grassy area under a clear blue sky. A red tag at the bottom reads "Tree ID 160".
161	 Two trees are shown. On the left is a smaller tree with a red tag "Tree ID 161". To its right is a taller, more slender tree with a red tag "Tree ID 162". They are in a grassy area with a clear blue sky.
162	 Two trees are shown. On the left is a smaller tree with a red tag "Tree ID 161". To its right is a taller, more slender tree with a red tag "Tree ID 162". They are in a grassy area with a clear blue sky.



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Tag No.	Photo
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165	
166	



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Tag No.	Photo
167	 A photograph of a large, mature tree with dense green foliage. A red tag with the text "Tree ID 167" is visible at the bottom of the image.
168	 A photograph of a large, mature tree with dense green foliage. A red tag with the text "Tree ID 168" is visible at the bottom of the image.
169	 A photograph of a large, mature tree with dense green foliage. A red tag with the text "Tree ID 169" is visible at the bottom of the image.
170	 A photograph of a large, mature tree with dense green foliage. A red tag with the text "Tree ID 170" is visible at the bottom of the image.



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Tag No.	Photo
171	 A photograph of a large, mature tree with a thick, gnarled trunk and dense green foliage. A red tag with the text "Tree ID 171" is visible at the base of the tree.
172	 A photograph of a tall, slender tree with a straight trunk and a canopy of green leaves. A red tag with the text "Tree ID 172" is visible at the base of the tree.
176	 A photograph of a tree with a thick trunk and dense green foliage. A red tag with the text "Tree ID 176" is visible at the base of the tree.
177	 A photograph of a tree with a thick trunk and dense green foliage. A red tag with the text "Tree ID 177" is visible at the base of the tree.



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Tag No.	Photo
178	 A photograph of a tree with dense green foliage and a visible trunk. A red tag with the text 'Tree ID 178' is visible at the bottom of the image.
179	 A photograph of a tree with dense green foliage. A red tag with the text 'Tree ID 179' is visible at the bottom of the image.
180	 A photograph of a tree with dense green foliage and a visible trunk. A red tag with the text 'Tree ID 180' is visible at the bottom of the image.
181	 A photograph of a tree with dense green foliage and a visible trunk. A red tag with the text 'Tree ID 181' is visible at the bottom of the image.



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Tag No.	Photo
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184	
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Tag No.	Photo
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188	
189	



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Tag No.	Photo
190	 A photograph of a large, mature tree with a thick trunk and dense green foliage. A red tag with the text 'Tree ID 190' is visible at the base of the tree.
191	 A photograph showing two trees. The tree on the left is labeled 'Tree ID 191' and the tree on the right is labeled 'Tree ID 192'. Both are mature with green leaves.
192	 A photograph showing two trees. The tree on the left is labeled 'Tree ID 191' and the tree on the right is labeled 'Tree ID 192'. Both are mature with green leaves.
193	 A photograph of a tall, slender tree with a thin trunk and green foliage. A red tag with the text 'Tree ID 193' is visible at the base of the tree.



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Tag No.	Photo
194	 A photograph of a large, mature tree with a thick, textured trunk and dense green foliage. A red tag with the text "Tree ID 194" is visible at the base of the tree.
195	 A photograph of a tall, slender tree with a light-colored trunk and a canopy of green leaves. A red tag with the text "Tree ID 195" is visible at the base of the tree.
196	 A photograph of a tree with a dense canopy of bright green leaves. A red tag with the text "Tree ID 196" is visible at the base of the tree.
197	 A photograph showing two trees. The tree on the left has a red tag that reads "Tree ID 197". The tree on the right has a red tag that reads "Tree ID 198".



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Tag No.	Photo
198	A photograph of two trees. The tree on the left is labeled "Tree ID 197" and the tree on the right is labeled "Tree ID 198". Both trees have red identification tags at their bases. The trees are tall and slender with green foliage.
17	A photograph of a tree with a red identification tag at its base labeled "Tree ID 17-31". The tree is tall and slender with green foliage.
18	A photograph of a tree with a red identification tag at its base labeled "Tree ID 17-31". The tree is tall and slender with green foliage.
22	A photograph of a tree with a red identification tag at its base labeled "Tree ID 17-31". The tree is tall and slender with green foliage.



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Tag No.	Photo
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Tag No.	Photo
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28	
29	
30	



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Tag No.	Photo
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199	
200	
201	



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Tag No.	Photo
202	A photograph of a tree with a thick, textured trunk and dense green foliage, set against a clear blue sky.
203	A photograph of a tree with a thick, textured trunk and dense green foliage, set against a clear blue sky.
204	A photograph of a tree with a thick, textured trunk and dense green foliage, set against a clear blue sky.
205	A photograph of a tree with a thick, textured trunk and dense green foliage, set against a clear blue sky.



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Tag No.	Photo
206	A photograph of a large, mature tree with a thick trunk and a dense canopy of green leaves. The tree is situated on a grassy area with a sandy path or clearing in the foreground.
207	A photograph of a tree with a spreading canopy of green leaves, growing in a grassy field. The trunk is visible and appears to be of moderate thickness.
208	A photograph of a tree with a very thick, light-colored trunk and a dense canopy of green leaves. The tree is growing in a grassy area.
211	A photograph of a tree with a thick trunk and a dense canopy of green leaves, growing in a grassy field. The trunk is light-colored and shows some texture.



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Tag No.	Photo
209	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
210	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
212	A photograph of a medium-sized tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
213	A photograph of a medium-sized tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.



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Tag No.	Photo
214	A photograph of a large, mature tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated on a grassy area with a sandy path or fairway visible in the background.
215	A photograph of a tree with a thick, reddish-brown trunk and a dense canopy of green leaves. The tree is situated on a grassy area with a sandy path or fairway visible in the background.
216	A photograph of a tree with a thick, reddish-brown trunk and a dense canopy of green leaves. The tree is situated on a grassy area with a sandy path or fairway visible in the background.
217	A photograph of a tree with a thick, reddish-brown trunk and a dense canopy of green leaves. The tree is situated on a grassy area with a sandy path or fairway visible in the background.



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Tag No.	Photo
218	A photograph of a large, mature tree with a thick, gnarled trunk and dense green foliage. The tree is situated in a grassy area with a sandy path or clearing visible in the background.
219	A photograph of a tree with a thick, gnarled trunk and dense green foliage. The tree is situated in a grassy area with a sandy path or clearing visible in the background.
220	A photograph of a tree with a thick, gnarled trunk and dense green foliage. The tree is situated in a grassy area with a sandy path or clearing visible in the background.
221	A photograph of a tree with a thick, gnarled trunk and dense green foliage. The tree is situated in a grassy area with a sandy path or clearing visible in the background.



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Tag No.	Photo
222	A photograph of a large, mature tree with a thick, gnarled trunk and dense, green foliage. The tree is situated in a grassy area with some dry grass visible in the foreground.
223	A photograph of a tall, slender tree with a straight trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.
224	A photograph of a large, spreading tree with a thick trunk and a wide canopy of green leaves. The tree is located on a grassy field with a clear blue sky in the background.
225	A photograph of a large, mature tree with a thick trunk and a dense canopy of green leaves. The tree is situated in a grassy area with some dry grass visible in the foreground.



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Tag No.	Photo
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Tag No.	Photo
231	A tall palm tree with a tag attached to its trunk, standing in a grassy area with other trees in the background.
232	A tree with a tag attached to its trunk, showing a close-up of the tag and the tree's bark.
233	A tree with a tag attached to its trunk, showing a close-up of the tag and the tree's bark.
234	A tree with a tag attached to its trunk, showing a close-up of the tag and the tree's bark.



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Tag No.	Photo
235	A tall, slender tree with a light-colored trunk and a dense canopy of green leaves, set against a clear blue sky.
236	A large, spreading tree with a thick, light-colored trunk and a dense canopy of green leaves, set against a clear blue sky.
237	A large, spreading tree with a thick, light-colored trunk and a dense canopy of green leaves, set against a clear blue sky.
238	A large, spreading tree with a thick, light-colored trunk and a dense canopy of green leaves, set against a clear blue sky.



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Tag No.	Photo
239	A photograph of a tall, slender tree with a light-colored trunk and dense green foliage, standing in a grassy area with other trees in the background.
240	A photograph of a tree with a thick, gnarled trunk and a wide, spreading canopy of green leaves, situated in a grassy field.
241	A photograph of a tree with a thick, gnarled trunk and a wide, spreading canopy of green leaves, situated in a grassy field.
242	A photograph of a tree with a thick, gnarled trunk and a wide, spreading canopy of green leaves, situated in a grassy field.



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Tag No.	Photo
243	
244	
228	
245	



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Tag No.	Photo
246	A photograph of a large, dense tree with green and brown foliage, situated in a dry, grassy field under a clear blue sky.
247	A photograph of a tree with a thick, gnarled trunk and dense green foliage, standing in a dry, open area with other vegetation in the background.
248	A photograph of a tree with a slender trunk and green leaves, growing next to a large, spiky agave plant in a dry, sandy environment.
249	A photograph of a tree with a thick, dark trunk and green foliage, standing in a dry, open field with other trees in the background.



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Tag No.	Photo
250	A photograph of a tree with a thick, textured trunk and a dense canopy of green leaves, situated on a grassy area under a clear blue sky.
251	A photograph of a tree with a thick, textured trunk and a dense canopy of green leaves, situated on a grassy area under a clear blue sky.
252	A photograph of a tree with a thick, textured trunk and a dense canopy of green leaves, situated on a grassy area under a clear blue sky.
253	A photograph of a tree with a thick, textured trunk and a dense canopy of green leaves, situated on a grassy area under a clear blue sky.



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Tag No.	Photo
254	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a dry, grassy area with some bare ground visible at its base.
255	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a dry, grassy area with some bare ground visible at its base.
256	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a dry, grassy area with some bare ground visible at its base.
257	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a dry, grassy area with some bare ground visible at its base.



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Tag No.	Photo
258	A photograph of a tall, slender tree with a light-colored trunk and dense green foliage. The tree is set against a clear blue sky. In the background, a white building and some palm trees are visible.
259	A photograph of a tall, slender tree with a light-colored trunk and dense green foliage. The tree is set against a clear blue sky. In the background, a white building and some palm trees are visible.
260	A photograph of a tree with a thick, gnarled trunk and a wide, spreading canopy of green leaves. The tree is situated in a dry, sandy area with some low-lying vegetation in the foreground.
261	A photograph of a tree with a thick, gnarled trunk and a wide, spreading canopy of green leaves. The tree is situated in a dry, sandy area with some low-lying vegetation in the foreground.



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Tag No.	Photo
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Tag No.	Photo
266	A tall, slender tree with a light-colored trunk and a dense canopy of green leaves, standing in a grassy area under a clear blue sky.
267	A tree with a light-colored trunk and a dense canopy of green leaves, standing in a grassy area under a clear blue sky.
268	A tree with a light-colored trunk and a dense canopy of green leaves, standing in a grassy area under a clear blue sky.
269	A tree with a light-colored trunk and a dense canopy of green leaves, standing in a grassy area under a clear blue sky.



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Tag No.	Photo
270	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
271	A photograph of a tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
272	A photograph of a tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
273	A photograph of a tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.



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Tag No.	Photo
274	A photograph of a large, mature tree with a thick, gnarled trunk and dense green foliage. The tree is situated in a grassy area with other trees in the background.
275	A photograph of a tree with a thick trunk and dense green foliage. The tree is situated in a grassy area with other trees in the background.
276	A photograph of a tree with a thick trunk and dense green foliage. The tree is situated in a grassy area with other trees in the background.
277	A photograph of a tree with a thick trunk and dense green foliage. The tree is situated in a grassy area with other trees in the background.



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Tag No.	Photo
278	A photograph of a large, mature tree with a thick, gnarled trunk and dense green foliage. The tree is situated in a grassy area with other trees in the background.
279	A photograph of a tall, slender tree with a straight trunk and a canopy of green leaves. The tree is surrounded by other vegetation.
280	A photograph of a tall, slender tree with a straight trunk and a canopy of green leaves. The tree is surrounded by other vegetation.
281	A photograph of a tall, slender tree with a straight trunk and a canopy of green leaves. The tree is surrounded by other vegetation.



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Tag No.	Photo
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Tag No.	Photo
286	A photograph of a tall, slender tree with a light-colored trunk and a dense canopy of dark green leaves. The tree is set against a background of other trees and a clear sky.
287	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is surrounded by dry, brownish ground and other vegetation.
288	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is surrounded by dry, brownish ground and other vegetation.
289	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is surrounded by dry, brownish ground and other vegetation.



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Tag No.	Photo
290	A photograph of a large, mature tree with a thick, light-colored trunk and dense green foliage. The tree is situated in a grassy area with some dry leaves on the ground.
291	A photograph of a tree with a thick, reddish-brown trunk and dense green foliage. The tree is situated in a grassy area with some dry leaves on the ground.
292	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The tree is situated in a grassy area with some dry leaves on the ground.
293	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The tree is situated in a grassy area with some dry leaves on the ground.



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Tag No.	Photo
294	A photograph of a large, mature tree with a thick, light-colored trunk and dense green foliage. The tree is situated in a grassy area with other trees in the background.
295	A photograph of a tall, slender tree with a dark trunk and dense green foliage. The tree is situated in a grassy area with other trees in the background.
296	A photograph of a tall, slender tree with a dark trunk and dense green foliage. The tree is situated in a grassy area with other trees in the background.
297	A photograph of a tall, slender tree with a dark trunk and dense green foliage. The tree is situated in a grassy area with other trees in the background.



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Tag No.	Photo
298	A photograph of a tree with a thick, gnarled trunk and dense, dark foliage. The ground is covered in dry grass and fallen leaves.
299	A photograph of a tall, slender tree with a straight trunk and a canopy of dark green leaves. The ground is dry and grassy.
300	A photograph of a tree with a thick trunk and a dense canopy of dark green leaves. The ground is dry and grassy.
301	A photograph of a tree with a thick trunk and a dense canopy of dark green leaves. The ground is dry and grassy.



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Tag No.	Photo
302	A photograph of a tree with a thick, gnarled trunk and dense, dark foliage, standing in a grassy field.
303	A photograph of a tree with a thick, gnarled trunk and dense, dark foliage, standing in a grassy field.
304	A photograph of a tree with a thick, gnarled trunk and dense, dark foliage, standing in a grassy field.
305	A photograph of a tree with a thick, gnarled trunk and dense, dark foliage, standing in a grassy field.



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Tag No.	Photo
306	A tall, slender tree with a dense canopy of dark green leaves, standing in a grassy field under a cloudy sky.
307	A tree with a thick, textured trunk and a canopy of dark green leaves, surrounded by other trees in a wooded area.
308	A tree with a thick, gnarled trunk and a canopy of dark green leaves, situated in a grassy field with other trees in the background.
309	A tree with a thick, gnarled trunk and a canopy of dark green leaves, standing in a grassy field with a sandy area in the background.



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Tag No.	Photo
310	A photograph of a tree with a thick, gnarled trunk and dense green foliage, situated in a grassy area.
311	A photograph of a tree with a thick, gnarled trunk and dense green foliage, situated in a grassy area.
312	A photograph of a tree with a thick, gnarled trunk and dense green foliage, situated in a grassy area.
313	A photograph of a tree with a thick, gnarled trunk and dense green foliage, situated in a grassy area.



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Tag No.	Photo
314	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated on a sandy, light-colored ground.
315	A photograph of a medium-sized tree with a dense, rounded canopy of green leaves. The tree is growing on a sandy, light-colored ground.
316	A photograph of a tree with a dense canopy of green leaves, viewed from a low angle looking up. The ground is sandy and light-colored.
317	A photograph of a tree with a dense canopy of green leaves, viewed from a low angle looking up. The ground is sandy and light-colored.



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Tag No.	Photo
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Tag No.	Photo
322	A photograph of a tall, slender tree with a light-colored trunk and dense green foliage. The tree is standing in a grassy area with other trees in the background.
323	A photograph of a tree with a light-colored trunk and dense green foliage. The tree is standing in a grassy area with other trees in the background.
324	A photograph of a tree with a light-colored trunk and dense green foliage. The tree is standing in a grassy area with other trees in the background.
325	A photograph of a tree with a light-colored trunk and dense green foliage. The tree is standing in a grassy area with other trees in the background.



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Tag No.	Photo
326	A photograph of a tree with a light-colored, textured trunk and dense green foliage. The tree is situated in a dry, open area with some dry grass and a fence visible in the background.
327	A photograph of a tree with a light-colored trunk and dense green foliage. The tree is situated in a dry, open area with some dry grass and a fence visible in the background.
328	A photograph of a tree with a light-colored trunk and dense green foliage. The tree is situated in a dry, open area with some dry grass and a fence visible in the background.
329	A photograph of a tree with a light-colored trunk and dense green foliage. The tree is situated in a dry, open area with some dry grass and a fence visible in the background.



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Tag No.	Photo
330	A photograph of a tall, slender tree with a light-colored trunk and dense green foliage. The tree is standing in a grassy area with a building visible in the background.
331	A photograph of a large, mature tree with a thick, gnarled trunk and a wide, spreading canopy of green leaves. A house is visible in the background.
332	A photograph of a tree with a thick trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a building in the background.
333	A photograph of a tree with a thick trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a building in the background.



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Tag No.	Photo
334	A photograph of a tall, slender tree with a dense canopy of green leaves, set against a blue sky with scattered white clouds.
335	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves, with a chain-link fence visible in the background.
336	A photograph of a tree with a light-colored trunk and a dense canopy of green leaves, with a chain-link fence visible in the background.
337	A photograph of a tree with a thick trunk and a dense canopy of green leaves, with a body of water and a fence visible in the background.



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Tag No.	Photo
338	A photograph of a tree with a thick, textured trunk and dense, dark green foliage. The tree is situated in a dry, open area with sparse grass and some bare ground.
340	A photograph of a tree with a thick, textured trunk and dense, dark green foliage. The tree is situated in a dry, open area with sparse grass and some bare ground.
341	A photograph of a tree with a thick, textured trunk and dense, dark green foliage. The tree is situated in a dry, open area with sparse grass and some bare ground.
342	A photograph of a tree with a thick, textured trunk and dense, dark green foliage. The tree is situated in a dry, open area with sparse grass and some bare ground.



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Tag No.	Photo
347	A photograph of a tree with a thick, reddish-brown trunk and dense green foliage, set against a clear blue sky.
348	A photograph of a tree with a thick, reddish-brown trunk and dense green foliage, set against a clear blue sky.
349	A photograph of a tree with a thick, reddish-brown trunk and dense green foliage, set against a clear blue sky.
350	A photograph of a tree with a thick, reddish-brown trunk and dense green foliage, set against a clear blue sky.



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Tag No.	Photo
351	A photograph of a tree with a thick, textured trunk and dense green foliage, set against a clear blue sky.
352	A photograph of a tree with a thick, textured trunk and dense green foliage, set against a clear blue sky.
353	A photograph of a tree with a thick, textured trunk and dense green foliage, set against a clear blue sky.
354	A photograph of a tree with a thick, textured trunk and dense green foliage, set against a clear blue sky.



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Tag No.	Photo
355	A photograph of a tree with a thick, gnarled trunk and dense green foliage, situated in a dry, open area.
356	A photograph of a tree with a thick, gnarled trunk and dense green foliage, situated in a dry, open area.
357	A photograph of a tree with a thick, gnarled trunk and dense green foliage, situated in a dry, open area.
358	A photograph of a tree with a thick, gnarled trunk and dense green foliage, situated in a dry, open area.



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Tag No.	Photo
359	A photograph of a large, mature tree with a thick trunk and dense green foliage, standing in a grassy area.
360	A photograph of a tree with a spreading canopy and light-colored bark, situated on a sandy or cleared area.
361	A photograph of a tall tree with a prominent, light-colored trunk and a full canopy of green leaves.
362	A photograph of a tree with a thick, textured trunk and a canopy of green leaves, growing in a grassy field.



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Tag No.	Photo
363	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
364	A photograph of a tall, slender tree with a straight trunk and a canopy of green leaves. The tree is located in a grassy field with a building visible in the background.
365	A photograph of a large tree with a thick trunk and a dense canopy of green leaves. The tree is in a grassy area with a building and other trees in the background.
366	A photograph of a large tree with a thick trunk and a dense canopy of green leaves. The tree is in a grassy area with other trees in the background.



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Tag No.	Photo
367	A large, mature tree with a thick, dark trunk and a dense, rounded canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
368	A tree with a light-colored, possibly white or light brown, trunk and a canopy of green leaves. The tree is leaning slightly to the right. The ground around the base is dry and sandy.
369	A tree with a light-colored trunk and a canopy of green leaves. The tree is leaning slightly to the right. The ground around the base is dry and sandy.
370	A tree with a light-colored trunk and a canopy of green leaves. The tree is leaning slightly to the right. The ground around the base is dry and sandy.



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Tag No.	Photo
371	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with some bare ground visible at its base.
372	A photograph of a tree with a light-colored, possibly white or pale grey, trunk and a dense canopy of green leaves. The tree is in a grassy area with other trees in the background.
373	A photograph of a tree with a light-colored trunk and a dense canopy of green leaves. The tree is in a grassy area with a building visible in the background.
374	A photograph of a tree with a light-colored trunk and a dense canopy of green leaves. The tree is in a grassy area with other trees in the background.



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Tag No.	Photo
375	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
376	A photograph of a tree with a dark, gnarled trunk and a spreading canopy of green leaves. The tree is located in a grassy field under a clear blue sky.
377	A photograph of a tree with a light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
378	A photograph of a tree with a light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.



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Tag No.	Photo
379	A photograph of a large, mature tree with a thick, gnarled trunk and dense green foliage, situated in a grassy area with a golf course in the background.
380	A photograph of a tree with a reddish-brown trunk and green leaves, growing in a sandy or light-colored soil area.
381	A photograph of a tall, slender tree with a straight trunk and a canopy of green leaves, standing in a grassy field with a building visible in the background.
382	A photograph of a tree with a thick, curved trunk and green foliage, growing in a grassy area.



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Tag No.	Photo
383	A large, mature tree with a thick, dark trunk and dense green foliage, standing in a grassy field with a building visible in the background.
384	A tree with a light-colored, possibly white or pale yellow, trunk and green foliage, situated in a grassy area.
385	A tree with a dark trunk and a wide, spreading canopy of green leaves, located in a grassy field.
386	A tree with a dark trunk and a dense canopy of green leaves, standing in a grassy field.



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Tag No.	Photo
387	A large, mature tree with a thick, dark trunk and a wide, spreading canopy of green leaves. The tree is situated in a grassy field with a clear blue sky in the background.
388	A tree with a slender trunk and a dense, rounded canopy of green leaves. The tree is located in a grassy area with some buildings visible in the background.
389	A tree with a thick, light-colored trunk and a dense, rounded canopy of green leaves. The tree is situated in a grassy field with some buildings visible in the background.
390	A tree with a thick, light-colored trunk and a dense, rounded canopy of green leaves. The tree is situated in a grassy field with some buildings visible in the background.



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Tag No.	Photo
391	A photograph of a large, mature tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees and a building visible in the background.
392	A photograph of a large, mature tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees and a building visible in the background.
393	A photograph of a large, mature tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees and a building visible in the background.
394	A photograph of a large, mature tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees and a building visible in the background.



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Tag No.	Photo
395	A tall, slender tree with a dense canopy of green leaves, standing in a grassy area with other trees in the background.
396	A large, spreading tree with a thick trunk and a wide canopy of green leaves, casting a shadow on the ground.
397	A large, spreading tree with a thick trunk and a wide canopy of green leaves, with a building visible in the background.
398	A large, spreading tree with a thick trunk and a wide canopy of green leaves, casting a shadow on the ground.



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Tag No.	Photo
399	A tall, slender tree with a dense canopy of green leaves, standing in front of a white building with a dark roof.
400	A large, spreading tree with a thick trunk and a wide canopy of green leaves, situated in front of a white building.
401	A large, spreading tree with a thick trunk and a wide canopy of green leaves, situated in front of a white building.
402	A large, spreading tree with a thick trunk and a wide canopy of green leaves, situated in front of a white building.



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Tag No.	Photo
403	A photograph of a large, mature tree with a thick trunk and dense green foliage, standing in a grassy field under a clear blue sky.
404	A photograph of a tall, slender tree with a light-colored trunk and a canopy of green leaves, set against a clear blue sky.
405	A photograph of a tree with a thick trunk and a dense canopy of green leaves, situated in a grassy area.
406	A photograph of a tree with a thick trunk and a dense canopy of green leaves, standing in a grassy field.



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Tag No.	Photo
407	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is leaning slightly to the right. The background shows a clear blue sky and some distant trees.
408	A photograph of a tree with a thick, light-colored trunk that has a large, irregular hole or hollow in it. The tree has a dense canopy of green leaves. The ground around the tree is dry and grassy.
409	A photograph of a tall, slender tree with a straight trunk and a canopy of green leaves. The tree is standing on a grassy area with some dry leaves on the ground. The background shows a clear blue sky and some distant trees.
410	A photograph of a tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is leaning slightly to the right. The background shows a clear blue sky and some distant trees.



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Tag No.	Photo
411	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
412	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a fence or wall in the background.
413	A photograph of a tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
414	A photograph of a tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.



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Tag No.	Photo
415	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is positioned in front of a residential building with a light-colored roof and walls. The sky is clear and blue.
416	A photograph of a tall, slender tree with a light-colored trunk and a canopy of green leaves. The tree is positioned in front of a residential building with a light-colored roof and walls. The sky is clear and blue.
417	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is positioned in front of a residential building with a light-colored roof and walls. The sky is clear and blue.
418	A photograph of a tall, slender tree with a light-colored trunk and a canopy of green leaves. The tree is positioned in front of a residential building with a light-colored roof and walls. The sky is clear and blue.



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Tag No.	Photo
419	A photograph of a large, mature tree with a thick trunk and dense green foliage, standing in a grassy area with a building visible in the background.
420	A photograph of a medium-sized tree with a spreading canopy and light-colored bark, situated in a dry, grassy field.
421	A photograph of a tall, slender tree with a dense canopy of green leaves, growing in a grassy area.
422	A photograph of a tall, slender tree with a dense canopy of green leaves, growing in a grassy area.



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Tag No.	Photo
423	A photograph of a tree with a thick, gnarled trunk and dense green foliage, situated on a grassy hillside.
424	A photograph of a tree with a thick, gnarled trunk and dense green foliage, situated in a grassy field with a building visible in the background.
425	A photograph of a tree with a thick, gnarled trunk and dense green foliage, situated in a grassy field.
426	A photograph of a tree with a thick, gnarled trunk and dense green foliage, situated in a grassy field.



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Tag No.	Photo
427	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.
428	A photograph of a tree with a thick trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
429	A photograph of a tree with a thick trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
430	A photograph of a tree with a thick trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.



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Tag No.	Photo
431	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The tree is situated in a grassy area with other trees in the background.
432	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The tree is situated in a grassy area with other trees in the background.
433	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The tree is situated in a grassy area with other trees in the background.
434	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The tree is situated in a grassy area with other trees in the background.



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Tag No.	Photo
435	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated on a grassy area with some dry patches.
436	A photograph of a tree with a light-colored, textured trunk and a canopy of green leaves. The tree is viewed from a low angle, looking up towards the sky.
437	A photograph of a tree with a light-colored trunk and a dense canopy of green leaves. The tree is viewed from a low angle, looking up towards the sky.
438	A photograph of a tree with a light-colored trunk and a dense canopy of green leaves. The tree is viewed from a low angle, looking up towards the sky.



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Tag No.	Photo
439	A tall, slender tree with a light-colored trunk and dense green foliage, standing against a clear blue sky.
440	A large, spreading tree with a thick trunk and dense green foliage, casting a shadow on the ground.
441	A large, spreading tree with a thick trunk and dense green foliage, standing in a grassy field.
442	A large, spreading tree with a thick trunk and dense green foliage, standing in a grassy field.



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Tag No.	Photo
443	A photograph of a large, mature tree with a thick, light-colored trunk and dense green foliage, standing in a grassy field under a clear blue sky.
444	A photograph of a tree with a light-colored trunk and green leaves, viewed from a slightly different angle than the previous one, showing more of the surrounding landscape.
445	A photograph of a tree with a light-colored trunk and green leaves, showing a different view of the same or a similar tree in the same area.
446	A photograph of a tree with a light-colored trunk and green leaves, showing another view of the tree or a different tree in the same area.



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Tag No.	Photo
447	A tall, slender tree with a light-colored trunk and dense green foliage, set against a clear blue sky.
448	A large, spreading tree with a thick, dark trunk and dense green foliage, situated in a grassy area.
449	A tree with a thick, dark trunk and dense green foliage, situated in a grassy area.
450	A tree with a thick, dark trunk and dense green foliage, situated in a grassy area.



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Tag No.	Photo
451	A photograph of a tall, slender tree with a light-colored trunk and dense green foliage, set against a clear blue sky.
452	A photograph of a tree with a thick, textured trunk and a full canopy of green leaves, with a clear blue sky in the background.
453	A photograph of a large, spreading tree with a thick trunk and a dense canopy of green leaves, with a clear blue sky in the background.
454	A photograph of a tree with a thick, textured trunk and a full canopy of green leaves, with a clear blue sky in the background.



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Tag No.	Photo
455	A photograph of a large, mature tree with a thick trunk and a dense canopy of green leaves, standing in a grassy field under a clear blue sky.
456	A photograph of a medium-sized tree with a spreading canopy of green leaves, situated in a grassy area with a fence visible in the background.
457	A photograph of a tall tree with a slender trunk and a canopy of green leaves, viewed from a low angle looking up towards the sky.
458	A photograph of a tree with a thick trunk and a dense canopy of green leaves, growing in a grassy field.



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Tag No.	Photo
459	A photograph of a large, mature tree with a dense, rounded canopy of green and brown leaves, situated in a dry, open field under a clear blue sky.
460	A photograph of a large, mature tree with a dense, rounded canopy of green and brown leaves, situated in a dry, open field under a clear blue sky.
461	A photograph of a large, mature tree with a dense, rounded canopy of green and brown leaves, situated in a dry, open field under a clear blue sky.
462	A photograph of a large, mature tree with a dense, rounded canopy of green and brown leaves, situated in a dry, open field under a clear blue sky.



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Tag No.	Photo
463	A photograph of a tall, slender tree with a light-colored trunk and dense green foliage, standing in a grassy area with other trees in the background.
464	A photograph of a tall, slender tree with a light-colored trunk and dense green foliage, standing in a grassy area with other trees in the background.
465	A photograph of a tall, slender tree with a light-colored trunk and dense green foliage, standing in a grassy area with other trees in the background.
466	A photograph of a tall, slender tree with a light-colored trunk and dense green foliage, standing in a grassy area with other trees in the background.



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Tag No.	Photo
467	A photograph of a large, mature tree with a dense, rounded canopy of green leaves. The tree is situated on a grassy area with some dry patches. The background shows a clear blue sky and some distant structures.
468	A photograph of a large, mature tree with a dense, rounded canopy of green leaves. The tree is situated on a grassy area with some dry patches. The background shows a clear blue sky and some distant structures.
469	A photograph of a large, mature tree with a dense, rounded canopy of green leaves. The tree is situated on a grassy area with some dry patches. The background shows a clear blue sky and some distant structures.
470	A photograph of a large, mature tree with a dense, rounded canopy of green leaves. The tree is situated on a grassy area with some dry patches. The background shows a clear blue sky and some distant structures.



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Tag No.	Photo
471	A large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.
472	A large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.
473	A tall, slender tree with a straight trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.
474	A large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.



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Tag No.	Photo
475	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.
476	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.
477	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.
478	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.



Tree Photos
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Tag No.	Photo
479	A photograph of a tree with a thick, textured trunk and dense green foliage, set against a clear blue sky.
480	A photograph of a tree with a light-colored, peeling bark and a tall, slender trunk, reaching up into a blue sky.
481	A photograph of a tree with a light-colored, peeling bark and a tall, slender trunk, similar to tree 480, with a clear blue sky in the background.
482	A photograph of a tree with a light-colored, peeling bark and a tall, slender trunk, similar to trees 480 and 481, with a clear blue sky in the background.



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Tag No.	Photo
483	A photograph of a tree with a thick, light-colored trunk and dense green foliage, set against a clear blue sky. A building is partially visible in the background.
484	A photograph of a tree with a thick, light-colored trunk and dense green foliage, set against a clear blue sky. The tree appears to be in a wooded area.
485	A photograph of a tree with a thick, light-colored trunk and dense green foliage, set against a clear blue sky. The tree is in a grassy area with other trees in the background.
486	A photograph of a tree with a thick, light-colored trunk and dense green foliage, set against a clear blue sky. The tree is in a grassy area with other trees in the background.



Tree Photos
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Tag No.	Photo
487	A tall, slender tree with a dense canopy of green needles, likely a cypress, standing in a sandy area.
488	A large, spreading tree with a thick, light-colored trunk and dense green foliage, situated in a wooded area.
489	A tall, slender tree with a thick, light-colored trunk and dense green foliage, situated in a wooded area.
490	A large, spreading tree with a thick, light-colored trunk and dense green foliage, situated in a wooded area.



Tree Photos
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Tag No.	Photo
491	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The tree is situated in a grassy area with a dirt path visible in the background.
492	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The tree is situated in a grassy area with a dirt path visible in the background.
493	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The tree is situated in a grassy area with a dirt path visible in the background.
494	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The tree is situated in a grassy area with a dirt path visible in the background.



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Tag No.	Photo
495	A photograph of a large, mature tree with a thick, light-colored trunk and dense green foliage. The tree is situated in a grassy area with other trees in the background.
496	A photograph of a tree with a very light, almost white, trunk and branches. The foliage is green and dense. The tree is in a grassy area with other trees in the background.
497	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The tree is situated in a grassy area with other trees in the background.
498	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The tree is situated in a grassy area with other trees in the background.



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Tag No.	Photo
499	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
500	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
501	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
502	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.



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Tag No.	Photo
503	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a fence and other trees in the background.
504	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a fence and other trees in the background.
505	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a fence and other trees in the background.
506	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a fence and other trees in the background.



Tree Photos
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Tag No.	Photo
507	A photograph of a tall, slender tree with a light-colored trunk and dense green foliage, standing in a grassy field under a clear blue sky.
508	A photograph of a large, spreading tree with a thick, gnarled trunk and dense green foliage, standing in a grassy field under a clear blue sky.
509	A photograph of a tall, slender tree with a light-colored trunk and dense green foliage, standing in a grassy field under a clear blue sky.
510	A photograph of a tall, slender tree with a light-colored trunk and dense green foliage, standing in a grassy field under a clear blue sky.



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Tag No.	Photo
511	A photograph of a large, mature tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
512	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
513	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
514	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.



Tree Photos
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Tag No.	Photo
515	A photograph of a large, mature tree with a thick, textured trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
516	A photograph of a tree with a thick trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
517	A photograph of a tree with a thick trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
518	A photograph of a tree with a thick trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.



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Tag No.	Photo
519	A photograph of a tree with a thick, dark trunk and dense green foliage, situated in a sandy, open area.
520	A photograph of a tree with a thick, dark trunk and dense green foliage, situated in a sandy, open area.
521	A photograph of a tree with a thick, dark trunk and dense green foliage, situated in a sandy, open area.
522	A photograph of a tree with a thick, dark trunk and dense green foliage, situated in a sandy, open area.



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Tag No.	Photo
523	A photograph of a large, mature tree with a thick trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
524	A photograph of a tall, slender tree with a straight trunk and a canopy of green leaves. The tree is located in a grassy field with a clear blue sky in the background.
525	A photograph of a tree with a curved trunk and a canopy of green leaves. The tree is growing in a sandy, open area with other trees in the distance.
526	A photograph of a tree with a thick, gnarled trunk and a canopy of green leaves. The tree is situated in a sandy, open area with other trees in the background.



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Tag No.	Photo
527	A photograph of a tree with a thick, dark trunk and dense green foliage, standing in a dry, open field under a clear blue sky.
528	A photograph of a tree with a thick, dark trunk and dense green foliage, standing in a dry, open field under a clear blue sky.
529	A photograph of a tree with a thick, dark trunk and dense green foliage, standing in a dry, open field under a clear blue sky.
530	A photograph of a tree with a thick, dark trunk and dense green foliage, standing in a dry, open field under a clear blue sky.



Tree Photos
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Tag No.	Photo
531	A photograph of a large, mature tree with a thick, textured trunk and a dense canopy of green leaves. The tree is situated in a dry, sandy area with some sparse vegetation in the background.
532	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a dry, sandy area with some sparse vegetation in the background.
533	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a dry, sandy area with some sparse vegetation in the background.
534	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a dry, sandy area with some sparse vegetation in the background.



Tree Photos
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Tag No.	Photo
535	A photograph of a tree with a thick, dark trunk and a dense canopy of green and yellow leaves. The tree is situated in a dry, open area with sparse vegetation and a clear blue sky in the background.
536	A photograph of a tree with a thick, dark trunk and a dense canopy of green and yellow leaves. The tree is situated in a dry, open area with sparse vegetation and a clear blue sky in the background.
537	A photograph of a tree with a thick, dark trunk and a dense canopy of green and yellow leaves. The tree is situated in a dry, open area with sparse vegetation and a clear blue sky in the background.
538	A photograph of a tree with a thick, dark trunk and a dense canopy of green and yellow leaves. The tree is situated in a dry, open area with sparse vegetation and a clear blue sky in the background.



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Tag No.	Photo
539	A photograph of a large, mature tree with a thick trunk and dense green foliage, standing in a grassy area with a fence and other trees in the background.
540	A photograph of a large, bushy tree with a thick trunk and dense green foliage, standing in a grassy area with a fence and other trees in the background.
541	A photograph of a large, mature tree with a thick trunk and dense green foliage, standing in a grassy area with a fence and other trees in the background.
542	A photograph of a large, mature tree with a thick trunk and dense green foliage, standing in a grassy area with a fence and other trees in the background.



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Tag No.	Photo
543	A photograph of a tree with a thick, gnarled trunk and dense, green foliage. The tree is situated in a sandy, open area with some sparse grass.
544	A photograph of a tree with a thick, gnarled trunk and dense, green foliage. The tree is situated in a sandy, open area with some sparse grass.
545	A photograph of a tree with a thick, gnarled trunk and dense, green foliage. The tree is situated in a sandy, open area with some sparse grass.
546	A photograph of a tree with a thick, gnarled trunk and dense, green foliage. The tree is situated in a sandy, open area with some sparse grass.



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Tag No.	Photo
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549	
550	



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Tag No.	Photo
551	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.
552	A photograph of a tall, slender tree with a light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.
553	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.
554	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.



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Tag No.	Photo
555	A photograph of a large, mature tree with a thick, light-colored trunk and dense green foliage, standing in a grassy area.
556	A photograph of a large, mature tree with a thick, light-colored trunk and dense green foliage, standing in a grassy area.
557	A photograph of a tall, slender tree with a light-colored trunk and dense green foliage, standing in a grassy area.
558	A photograph of a large, mature tree with a thick, light-colored trunk and dense green foliage, standing in a grassy area.



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Tag No.	Photo
559	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.
560	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.
561	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.
562	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.



Tree Photos
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Tag No.	Photo
563	A tall, slender tree with a light-colored trunk and dense green foliage, standing against a blue sky with scattered clouds.
564	A tree with a thick, dark trunk and a wide, spreading canopy of green leaves, situated in a grassy area with a fence in the background.
565	A large, mature tree with a thick trunk and a dense, rounded canopy of green leaves, located near a stone wall and a building.
566	A tall tree with a light-colored trunk and a canopy of green leaves, viewed from a low angle looking up towards the sky.



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Tag No.	Photo
567	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy field with other trees in the background.
568	A photograph of a tall, slender tree with a straight trunk and a canopy of green leaves. The tree is in a grassy field with a clear blue sky in the background.
569	A photograph of a tree with a thick trunk and a dense canopy of green leaves. The tree is in a grassy field with a clear blue sky in the background.
570	A photograph of a large, bushy tree with a dense canopy of green leaves. The tree is in a grassy field with a clear blue sky in the background.



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Tag No.	Photo
571	
572	
573	
574	



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Tag No.	Photo
575	A photograph of a dense, green, bushy tree with many small leaves, growing in a sandy area.
576	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves, growing in a sandy area.
577	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves, growing in a sandy area.
578	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves, growing in a sandy area.



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Tag No.	Photo
579	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a dry, grassy area with some buildings visible in the background.
580	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a dry, grassy area with some buildings visible in the background.
581	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a dry, grassy area with some buildings visible in the background.
582	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a dry, grassy area with some buildings visible in the background.



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Tag No.	Photo
583	A photograph of a medium-sized tree with a slender trunk and a dense, rounded canopy of green leaves. The tree is situated in a grassy area with a clear blue sky and some clouds in the background.
584	A photograph of a tree with a thick, textured trunk and a dense canopy of green leaves. The tree is in a grassy field with a clear sky.
585	A photograph of a large, mature tree with a very thick, light-colored trunk and a broad, spreading canopy of green leaves. The tree is in a grassy area with a clear sky.
586	A photograph of a tree with a thick trunk and a dense canopy of green leaves. The tree is in a grassy area with a clear sky.



Tree Photos
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Tag No.	Photo
587	A photograph of a tree with dense, dark green foliage and a thick, gnarled trunk, situated in a dry, grassy field under a clear blue sky.
588	A photograph of a tree with a dense canopy of green leaves and a straight, light-colored trunk, standing in a dry, grassy field.
589	A photograph of a tree with a dense, rounded canopy of green leaves and a thick, gnarled trunk, situated in a dry, grassy field.
590	A photograph of a tree with a dense, rounded canopy of green leaves and a thick, gnarled trunk, situated in a dry, grassy field.



Tree Photos
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Tag No.	Photo
591	A photograph of a large, mature tree with a thick, dark brown trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
592	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
593	A photograph of a tree with a thick, dark brown trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
594	A photograph of a tree with a thick, dark brown trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.



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Tag No.	Photo
595	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.
596	A photograph of a tall, slender tree with a light-colored trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.
597	A photograph of a tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.
598	A photograph of a tree with a light-colored trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.



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Tag No.	Photo
599	A photograph of a tree with dense, green, rounded foliage. The tree is situated in a natural, somewhat brushy area with dry grass and other vegetation in the background.
600	A photograph of a tree with a light-colored, possibly white or pale yellow, trunk and branches. The foliage is green and somewhat sparse, revealing the structure of the tree. The ground is dry and sandy.
601	A photograph of a tree with a light-colored trunk and branches, similar to tree 600. The foliage is green and dense. The background shows a dry, open field under a clear sky.
602	A photograph of a tree with a light-colored trunk and branches, similar to trees 600 and 601. The foliage is green and dense. The background shows a dry, open field under a clear sky.



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Tag No.	Photo
603	A photograph of a large, mature tree with a thick trunk and dense green foliage, standing in a grassy area with a fence visible in the background.
604	A photograph of a tree with a spreading canopy and a visible trunk, situated in a grassy field.
605	A photograph of a tree with a thick trunk and dense green foliage, viewed from a low angle looking up.
606	A photograph of a tree with a thick trunk and dense green foliage, viewed from a low angle looking up.



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Tag No.	Photo
607	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in an open area with some grass and a building visible in the background.
608	A photograph of a tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in an open area with some grass and a building visible in the background.
609	A photograph of a tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in an open area with some grass and a building visible in the background.
610	A photograph of a tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in an open area with some grass and a building visible in the background.



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Tag No.	Photo
611	A photograph of a large, mature tree with a thick, gnarled trunk and dense green foliage. The tree is situated in a grassy area with a building visible in the background.
612	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The tree is situated in a grassy area with a building visible in the background.
613	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The tree is situated in a grassy area with a building visible in the background.
614	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The tree is situated in a grassy area with a building visible in the background.



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Tag No.	Photo
615	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The sun is visible through the leaves in the upper right corner.
616	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The sun is visible through the leaves in the upper right corner.
617	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The sun is visible through the leaves in the upper right corner.
618	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The sun is visible through the leaves in the upper right corner.



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Tag No.	Photo
619	A photograph of a tree with a thick, reddish-brown trunk and dense green foliage. The tree is situated in a grassy area with other trees in the background.
620	A photograph of a tree with a thick, reddish-brown trunk and dense green foliage. The tree is situated in a grassy area with other trees in the background.
621	A photograph of a tree with a thick, reddish-brown trunk and dense green foliage. The tree is situated in a grassy area with other trees in the background.
622	A photograph of a tree with a thick, reddish-brown trunk and dense green foliage. The tree is situated in a grassy area with other trees in the background.



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Tag No.	Photo
623	A photograph of a tree with a thick, textured trunk and dense green foliage, viewed from a low angle looking up.
624	A photograph of a large, mature tree with a wide, spreading canopy and a thick trunk, standing in an open area.
625	A photograph of a tree with a thick trunk and dense green foliage, viewed from a low angle looking up.
626	A photograph of a tree with a thick trunk and dense green foliage, viewed from a low angle looking up.



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Tag No.	Photo
627	A photograph of a large, mature tree with a thick trunk and dense green foliage, standing in a grassy area.
628	A photograph of a large, mature tree with a thick trunk and dense green foliage, standing in a grassy area.
629	A photograph of a large, mature tree with a thick trunk and dense green foliage, standing in a grassy area.
630	A photograph of a large, mature tree with a thick trunk and dense green foliage, standing in a grassy area.



Tree Photos
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Tag No.	Photo
631	A photograph of a tree with a thick, textured trunk and dense green foliage, standing in a grassy area.
632	A photograph of a tree with a slender trunk and a wide, spreading canopy of green leaves, situated in a grassy field.
633	A photograph of a tree with a thick trunk and a dense canopy of green leaves, viewed from a low angle looking up.
634	A photograph of a tree with a thick trunk and a dense canopy of green leaves, viewed from a low angle looking up.



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Tag No.	Photo
635	A photograph of a tall, slender tree with a light-colored trunk and dense green foliage, set against a clear blue sky.
636	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves, with a building visible in the background.
637	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves, with a building visible in the background.
638	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves, with a building visible in the background.



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Tag No.	Photo
639	A tall, slender tree with a dense canopy of green leaves, viewed from a low angle looking up towards a clear blue sky.
640	A large, mature tree with a thick trunk and a wide, spreading canopy of green leaves, situated in a residential area with houses visible in the background.
641	A tree with a thick trunk and a dense canopy of green leaves, viewed from a low angle looking up towards a clear blue sky.
642	A large, mature tree with a thick trunk and a wide, spreading canopy of green leaves, situated in a residential area with houses visible in the background.



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Tag No.	Photo
643	A photograph of a tall, slender tree with a light-colored trunk and dense green foliage, set against a clear blue sky.
644	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves, situated in a grassy area.
645	A photograph of a tree with a light-colored trunk and sparse green foliage, standing in a grassy field with other trees in the background.
646	A photograph of a tree with a light-colored trunk and dense green foliage, located near a fence and other trees.



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Tag No.	Photo
647	A tall, slender tree with a dense canopy of green leaves, set against a blue sky with scattered white clouds.
648	A tree with a thick, light-colored trunk and a dense canopy of green leaves, situated in a grassy area with other trees in the background.
649	A tree with a thick, light-colored trunk and a dense canopy of green leaves, set against a blue sky with scattered white clouds.
650	A tree with a thick, light-colored trunk and a dense canopy of green leaves, situated in a grassy area with other trees in the background.



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Tag No.	Photo
651	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with some bare ground visible at its base.
652	A photograph of a tall, slender tree with a straight trunk and a canopy of green leaves. The sun is visible through the branches, creating a bright spot in the upper part of the image.
653	A photograph of a tall, slender tree with a straight trunk and a canopy of green leaves. The sun is visible through the branches, creating a bright spot in the upper part of the image.
654	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with some bare ground visible at its base.



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Tag No.	Photo
655	A photograph of a tall, slender tree with a light-colored trunk and dense green foliage, standing in a grassy area with other trees in the background.
656	A photograph of a tall, slender tree with a light-colored trunk and dense green foliage, viewed from a low angle looking up towards the canopy.
657	A photograph of a tree with a thick, textured trunk and a large, spreading canopy of green leaves, with a clear blue sky visible through the branches.
658	A photograph of a tree with a light-colored trunk and green foliage, viewed from a low angle looking up, with a utility pole visible in the foreground.



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Tag No.	Photo
659	A photograph of a tall, slender tree with a dense canopy of green leaves, standing in a sandy area.
660	A photograph of a tree with a thick, dark trunk and a wide, spreading canopy of green leaves, situated in a sandy area.
661	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves, standing in a sandy area.
662	A photograph of a tree with a thick, dark trunk and a wide, spreading canopy of green leaves, situated in a sandy area.



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Tag No.	Photo
663	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
664	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
665	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
666	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.



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Tag No.	Photo
667	A photograph of a large, mature tree with a thick trunk and dense green foliage, standing in a grassy area with a building visible in the background.
668	A photograph of a large, mature tree with a thick trunk and dense green foliage, standing in a grassy area with a building visible in the background.
669	A photograph of a large, mature tree with a thick trunk and dense green foliage, standing in a grassy area with a building visible in the background.
670	A photograph of a large, mature tree with a thick trunk and dense green foliage, standing in a grassy area with a building visible in the background.



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Tag No.	Photo
671	A photograph of a large, mature tree with a thick, gnarled trunk and dense, green foliage. The tree is situated in a grassy area with some dry grass and a clear blue sky in the background.
672	A photograph of a tree with a thick trunk and a wide, spreading canopy of green leaves. The tree is located in a grassy field with a fence and some buildings visible in the background.
673	A photograph of a tree with a thick trunk and a dense canopy of green leaves. The tree is situated in a grassy area with some dry grass and a clear blue sky in the background.
674	A photograph of a tree with a thick trunk and a dense canopy of green leaves. The tree is situated in a grassy area with some dry grass and a clear blue sky in the background.



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Tag No.	Photo
675	
676	
677	
678	



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Tag No.	Photo
679	A photograph of a tree with a thick, light-colored trunk and dense green foliage, viewed from a low angle looking up.
680	A photograph of a tall, slender tree with a dark trunk and a canopy of green leaves, viewed from a low angle looking up against a clear blue sky.
681	A photograph of a tree with a thick, light-colored trunk and dense green foliage, viewed from a low angle looking up.
682	A photograph of a tree with a thick, light-colored trunk and dense green foliage, viewed from a low angle looking up.



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Tag No.	Photo
683	A photograph of a large, mature tree with a thick, light-colored trunk and a dense, rounded canopy of green leaves. The tree is situated in a grassy area with a clear blue sky in the background.
684	A photograph of a tall, slender tree with a light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a clear blue sky in the background.
685	A photograph of a large, mature tree with a thick, light-colored trunk and a dense, rounded canopy of green leaves. The tree is situated in a grassy area with a clear blue sky in the background.
686	A photograph of a large, mature tree with a thick, light-colored trunk and a dense, rounded canopy of green leaves. The tree is situated in a grassy area with a clear blue sky in the background.



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Tag No.	Photo
687	A photograph of a large, mature tree with a thick, dark brown trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.
688	A photograph of a large, mature tree with a thick, dark brown trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.
689	A photograph of a tall, slender tree with a light-colored trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.
690	A photograph of a tall, slender tree with a light-colored trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.



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Tag No.	Photo
691	A photograph of a large, mature tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a sandy path visible in the background.
692	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a sandy path visible in the background.
694	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a sandy path visible in the background.
695	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a sandy path visible in the background.



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Tag No.	Photo
696	A photograph of a tree with a thick, textured trunk and a dense canopy of green and brown leaves. The ground is sandy and there are some low-lying plants at the base of the tree.
697	A photograph of a tree with a thick, textured trunk and a dense canopy of green and brown leaves. The ground is sandy and there are some low-lying plants at the base of the tree.
698	A photograph of a tree with a thick, textured trunk and a dense canopy of green and brown leaves. The ground is sandy and there are some low-lying plants at the base of the tree.
699	A photograph of a tree with a thick, textured trunk and a dense canopy of green and brown leaves. The ground is sandy and there are some low-lying plants at the base of the tree.



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Tag No.	Photo
700	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy field with a clear blue sky in the background.
701	A photograph of a tree with a thick trunk and a dense canopy of green leaves, similar to tree 700. The tree is in a grassy field with a clear blue sky in the background.
702	A photograph of a tree with a thick trunk and a dense canopy of green leaves, similar to tree 700. The tree is in a grassy field with a clear blue sky in the background.
703	A photograph of a tree with a thick trunk and a dense canopy of green leaves, similar to tree 700. The tree is in a grassy field with a clear blue sky in the background.



Tree Photos
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Tag No.	Photo
704	A large, mature tree with a thick, gnarled trunk and a dense, rounded canopy of green leaves. The tree is situated in a sandy, open area with some sparse vegetation in the background.
705	A medium-sized tree with a dense, rounded canopy of green leaves. The tree is situated in a sandy, open area with some sparse vegetation in the background.
706	A medium-sized tree with a dense, rounded canopy of green leaves. The tree is situated in a sandy, open area with some sparse vegetation in the background.
707	A medium-sized tree with a dense, rounded canopy of green leaves. The tree is situated in a sandy, open area with some sparse vegetation in the background.



Tree Photos
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Tag No.	Photo
708	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a dry, open area with some low-lying vegetation in the background.
709	A photograph of a tree with a more slender trunk and a canopy of yellowish-green leaves. The ground is dry and sandy, and the background shows a clear blue sky.
710	A photograph of a tree with a thick trunk and a dense canopy of green leaves. The tree is located in a dry, open field with some low-lying vegetation in the background.
711	A photograph of a tree with a thick trunk and a dense canopy of green leaves. The tree is situated in a dry, open area with some low-lying vegetation in the background.



Tree Photos
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Tag No.	Photo
712	A photograph of a large, mature tree with a thick trunk and dense green foliage, standing in a grassy field under a clear blue sky.
713	A photograph of a tall, slender tree with a light-colored trunk and a full canopy of green leaves, set against a bright blue sky.
714	A photograph of a tree with a thick, textured trunk and green leaves, situated in a grassy area with other trees in the background.
715	A photograph of a large, leafy tree with a thick trunk, viewed from a low angle looking up towards the canopy.



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Tag No.	Photo
716	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a dry, grassy field with some bare ground visible.
717	A photograph of a tall, slender tree with a straight trunk and a dense, rounded canopy of green leaves. The tree is set against a clear blue sky.
718	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a dry, grassy field with some bare ground visible.
719	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a dry, grassy field with some bare ground visible.



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Tag No.	Photo
720	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a dry, open area with some low-lying vegetation at its base.
721	A photograph of a tree with a more slender trunk and a spreading canopy of green leaves. The ground around the tree is dry and sandy.
722	A photograph of a tree with a thick trunk and a dense, rounded canopy of green leaves. The background shows a clear blue sky.
723	A photograph of a large tree with a thick trunk and a dense canopy of green leaves, similar to tree 722. The ground is dry and sandy.



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Tag No.	Photo
724	A photograph of a large, mature tree with a thick, light-colored trunk and a dense, rounded canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.
725	A photograph of a large, mature tree with a thick, light-colored trunk and a dense, rounded canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.
726	A photograph of a tall, slender tree with a light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.
727	A photograph of a large, mature tree with a thick, light-colored trunk and a dense, rounded canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.



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Tag No.	Photo
728	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.
729	A photograph of a tree with a thick, dark trunk and a sparse canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.
730	A photograph of a tall, slender tree with a light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.
731	A photograph of a tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.



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Tag No.	Photo
732	A photograph of a tree with a light-colored trunk and dense green foliage, standing in a dry, open field under a clear blue sky.
733	A photograph of a tree with a light-colored trunk and dense green foliage, standing in a dry, open field under a clear blue sky.
734	A photograph of a tree with a light-colored trunk and dense green foliage, standing in a dry, open field under a clear blue sky.
735	A photograph of a tree with a light-colored trunk and dense green foliage, standing in a dry, open field under a clear blue sky.



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Tag No.	Photo
736	A photograph of a large, mature tree with a thick, light-colored trunk and a dense, rounded canopy of green leaves. The tree is situated on a grassy area with a building visible in the background under a clear blue sky.
737	A photograph of a large, mature tree with a thick, light-colored trunk and a dense, rounded canopy of green leaves. The tree is situated on a grassy area with a building visible in the background under a clear blue sky.
738	A photograph of a tall, slender tree with a light-colored trunk and a dense canopy of green leaves. The tree is situated on a grassy area with a building visible in the background under a clear blue sky.
739	A photograph of a large, mature tree with a thick, light-colored trunk and a dense, rounded canopy of green leaves. The tree is situated on a grassy area with a building visible in the background under a clear blue sky.



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Tag No.	Photo
740	A photograph of a tree with a thick, textured trunk and dense green foliage, set against a clear blue sky.
741	A photograph of a tree with a thick, textured trunk and dense green foliage, set against a clear blue sky.
742	A photograph of a tree with a thick, textured trunk and dense green foliage, set against a clear blue sky.
743	A photograph of a tree with a thick, textured trunk and dense green foliage, set against a clear blue sky.



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Tag No.	Photo
744	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves, situated on a grassy hillside under a clear blue sky.
745	A photograph of a large, dense tree with a full canopy of green leaves, viewed from a low angle looking up.
746	A photograph of a tall tree with a dense canopy of green leaves, viewed from a low angle looking up against a clear blue sky.
747	A photograph of a tree with a thick trunk and a dense canopy of green leaves, viewed from a low angle looking up against a clear blue sky.



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Tag No.	Photo
748	A photograph of a tree with dense, light green foliage, viewed from a low angle looking up towards the canopy against a clear blue sky.
749	A photograph of a tree with dark, gnarled branches and sparse green leaves, viewed from a low angle looking up.
750	A photograph of a tree with a thick, light-colored trunk and dense green foliage, viewed from a low angle.
751	A photograph of a tree with a thick, dark trunk and dense green foliage, viewed from a low angle.



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Tag No.	Photo
752	A photograph of a large, mature tree with a thick trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.
753	A photograph of a tall, slender tree with a dense canopy of green leaves. The tree is set against a clear blue sky.
754	A photograph of a large, mature tree with a thick trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.
755	A photograph of a large, mature tree with a thick trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.



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Tag No.	Photo
756	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with some other vegetation in the background.
757	A photograph of a tree with a thick trunk and a dense canopy of green leaves. The sun is shining brightly from behind the tree, creating a strong lens flare effect.
758	A photograph of a tree with a thick trunk and a dense canopy of green leaves. The tree is situated in a grassy area with some other vegetation in the background.
759	A photograph of a tree with a thick trunk and a dense canopy of green leaves. The tree is situated in a grassy area with some other vegetation in the background.



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Tag No.	Photo
760	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated on a grassy area with a sandy path or fairway visible in the background.
761	A photograph of a tree with a dark, slender trunk and a canopy of green leaves. The tree is positioned on a grassy area with a sandy path or fairway visible in the background.
762	A photograph of a tree with a light-colored trunk and a canopy of green leaves. The tree is situated on a grassy area with a sandy path or fairway visible in the background.
763	A photograph of a tree with a dark, slender trunk and a canopy of green leaves. The tree is positioned on a grassy area with a sandy path or fairway visible in the background.



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Tag No.	Photo
764	A photograph of a tree with a thick, light-colored trunk and dense green foliage, growing in a sandy area.
765	A photograph of a tree with a thick, dark trunk and dense green foliage, growing in a sandy area.
766	A photograph of a tree with a thick, light-colored trunk and dense green foliage, growing in a sandy area.
767	A photograph of a tree with a thick, light-colored trunk and dense green foliage, growing in a sandy area.



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Tag No.	Photo
768	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated on a sandy area, likely a golf course, with a clear blue sky in the background.
769	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated on a sandy area, likely a golf course, with a clear blue sky in the background.
770	A photograph of a tall, slender tree with a light-colored trunk and a canopy of green leaves. The tree is situated on a sandy area, likely a golf course, with a clear blue sky in the background.
771	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated on a sandy area, likely a golf course, with a clear blue sky in the background.



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Tag No.	Photo
772	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with some bare ground in the foreground.
773	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with some bare ground in the foreground.
774	A photograph of a tall, slender tree with a thin trunk and a dense canopy of green leaves. The tree is situated in a grassy area with some bare ground in the foreground.
775	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with some bare ground in the foreground.



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Tag No.	Photo
776	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a sandy, open area with some sparse vegetation in the background.
777	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a sandy, open area with some sparse vegetation in the background.
778	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a sandy, open area with some sparse vegetation in the background.
779	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a sandy, open area with some sparse vegetation in the background.



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Tag No.	Photo
780	A photograph of a large, mature tree with a thick, dark trunk and a dense, rounded canopy of green leaves. The tree is situated in a grassy field with a clear blue sky in the background.
781	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy field with a clear blue sky in the background.
782	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy field with a clear blue sky in the background.
783	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy field with a clear blue sky in the background.



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Tag No.	Photo
784	A photograph of a large, mature tree with a thick trunk and a dense canopy of green and brown leaves, standing in a dry, grassy field under a clear blue sky.
785	A photograph of a tree with a thin trunk and a canopy of green and brown leaves, standing in a dry, grassy field. The background shows a line of trees and a clear blue sky.
786	A photograph of a tree with a thin trunk and a canopy of green and brown leaves, standing in a dry, grassy field. The background shows a line of trees and a clear blue sky.
787	A photograph of a tree with a thin trunk and a canopy of green and brown leaves, standing in a dry, grassy field. The background shows a line of trees and a clear blue sky.



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Tag No.	Photo
788	A photograph of a tree with a thick, dark trunk and a dense canopy of green and yellow leaves. The tree is set against a clear blue sky.
789	A photograph of a tree with a thick, dark trunk and a dense canopy of green and yellow leaves. The tree is set against a clear blue sky.
790	A photograph of a tree with a thick, dark trunk and a dense canopy of green and yellow leaves. The tree is set against a clear blue sky.
791	A photograph of a tree with a thick, dark trunk and a dense canopy of green and yellow leaves. The tree is set against a clear blue sky.



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Tag No.	Photo
792	A photograph of a tree with a thick, dark trunk and dense green foliage. The tree is situated in a grassy area with a fence and other trees in the background.
793	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The tree is situated in a grassy area with a fence and other trees in the background.
794	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The tree is situated in a grassy area with a fence and other trees in the background.
795	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The tree is situated in a grassy area with a fence and other trees in the background.



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Tag No.	Photo
796	A photograph of a tree with a thick, light-colored trunk and dense green foliage. A thin, light-colored branch extends from the top left towards the center of the frame.
798	A photograph of a cluster of trees with dark trunks and green leaves, situated in a field of dry grass.
797	A photograph of a tree with a dark trunk and green foliage, set against a clear blue sky.
799	A photograph of a tree with a dark trunk and green foliage, set against a clear blue sky.



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Tag No.	Photo
800	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a clear blue sky in the background.
801	A photograph of a tree with a dense canopy of green leaves. The tree is situated in a grassy area with a clear blue sky in the background.
802	A photograph of a tree with a dense canopy of green leaves. The tree is situated in a grassy area with a clear blue sky in the background.
803	A photograph of a tree with a dense canopy of green leaves. The tree is situated in a grassy area with a clear blue sky in the background.



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Tag No.	Photo
804	A photograph of a large, mature tree with dense, light green foliage, viewed from a low angle looking up towards the canopy against a clear blue sky.
805	A photograph of a tree with a more open, branching structure and lighter green leaves, also viewed from below against a blue sky.
806	A photograph of a tree with a thick, brown trunk and dense green foliage, with a building visible in the background through the branches.
807	A photograph of a tree with very dense, bright green foliage, filling most of the frame.



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Tag No.	Photo
808	A photograph of a large, mature tree with a thick trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a sandy path or clearing in the background.
809	A photograph of a large, mature tree with a thick trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a sandy path or clearing in the background.
810	A photograph of a large, mature tree with a thick trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a sandy path or clearing in the background.
811	A photograph of a large, mature tree with a thick trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a sandy path or clearing in the background.



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Tag No.	Photo
812	A photograph of a tree with dense green foliage, showing a thick trunk and many leaves.
813	A photograph of a tree with a thick, gnarled trunk and dense green foliage, showing a close-up of the trunk.
815	A photograph of a tree with a thick trunk and dense green foliage, showing a close-up of the trunk.
816	A photograph of a tree with a thick trunk and dense green foliage, showing a close-up of the trunk.



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Tag No.	Photo
814	A photograph of a large, mature tree with a thick, gnarled trunk and dense green foliage, set against a clear blue sky.
817	A photograph of a tree with a curved trunk and green leaves, situated in an open field with other trees in the background under a blue sky.
818	A photograph of a tree with a light-colored trunk and dense green foliage, with a clear blue sky in the background.
819	A photograph of a tree with a light-colored trunk and green foliage, growing in a dry, sandy area with other vegetation in the background under a blue sky.



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Tag No.	Photo
820	A photograph of a large, mature tree with a thick, gnarled trunk and a dense, rounded canopy of green leaves. The tree is situated in a dry, open field with sparse grass and a clear blue sky in the background.
821	A photograph of a tall, slender tree with a straight trunk and a canopy of green leaves. The tree is located in a dry, open field with sparse grass and a clear blue sky in the background.
822	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a dry, open field with sparse grass and a clear blue sky in the background.
823	A photograph of a large, mature tree with a thick, gnarled trunk and a dense, rounded canopy of green leaves. The tree is situated in a dry, open field with sparse grass and a clear blue sky in the background.



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Tag No.	Photo
824	 A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a dry, sandy area with some sparse vegetation in the background.
825	 A photograph of a tree with a slender trunk and a canopy of green leaves. The tree is surrounded by other trees and foliage in a wooded area.
826	 A photograph of a tree with a thick trunk and a dense canopy of green leaves. The tree is in a dry, sandy area with some sparse vegetation in the background.
827	 A photograph of a tree with a thick trunk and a dense canopy of green leaves. The tree is in a dry, sandy area with some sparse vegetation in the background.



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Tag No.	Photo
828	A photograph of a large, mature tree with a thick trunk and dense green foliage, standing in a grassy area.
829	A photograph of a tree with a spreading canopy and light-colored bark, situated in a sandy or cleared area.
830	A photograph of a tall, slender tree with a high canopy, growing in a grassy field.
831	A photograph of a tree with a dense, rounded canopy and light-colored bark, located in a grassy area.



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Tag No.	Photo
832	A photograph of a tree with a thick, textured trunk and dense, green foliage. The tree is set against a background of other trees and a clear sky.
833	A photograph of a tall, slender tree with a light-colored trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.
834	A photograph of a tree with a thick, textured trunk and dense, green foliage. The tree is set against a background of other trees and a clear sky.
835	A photograph of a tall, slender tree with a light-colored trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.



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Tag No.	Photo
836	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The tree is viewed from a low angle, looking up towards the canopy.
837	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The tree is viewed from a low angle, looking up towards the canopy.
838	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The tree is viewed from a low angle, looking up towards the canopy.
839	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The tree is viewed from a low angle, looking up towards the canopy.



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Tag No.	Photo
840	A photograph of a large, mature tree with a thick, dark trunk and a dense, rounded canopy of green leaves. The tree is situated in a grassy area with some bare ground visible at its base.
841	A photograph of a tree with a slender trunk and a dense, conical canopy of green leaves. The tree is set against a clear blue sky.
842	A photograph of a tree with a thick, gnarled trunk and a dense, rounded canopy of green leaves. The tree is situated in a grassy area with some bare ground visible at its base.
843	A photograph of a tree with a thick, dark trunk and a dense, rounded canopy of green leaves. The tree is situated in a grassy area with some bare ground visible at its base.



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Tag No.	Photo
844	A photograph of a large, mature tree with a thick trunk and dense green foliage. The tree is situated in an open area with a clear blue sky in the background.
845	A photograph of a tree with a lighter-colored trunk and dense green foliage. The tree is located near a building with a light-colored wall and a dark roof.
846	A photograph of a tall, slender tree with a light-colored trunk and dense green foliage. The tree is situated in an open area with a clear blue sky in the background.
847	A photograph of a tree with a light-colored trunk and dense green foliage. The tree is located near a building with a light-colored wall and a dark roof.



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Tag No.	Photo
848	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in an open area with a building visible in the background.
849	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in an open area with a building visible in the background.
850	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in an open area with a building visible in the background.
851	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in an open area with a building visible in the background.



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Tag No.	Photo
852	A photograph of a large, mature tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.
853	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.
854	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.
855	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a building visible in the background.



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Tag No.	Photo
856	A photograph of a tree with a thick, textured trunk and a dense canopy of green leaves. The ground is covered in dry, brownish leaves and grass.
857	A photograph of a tall, slender tree with a straight trunk and a canopy of green leaves. The background shows a clear sky and some distant trees.
858	A photograph of a tree with a thick, textured trunk and a dense canopy of green leaves. The ground is covered in dry, brownish leaves and grass.
859	A photograph of a tree with a thick, textured trunk and a dense canopy of green leaves. The ground is covered in dry, brownish leaves and grass.



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Tag No.	Photo
860	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves, standing in a dry, grassy field under a clear blue sky.
861	A photograph of a tree with a light-colored, textured trunk and a dense canopy of green leaves, standing in a dry, grassy field under a clear blue sky.
862	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves, standing in a dry, grassy field under a clear blue sky.
863	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves, standing in a dry, grassy field under a clear blue sky.



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Tag No.	Photo
864	A photograph of a large, mature tree with a thick, dark trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.
865	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.
866	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.
867	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.



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Tag No.	Photo
868	A photograph of a tall, slender tree with a light-colored trunk and dense green foliage, set against a clear blue sky.
869	A photograph of a tree with a thick, dark trunk and a dense, rounded canopy of green leaves, with a house visible in the background.
870	A photograph of a tree with a light-colored trunk and a dense, rounded canopy of green leaves, set against a clear blue sky.
871	A photograph of a tree with a light-colored trunk and a dense, rounded canopy of green leaves, set against a clear blue sky.



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Tag No.	Photo
872	A photograph of a large, mature tree with a thick, brown trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.
873	A photograph of a large, mature tree with a thick, brown trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.
874	A photograph of a large, mature tree with a thick, brown trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.
875	A photograph of a large, mature tree with a thick, brown trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.



Tree Photos
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Tag No.	Photo
876	A photograph of a large, mature tree with a thick, dark trunk and dense, green foliage. The tree is situated in a grassy area with a path or road visible in the background.
877	A photograph of a tree with a lighter-colored trunk and a canopy of bright green leaves. The tree is surrounded by other vegetation and a body of water is visible in the background.
878	A close-up photograph of a tree with vibrant, bright green leaves. The leaves are densely packed and show some signs of being eaten, with small holes visible.
879	A photograph of a tall tree with a dark trunk and a canopy of green leaves. The tree is set against a clear blue sky, and a grassy field is visible at the base.



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Tag No.	Photo
880	A photograph of a tree with a thick, textured trunk and a dense canopy of green leaves. The tree is situated in a grassy area with some bare ground visible at its base.
881	A photograph of a tree with a relatively straight trunk and a full, rounded canopy of green leaves. The background shows a clear blue sky and some distant trees.
882	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is in a grassy area with some shadows cast on the ground.
883	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is in a grassy area with some shadows cast on the ground.



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Tag No.	Photo
884	A photograph of a tall, slender tree with a light-colored trunk and dense green foliage, viewed from a low angle looking up.
885	A photograph of a tree with a thick, textured trunk and a dense canopy of green leaves, viewed from a low angle looking up.
886	A photograph of a tree with a thick, textured trunk and a dense canopy of green leaves, viewed from a low angle looking up.
887	A photograph of a tree with a thick, textured trunk and a dense canopy of green leaves, viewed from a low angle looking up.



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Tag No.	Photo
888	A photograph of a tall, slender tree with a dense, rounded canopy of green leaves. The tree is set against a clear blue sky. In the background, a portion of a light-colored building is visible.
889	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is set against a clear blue sky. In the background, a portion of a light-colored building is visible.
890	A photograph of a tall, slender tree with a dense canopy of green leaves. The tree is set against a clear blue sky. In the background, a portion of a light-colored building is visible.
891	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is set against a clear blue sky. In the background, a portion of a light-colored building is visible.



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Tag No.	Photo
892	
893	
894	
895	



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Tag No.	Photo
896	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a fence visible in the background.
897	A photograph of a tall, slender tree with a straight trunk and a canopy of green leaves. The tree is located in a residential area with houses and a fence visible in the background.
898	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a fence visible in the background.
899	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a fence visible in the background.



Tree Photos
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Tag No.	Photo
900	A photograph of a tall, slender tree with a light-colored trunk and dense green foliage, standing in a grassy field under a clear blue sky.
901	A photograph of a tree with a thick, gnarled trunk and a wide, spreading canopy of green leaves, situated in a grassy area.
902	A photograph of a tree with a thick, gnarled trunk and a wide, spreading canopy of green leaves, situated in a grassy area.
903	A photograph of a tree with a thick, gnarled trunk and a wide, spreading canopy of green leaves, situated in a grassy area.



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Tag No.	Photo
904	A photograph of a tree with a thick, gnarled trunk and dense green foliage, set against a clear blue sky. The tree is located in a grassy area with other vegetation in the background.
905	A photograph of a tree with a thick, gnarled trunk and dense green foliage, set against a clear blue sky. The tree is located in a grassy area with other vegetation in the background.
906	A photograph of a tree with a thick, gnarled trunk and dense green foliage, set against a clear blue sky. The tree is located in a grassy area with other vegetation in the background.
907	A photograph of a tree with a thick, gnarled trunk and dense green foliage, set against a clear blue sky. The tree is located in a grassy area with other vegetation in the background.



Tree Photos
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Tag No.	Photo
908	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The sun is visible through the leaves, creating a bright spot.
909	A photograph of a tree with a light-colored trunk and dense green foliage, viewed from a low angle looking up.
910	A photograph of a tree with a light-colored trunk and dense green foliage, viewed from a low angle looking up.
911	A photograph of a tree with a light-colored trunk and dense green foliage, viewed from a low angle looking up.



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Tag No.	Photo
912	
913	
914	
915	



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Tag No.	Photo
916	A photograph of a large, mature tree with a thick trunk and a dense canopy of green leaves, standing in a grassy field under a clear blue sky.
917	A photograph of a tree with a dense, rounded canopy of green leaves, viewed from a slightly lower angle than the previous photo.
918	A photograph of a tree with a dense canopy of green leaves, showing more of the surrounding foliage and a glimpse of the ground.
919	A photograph of a tree with a dense canopy of green leaves, showing a different perspective with a curved branch visible in the foreground.



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Tag No.	Photo
920	A photograph of a large, mature tree with a thick, light-colored trunk and a dense, rounded canopy of green leaves. The tree is situated in a grassy area with some other vegetation in the background.
921	A photograph of a large, mature tree with a thick, light-colored trunk and a dense, rounded canopy of green leaves. The tree is situated in a grassy area with some other vegetation in the background.
922	A photograph of a large, mature tree with a thick, light-colored trunk and a dense, rounded canopy of green leaves. The tree is situated in a grassy area with some other vegetation in the background.
923	A photograph of a large, mature tree with a thick, light-colored trunk and a dense, rounded canopy of green leaves. The tree is situated in a grassy area with some other vegetation in the background.



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Tag No.	Photo
924	A photograph of a tree with a thick, brown trunk and a dense canopy of green leaves, set against a clear blue sky.
925	A photograph of a tree with a thick, brown trunk and a dense canopy of green leaves, set against a clear blue sky.
926	A photograph of a tree with a thick, brown trunk and a dense canopy of green leaves, set against a clear blue sky.
927	A photograph of a tree with a thick, brown trunk and a dense canopy of green leaves, set against a clear blue sky.



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Tag No.	Photo
928	A photograph of a tree with dense, dark green foliage, possibly a cypress or similar species, with a thick trunk and many branches.
929	A photograph of a tree with dense, dark green foliage, possibly a cypress or similar species, with a thick trunk and many branches.
930	A photograph of a tree with a thick, gnarled trunk and dense, dark green foliage, possibly a cypress or similar species.
931	A photograph of a tree with a thick, gnarled trunk and dense, dark green foliage, possibly a cypress or similar species.



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Tag No.	Photo
932	A photograph of a tree with a thick, textured trunk and a dense canopy of green leaves. The tree is situated in a dry, open area with some low-lying vegetation and a dirt path in the background.
933	A photograph of a tree with a thick, textured trunk and a dense canopy of green leaves. The tree is situated in a dry, open area with some low-lying vegetation and a dirt path in the background.
934	A photograph of a tree with a thick, textured trunk and a dense canopy of green leaves. The tree is situated in a dry, open area with some low-lying vegetation and a dirt path in the background.
935	A photograph of a tree with a thick, textured trunk and a dense canopy of green leaves. The tree is situated in a dry, open area with some low-lying vegetation and a dirt path in the background.



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Tag No.	Photo
936	A photograph of a tree with dense, green and yellowing foliage, set against a clear blue sky. The tree is positioned in the center of the frame, with its branches spreading out.
937	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The tree is positioned in the center of the frame, with its branches spreading out.
938	A photograph of a tree with a thick, dark trunk and dense green foliage. The tree is positioned in the center of the frame, with its branches spreading out.
939	A photograph of a tree with a thick, light-colored trunk and dense green foliage. The tree is positioned in the center of the frame, with its branches spreading out.



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Tag No.	Photo
940	A photograph of a large, mature tree with a thick, light-colored trunk and dense green foliage. The tree is situated in a grassy area with a sandy path visible in the background.
941	A photograph of a tree with a multi-trunked base and a dense canopy of green leaves. The ground around the tree is sandy and covered with some dry grass.
942	A photograph of a tree with a thick trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a sandy path visible in the background.
943	A photograph of a tree with a thick trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a sandy path visible in the background.



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Tag No.	Photo
944	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
945	A photograph of a tree with a light-colored, textured trunk and a canopy of green leaves. The tree is viewed from a low angle, looking up towards the canopy.
946	A photograph of a tree with a light-colored, textured trunk and a canopy of green leaves. The tree is viewed from a low angle, looking up towards the canopy.
947	A photograph of a tree with a light-colored, textured trunk and a canopy of green leaves. The tree is viewed from a low angle, looking up towards the canopy.



Tree Photos
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Tag No.	Photo
948	A photograph of a tree with dense green foliage and a thick trunk, viewed from a low angle looking up.
949	A photograph of a tree with a thick, textured trunk and a dense canopy of green leaves, viewed from a low angle.
950	A photograph of a tall tree with a slender trunk and a dense canopy of green leaves, viewed from a low angle looking up.
951	A photograph of a tree with a thick trunk and a dense canopy of green leaves, viewed from a low angle looking up.



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Tag No.	Photo
952	A photograph of a tall, slender tree with a light-colored trunk and dense green foliage, viewed from a low angle looking up.
953	A photograph of a tree with a thick, light-colored trunk and a wide, spreading canopy of green leaves, viewed from a distance.
954	A photograph of a tree with a thick, light-colored trunk and a rounded canopy of green leaves, viewed from a distance on a dirt path.
955	A photograph of a tree with a thick, light-colored trunk and a dense canopy of green leaves, viewed from a low angle looking up.



Tree Photos
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Tag No.	Photo
956	A photograph of a tall, slender tree with a light-colored trunk and dense green foliage, set against a clear blue sky.
957	A photograph of a tree with a thick, textured trunk and a full canopy of green leaves, viewed from a low angle.
958	A photograph of a tree with a light-colored trunk and green leaves, situated next to a stone wall and a path.
959	A photograph of a tree with a light-colored trunk and green leaves, viewed from a low angle against a blue sky.



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Tag No.	Photo
960	A photograph of a tree with dense, dark green foliage, viewed from a low angle looking up into the canopy.
961	A photograph of a tree with dense, dark green foliage, viewed from a low angle looking up into the canopy. The sun is visible through the leaves, creating a bright, hazy effect.
962	A photograph of a tree with dense, dark green foliage, viewed from a low angle looking up into the canopy. The sun is visible through the leaves, creating a bright, hazy effect.
963	A photograph of a tree with dense, dark green foliage, viewed from a low angle looking up into the canopy. The sun is visible through the leaves, creating a bright, hazy effect.



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Tag No.	Photo
964	A photograph of a tree with dense, green foliage, viewed from a low angle looking up into the canopy.
965	A photograph of a tree with a thick, light-colored trunk and a dense canopy of green leaves, viewed from a low angle looking up.
966	A photograph of a tall tree with a slender trunk and a dense canopy of green leaves, viewed from a low angle looking up.
967	A photograph of a tree with a thick, light-colored trunk and a dense canopy of green leaves, viewed from a low angle looking up.



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Tag No.	Photo
968	A photograph of a tall, slender tree with a light-colored trunk and dense green foliage, set against a clear blue sky.
969	A photograph of a tree with a thick, textured trunk and a full canopy of green leaves, with a portion of a yellow building visible in the background.
970	A photograph of a tree with a light-colored trunk and a canopy of green leaves, viewed from a low angle looking up.
971	A photograph of a tree with a dark, textured trunk and a dense canopy of green leaves.



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Tag No.	Photo
972	A close-up photograph of a tree with dense, green, feathery foliage, likely a cypress or similar species, with some brown branches visible.
973	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves, viewed from a low angle looking up.
974	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves, viewed from a low angle looking up.
975	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves, viewed from a low angle looking up.



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Tag No.	Photo
976	A photograph of a tree with dense, dark green foliage, situated on a sandy, light-colored ground. The sky is clear and blue.
977	A photograph of a tree with bright yellow leaves, indicating autumn. The tree is set against a clear blue sky.
978	A photograph of a tall, slender tree with a dense canopy of green leaves. The ground is sandy and light-colored.
979	A photograph of a tree with green and yellowing leaves, showing signs of autumn. The background is a clear blue sky.



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Tag No.	Photo
980	A photograph of a large, mature tree with a thick trunk and dense green foliage, situated in a grassy area with a white building visible in the background.
981	A photograph of a tall, slender tree with a light-colored trunk and a canopy of green leaves, set against a clear blue sky.
982	A photograph of a tree with a thin trunk and a sparse canopy of green leaves, standing in a dry, grassy field under a blue sky.
983	A photograph of a tree with a thick trunk and dense green foliage, similar to tree 980, with a white building visible in the background.



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Tag No.	Photo
984	A photograph of a large, dense tree with green foliage, viewed from a low angle against a clear blue sky.
985	A photograph of a tree with green foliage, viewed from a low angle against a clear blue sky.
986	A photograph of a tree with green foliage, viewed from a low angle against a clear blue sky.
987	A photograph of a tree with green foliage, viewed from a low angle against a clear blue sky.



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Tag No.	Photo
988	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a clear blue sky in the background.
989	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a clear blue sky in the background.
990	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a clear blue sky in the background.
991	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a clear blue sky in the background.



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Tag No.	Photo
992	A photograph of a tall, slender tree with a dense canopy of green leaves, standing in a grassy area with a white fence in the background.
993	A photograph of a large, spreading tree with a thick, light-colored trunk and a dense canopy of green leaves, viewed from a low angle looking up.
994	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves, viewed from a low angle looking up.
995	A photograph of a large, spreading tree with a thick, light-colored trunk and a dense canopy of green leaves, viewed from a low angle looking up.



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Tag No.	Photo
996	A photograph of a large, mature tree with a thick trunk and dense green foliage, standing in a grassy area.
997	A photograph of a tall, slender tree with a thin trunk and a canopy of green leaves, set against a clear blue sky.
998	A photograph of a tree with a thick trunk and a dense canopy of green leaves, viewed from a low angle.
999	A photograph of a tree with a thick trunk and a dense canopy of green leaves, viewed from a low angle.



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Tag No.	Photo
1000	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves, situated in a grassy field under a clear blue sky.
1017	A photograph of a tall, slender tree with a light-colored trunk and a canopy of green leaves, set against a clear blue sky.
1019	A photograph of a tall, slender tree with a light-colored trunk and a canopy of green leaves, set against a clear blue sky.
1020	A photograph of a tall, slender tree with a light-colored trunk and a canopy of green leaves, set against a clear blue sky.



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Tag No.	Photo
1021	A photograph of a tree with dense, dark green foliage and a thick, brown trunk, set against a clear blue sky.
1022	A photograph of a tree with green leaves and a thin, light-colored trunk, set against a clear blue sky.
1023	A photograph of a tree with green leaves and a thin, light-colored trunk, set against a clear blue sky.
1024	A photograph of a tree with green leaves and a thin, light-colored trunk, set against a clear blue sky.



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Tag No.	Photo
1025	A photograph of a large, mature tree with a thick, light-colored trunk and a dense, rounded canopy of green leaves. The tree is situated on a grassy area with some dry patches.
1026	A photograph of a large, mature tree with a thick, light-colored trunk and a dense, rounded canopy of green leaves. The tree is situated on a grassy area with some dry patches.
1027	A photograph of a large, mature tree with a thick, light-colored trunk and a dense, rounded canopy of green leaves. The tree is situated on a grassy area with some dry patches.
1028	A photograph of a large, mature tree with a thick, light-colored trunk and a dense, rounded canopy of green leaves. The tree is situated on a grassy area with some dry patches.



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Tag No.	Photo
1029	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.
1030	A photograph of a tall, slender tree with a light-colored trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.
1031	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.
1032	A photograph of a tall, slender tree with a light-colored trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.



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Tag No.	Photo
1033	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated on a grassy area with a sandy path or fairway visible in the background.
1034	A photograph of a medium-sized tree with a spreading canopy of green leaves. The tree is located on a grassy area with a sandy path or fairway in the background.
1035	A photograph of a medium-sized tree with a spreading canopy of green leaves. The tree is located on a grassy area with a sandy path or fairway in the background.
1036	A photograph of a medium-sized tree with a spreading canopy of green leaves. The tree is located on a grassy area with a sandy path or fairway in the background.



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Tag No.	Photo
1037	A large, mature tree with a thick, light-colored trunk and a dense, rounded canopy of green leaves. The tree is set against a clear blue sky.
1038	A large, mature tree with a thick, light-colored trunk and a dense, rounded canopy of green leaves. The tree is set against a clear blue sky.
1039	A large, mature tree with a thick, light-colored trunk and a dense, rounded canopy of green leaves. The tree is set against a clear blue sky.
1040	A large, mature tree with a thick, light-colored trunk and a dense, rounded canopy of green leaves. The tree is set against a clear blue sky.



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Tag No.	Photo
1041	A photograph of a tree with a thick, gnarled trunk and dense, dark foliage. The tree is situated in a dry, open area with some grass and dirt visible at its base.
1042	A photograph of a tree with a thick, gnarled trunk and dense, dark foliage. The tree is situated in a dry, open area with some grass and dirt visible at its base.
1043	A photograph of a tree with a thick, gnarled trunk and dense, dark foliage. The tree is situated in a dry, open area with some grass and dirt visible at its base.
1044	A photograph of a tree with a thick, gnarled trunk and dense, dark foliage. The tree is situated in a dry, open area with some grass and dirt visible at its base.



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Tag No.	Photo
1045	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
1046	A photograph of a tall, slender tree with a light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
1047	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
1048	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.



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Tag No.	Photo
1049	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
1050	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
1051	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
1052	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.



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Tag No.	Photo
1053	A photograph of a tree with a thick, light-colored trunk and dense green foliage, standing in a dry, grassy field under a clear blue sky.
1054	A photograph of a tree with a thick, light-colored trunk and dense green foliage, standing in a dry, grassy field under a clear blue sky.
1055	A photograph of a tree with a thick, light-colored trunk and dense green foliage, standing in a dry, grassy field under a clear blue sky.
1056	A photograph of a tree with a thick, light-colored trunk and dense green foliage, standing in a dry, grassy field under a clear blue sky.



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Tag No.	Photo
1057	
1058	
1059	
1060	



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Tag No.	Photo
1061	A photograph of a tree with a thick, light-colored trunk and dense green foliage, standing in a dry, open area.
1063	A photograph of a tree with a thick, light-colored trunk and dense green foliage, standing in a dry, open area.
1064	A photograph of a tree with a thick, light-colored trunk and dense green foliage, standing in a dry, open area.
1065	A photograph of a tree with a thick, light-colored trunk and dense green foliage, standing in a dry, open area.



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Tag No.	Photo
1066	A photograph of a tree with a dense, rounded canopy of green and yellowish leaves, growing in a dry, sandy area under a clear blue sky.
1067	A photograph of a tall, slender tree with a light-colored trunk and a canopy of green leaves, standing in a dry, open field.
1068	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves, situated in a dry, sandy landscape.
1069	A photograph of a tree with a dense canopy of green and yellowish leaves, growing in a dry, sandy area.



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Tag No.	Photo
1070	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
1071	A photograph of a tree with a very light-colored, possibly white or pale grey, trunk. The canopy is green and somewhat sparse. The ground is dry and sandy.
1072	A photograph of a tree with a dark trunk and a very full, rounded canopy of green leaves. The tree is in a grassy field with other trees in the background.
1073	A photograph of a tree with a dark trunk and a dense canopy of green leaves. The tree is in a grassy area with other trees in the background.



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Tag No.	Photo
74	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green and brown leaves, standing in a dry, grassy field under a clear blue sky.
1075	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green and brown leaves, standing in a dry, grassy field under a clear blue sky.
1076	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green and brown leaves, standing in a dry, grassy field under a clear blue sky.
1077	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green and brown leaves, standing in a dry, grassy field under a clear blue sky.



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Tag No.	Photo
1078	A photograph of a tree with dense, light-colored foliage, possibly a cypress, standing in a sandy or cleared area.
1079	A photograph of a tall, slender tree with a light-colored trunk and dark foliage, set against a clear blue sky.
1080	A photograph of a tree with dense, yellowish-green foliage, viewed from a low angle looking up.
1081	A photograph of a tree with light-colored foliage, similar to tree 1078, in a sandy or cleared area.



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Tag No.	Photo
1082	A photograph of a tall, slender tree with a light-colored trunk and dense green foliage, set against a clear blue sky.
1083	A photograph of a tree with a thick, dark trunk and a canopy of green and yellowing leaves, situated in a dry, open field.
1084	A photograph of a tree with a thick, dark trunk and a canopy of yellowing leaves, situated in a dry, open field.
1085	A photograph of a tree with a thick, dark trunk and a canopy of green and yellowing leaves, situated in a dry, open field.



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Tag No.	Photo
1086	
1087	
1088	
1089	



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Tag No.	Photo
1090	A tall, slender tree with a dark trunk and dense green foliage, standing in a grassy field under a clear blue sky.
1091	A tree with a thick, light-colored trunk and a dense canopy of green leaves, situated in a grassy area.
1092	A tree with a thick, light-colored trunk and a dense canopy of green leaves, situated in a grassy area.
1093	A tree with a thick, light-colored trunk and a dense canopy of green leaves, situated in a grassy area.



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Tag No.	Photo
1094	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.
1095	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.
1096	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.
1097	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.



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Tag No.	Photo
1098	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is standing in a grassy area with a clear blue sky in the background.
1099	A photograph of a tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is standing in a grassy area with a clear blue sky in the background.
1100	A photograph of a tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is standing in a grassy area with a clear blue sky in the background.
1101	A photograph of a tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is standing in a grassy area with a clear blue sky in the background.



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Tag No.	Photo
1102	A photograph of a tree with a thick, light-colored trunk and dense green foliage, standing in a grassy field under a clear blue sky.
1103	A photograph of a tree with a dark trunk and a full canopy of green leaves, situated in an open field with other trees in the background.
1104	A photograph of a tree with a dark trunk and a canopy of green leaves, growing in a grassy area.
1105	A photograph of a tree with a dark trunk and a dense canopy of green leaves, standing in a grassy field.



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Tag No.	Photo
1106	A photograph of a large, mature tree with a dense, rounded canopy of green leaves. The tree is situated in an open area with a clear blue sky in the background.
1107	A photograph of a tree with a more open, branching structure. The leaves are green, and the tree is set against a bright blue sky.
1108	A photograph of a tree with a thick, light-colored trunk and a dense canopy of green leaves. The ground around the tree appears to be dry and sandy.
1109	A photograph of a tall, slender tree with a clear trunk and a canopy of green leaves. The tree is standing in a grassy area with other trees visible in the background.



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Tag No.	Photo
1110	A photograph of a large, mature tree with a thick, textured trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a clear blue sky in the background.
1111	A photograph of a large, mature tree with a thick, textured trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a clear blue sky in the background.
1112	A photograph of a large, mature tree with a thick, textured trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a clear blue sky in the background.
1113	A photograph of a large, mature tree with a thick, textured trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a clear blue sky in the background.



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Tag No.	Photo
1114	A photograph of a tree with a thick, dark trunk and a dense canopy of green and brown leaves. The tree is set against a clear blue sky.
1115	A photograph of a tree with a thick, dark trunk and a dense canopy of green and brown leaves. The tree is set against a clear blue sky.
1116	A photograph of a tree with a thick, dark trunk and a dense canopy of green and brown leaves. The tree is set against a clear blue sky.
1117	A photograph of a tree with a thick, dark trunk and a dense canopy of green and brown leaves. The tree is set against a clear blue sky.



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Tag No.	Photo
1118	
1119	
1120	
1121	



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Tag No.	Photo
1122	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a sandy, open area with some sparse vegetation in the background.
1123	A photograph of a tree with a dark, slender trunk and a dense canopy of green leaves. The tree is surrounded by other vegetation and appears to be in a wooded or semi-wooded area.
1124	A photograph of a tree with a dark, slender trunk and a dense canopy of green leaves. The tree is surrounded by other vegetation and appears to be in a wooded or semi-wooded area.
1125	A photograph of a tree with a dark, slender trunk and a dense canopy of green leaves. The tree is surrounded by other vegetation and appears to be in a wooded or semi-wooded area.



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Tag No.	Photo
1126	A photograph of a tree with a thick, dark trunk and dense green foliage, set against a clear blue sky. The ground is dry and yellowish.
1127	A photograph of a tree with a thick, dark trunk and dense green foliage, set against a clear blue sky. The ground is dry and yellowish.
1128	A photograph of a tree with a thick, dark trunk and dense green foliage, set against a clear blue sky. The ground is dry and yellowish.
1129	A photograph of a tree with a thick, dark trunk and dense green foliage, set against a clear blue sky. The ground is dry and yellowish.



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Tag No.	Photo
1130	A photograph of a large, mature tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a sandy path or clearing in the foreground.
1131	A photograph of a tall, slender tree with a light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a sandy path or clearing in the foreground.
1132	A photograph of a tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a sandy path or clearing in the foreground.
1133	A photograph of a tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a sandy path or clearing in the foreground.



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Tag No.	Photo
1134	A photograph of a large, mature tree with a dense, rounded canopy of green leaves. The tree is situated on a grassy area with some bare ground visible at its base.
1135	A photograph of a large, mature tree with a dense, rounded canopy of green leaves. The tree is situated on a grassy area with some bare ground visible at its base.
1136	A photograph of a large, mature tree with a dense, rounded canopy of green leaves. The tree is situated on a grassy area with some bare ground visible at its base.
1137	A photograph of a large, mature tree with a dense, rounded canopy of green leaves. The tree is situated on a grassy area with some bare ground visible at its base.



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Tag No.	Photo
1138	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with some bare ground visible at its base.
1139	A photograph of a tall, slender tree with a light-colored trunk and a canopy of green leaves. The tree is set against a clear blue sky.
1140	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with some bare ground visible at its base.
1141	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with some bare ground visible at its base.



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Tag No.	Photo
1142	A photograph of a tree with a thick, light-colored trunk and dense green foliage, viewed from a low angle looking up.
1143	A photograph of a tree with a thick, light-colored trunk and dense green foliage, viewed from a low angle looking up.
1145	A photograph of a tree with a thick, light-colored trunk and dense green foliage, viewed from a low angle looking up.
1146	A photograph of a tree with a thick, light-colored trunk and dense green foliage, viewed from a low angle looking up.



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Tag No.	Photo
1147	A photograph of a tree with bright yellow leaves, likely a deciduous tree in autumn. The tree is in the foreground, and the background shows a grassy field and a clear blue sky.
1148	A photograph of a tree with green leaves, possibly a deciduous tree. The tree is in the foreground, and the background shows a grassy field and a clear blue sky.
1149	A photograph of a tree with green leaves, possibly a deciduous tree. The tree is in the foreground, and the background shows a grassy field and a clear blue sky.
1150	A photograph of a tree with green leaves, possibly a deciduous tree. The tree is in the foreground, and the background shows a grassy field and a clear blue sky.



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Tag No.	Photo
1151	
1152	
1153	
1154	



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Tag No.	Photo
1155	A photograph of a tree with dense, green, feathery foliage, likely a cypress, growing in a field with dry grass and other trees in the background.
1156	A photograph of a tree with a thick, textured trunk and a canopy of green leaves, standing in a field with other trees and a clear sky in the background.
1157	A photograph of a tree with a dense canopy of bright green leaves, growing in a field with dry grass and other trees in the background.
1158	A photograph of a tree with a thin trunk and sparse, light green foliage, standing in a field with dry grass and other trees in the background.



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Tag No.	Photo
1159	A photograph of a tree with dense, dark green foliage and a thick, gnarled trunk, growing in a dry, grassy area.
1160	A photograph of a tree with a light-colored, textured trunk and a dense canopy of green leaves, standing in a dry, open field.
1161	A photograph of a large, spreading tree with a thick trunk and a wide canopy of green leaves, situated in a dry, grassy area.
1162	A photograph of a tree with a light-colored, textured trunk and a dense canopy of green leaves, growing in a dry, grassy area.



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Tag No.	Photo
1163	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
1164	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
1165	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.
1166	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is situated in a grassy area with other trees in the background.



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Tag No.	Photo
1167	A photograph of a tree with yellowish-brown leaves, standing in a dry, grassy field under a cloudy sky.
1168	A photograph of a tree with green leaves, standing in a dry, grassy field under a cloudy sky.
1169	A photograph of a tree with green leaves, standing in a dry, grassy field under a cloudy sky.
1170	A photograph of a tree with green leaves, standing in a dry, grassy field under a cloudy sky.



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Tag No.	Photo
1171	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a grassy area with some bare ground visible at its base.
1172	A photograph of a tree with a thick trunk and a dense canopy of green leaves. The tree is situated in a grassy area with some bare ground visible at its base.
1173	A photograph of a tree with a thick trunk and a dense canopy of green leaves. The tree is situated in a grassy area with some bare ground visible at its base.
1174	A photograph of a tree with a thick trunk and a dense canopy of green leaves. The tree is situated in a grassy area with some bare ground visible at its base.



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Tag No.	Photo
1175	A photograph of a tree with a thick, gnarled trunk and dense green foliage, viewed from a low angle looking up.
1176	A photograph of a large, spreading tree with a thick trunk and dense green foliage, viewed from a low angle.
1177	A photograph of a tall, slender tree with a thin trunk and dense green foliage, viewed from a low angle.
1178	A photograph of a tree with a thick trunk and dense green foliage, viewed from a low angle.



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Tag No.	Photo
1179	A photograph of a weeping tree with dense, drooping branches and light green foliage, situated in a grassy area.
1180	A photograph of a deciduous tree with a full canopy of green leaves, standing in a grassy field with other trees in the background.
1181	A photograph of a large, bushy shrub or small tree with dense green foliage, growing in a grassy area.
1182	A photograph of a large, mature tree with a thick trunk and a full canopy of green leaves, standing in a grassy field.



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Tag No.	Photo
1183	A photograph of a large, mature tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a fence and a road visible in the background.
1184	A photograph of a large, mature tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a fence and a road visible in the background.
1185	A photograph of a large, mature tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a fence and a road visible in the background.
1186	A photograph of a large, mature tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a fence and a road visible in the background.



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Tag No.	Photo
1187	A photograph of a large, mature tree with a thick, light-colored trunk and a dense canopy of green leaves. The tree is set against a blue sky with some white clouds.
1188	A photograph of a tree with a slender trunk and a spreading canopy of green leaves. The tree is situated in a grassy area with a body of water and other trees in the background.
1189	A photograph of a tree with a thick trunk and a dense canopy of green leaves. The tree is located in a grassy field with other trees and a body of water in the background.
1190	A photograph of a tree with a thick trunk and a dense canopy of green leaves. The tree is situated in a grassy area with a body of water and other trees in the background.



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Tag No.	Photo
1191	A photograph of a tree with dense green foliage, viewed from a low angle looking up towards the sun which is visible through the leaves. The ground is dry and grassy.
1192	A photograph of a tree with green leaves, showing a wider view of the canopy and some bare ground in the foreground.
1193	A photograph of a tree with green leaves, showing a close-up view of the canopy and some bare ground in the foreground.
1194	A photograph of a tree with green leaves, viewed from a low angle looking up towards the sun which is visible through the leaves. The ground is dry and grassy.



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Tag No.	Photo
1195	A large, mature tree with a thick trunk and a dense canopy of green leaves, standing on a grassy area with a body of water in the background.
1196	A large, mature tree with a thick trunk and a dense canopy of green leaves, standing on a grassy area with a body of water in the background.
1197	A large, mature tree with a thick trunk and a dense canopy of green leaves, standing on a grassy area with a body of water in the background.
1198	A large, mature tree with a thick trunk and a dense canopy of green leaves, standing on a grassy area with a body of water in the background.



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Tag No.	Photo
1199	
1200	
1201	
1202	



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Tag No.	Photo
1203	
1204	
1205	
1206	



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Tag No.	Photo
1207	A photograph of a tree with a thick, dark trunk and a dense, rounded canopy of green leaves. The tree is standing in a dry, sandy area with some sparse vegetation in the background under a blue sky with white clouds.
1208	A photograph of a tree with a thick, dark trunk and a dense, rounded canopy of green leaves. The tree is standing in a dry, sandy area with some sparse vegetation in the background under a blue sky with white clouds.
1209	A photograph of a tree with a thick, dark trunk and a dense, rounded canopy of green leaves. The tree is standing in a dry, sandy area with some sparse vegetation in the background under a blue sky with white clouds.
1210	A photograph of a tree with a thick, dark trunk and a dense, rounded canopy of green leaves. The tree is standing in a dry, sandy area with some sparse vegetation in the background under a blue sky with white clouds.



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Tag No.	Photo
1211	A photograph of a large, mature tree with dense green foliage, standing in a grassy field under a blue sky with scattered clouds.
1212	A photograph of a tall, slender tree with a light-colored trunk and a dense canopy of green leaves, set against a backdrop of other trees and a cloudy sky.
1213	A photograph of a medium-sized tree with a thick, gnarled trunk and a rounded canopy of green leaves, situated in a dry, grassy area.
1214	A photograph of a tree with a thick, light-colored trunk and dense green foliage, showing some signs of decay or damage on the trunk.



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Tag No.	Photo
1215	A photograph of a large, mature tree with a thick, textured trunk and a dense canopy of green leaves. The tree is situated in a dry, open field with some other vegetation in the background.
1216	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. A dark-colored car is parked on a dirt path in the foreground, partially obscured by the tree's branches.
1217	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. A dark-colored car is parked on a dirt path in the foreground, partially obscured by the tree's branches.
1218	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is situated in a dry, open field with some other vegetation in the background.



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Tag No.	Photo
1219	A photograph of a large, mature tree with a thick, gnarled trunk and dense green foliage. The tree is situated in a grassy area with a building visible in the background.
1220	A photograph of a large, mature tree with a thick, gnarled trunk and dense green foliage. The tree is situated in a grassy area with a building visible in the background.
1221	A photograph of a large, mature tree with a thick, gnarled trunk and dense green foliage. The tree is situated in a grassy area with a building visible in the background.
1222	A photograph of a large, mature tree with a thick, gnarled trunk and dense green foliage. The tree is situated in a grassy area with a building visible in the background.



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Tag No.	Photo
1223	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated on a grassy area with some dry vegetation in the foreground.
1224	A photograph of a tall, slender tree with a light-colored trunk and a canopy of green leaves. The tree is surrounded by other trees and vegetation in a wooded area.
1225	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated on a grassy area with some dry vegetation in the foreground.
1226	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves. The tree is situated on a grassy area with some dry vegetation in the foreground.



Tree Photos
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Tag No.	Photo
1227	A photograph of a large, mature tree with a thick, dark trunk and a dense, rounded canopy of green leaves. The tree is situated in a dry, open field with sparse grass and some bare ground.
1228	A photograph of a tree with a light-colored, textured trunk and a canopy of green leaves. The tree is growing in a dry, open field with sparse grass and some bare ground.
1229	A photograph of a tree with a light-colored, textured trunk and a canopy of green leaves. The tree is growing in a dry, open field with sparse grass and some bare ground.
1230	A photograph of a tree with a light-colored, textured trunk and a canopy of green leaves. The tree is growing in a dry, open field with sparse grass and some bare ground.



Tree Photos
FORMER GLEN IRIS GOLF COURSE

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Tag No.	Photo
1231	A photograph of a tall, slender tree with a light-colored trunk and dense green foliage, standing in a grassy area with a building visible in the background.
1232	A photograph of a tree with a thick, dark trunk and a dense canopy of green leaves, situated in a grassy field.
1233	A photograph of a tree with a light-colored trunk and green foliage, standing in a grassy area with a building visible in the background.
1234	A photograph of a tree with a light-colored trunk and green foliage, standing in a grassy area with a building visible in the background.



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Tag No.	Photo
1237	A tall, slender tree with a dense canopy of green leaves, viewed from a low angle looking up towards the sky.
1238	A tree with a thick, gnarled trunk and a wide, spreading canopy of green leaves, situated in an open field.
1239	A tree with a thick, gnarled trunk and a wide, spreading canopy of green leaves, situated in an open field.
1240	A tree with a thick, gnarled trunk and a wide, spreading canopy of green leaves, situated in an open field.



Tree Photos
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Tag No.	Photo
1241	A photograph of a tree with a thick, light-colored trunk and a dense canopy of green and yellow leaves. The tree is situated in a grassy area with other trees in the background.
1242	A photograph of a tall, slender tree with a dark trunk and a dense canopy of green leaves. The tree is viewed from a low angle, looking up towards the sky.
1243	A photograph of a tree with a thick, light-colored trunk and a dense canopy of green and yellow leaves. The tree is situated in a grassy area with other trees in the background.
1244	A photograph of a tree with a thick, light-colored trunk and a dense canopy of green and yellow leaves. The tree is situated in a grassy area with other trees in the background.



Tree Photos
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Tag No.	Photo
1245	A photograph of a tree with a thick, gnarled trunk and a dense canopy of green leaves, situated in a dry, sandy area with some sparse vegetation in the background.
1246	A photograph of a tall, slender tree with a very thick, dark trunk and a dense canopy of green leaves, set against a blue sky with scattered white clouds.
1247	A photograph of a large, spreading tree with a thick trunk and a dense canopy of green leaves, casting a shadow on the ground.
1248	A photograph of a tree with a thick trunk and a dense canopy of green leaves, viewed from a slightly lower angle than the others.



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Tag No.	Photo
1249	A photograph of a tree with a light-colored trunk and dense green foliage, situated in front of a building with a tiled roof.
1250	A photograph of a tree with a light-colored trunk and dense green foliage, situated in a field with a fence in the background.
1251	A photograph of a tree with a light-colored trunk and dense green foliage, situated in a field.
1252	A photograph of a tree with a light-colored trunk and dense green foliage, situated in a field.



Tree Photos
FORMER GLEN IRIS GOLF COURSE

Tag No.	Photo
1253	A photograph of a large, mature tree with a dense, rounded canopy of green leaves. The tree is situated on a grassy area with some bare patches of ground visible at its base. The sky is blue with some light clouds.
1254	A photograph of a large, mature tree with a dense, rounded canopy of green leaves. The tree is situated on a grassy area with some bare patches of ground visible at its base. The sky is blue with some light clouds.
1255	A photograph of a large, mature tree with a dense, rounded canopy of green leaves. The tree is situated on a grassy area with some bare patches of ground visible at its base. The sky is blue with some light clouds.
1256	A photograph of a large, mature tree with a dense, rounded canopy of green leaves. The tree is situated on a grassy area with some bare patches of ground visible at its base. The sky is blue with some light clouds.



Tree Photos
FORMER GLEN IRIS GOLF COURSE

Tag No.	Photo
1257	A photograph of a large, mature tree with a thick, gnarled trunk and a dense canopy of green leaves. The tree is set against a clear blue sky.
1258	A photograph of a tree with a thick trunk and a dense canopy of green leaves, similar to the one in the previous row. The tree is set against a clear blue sky.
0	No photo
32	No photo
43	No photo
339	No photo
1074	No photo

Appendix E

Acoustic Assessment





GLEN IRIS GOLF COURSE REDEVELOPMENT

DEAN RD, JANDAKOT

ACOUSTIC ASSESSMENT

SEPTEMBER 2021

OUR REFERENCE: 27789-2-20325

Rochdale Holdings Pty Ltd A.B.N. 85 009 049 067 trading as:
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DOCUMENT CONTROL PAGE

ACOUSTIC ASSESSMENT

GLEN IRIS GOLF COURSE

Job No: 20325

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Herring Storer Acoustics

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E	NOISE MONITORING DATA
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Our ref: 27789-2-20325

EXECUTIVE SUMMARY

Herring Storer Acoustics have been commissioned by Acumen Development Solutions to carry out an acoustical assessment of the proposed redevelopment of the Glen Iris Golf Course into residential land use.

The proposed residential estate is potentially impacted by noise from road traffic (Kwinana Freeway and Berigan Drive), rail traffic (Yangebup Freight Rail Line and future Thornlie to Cockburn Passenger Rail Line) and aircraft associated with Jandakot Airport with the figure below showing the PlanWA advice in regards to noise impacts. Consideration has also been given to the potential impact from noise related to existing industry to the south of the development on Prinsep Road.



Based on the above, the following criteria are proposed for this development:

ROAD TRAFFIC AND RAIL NOISE

External

Day	Maximum of 55 dB(A) L_{Aeq}
Night	Maximum of 50 dB(A) L_{Aeq}
Outdoor Living Areas*	Maximum of 50 dB(A) L_{Aeq} (night period)

*This is a suggested noise level; noise is to be reduced as far as practicably possible.

Internal

Sleeping Areas	35 dB(A) $L_{Aeq(night)}$
Living Areas	40 dB(A) $L_{Aeq(day)}$

AIRCRAFT NOISE

Internal

Sleeping areas	50 dB(A) L_{Amax}
Other habitable spaces	55 dB(A) L_{Amax}

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ROAD NOISE

Based on the development plan, it is proposed that areas are to be constructed for the purpose of residential with some commercial usage for the section to the north of Berrigan Drive. Noise levels for the future road traffic are such, that at some of the lot façades, the noise could exceed the 55 dB(A) noise Target. Therefore, amelioration in the form of Quiet House Design is required. These areas have been identified and general “deemed to satisfy packages” applied. Detailed design for these requirements can be applied at subdivision staging.

Given the noise levels, the lot façades would require Quiet House Design in the form of Package A. Appendix F contains the Quiet House Design requirements and an area plan outlining the effected Lots.

Additionally, as they are over the “Target” noise level, the lots in this area would require notification on titles of the Freeway and Berrigan Drive noise impact.

RAIL NOISE

For train noise associated with the Yangebup Freight Line, due to the topography (line being in a cutting) and the noise wall and residential housing between the rail line and the development, the noise levels for the worst case future scenario of one train per hour have been assessed as being below the night time noise Target criteria, hence there are no acoustic requirements.

Information was sought from the Metronet and the EPA as to the proposed design and impact of noise levels from the proposed future passenger rail and freight rail lines.

As there are existing residential premises located on the proposed rail line, development of the future rail line operations needs to consider these highly noise sensitive premises.

Review of the preliminary design noise levels, as provided in the *Thornlie-Cockburn Link Noise and Vibration Assessment Report Number 675.10409.00100-R01* shows that noise levels to these existing residential premises will be designed such that the target noise levels (as per SPP 5.4) will be met.

As the Glen Iris development is set back behind these residential premises, noise levels would be less than those at the lot façades, hence compliance with the requirements of SPP 5.4 would be achieved. Therefore, noise modelling of the future proposed Freight / Passenger Rail would not be required for this development as the infrastructure provide will meet the requirements of SPP 5.4 for existing residential premises closer to the rail line.

It is noted that assessment of the freight rail has been undertaken and calibrated to existing noise levels. These noise levels have been increased for future rail freight movements of one per hour. This is based on the current built form, including the noise wall located along the existing residence boarding the rail line. If the proposed passenger rail development goes ahead, the noise mitigation requirements would incorporate the freight rail, hence noise levels would be less than those considered in this assessment. This provides a conservative acoustic assessment for the proposed development, where the future freight rail increases, and no further noise attenuation works are carried out.

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AIRCRAFT NOISE

Based on guidance from SPP 5.3, the majority of the northern section of the proposed development site is acceptable for residential development, as indicated in Figure 5.3.

The blue area (ANEF 20 to 25) is also acceptable for residential development, although it requires conditions. These conditions are such that the internal noise level (for aircraft noise events) are to meet the criteria contained in AS2021. The affected lots within this development are those within the blue contour as noted in Figure 5.3.

Further to the criteria contained in SPP 5.3, the City of Cockburn LPP 1.12 contains advice as follows:

Consideration should be given to noise attenuation for noise sensitive premises within the Frame area corresponding to the requirements of Western Australian Planning Commission publication "Aircraft Noise Insulation for Residential Development in the Vicinity of Perth Airport" 2004 (such as the installation of 6.38mm laminated glazing), in order to ensure that residential amenity is adequately protected within noise sensitive developments.

Therefore, whilst at this stage of the development the lot configuration and layout are not known, a preliminary "deemed to satisfy construction" has been provided within this report. This can form the basis of future concept designs and can be refined at subdivision staging. This encompasses the Frame Area for which the entire development is located within the boundaries.

INDUSTRY NOISE

Based on the City of Cockburn Intramaps, there is industrial zoned land use to the south of the proposed residential development, as shown in Figure 5.4.

As there are existing residential premises located on Imlah Court, located at a closer distance to the industrial premises than the proposed development, expectations are that compliance with Regulatory criteria contained in the *Environmental Protection (Noise) Regulations 1997* would be achieved for the existing situation at these locations. However, consideration of the potential for noise impact from this area has been undertaken for the proposed residential development.

Three forms of noise amelioration have been considered for the future residence located on the southern end of the Glen Iris development, with these being as follows:

1. Noise Wall (Prinsep Road)
2. Upgrade Building Design (As per SPP 5.3)
3. Setback

Given the implementation of the above, noise levels can be managed, regardless of compliance with the regulatory criteria.

1.0 INTRODUCTION

Herring Storer Acoustics have been commissioned by Acumen Development Solutions to carry out an acoustical assessment of the proposed redevelopment of the Glen Iris Golf Course into residential land use.

The proposed residential estate is potentially impacted by noise from the following noise sources:

- Road Traffic Noise- Kwinana Freeway and Berrigan Drive.
- Rail Traffic Noise - Existing Yangebup Freight Rail Line and proposed Thornlie to Cockburn Passenger Rail Line.
- Aircraft Noise – Aircrafts associated with Jandakot Airport.
- Industrial Noise – Existing Industry located on Prinsep Road.

The objectives of the study were to:

- Measure existing noise levels at the proposed development from vehicles travelling on Kwinana Freeway and Berrigan Drive.
- Measure existing noise levels at the proposed development from trains travelling on the Yangebup Freight Rail Line.
- Determine by noise modelling the noise levels that would be received at residences within the development from vehicles travelling on the future Kwinana Freeway, Berrigan Drive and Yangebup freight Rail Line and proposed passenger rail.
- Assess the predicted noise levels received at residence for compliance with the requirements of the WAPC State Planning Policy 5.4 “Road and Rail Noise” (SPP 5.4).
- If exceedances are predicted, comment on possible noise amelioration options for compliance with the appropriate criteria.
- Assess the predicted noise levels received at residence for compliance with the requirements of the WAPC State Planning Policy 5.3 “Land Use Planning in the Vicinity of Jandakot Airport” (SPP 5.3).
- Consider impacts of industrial noise associated with existing industry located on Prinsep Road, in accordance with the City of Cockburn’s Local Planning Policy 1.12 (LPP 1.12).

The work was commissioned to accompany the development application.

2.0 CRITERIA

2.1 NOISE INGRESS INTO DEVELOPMENT

The Western Australian Planning Commission (WAPC) released on 6th September 2019 State Planning Policy 5.4 “Road and Rail Noise”. The requirements of State Planning Policy 5.4 are outlined below.

POLICY APPLICATION (Section 4)When and where it applies (Section 4.1)

SPP 5.4 applies to the preparation and assessment of planning instruments, including region and local planning schemes; planning strategies, structure plans; subdivision and development proposals in Western Australia, where there is proposed:

- a) noise-sensitive land-use within the policy's trigger distance of a transport corridor as specified in **Table 1**;
- b) New or major upgrades of roads as specified in **Table 1** and maps (**Schedule 1, 2 and 3**); or
- c) New railways or major upgrades of railways as specified in maps (**Schedule 1, 2 and 3**); or any other works that increase capacity for rail vehicle storage or movement and will result in an increased level of noise.

Policy trigger distances (Section 4.1.2)

Table 1 identifies the State's transport corridors and the trigger distances to which the policy applies.

The designation of land within the trigger distances outlined in **Table 1** should not be interpreted to imply that land is affected by noise and/or that areas outside the trigger distances are un-affected by noise.

Where any part of the lot is within the specified trigger distance, an assessment against the policy is required to determine the likely level of transport noise and management/mitigation required. An initial screening assessment (**guidelines: Table 2: noise exposure forecast**) will determine if the lot is affected and to what extent."

TABLE 1: TRANSPORT CORRIDOR CLASSIFICATION AND TRIGGER DISTANCES

Transport corridor classification	Trigger distance	Distance measured from
Roads		
Strategic freight and major traffic routes Roads as defined by Perth and Peel Planning Frameworks and/or roads with either 500 or more Class 7 to 12 Austroads vehicles per day, and/or 50,000 per day traffic volume	300 metres	Road carriageway edge
Other significant freight/traffic routes These are generally any State administered road and/or local government road identified as being a future State administered road (red road) and other roads that meet the criteria of either >=23,000 daily traffic count (averaged equivalent to 25,000 vehicles passenger car units under region schemes)	200 metres	Road carriageway edge
Passenger railways		
	100 metres	Centreline of the closest track
Freight railways		
	200 metres	Centreline of the closest track

Proponents are advised to consult with the decision making authority as site specific conditions (significant differences in ground levels, extreme noise levels) may influence the noise mitigation measures required, that may extend beyond the trigger distance.

POLICY MEASURES (Section 6)

The policy applies a performance-based approach to the management and mitigation of transport noise. The policy measures and resultant noise mitigation will be influenced by the function of the transport corridor and the type and intensity of the land-use proposed. Where there is risk of future land-use conflict in close proximity to strategic freight routes, a precautionary approach should be applied. Planning should also consider other broader planning policies. This is to ensure a balanced approach takes into consideration reasonable and practical considerations.

Noise Targets (Section 6.1)

Table 2 sets out noise targets that are to be achieved by proposals under which the policy applies. Where exceeded, an assessment is required to determine the likely level of transport noise and management/mitigation required.

In the application of the noise targets the objective is to achieve:

- indoor noise levels as specified in **Table 2** in noise sensitive areas (for example, bedrooms and living rooms of houses, and school classrooms); and
- a reasonable degree of acoustic amenity for outdoor living areas on each residential lot. For non-residential noise-sensitive developments, for example schools and child care centres the design of outdoor areas should take into consideration the noise target.

It is recognised that in some instances, it may not be reasonable and/or practicable to meet the outdoor noise targets. Where transport noise is above the noise targets, measures are expected to be implemented that balance reasonable and practicable considerations with the need to achieve acceptable noise protection outcomes.

TABLE 2: NOISE TARGETS

Proposals	New/Upgrade	Noise Targets		
		Outdoor		Indoor
		Day ($L_{Aeq}(\text{Day})$ dB) (6 am-10 pm)	Night ($L_{Aeq}(\text{Night})$ dB) (10 pm-6 am)	(L_{Aeq} dB)
Noise-sensitive land-use and/or development	New noise sensitive land use and/or development within the trigger distance of an existing/proposed transport corridor	55	50	L_{Aeq} (Day) 40(Living and work areas) L_{Aeq} (Night) 35 (bedrooms)
Roads	New	55	50	N/A
	Upgrade	60	55	N/A
Railways	New	55	50	N/A
	Upgrade	60	55	N/A

Notes:

- The noise target is to be measured at one metre from the most exposed, habitable façade of the proposed building, which has the greatest exposure to the noise-source. A habitable room has the same meaning as defined in State Planning Policy 3.1 Residential Design Codes.
- For all noise-sensitive land-use and/or development, indoor noise targets for other room usages may be reasonably drawn from Table 1 of Australian Standard/New Zealand Standard AS/NZS 2107:2016 Acoustics – Recommended design sound levels and reverberation times for building interiors (as amended) for each relevant time period.
- The 5dB difference in the criteria between new and upgrade infrastructure proposals acknowledges the challenges in achieving noise level reduction where existing infrastructure is surrounded by existing noise-sensitive development.
- Outdoor targets are to be met at all outdoor areas as far as is reasonable and practical to do so using the various noise mitigation measures outlined in the guidelines. For example, it is likely unreasonable for a transport infrastructure provider to achieve the outdoor targets at more than 1 or 2 floors of an adjacent development with direct line of sight to the traffic.

Noise Exposure Forecast (Section 6.2)

When it is determined that SPP 5.4 applies to a planning proposal as outlined in Section 4, proponents and/or decision makers are required to undertake a preliminary assessment using **Table 2**: noise exposure forecast in the guidelines. This will provide an estimate of the potential noise impacts on noise-sensitive land-use and/or development within the trigger distance of a specified transport corridor. The outcomes of the initial assessment will determine whether:

- no further measures is required;
- noise-sensitive land-use and/or development is acceptable subject to deemed-to-comply mitigation measures; or
- noise-sensitive land-use and/or development is not recommended. Any noise-sensitive land-use and/or development is subject to mitigation measures outlined in a noise management plan."

2.2 STATE PLANNING POLICY 5.3 LAND USE IN THE VICINITY OF JANDAKOT AIRPORT

AS2021: Acoustics – Aircraft Noise Intrusion-Building Siting and Construction, provides guidelines for determines the type of building construction necessary to provide a given noise reduction, given that external windows and doors are closed.

Additionally, guidance has been sought from *State Planning Policy 5.3 Land use in the vicinity of Jandakot airport*.

2.2.1 Building Site Acceptability

AS2021:2015 lists the building types compared to the acceptable ANEF contour in Table 2.1 of AS2021:2015. The applicable building types are reproduced in Table 1 below.

TABLE 1 – ANEF ACCEPTABILITY FOR SITING AND CONSTRUCTION

Building Type	ANEF zone of Site		
	Acceptable	Conditionally Acceptable	Unacceptable

House, home unit, flat, caravan park	Less than 20 ANEF	20 to 25 ANEF	Greater than 25 ANEF
--------------------------------------	-------------------	---------------	----------------------

AS2021:2015 *"Acoustics – Aircraft Noise Intrusion-Building Siting and Construction"* provides guidelines for determining the type of building construction necessary to provide a given noise reduction, given that external windows and doors are closed.

Indoor design sound levels for determination of aircraft noise reductions are given as follows:

Sleeping areas	-	50 dB(A)
Other habitable spaces	-	55 dB(A)

For commercial buildings:

Private offices	-	55 dB(A)
Open offices	-	65 dB(A)
Shops, showrooms etc.	-	75 dB(A)
Industrial	-	75 dB(A)

We note that the above noise levels are maximum noise levels.

2.3 CITY OF COCKBURN LOCAL PLANNING POLICY 1.12 – NOISE ATTENUATION

An Acoustic Report must accompany a Structure Plan, variations to a Structure Plan that materially alter the Plans intent or a Local Development Plan. The Acoustic Report shall be prepared in accordance with the attached City of Cockburn Noise Attenuation Guidelines where:

1. Noise sensitive development is proposed in the vicinity of an existing or future major road, rail infrastructure or a freight handling facility as required by SPP 5.4;
2. The land is located within either the Core Area or Frame Area for Jandakot Airport as identified by SPP 5.3; or
3. Noise sensitive development and commercial, industrial or light industry land uses or essential infrastructure are proposed in close proximity.

2.3.1 NOISE INTRUSION (NOISE SENSITIVE DEVELOPMENT)

1. Noise sensitive developments are to be designed to achieve the following sound levels:
 - (a) Leq 35 dB(A) in sleeping areas (bedrooms); and
 - (b) Leq 40 dB(A) in living/work areas and other habitable rooms.

IMPORTANT NOTE:

The Leq level should not be unduly biased toward the lower frequencies of the octave band spectrum. If lower frequencies are dominant in sound levels taken during the sampling phase of reporting (below 200Hz or a 15-20dB difference between LA and LC levels), the Acoustic Consultant shall discuss the findings with the City in developing appropriate solutions to ensure that low frequency noise is appropriately attenuated, prior to the submission of the final Acoustic Report.

2. For all other developments, noise intrusion is to be controlled to achieve the indoor design sound levels for buildings as set out in Australian Standard AS/NZS2107: "Acoustics - Recommended Design Sound Levels and Reverberation Times for Building Interiors".
3. For noise sensitive developments in close proximity to road and rail infrastructure, the report must address the requirements of SPP 5.4, including the requirement for a reasonable degree of acoustic amenity in at least one outdoor living area.
4. For noise sensitive developments in close proximity to freight rail infrastructure or other sources of vibration, the Acoustic Report should also address groundborne vibration levels to ensure that occupants of the development are not exposed to an unacceptable level of vibration. The report should make reference to:
 - (a) Australian Standard 2670.2-1990 "Evaluation of human exposure to whole-body vibration; Part 2: Continuous and shock induced vibration in buildings (1 to 80 Hz)"
 - (b) ISO 2631-2:2003 "Evaluation of human exposure to whole-body vibration Part 2: Vibration in buildings (1 Hz to 80 Hz)";
 - (c) British Standard BS6472-2008: "Evaluation of Human Exposure to Vibration in Buildings (1 Hz to 80 Hz)".
5. Residential developments are to be constructed to meet the requirements of the National Construction Code (as amended) and the Building Code of Australia Part F5 (as amended).

2.3.2 NOISE SOURCE IDENTIFICATION

Acoustic reports must identify all noise sources relevant to a development, including those which may require detailed assessment at a later stage. Ambient environmental noise sources that are relevant within the City of Cockburn include the following:

1. Noise from Road, Rail and Freight Infrastructure
2. Breakout and Street Noise
3. Mechanical Plant and Equipment
4. Co-existing Land Uses
5. Noise Sensitive Developments in Proximity to Jandakot Airport

2.4 APPROPRIATE CRITERIA

Based on the above, the following criteria are proposed for this development:

ROAD TRAFFIC AND RAIL NOISE

External

Day	Maximum of 55 dB(A) L_{Aeq}
Night	Maximum of 50 dB(A) L_{Aeq}
Outdoor Living Areas*	Maximum of 50 dB(A) L_{Aeq} (night period)

*This is a suggested noise level; noise is to be reduced as far as practicably possible.

Internal

Sleeping Areas	35 dB(A) $L_{Aeq(night)}$
Living Areas	40 dB(A) $L_{Aeq(day)}$

AIRCRAFT NOISE**Internal**

Sleeping areas	50 dB(A) L_{Amax}
Other habitable spaces	55 dB(A) L_{Amax}

3.0 NOISE MONITORING

Noise monitoring was undertaken as part of the study with the results used to calibrate the noise model.

In summary, the monitoring was undertaken over seven-day period commencing Monday 2nd December 2020. Monitoring was conducted at two locations, firstly at the northern end of the golf course, with the second location being in the south of the golf course

The results of this monitoring are summarised in Table 3.1.

TABLE 3.1 : SUMMARY OF MEASURED ROAD TRAFFIC NOISE LEVELS (dB(A))

Date	Day of week	North Monitor		South Monitor	
		$L_{Aeq,day}$ (6am to 10pm)	$L_{Aeq,night}$ (10pm to 6am)	$L_{Aeq,day}$ (6am to 10pm)	$L_{Aeq,night}$ (10pm to 6am)
2/12/2020	Wednesday	-	-	55.9	48.0
3/12/2020	Thursday	56.7	49.8	55.4	48.4
4/12/2020	Friday	57.4	48.0	57.3	48.6
5/12/2020	Saturday	56.8	49.1	55.2	49.3
6/12/2020	Sunday	55.1	50.2	53.6	47.4
7/12/2020	Monday	54.3	47.0	51.9	47.4
8/12/2020	Tuesday	54.6	48.1	52.5	45.7
Average (Weekdays)		55.8	48.2	54.6	47.6

Note: Based on the results of the noise monitoring the difference between the L_{Aeq} (Day) and L_{Aeq} (Night) is greater than 5 dB(A). Hence, achieving compliance with the day period criteria would also result in compliance with the night period criteria. Thus, the day period has been used for the assessment.

A third measurement location was included to calibrate noise levels for Berrigan Drive. The measurement was conducted on 14th September 2021 for a short term during peak traffic times.

The summarised results are contained in table 3.2.

TABLE 3.2 : SUMMARY OF MEASURED ROAD TRAFFIC NOISE LEVELS BERRIGAN DRIVE (dB(A))

Date	Day of week	L_{Aeq}	L_{A10}	L_{A90}
14/09/2021	Tuesday	68.8	72.5	56.7

For information, the results of the monitoring are shown graphically in Appendix E, with Figure 3.1 showing the location map, and Figure 3.2 showing the monitors in situ.

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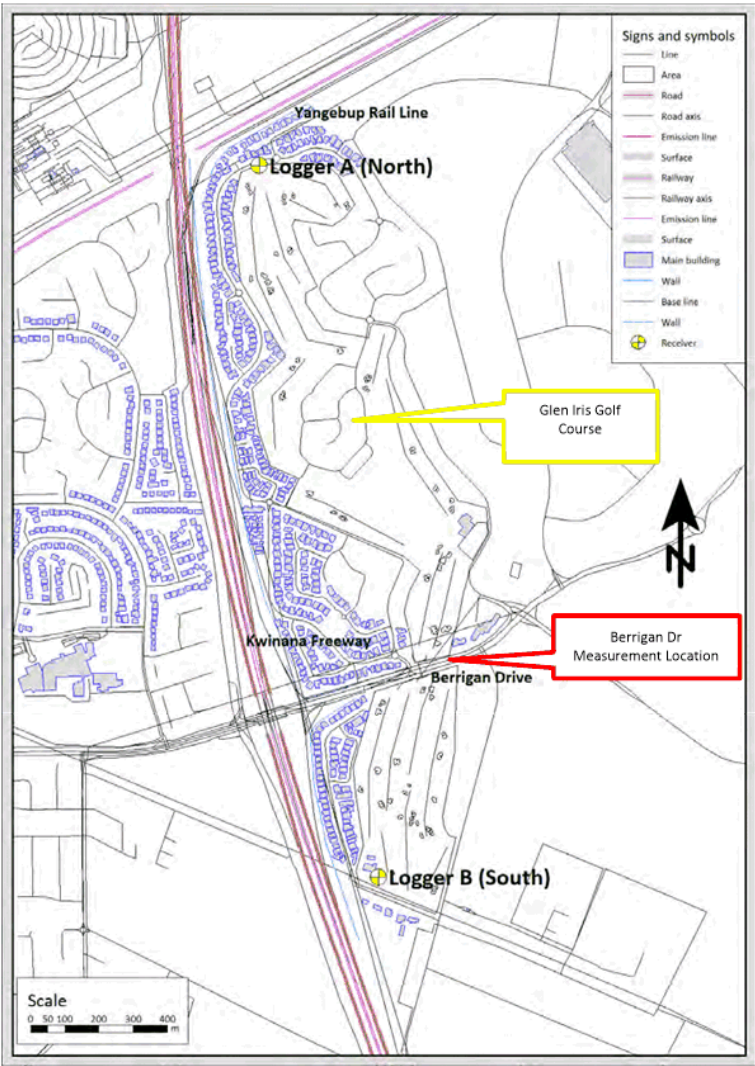


FIGURE 3.1 - NOISE MONITOR LOCATION PLAN



FIGURE 3.2 - NOISE MONITOR IN SITU

4.0 METHODOLOGY

4.1 ROAD TRAFFIC

The future road traffic volumes were based on information provided by the MRWA traffic modelling department. ROM24 2016 validation plots for 2016 and 2041 link volume plots were provided.

Predictive noise modelling has allowed for the following traffic data. It is noted that where available on the MRWA traffic maps site, current traffic counts were used to calibrate the measured noise levels.

Other information relevant to the calculations are shown below in Table 4.1.

TABLE 4.1 - NOISE MODELLING INPUT DATA

Parameter	Traffic Flow VPD Current	Traffic Flow VPD Future (2041)	Traffic Speed km/hr	Road Surface
Traffic flows VPD Kwinana Freeway South Bound	*48,368 (13%)	124,300 (11%)	100	Asphalt
Traffic flows VPD Kwinana Freeway North Bound	*55,082 (14%)	118,000 (11%)	100	Asphalt
Kwinana Freeway (South Bound) Berrigan Drive Offramp	9,000 (13%)	20,900 (11%)	60	Asphalt
Berrigan Drive to Kwinana Freeway (South Bound) Onramp	2,300 (17%)	7,700 (11%)	60	Asphalt
Berrigan Drive East of Kwinana Freeway (East Bound)	*27,780 (11%)*	20,000 (9%)	70	Asphalt
Berrigan Drive East of Kwinana Freeway (West Bound)		17,300 (11%)	70	Asphalt

* Based on current traffic counts (2018 to 2021)

Other input data for the model included:

- Traffic data from MRWA (<https://mrapps.mainroads.wa.gov.au/TrafficMap/>)
- Noise source heights for the three road source strings (Passenger Vehicles, Heavy Vehicles Engine and Heavy Vehicle Exhausts) are +0.5, +1.5 and +3.6m, with a noise correction of -0.8 and -8.0 applied to the heavy vehicles engine and exhaust noise sources.
- Topographical data, with the ground level within the development based on natural ground levels as surveys conducted.
- A +2.5 dB adjustment to allow for façade reflection.
- Development receiver heights at 1.4m above ground level.
- Calculations based on CoRTN algorithms.
- Other parameter listed in SPP 5.4 as to guidance for modelling road traffic noise / assessment.

To determine the noise that would be received within the development from the surrounding road network, acoustic modelling was carried out using the computer program 'SoundPlan'.

The following scenario was modelled:

- Current Traffic flows, with existing walls and surrounding residential housing.
- Future traffic flows, with existing walls and surrounding residential housing

Based on the above, the noise contours plot for day period for the above modelling scenario is attached in Appendix B.

4.2 RAIL TRAFFIC

4.2.1 FREIGHT RAIL

To determine the requirements of noise associated with the Yangebup freight Line, acoustic modelling was carried out using the computer program 'SoundPlan'.

As the Freeway is the dominant noise source in the area, it is impacting the ability to measure current noise levels of train movements on the freight line and provide a basis for a statistical analysis. Additionally, the freight line is contained within a cutting for this section of track, as well as there being a noise wall and two storey residential buildings between the development and the rail line.

Reference was made to other monitoring conducted on the Cockburn freight line as to the validity of using an $L_{Aeq(1hour)}$ level for calibration of this assessment. Previous studies resulted in an $L_{Aeq(130seconds)}$ of 68.7 dB(A) for busier sections of the freight line. This was at a monitoring point 20m from the freight line. For information, calculating this noise level to the equivalent $L_{Aeq(1hour)}$ gives a resultant noise level of 54.3 dB(A).

Based on the calibrated freight rail line, the following scenarios were modelled:

1. Ultimate capacity volumes, i.e. 24 per 24 hours at 1 per hour, with existing walls and residential buildings between train line and proposed development.

Based on the above, the noise contours plots for day and night period for the above modelling scenarios are attached in Appendix C with the resultant level discussed further in the next section.

4.2.2 PROPOSED FUTURE FREIGHT / PASSENGER RAIL

Information was sought from the Metronet and the EPA as to the proposed design and impact of noise levels from the proposed future passenger rail and freight rail lines.

As there are existing residential premises located on the proposed rail line, development of the future rail line operations needs to consider these highly noise sensitive premises.

Review of the preliminary design noise levels, as provided in the *Thornlie-Cockburn Link Noise and Vibration Assessment Report Number 675.10409.00100-R01* shows that noise levels to these existing residential premises will be designed such that the target noise levels (as per SPP 5.4) will be met.

As the Glen Iris development is set back behind these residential premises, noise levels would be less than those at the façade lots, hence compliance with the requirements of SPP 5.4 would be achieved. Therefore, noise modelling of the future proposed Freight / Passenger Rail would not be required for this development as the infrastructure provide will meet the requirements of SPP 5.4 for existing residential premises closer to the rail line.

It is noted that assessment of the freight rail has been undertaken and calibrated to existing noise levels. These noise levels have been increased for future rail freight movements of one per hour. This is based on the current built form, including the noise wall located along the existing residence boarding the rail line. If the proposed passenger rail development goes ahead, the noise mitigation requirements would incorporate the freight rail, hence noise levels would be less than those considered in this assessment. This provides a conservative acoustic assessment for the proposed development, where the future freight rail increases, and no further noise attenuation works are carried out.

5.0 RESULTS / ASSESSMENT

5.1 ROAD TRAFFIC

Under the WAPC State Planning Policy 5.4, for this development, the appropriate “Noise Targets” to be achieved under SPP 5.4, external to a residence are:

External

Day	Maximum of 55 dB(A) L_{Aeq}
Night	Maximum of 50 dB(A) L_{Aeq}

The policy states that the “outdoor targets are to be met at all outdoor areas as far as reasonable and practical to do so using the various noise mitigation measures outlined in the guidelines”. The Policy also states, under Section 6 – Policy Measures that “a reasonable degree of acoustic amenity for living areas on each residential lot”. The policy recognises that “it may not be practicable to meet the outdoor noise targets”.

The Policy states the following acceptable internal noise levels:

Internal

Living and Work Areas	$L_{Aeq(Day)}$ of 40 dB(A)
Bedrooms	$L_{Aeq(Night)}$ of 35 dB(A)

For this development, compliance with the requirements of SPP 5.4, noise modelling and assessment are based on the day period.

The results of the acoustic assessment indicate that noise received at the proposed residential development would generally comply with the “Noise Targets” as outlined in SPP 5.4 with the exception of three main areas. These are identified below in Figure 5.1 and are discussed further below.

Herring Storer Acoustics
Our ref: 27789-2-20325

13

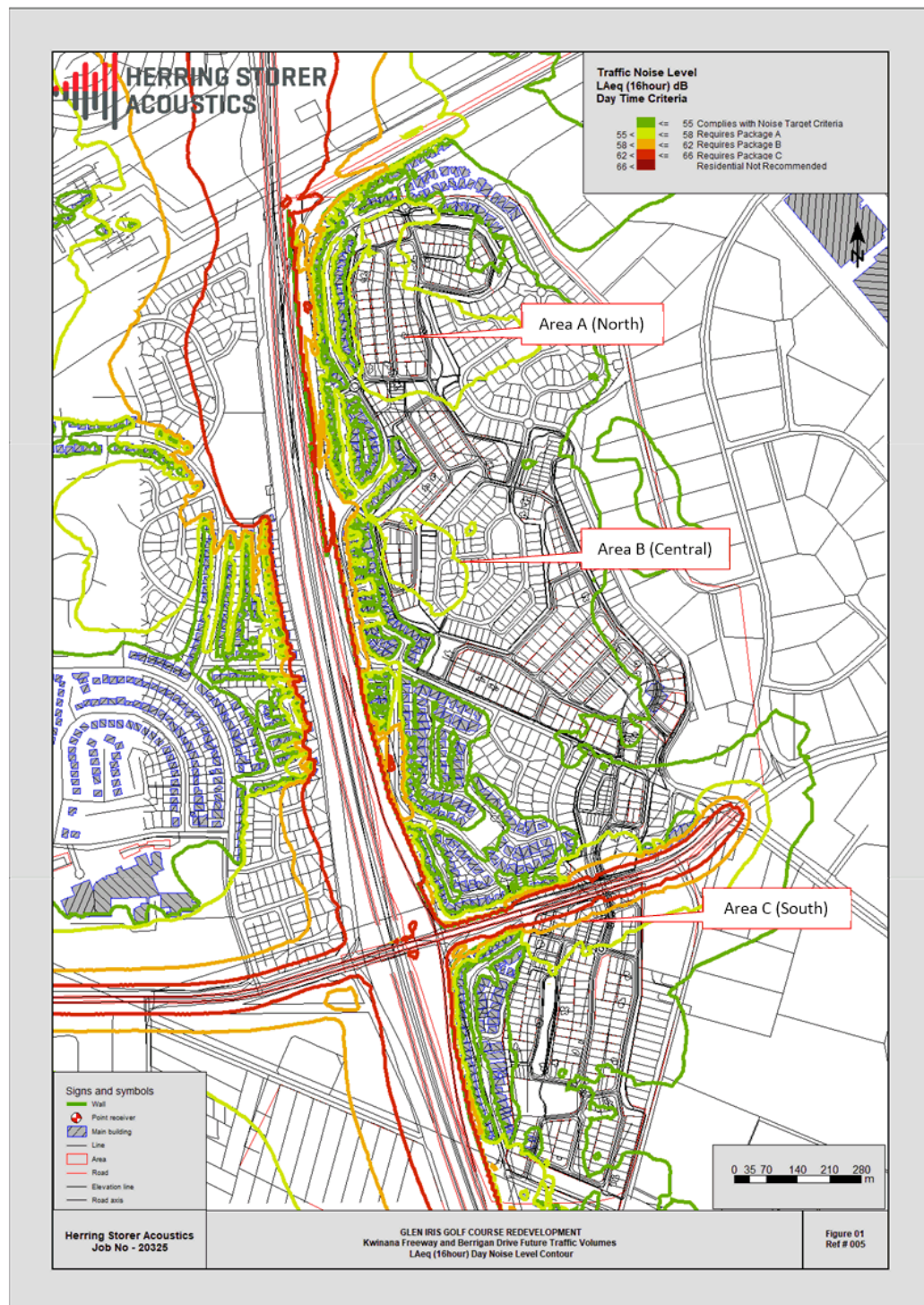


FIGURE 5.1 – FUTURE ROAD TRAFFIC NOISE LEVELS

5.1.1 AREA A - NORTH

Based on the development plan, it is proposed that areas are to be constructed for the purpose of residential. As per Figure 5.2 the areas exceed the 55 dB(A) noise Target, however only marginally and likely at only the façade Lots. This is shown by the spread of noise through the existing dwellings located between the development and the Freeway.

Given the noise levels, the façade lots would require quiet house design in the form of Package A. Appendix F contains the quiet house design requirements and an area plan outlining the effected Lots.

Additionally, as they are over the Target noise level, the lots in this area would require notification on titles of the Freeway noise impact.



FIGURE 5.2 – FUTURE ROAD TRAFFIC NOISE LEVELS, AREA A - NORTH

Herring Storer Acoustics
Our ref: 27789-2-20325

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5.1.1 AREA B - CENTRAL

Based on the development plan, it is proposed that areas are to be constructed for the purpose of residential. As per Figure 5.3, the areas exceed the 55 dB(A) noise Target, however only marginally and likely at only the façade Lots. This is shown by the spread of noise through the existing dwellings located between the development and the Freeway.

Given the noise levels, the façade lots would require quiet house design in the form of Package A. Appendix F contains the quiet house design requirements and an area plan outlining the effected Lots.

Additionally, as they are over the Target noise level, the lots in this area would require notification on titles of the Freeway noise impact.



FIGURE 5.3 – FUTURE ROAD TRAFFIC NOISE LEVELS, AREA B - CENTRAL

5.1.1 AREA C – BERRIGAN DRIVE AND SOUTH

Based on the development plan, it is proposed that areas are to be constructed for the purpose of residential south of Berrigan Drive, and Commercial for the section to the north of Berrigan Drive. As per Figure 5.4 the areas exceed the 55 dB(A) noise Target, however only marginally and likely at only the façade Lots.

Given the noise levels, the façade lots would require quiet house design in the form of Package A. Appendix F contains the quiet house design requirements and an area plan outlining the effected Lots.

Additionally, as they are over the Target noise level, the lots in this area would require notification on titles of the Freeway and Berrigan Drive noise impact.

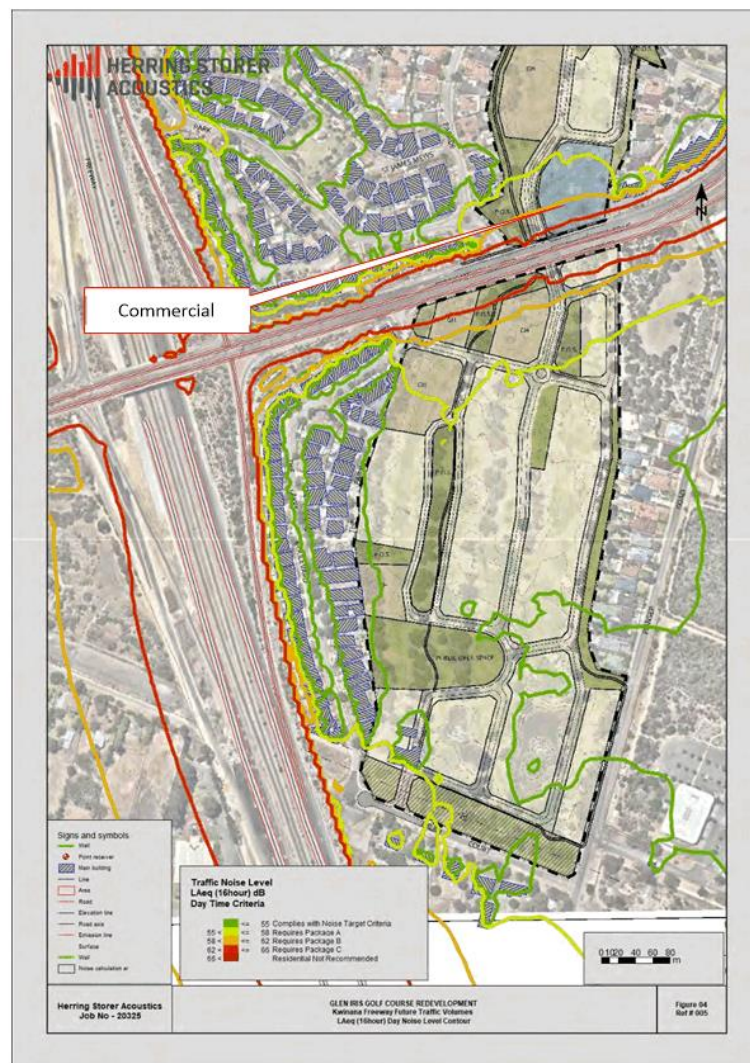


FIGURE 5.4 – FUTURE ROAD TRAFFIC NOISE LEVELS, AREA C - SOUTH

5.2 RAIL TRAFFIC

Under the WAPC State Planning Policy 5.4, for this development, the appropriate “Noise Targets” to be achieved under SPP 5.4, external to a residence are:

External

Day	Maximum of 55 dB(A) L_{Aeq}
Night	Maximum of 50 dB(A) L_{Aeq}

The policy states that the “outdoor targets are to be met at all outdoor areas as far as reasonable and practical to do so using the various noise mitigation measures outlined in the guidelines”. The Policy also states, under Section 6 – Policy Measures that “a reasonable degree of acoustic amenity for living areas on each residential lot”. The policy recognises that “it may not be practicable to meet the outdoor noise targets”.

The Policy states the following acceptable internal noise levels:

Internal

Living and Work Areas	$L_{Aeq}(\text{Day})$ of 40 dB(A)
Bedrooms	$L_{Aeq}(\text{Night})$ of 35 dB(A)

For this development, compliance with the requirements of SPP 5.4, noise modelling and assessment are based on the night period.

The results of the acoustic assessment indicate that noise received at the proposed residential development would comply with the “Noise Targets” as outlined in SPP 5.4. The resultant noise level for the future night period, considering one train movement per hour is shown below in Figure 5.5.



FIGURE 5.5 – FUTURE FREIGHT RAIL NOISE LEVELS

It is noted that the existing freight rail as per Section 4.2.1, has been undertaken and calibrated to existing noise levels. These noise levels have been increased for future rail freight movements of one per hour. This is based on the current built form, including the noise wall located along the existing residence boarding the rail line. If the proposed passenger rail development goes ahead, the noise mitigation requirements would incorporate the freight rail, hence noise levels would be less than those considered in this assessment. This provides a conservative acoustic assessment for the proposed development, where the future freight rail increases, and no further noise attenuation works are carried out.

5.3 AIRCRAFT NOISE

Based on guidance from SPP 5.3, the majority of the northern section of the proposed development site is acceptable for residential development, as indicated in Figure 5.6.

The blue area (ANEF 20 to 25) is also acceptable for residential development, although it requires conditions. These conditions are such that the internal noise level (for aircraft noise events) is to meet the criteria contained in AS2021. The affected lots within this development are those within the blue contour as noted in Figure 5.6.

Further to the criteria contained in SPP 5.3, the City of Cockburn LPP 1.12 contains advice as follows:

Consideration should be given to noise attenuation for noise sensitive premises within the Frame area corresponding to the requirements of Western Australian Planning Commission publication "Aircraft Noise Insulation for Residential Development in the Vicinity of Perth Airport" 2004 (such as the installation of 6.38mm laminated glazing), in order to ensure that residential amenity is adequately protected within noise sensitive developments.

Whilst at this stage of the development the lot configuration and layout are not known, a preliminary "deemed to satisfy construction" has been provided below. This can form the basis of future concept designs and can be refined at subdivision staging.

Glazing:

Bedrooms:

- Total external door and window system area up to 40% of room floor area: Sliding or double hung with minimum 10mm single or 6mm-12mm-10mm double insulated glazing (R_w+C_{tr} 28 dB). Sealed awning or casement windows may use 6 mm glazing instead.
- Up to 60% floor area: as per above but must be sealed awning or casement type windows (R_w+C_{tr} 31dB).

Indoor living and work areas:

- Up to 40% floor area: Sliding, awning, casement or double hung with minimum 6mm single pane or 6mm-12mm-6mm double insulated glazing (R_w+C_{tr} 25dB).
- Up to 60% floor area: As per Bedrooms at up to 40% area (R_w+C_{tr} 28 dB).
- Up to 80% floor area: As per Bedrooms at up to 60% area (R_w+C_{tr} 31dB).

Walls:

Bedroom and indoor living and work areas to R_w+C_{tr} 45dB:

- One row of 92mm studs at 600mm centres with:
 - Resilient steel channels fixed to the outside of the studs; and
 - 9.5mm hardboard or 9mm fibre cement sheeting or 11mm fibre cement weatherboards or one layer of 19mm board cladding fixed to the outside of the channels; and
 - 75mm glass wool (11kg/m³) or 75mm polyester (14kg/m³) insulation, positioned between the studs; and
 - Two layers of 16mm fire-protective grade plasterboard fixed to the inside face of the studs.
 - Single leaf of 150mm brick masonry with 13mm cement render on each face.
 - Double brick: two leaves of 90mm clay brick masonry with a 20mm cavity between leaves.

Roof and Ceiling:

Tiled or colorbond roof with sarking and 10mm plasterboard ceiling R_w+C_{tr} 35.

Additional to the above there is a requirement where the lots within the ANEF 20 noise contour require notifications on titles for aircraft noise. The wording for the notification on title is as follows:

Notification:

"This lot is situated in the vicinity of Jandakot Airport, and is currently affected, or may in the future, be affected by aircraft noise. Noise exposure levels are likely to increase in the future as a result of increases in numbers of aircraft using the airport, changes in aircraft type or other operational changes. Further information about aircraft noise, including development restrictions and noise insulation requirements for noise-affected properties, are available on request from the relevant local government offices."

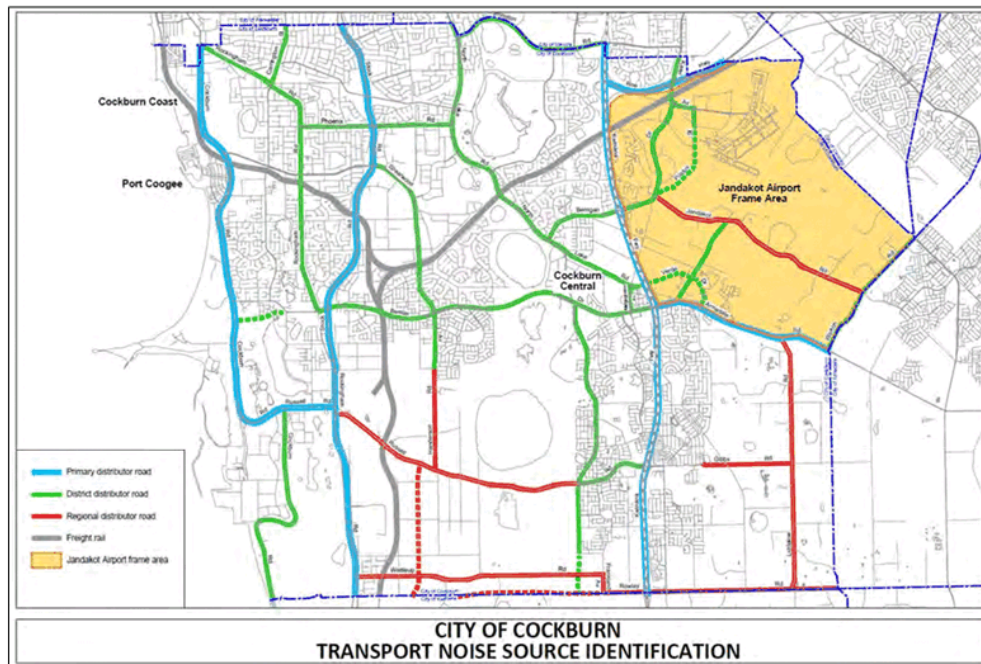


FIGURE 5.6 – JANDAKOT AIRPORT FRAME AREA NOISE CONSIDERATIONS

5.4 INDUSTRY NOISE

Based on the City of Cockburn Intramaps, there is industrial zoned land use to the south of the proposed residential development, as shown in Figure 5.7.

As there are existing residential premises located on Imlah Court, located at a closer distance to the industrial premises than the proposed development, expectations are that compliance with Regulatory criteria contained in the *Environmental Protection (Noise) Regulations 1997* would be achieved for the existing situation at these locations. However, consideration of the potential for noise impact from this area has been undertaken for the proposed residential development.

Three forms of noise amelioration have been considered for the future residence located on the southern end of the Glen Iris development, with these being as follows:

1. Noise Wall

A solid, masonry barrier has been allowed for on the eastern boundary of the development, bounding Prinsep Road. The height of the wall has been set at 1.8m. As the proposed Lots are to back onto Prinsep Road, this will provide protection of outdoor living areas for noise associated with surrounding land use.

2. Upgrade Building Design

As the proposed Lots for the southern section of the development lay within the Frame Area / ANEF 20/25 for Jandakot Airport, these residential dwellings will be required to meet the upgrade design as per SPP 5.4 / LPP 1.12. This will provide attenuation for other noise sources, such as industrial noise within the surrounding area.

3. Setback

As per the development plan attached in Appendix A, there is a 50m setback of lots from the southern boundary of the development. This will provide further amelioration in the form of distance attenuation.

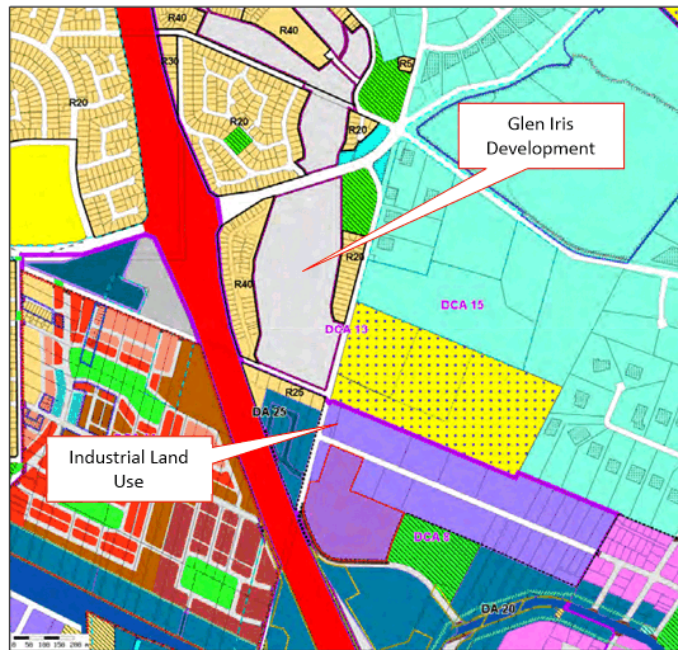


FIGURE 5.7 – PLANNING LAND USE MAP

6.0 CONCLUSION

ROAD NOISE

Based on the development plan, it is proposed that areas are to be constructed for the purpose of residential with some commercial usage for the section to the north of Berrigan Drive. Noise levels for the future road traffic are such, at some of the façade Lots, that noise can exceed the 55 dB(A) noise Target. Therefore, amelioration in the form of Quiet House Design is required. These areas have been identified and general “deemed to satisfy packages” applied. Detailed design for these requirements can be applied at subdivision staging.

Given the noise levels, the façade lots would require quiet house design in the form of Package A. Appendix F contains the quiet house design requirements and an area plan outlining the effected Lots.

Additionally, as they are over the Target noise level, the lots in this area would require notification on titles of the Freeway and Berrigan Drive noise impact.

RAIL NOISE

For train noise associated with the Yangebup Freight Line, due to the topography (line being in a cutting) and the noise wall and residential housing between the rail line and the development, the noise levels for the worst case future scenario of one train per hour have been assessed as being below the night time noise Target criteria, hence there are no acoustic requirements.

Information was sought from the Metronet and the EPA as to the proposed design and impact of noise levels from the proposed future passenger rail and freight rail lines.

As there are existing residential premises located on the proposed rail line, development of the future rail line operations needs to consider these highly noise sensitive premises.

Review of the preliminary design noise levels, as provided in the *Thornlie-Cockburn Link Noise and Vibration Assessment Report Number 675.10409.00100-R01* shows that noise levels to these existing residential premises will be designed such that the target noise levels (as per SPP 5.4) will be met.

As the Glen Iris development is set back behind these residential premises, noise levels would be less than those at the façade lots, hence compliance with the requirements of SPP 5.4 would be achieved. Therefore, noise modelling of the future proposed Freight / Passenger Rail would not be required for this development as the infrastructure provide will meet the requirements of SPP 5.4 for existing residential premises closer to the rail line.

It is noted that assessment of the freight rail has been undertaken and calibrated to existing noise levels. These noise levels have been increased for future rail freight movements of one per hour. This is based on the current built form, including the noise wall located along the existing residence boarding the rail line. If the proposed passenger rail development goes ahead, the noise mitigation requirements would incorporate the freight rail, hence noise levels would be less than those considered in this assessment. This provides as conservative acoustic assessment for the proposed development, where the future freight rail increases, and no further noise attenuation works are carried out.

AIRCRAFT NOISE

Based on guidance from SPP 5.3, the majority of the northern section of the proposed development site is acceptable for residential development, as indicated in Figure 5.3.

The blue area (ANEF 20 to 25) is also acceptable for residential development, although it requires conditions. These conditions are such that the internal noise level (for aircraft noise events) are to meet the criteria contained in AS2021. The affected lots within this development are those within the blue contour as noted in Figure 5.3.

Further to the criteria contained in SPP 5.3, the City of Cockburn LPP 1.12 contains advice as follows:

Consideration should be given to noise attenuation for noise sensitive premises within the Frame area corresponding to the requirements of Western Australian Planning Commission publication "Aircraft Noise Insulation for Residential Development in the Vicinity of Perth Airport" 2004 (such as the installation of 6.38mm laminated glazing), in order to ensure that residential amenity is adequately protected within noise sensitive developments.

Therefore, whilst at this stage of the development the lot configuration and layout are not known, a preliminary “deemed to satisfy construction” has been provided within this report. This can form the basis of future concept designs and can be refined at subdivision staging. This encompasses the Frame Area for which the entire development is located within the boundaries.

INDUSTRY NOISE

Based on the City of Cockburn Intramaps, there is industrial zoned land use to the south of the proposed residential development, as shown in Figure 5.4.

As there are existing residential premises located on Imlah Court, located at a closer distance to the industrial premises than the proposed development, expectations are that compliance with Regulatory criteria contained in the *Environmental Protection (Noise) Regulations 1997* would be achieved for the existing situation at these locations. However, consideration of the potential for noise impact from this area has been undertaken for the proposed residential development.

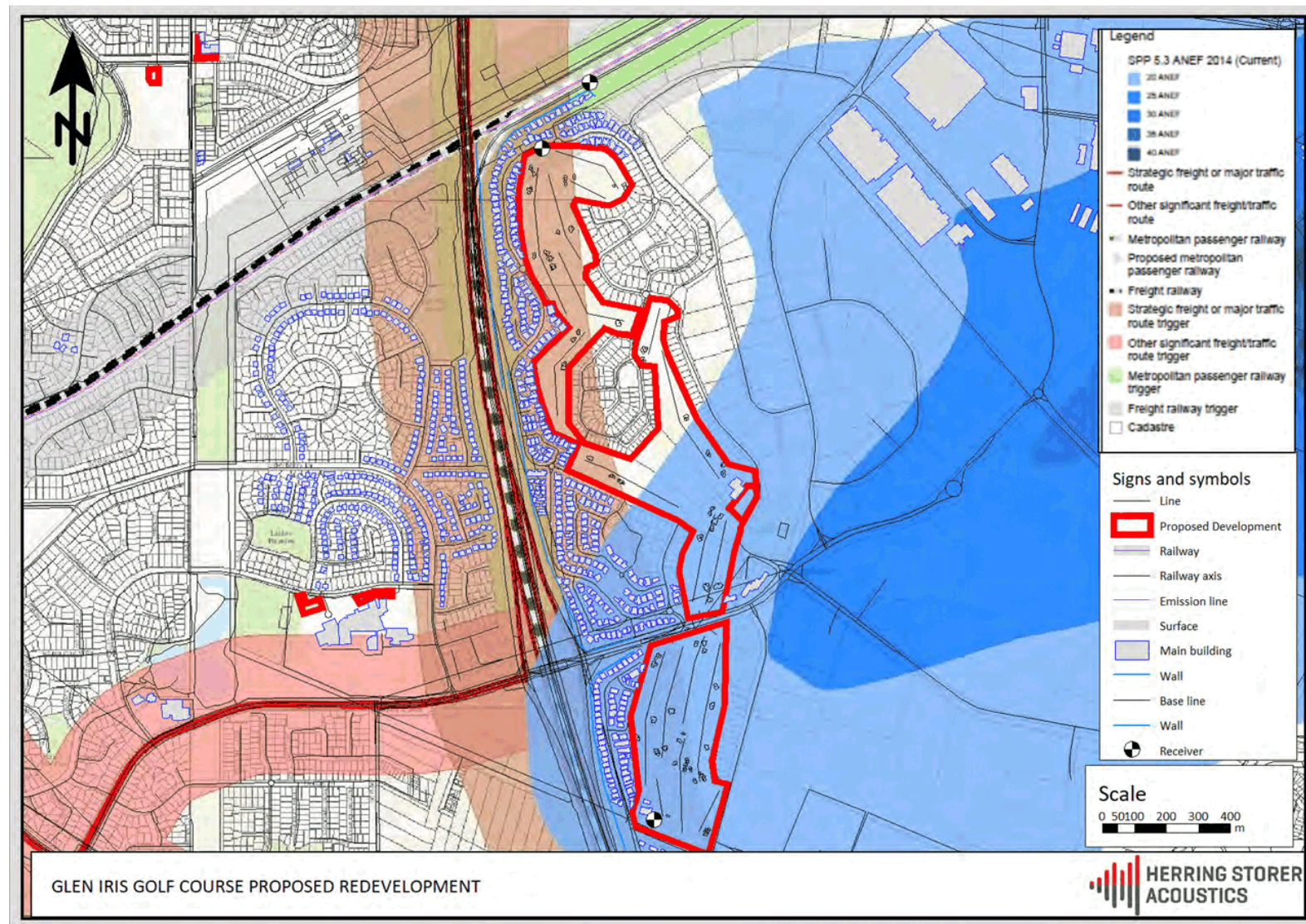
Three forms of noise amelioration have been considered for the future residence located on the southern end of the Glen Iris development, with these being as follows:

4. Noise Wall (Prinsep Road)
5. Upgrade Building Design (As per SPP 5.3)
6. Setback

Given the implementation of the above, noise levels can be managed, regardless of compliance with the regulatory criteria.

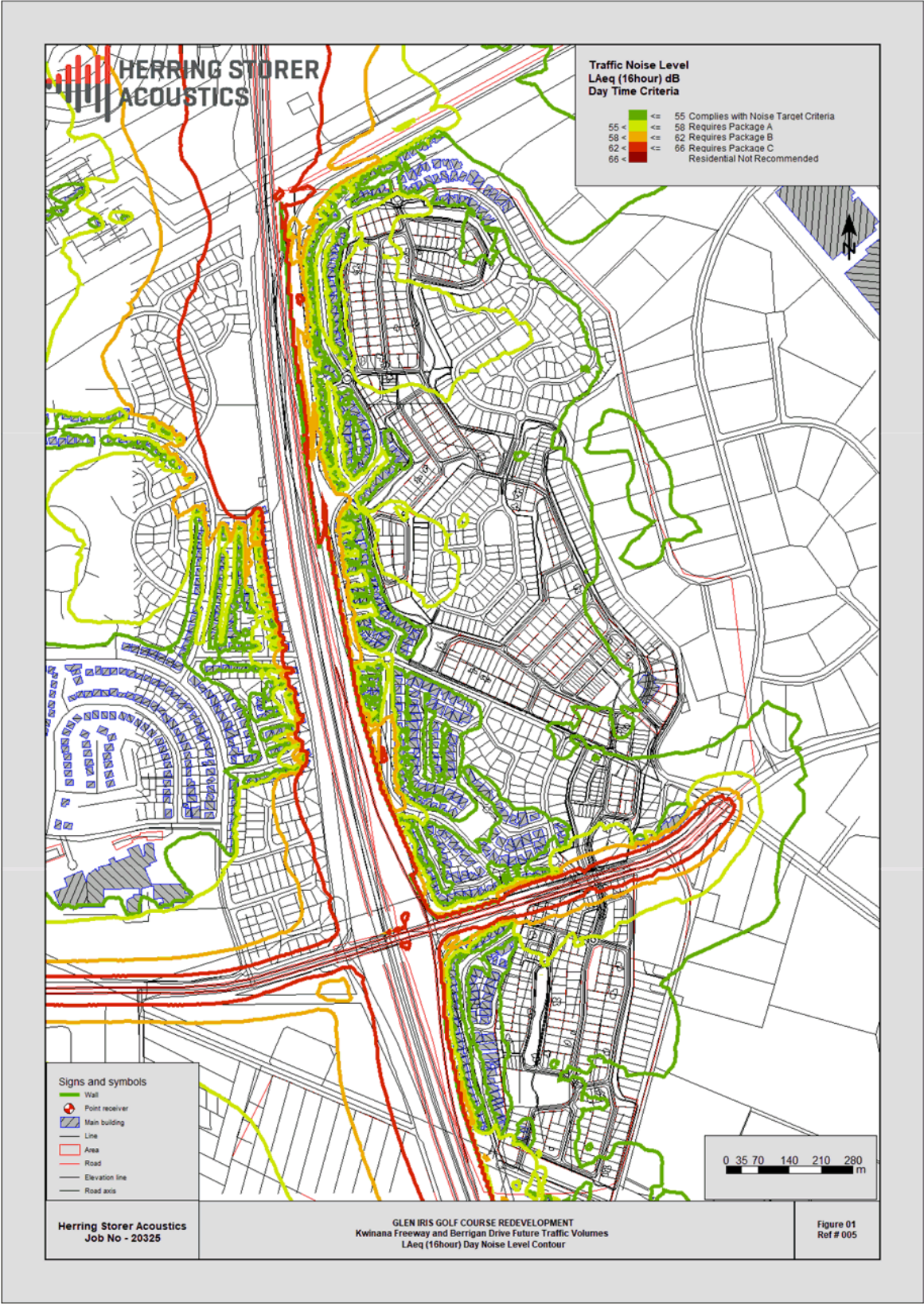
APPENDIX A

Area Plan



APPENDIX B

$L_{Aeq(16hr)}$ DAY
NOISE CONTOURS FOR FUTURE KWINANA FREEWAY and BERRIGAN
DRIVE



APPENDIX C

$L_{Aeq(8hr)}$ NIGHT

NOISE CONTOURS FOR FUTURE YANGEBUP FREIGHT LINE



APPENDIX D

TRAFFIC FLOW VOLUMES – KWINANA FREEWAY and BERRIGAN DRIVE



SITE 8450

Hourly Volume

Kwinana Fwy (H015)

2017/18
Monday to Friday

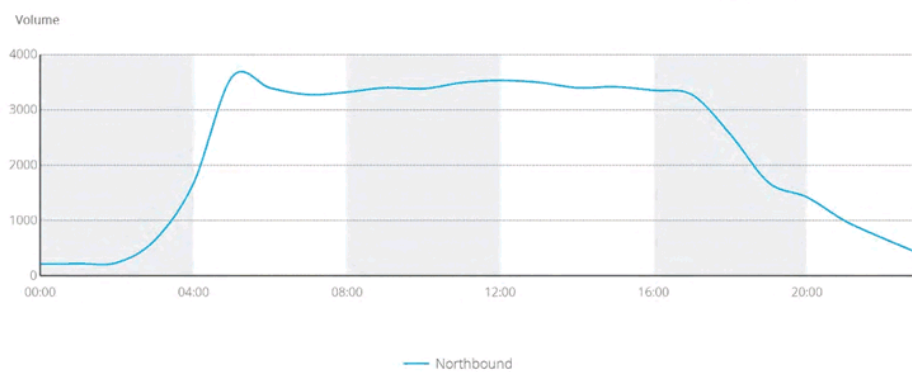
NB At Bridge Under Berrigan Dr (SLK 16.89)

	All Vehicles					
	NB					
00:00	214					
01:00	221					
02:00	239					
03:00	657					
04:00	1686					
05:00	3597					
06:00	3396					
07:00	3277					
08:00	3373					
09:00	3403					
10:00	3385					
11:00	3495					
12:00	3533					
13:00	3499					
14:00	3402					
15:00	3419					
16:00	3354					
17:00	3272					
18:00	2553					
19:00	1686					
20:00	1422					
21:00	989					
22:00	674					
23:00	386					
TOTAL	55082					



Peak Statistics

AM	TIME	05:15			
	VOL	3804			
PM	TIME	12:15			
	VOL	3550			

☐ Information Not Available




SITE 8437

Hourly Volume

Kwinana Fwy (H015)

2017/18
Monday to Friday

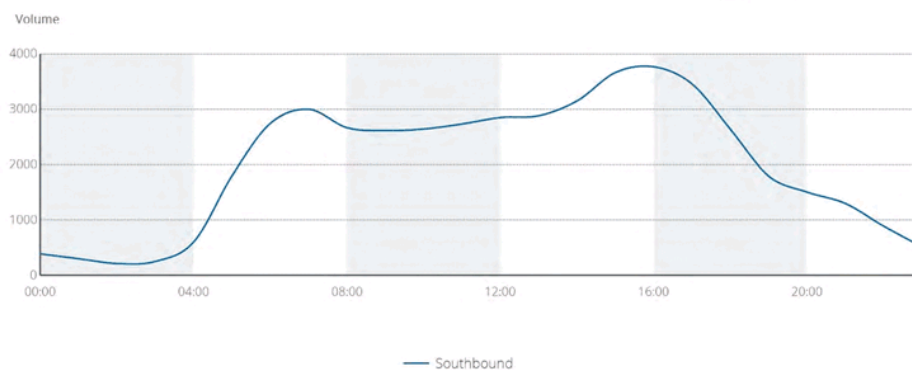
SB At Bridge Under Berrigan Dr (SLK 16.90)

		All Vehicles					
		SB					
00:00		388					
01:00		300					
02:00		213					
03:00		251					
04:00		605					
05:00		1801					
06:00		2746					
07:00		2999					
08:00		2666					
09:00		2614					
10:00		2643					
11:00		2734					
12:00		2851					
13:00		2883					
14:00		3152					
15:00		3665					
16:00		3768					
17:00		3456					
18:00		2635					
19:00		1792					
20:00		1504					
21:00		1299					
22:00		887					
23:00		516					
TOTAL		48368					



Peak Statistics

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	VOL	3008		
PM	TIME	15:45		
	VOL	3795		

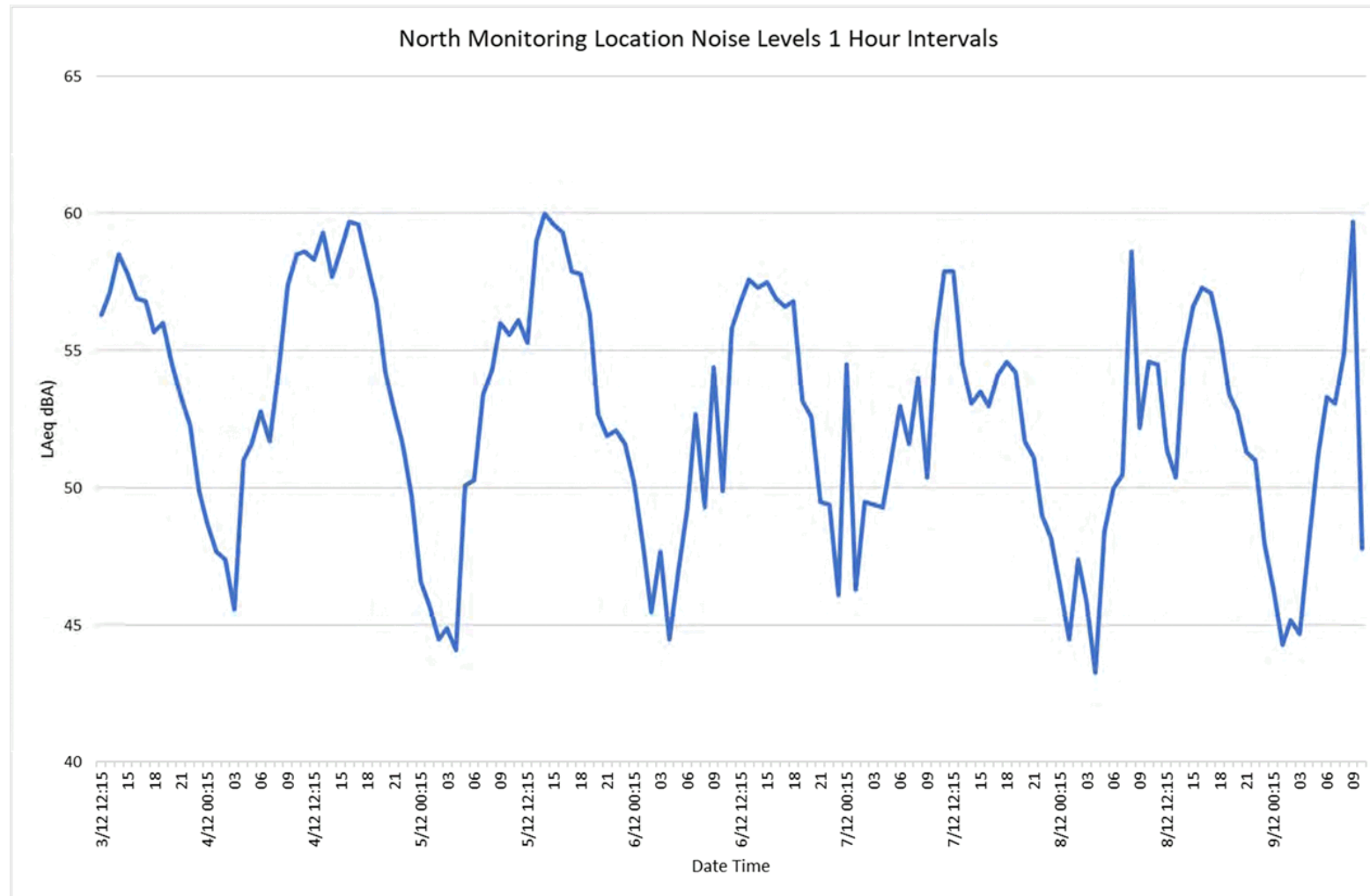
☐ Information Not Available


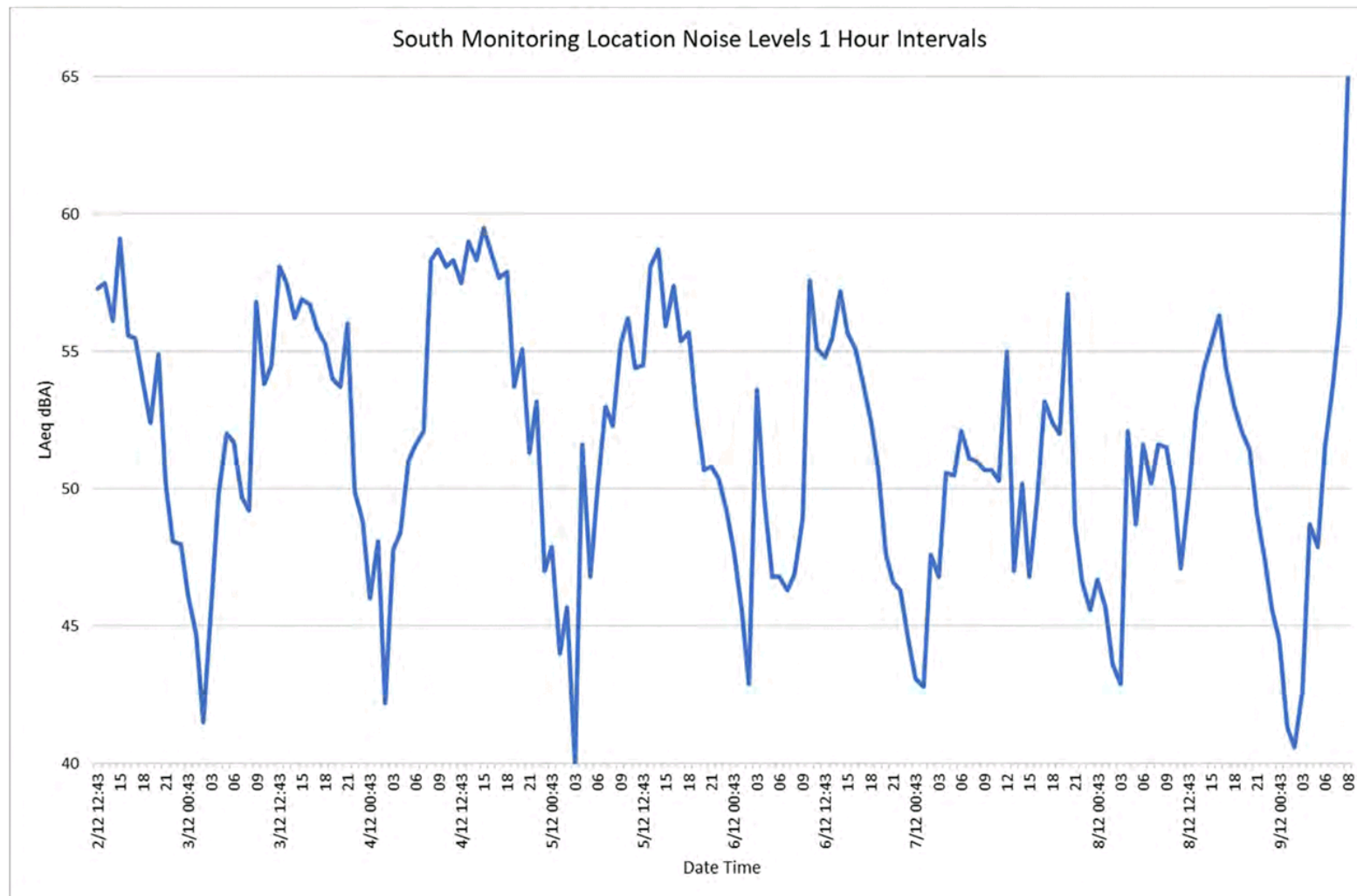




APPENDIX E

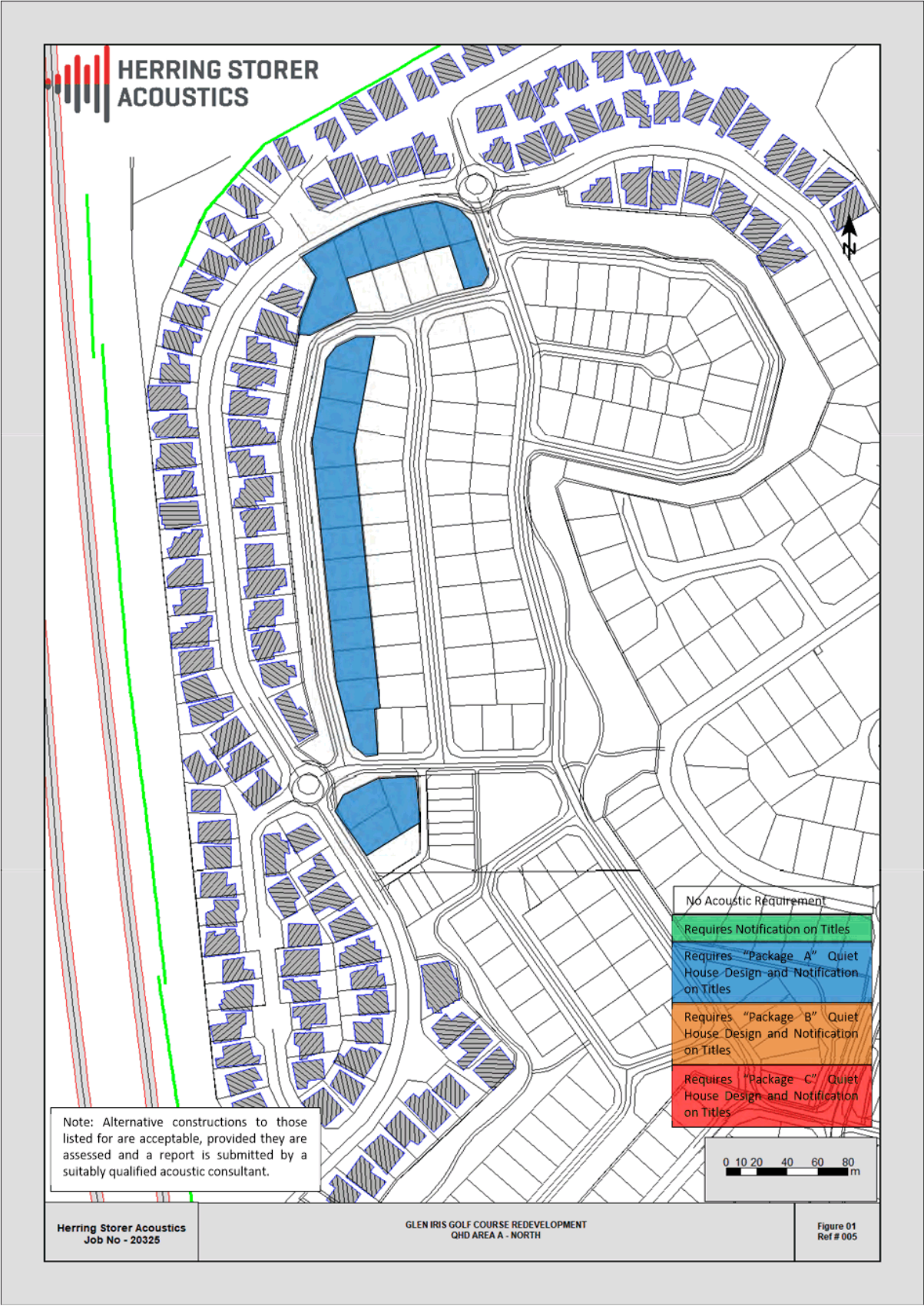
MONITORING DATA

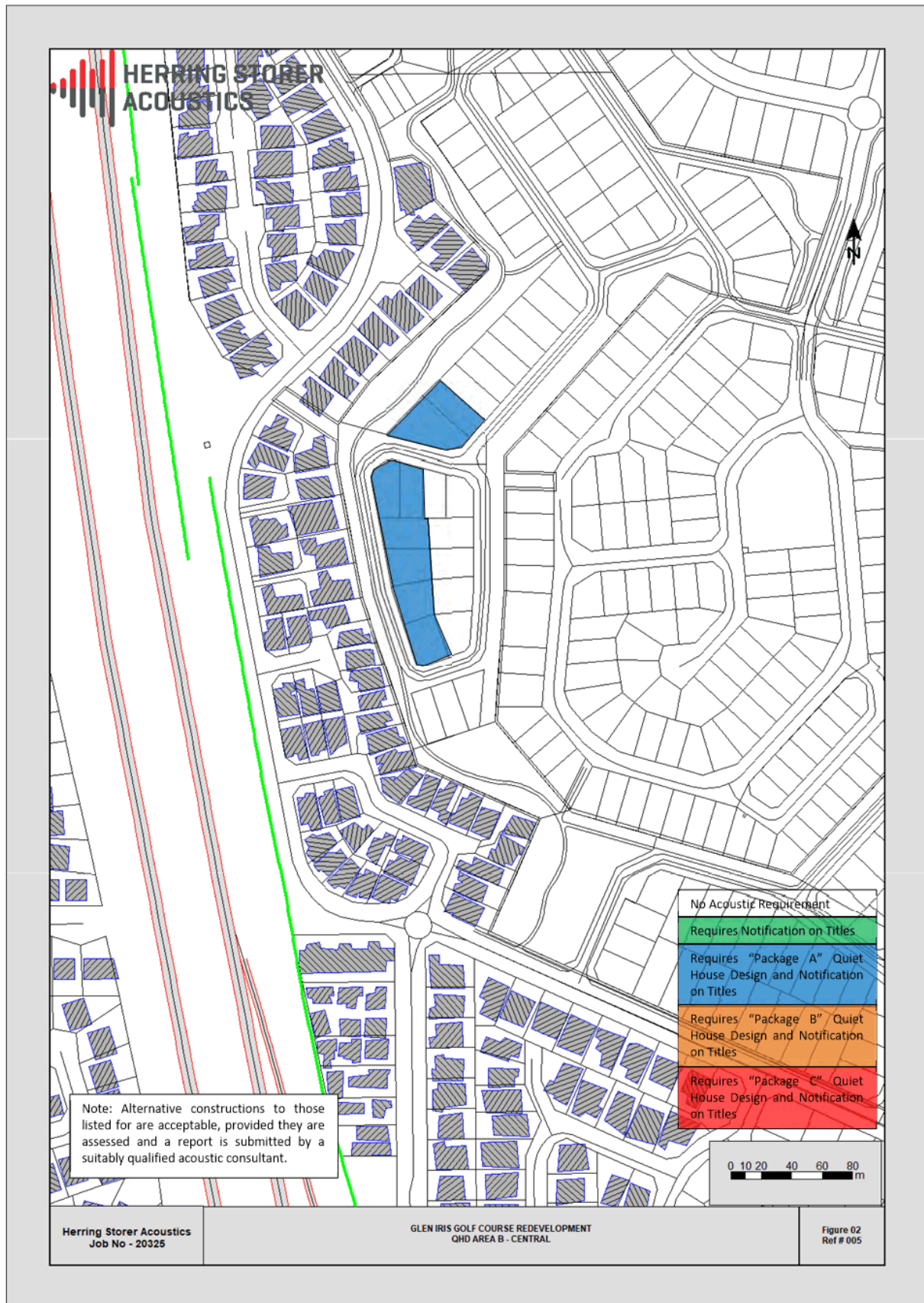


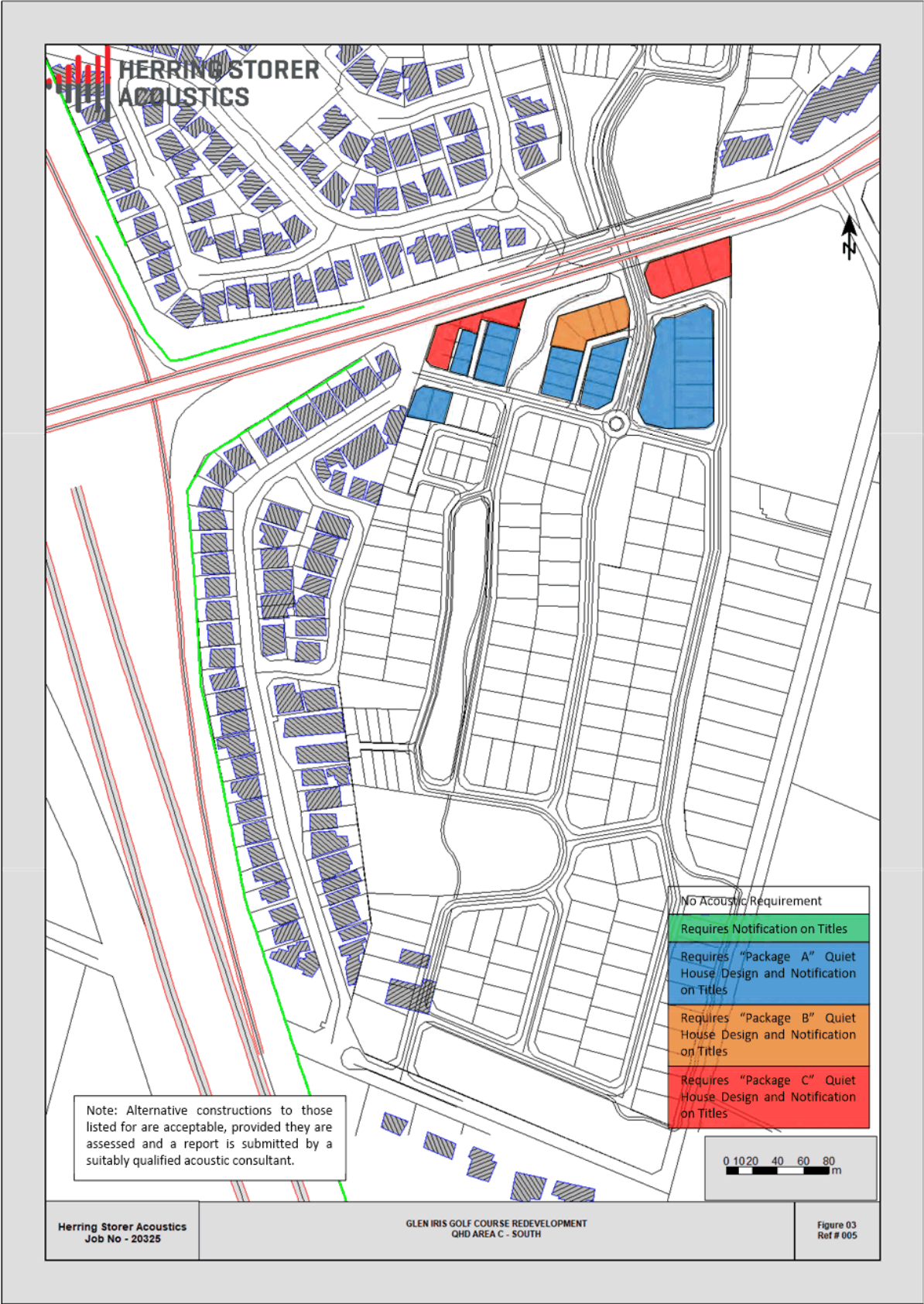


APPENDIX F

QUIET HOUSE DESIGN REQUIREMENTS







Road Traffic and Passenger Rail Quiet House Requirements (Based on Table 3 of State Planning Policy 5.4 2019)							
Exposure Category	Orientation to corridor	Acoustic rating and example constructions					Mechanical ventilation/air conditioning considerations
		Walls	External doors	Windows	Roofs and ceilings of highest floors	Outdoor Living areas	
A Quiet House A	Facing	Bedroom and Indoor Living and work areas to $R_w + C_{tr}$ 45dB Stud Frame Walls ➤ One row of 92mm studs at 60mm centres with: ➤ Resilient steel channels fixed to the outside of the studs; and ➤ 9.5mm hardboard or 9mm fibre cement weatherboards or one layer of 19mm board cladding fixed to the outside of the channels; and ➤ 75mm glass wool (11kg/m³) or 75mm polyester (14kg/m³) insulation, positioned between the studs; and ➤ -Two layers of 16mm fire-protective grade plasterboard fixed to the inside face of the studs.	Bedrooms: ➤ Fully glazed hinged door with certified $R_w + C_{tr}$ 28dB rated door and frame including seals and 6mm glass Indoor Living and work areas: ➤ 35mm solid core timber hinged door and frame system certified to R_w 28dB including seals: OR ➤ Glazed sliding door with 10 mm glass and weather seals	Bedrooms: ➤ Total external door and window system area up to 40% of room floor area: Sliding or double hung with minimum 10 mm single or 6mm-12mm-10mm double insulated glazing ($R_w + C_{tr}$ 28 dB). Sealed awning or casement windows may use 6 mm glazing instead: OR ➤ Up to 60% floor area: as per above but must be sealed awning or casement type windows ($R_w + C_{tr}$ 31dB). Indoor Living and work areas ➤ Up to 40% floor area: Sliding, awning, casement or double hung with minimum 6mm single pane or 6mm-12mm-6mm double insulated glazing ($R_w + C_{tr}$ 25dB): OR ➤ Up to 60% floor area: As per Bedrooms at up to 40% area ($R_w + C_{tr}$ 28 dB) : OR ➤ Up to 80% floor area: As per Bedrooms at up to 60% area ($R_w + C_{tr}$ 31 dB).	To $R_w + C_{tr}$ 35dB ➤ Concrete or terracotta tile or metal sheet roof with sarking and at least 10mm plasterboard ceiling	➤ At least one outdoor living area located on the opposite side of the building from the transport corridor and/or at least one ground level outdoor living area screened using a solid continuous fence or other structure of minimum 2 metres height above ground level	➤ Acoustically rated openings and ductwork to provide a minimum sound reduction performance of R_w 40dB into sensitive spaces ➤ Evaporative systems require attenuated ceiling air vents to allow closed windows ➤ Refrigerant-based systems need to be designed to achieve National Construction Code fresh air ventilation requirements ➤ Openings such as eaves, vents and air inlets must be acoustically treated, closed or relocated to building sides facing away from the corridor where practicable
	Side On	Brick Walls ➤ Single leaf of 150mm brick masonry with 13mm cement render on each face: OR ➤ Double brick: two leaves of 90 mm clay brick masonry with a 20mm cavity between leaves.	As per "Facing" above, except $R_w + C_{tr}$ values may be 3dB less, e.g. glazed sliding door with 10 mm glass and weather seals for bedrooms	As above, except $R_w + C_{tr}$ values may be 3dB less, or max % area increased by 20%			
	Opposite		No specific requirements	No specific requirements			

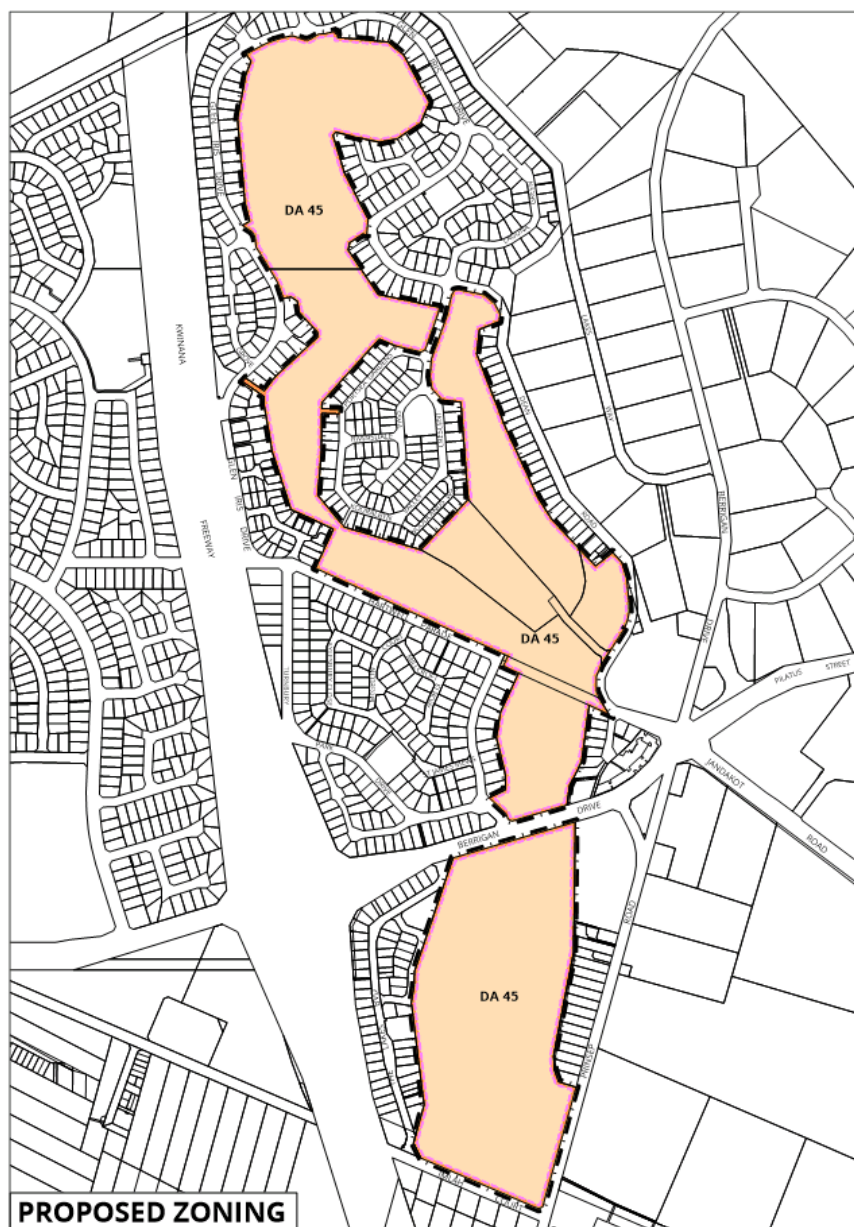
Freight Rail Quiet House Requirements <i>(Based on Table 3 of State Planning Policy 5.4 2019)</i>							
Exposure Category	Orientation to corridor	Acoustic rating and example constructions					Mechanical ventilation/air conditioning considerations
		Walls	External doors	Windows	Roofs and ceilings of highest floors	Outdoor Living areas	
A+ Quiet House A+	All Facades	Brick Walls Only ➤ Double brick: two leaves of 90 mm clay brick masonry with a 20mm cavity between leaves.	Bedrooms: ➤ No external doors for bedrooms with entry facing rail corridor and for other facades, fully glazed hinged door with certified R_w+C_{tr} 28dB rated door and frame including seals and 6mm glass Indoor Living and work areas: ➤ 35mm solid core timber hinged door and frame system certified to R_w 28dB including seals: OR ➤ Glazed sliding door with 10 mm glass and weather seals	Bedrooms: ➤ All windows comprise minimum 6mm thick laminated or toughened glass in sealed awning or casement type frames. Polymer (e.g. uPVC) window framing should be used (R_w+C_{tr} 31dB). Indoor Living and work areas ➤ Up to 40% floor area: Sliding, awning, casement or double hung with minimum 6mm single pane or 6mm-12mm-6mm double insulated glazing (R_w+C_{tr} 25dB) : OR ➤ Up to 60% floor area: As per Bedrooms at up to 40% area (R_w+C_{tr} 28 dB) : OR ➤ Up to 80% floor area: As per Bedrooms at up to 60% area (R_w+C_{tr} 31 dB).	To R_w+C_{tr} 35dB ➤ Concrete or terracotta tile or metal sheet roof with sarking and at least 10mm plasterboard ceiling	➤ At least one outdoor living area located on the opposite side of the building from the transport corridor and/or at least one ground level outdoor living area screened using a solid continuous fence or other structure of minimum 2 metres height above ground level	➤ Acoustically rated openings and ductwork to provide a minimum sound reduction performance of R_w 40dB into sensitive spaces ➤ Evaporative systems not recommended ➤ Refrigerant-based systems need to be designed to achieve National Construction Code fresh air ventilation requirements ➤ Openings such as eaves, vents and air inlets must be acoustically treated, closed or relocated to building sides facing away from the corridor where practicable

Road Traffic and Passenger Rail Quiet House Requirements (Based on Table 3 of State Planning Policy 5.4 2019)							
Exposure Category	Orientation to corridor	Acoustic rating and example constructions					Mechanical ventilation/air conditioning considerations
		Walls	External doors	Windows	Roofs and ceilings of highest floors	Outdoor Living areas	
B Quiet House B	Facing	Bedroom and indoor living and work areas to R_w+C_{tr} 50dB Single leaf of 90 mm clay brick masonry with: ➤ A row of 70 mm x 35 mm timber studs or 64 mm steel studs at 600 mm centres; ➤ A cavity of 25 mm between leaves; ➤ 50 mm glass wool or polyester cavity insulation (R2.0+) insulation between studs; and ➤ One layer of 10mm plasterboard fixed to the inside face ➤ Single leaf of 220mm brick masonry with 13mm cement render on each face ➤ 150mm thick unlined concrete panel or 200mm thick concrete panel with one layer of 13mm plasterboard or 13mm cement render on each face	Bedrooms ➤ Fully glazed hinged door with certified R_w+C_{tr} 31dB rated door and frame including seals and 10mm glass Indoor Living and work areas ➤ 35mm solid core timber hinged door and frame system certified to R_w 28dB including seals: OR ➤ Glazed sliding door with 10 mm glass and weather seals	Bedrooms: ➤ Total external door and window system area up to 40% of room floor areas: Fixed sash, awning or casement with minimum 6mm single or 6mm-12mm-6mm double insulated glazing (R_w+C_{tr} 31dB). ➤ Up to 60% floor area: as per above but must be minimum 10mm single or 6mm-12mm-10mm double insulated glazing (R_w+C_{tr} 34dB) Indoor Living and work areas ➤ Up to 40% floor area: Sliding or double hung with minimum 6mm single pane or 6mm-12mm-6mm double insulated glazing (R_w+C_{tr} 28dB). Sealed awning or casement windows may use 6mm glazing instead. : OR ➤ Up to 60% floor area: As per Bedrooms at up to 40% area (R_w+C_{tr} 31dB). : OR ➤ Up to 80% floor area: As per Bedrooms at up to 60% area (R_w+C_{tr} 34dB).	To R_w+C_{tr} 35dB ➤ Concrete or terracotta tile sarking and at least 10mm plasterboard ceiling, R3.0+ insulation OR ➤ Metal sheet roof, sarking and at least 10mm plasterboard ceiling, R3.0+ insulation	➤ At least one outdoor living area located on the opposite side of the building from the corridor and/or at least one ground level outdoor living area screened using a solid continuous fence or other structure of minimum 2.4 metres height above ground level	➤ Acoustically rated openings and ductwork to provide a minimum sound reduction performance of R_w 40dB into sensitive spaces ➤ Evaporative systems require attenuated ceiling air vents to allow closed windows ➤ Refrigerant-based systems need to be designed to achieve National Construction Code fresh air ventilation requirements ➤ Openings such as eaves, vents and air inlets must be acoustically treated, closed or relocated to building sides facing away from the corridor where practicable
	Side-On	Double brick: two leaves of 90mm clay brick masonry with: ➤ A 50mm cavity between leaves ➤ 50mm glass wool or polyester cavity insulation (R2.0+) ➤ Resilient ties where required to connect leaves Double brick: two leaves of 110mm clay brick masonry with ➤ 50mm cavity between leaves and R2.0+ cavity insulation	Bedrooms: ➤ Fully glazed hinged door with certified R_w+C_{tr} 28dB rated door and frame including seals and 6mm glass Indoor Living and work areas: ➤ 35mm solid core timber hinged door and frame system certified to R_w 28dB including seals: OR ➤ Glazed sliding door with 10 mm glass and weather seals	Bedrooms: ➤ Total external door and window system area up to 40% of room floor area: Sliding or double hung with minimum 10 mm single or 6mm-12mm-10mm double insulated glazing (R_w+C_{tr} 28 dB). Sealed awning or casement windows may use 6 mm glazing instead. : OR ➤ Up to 60% floor area: as per above but must be sealed awning or casement type windows (R_w+C_{tr} 31dB). Indoor Living and work areas ➤ Up to 40% floor area: Sliding, awning, casement or double hung with minimum 6mm single pane or 6mm-12mm-6mm double insulated glazing (R_w+C_{tr} 25dB). : OR ➤ Up to 60% floor area: As per Bedrooms at up to 40% area (R_w+C_{tr} 28 dB) : OR ➤ Up to 80% floor area: As per Bedrooms at up to 60% area (R_w+C_{tr} 31 dB).			
	Opposite		As above, except R _w +C _{tr} values may be 3dB less, or max % area increased by 20%	As above, except R _w +C _{tr} values may be 3dB less, or max % area increased by 20%			
Freight Rail Quiet House Requirements							

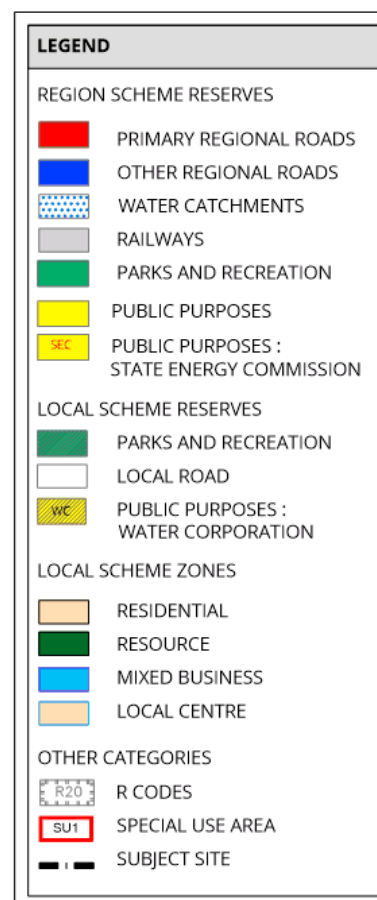
<i>(Based on Table 3 of State Planning Policy 5.4 2019)</i>							
Exposure Category	Orientation to corridor	Acoustic rating and example constructions					Mechanical ventilation/air conditioning considerations
		Walls	External doors	Windows	Roofs and ceilings of highest floors	Outdoor Living areas	
B+ Quiet House B	All Facades	Double brick: two leaves of 90mm clay brick masonry with: ➤ A 50mm cavity between leaves ➤ 50mm glass wool or polyester cavity insulation (R2.0+) ➤ Resilient ties where required to connect leaves	Bedrooms: ➤ No external doors for bedrooms with entry facing or side on to rail corridor and for other facades, fully glazed hinged door with certified R_w+C_{tr} 31dB rated door and frame including seals and 10mm glass	Bedrooms: ➤ All windows comprise minimum 6mm thick laminated or toughened glass in sealed awning or casement type frames. Polymer (e.g. uPVC) window framing should be used (R_w+C_{tr} 31dB).	To R_w+C_{tr} 40dB ➤ To all bedrooms, 2 layers of 10mm plasterboard, or one layer 13mm high density sealed plasterboard (minimum surface density of 12.5 kg/m²), affixed using steel furring channels beneath ceiling rafters/supports: and ➤ R3.0+ insulation batts laid in cavity: and ➤ Concrete or terracotta tile roof with sarking, or metal sheet roof with foil backed R2.0+ fibre insulation between steel sheeting and roof battens	➤ At least one outdoor living area located on the opposite side of the building from the corridor and/or at least one ground level outdoor living area screened using a solid continuous fence or other structure of minimum 2.4 metres height above ground level	➤ Acoustically rated openings and ductwork to provide a minimum sound reduction performance of R_w 40dB into sensitive spaces ➤ Evaporative systems not recommended ➤ Refrigerant-based systems need to be designed to achieve National Construction Code fresh air ventilation requirements ➤ Openings such as eaves, vents and air inlets must be acoustically treated, closed or relocated to building sides facing away from the corridor where practicable
		Double brick: two leaves of 110mm clay brick masonry with ➤ 50mm cavity between leaves and R2.0+ cavity insulation	Indoor Living and work areas ➤ 35mm solid core timber hinged door and frame system certified to R_w 28dB including seals: OR ➤ Glazed sliding door with 10 mm glass and weather seals	Indoor Living and work areas ➤ Up to 40% floor area: Sliding, awning, casement or double hung with minimum 6mm single pane or 6mm-12mm-6mm double insulated glazing (R_w+C_{tr} 28dB) : OR ➤ Up to 60% floor area: As per Bedrooms at up to 40% area (R_w+C_{tr} 31 dB) : OR ➤ Up to 80% floor area: As per Bedrooms at up to 60% area (R_w+C_{tr} 34 dB).			

Road Traffic and Passenger Rail Quiet House Requirements (Based on Table 3 of State Planning Policy 5.4 2019)							
Exposure Category	Orientation to corridor	Acoustic rating and example constructions					
		Walls	External doors	Windows	Roofs and ceilings of highest floors	Outdoor Living areas	Mechanical ventilation/air conditioning considerations
C Quiet House C	Facing	Bedroom and indoor living and work areas to R_w+C_{tr} 50dB Single leaf of 90 mm clay brick masonry with: ➤ A row of 70 mm x 35 mm timber studs or 64 mm steel studs at 600 mm centres; ➤ A cavity of 25 mm between leaves; ➤ 50 mm glass wool or polyester cavity insulation (R2.0+) insulation between studs; and	Bedrooms ➤ External doors to bedrooms facing the corridor are not recommended. Indoor Living and work areas ➤ Fully glazed hinged door with certified R_w+C_{tr} 31dB rated door and frame including seals and 10mm glass: OR 40mm solid core timber frame and door (without glass or with glass inserts not less than 6mm), side hinged with certified R_w 32dB acoustically rated door and frame system including seals	Bedrooms: ➤ Total external door and window system area up to 20% of room floor area: Fixed sash, awning or casement with minimum 6mm single or 6mm-12mm-6mm double insulated glazing (R_w+C_{tr} 31dB): OR ➤ Up to 40% floor area; as per above but must be minimum 10mm single or 6mm-12mm-10mm double insulated glazing (R_w+C_{tr} 34dB). Indoor Living and work areas ➤ Up to 40% floor area: Sliding or double hung with minimum 6mm single pane or 6mm-12mm-6mm double insulated glazing (R_w+C_{tr} 31dB). Sealed awning or casement windows may use 6mm glazing instead: OR ➤ Up to 60% floor area: As per Bedrooms at up to 40% area (R_w+C_{tr} 34dB)	To R_w+C_{tr} 40dB ➤ To all bedrooms, 2 layers of 10mm plasterboard, or one layer 13mm high density sealed plasterboard (minimum surface density of 12.5 kg/m²), affixed using steel furring channels beneath ceiling rafters/supports: and ➤ R3.0+ insulation batts laid in cavity : and ➤ Concrete or terracotta tile roof with sarking, or metal sheet roof with foil backed R2.0+ fibre insulation between steel sheeting and roof battens	➤ At least one outdoor living area located on the opposite side of the building from the corridor and/or at least one ground level outdoor living area screened using a solid continuous fence or other structure of minimum 2.4 metres height above ground level	➤ Acoustically rated openings and ductwork to provide a minimum sound reduction performance of R_w 40dB into sensitive spaces. ➤ Evaporative systems require attenuated ceiling air cents to allow closed windows. ➤ Refrigerant-based systems need to be designed to achieve National Construction Code fresh air ventilation requirements
	Side-on	➤ One layer of 10mm plasterboard fixed to the inside face ➤ Single leaf of 220mm brick masonry with 13mm cement render on each face ➤ 150mm thick unlined concrete panel or 200mm thick concrete panel with one layer of 13mm plasterboard or 13mm cement render on each face	Bedrooms ➤ Fully glazed hinged door with certified R_w+C_{tr} 31dB rated door and frame including seals and 10mm glass Indoor Living and work areas ➤ 35mm solid core timber hinged door and frame system certified to R_w 28dB including seals: OR ➤ Glazed sliding door with 10 mm glass and weather seals	Bedrooms: ➤ Total external door and window system area up to 40% of room floor area: Sliding or double hung with minimum 10 mm single or 6mm-12mm-10mm double insulated glazing (R_w+C_{tr} 28 dB). Sealed awning or casement windows may use 6 mm glazing instead: OR ➤ Up to 60% floor area: as per above but must be sealed awning or casement type windows (R_w+C_{tr} 31dB). Indoor Living and work areas ➤ Up to 40% floor area: Sliding, awning, casement or double hung with minimum 6mm single pane or 6mm-12mm-6mm double insulated glazing (R_w+C_{tr} 25dB): OR ➤ Up to 60% floor area: As per Bedrooms at up to 40% area (R_w+C_{tr} 28 dB) : OR ➤ Up to 80% floor area: As per Bedrooms at up to 60% area (R_w+C_{tr} 31 dB).			
	Opposite	Double brick: two leaves of 90mm clay brick masonry with: ➤ A 50mm cavity between leaves ➤ 50mm glass wool or polyester cavity insulation (R2.0+) ➤ Resilient ties where required to connect leaves Double brick: two leaves of 110mm clay brick masonry with ➤ 50mm cavity between leaves and R2.0+ cavity insulation	Bedrooms: ➤ Fully glazed hinged door with certified R_w+C_{tr} 28dB rated door and frame including seals and 6mm glass Indoor Living and work areas: ➤ 35mm solid core timber hinged door and frame system certified to R_w 28dB including seals: OR ➤ Glazed sliding door with 10 mm glass and weather seals				
Freight Rail Quiet House Requirements							

<i>(Based on Table 3 of State Planning Policy 5.4 2019)</i>							
Exposure Category	Orientation to corridor	Acoustic rating and example constructions					
		Walls	External doors	Windows	Roofs and ceilings of highest floors	Outdoor Living areas	Mechanical ventilation/air conditioning considerations
C+ Quiet House C+	All Facades	Double brick: two leaves of 90mm clay brick masonry with: ➤ A 50mm cavity between leaves ➤ 50mm glass wool or polyester cavity insulation (R2.0+) ➤ Resilient ties where required to connect leaves	Bedrooms ➤ External doors to bedrooms facing or side onto the corridor are not recommended.	Bedrooms: ➤ All windows comprise minimum 6mm thick laminated or toughened glass in sealed awning or casement type frames. Polymer (e.g. uPVC) window framing should be used (R_w+C_{tr} 31dB).	To R_w+C_{tr} 45dB ➤ To all bedrooms, 2 layers of 10mm plasterboard, affixed using steel furring channels beneath ceiling rafters/supports: and ➤ R3.0+ insulation batts laid in cavity : and ➤ Concrete or terracotta tile roof with sarking, (No metal sheet roofing)	➤ At least one outdoor living area located on the opposite side of the building from the corridor and/or at least one ground level outdoor living area screened using a solid continuous fence or other structure of minimum 2.4 metres height above ground level	➤ Acoustically rated openings and ductwork to provide a minimum sound reduction performance of R_w 40dB into sensitive spaces. ➤ Evaporative systems require attenuated ceiling air cents to allow closed windows. ➤ Refrigerant-based systems need to be designed to achieve National Construction Code fresh air ventilation requirements ➤ Openings such as eaves, vents and air inlets must be acoustically treated, close or relocated to building sides facing away from the corridor where practicable.
		Double brick: two leaves of 110mm clay brick masonry with ➤ 50mm cavity between leaves and R2.0+ cavity insulation	Indoor Living and work areas ➤ Fully glazed hinged door with certified R_w+C_{tr} 31dB rated door and frame including seals and 10mm glass: OR ➤ 40mm solid core timber frame and door (without glass or with glass inserts not less than 6mm), side hinged with certified R_w 32dB acoustically rated door and frame system including seals	Indoor Living and work areas ➤ Up to 40% floor area: Sliding, awning, casement or double hung with minimum 6mm single pane or 6mm-12mm-6mm double insulated glazing (R_w+C_{tr} 31dB) : OR ➤ Up to 60% floor area: As per Bedrooms at up to 40% area (R_w+C_{tr}34 dB)			



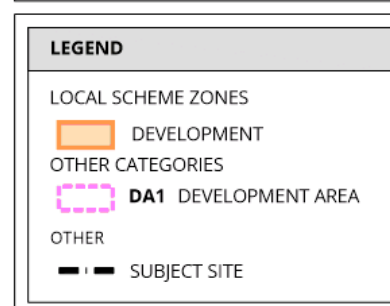
AMENDMENT NO.
JANDAKOT



ADOPTION [Regulation 13(1)]
 ADOPTED by resolution of the Council of the
 City of Cockburn at the Ordinary Meeting of the
 Council held on the ____ day of ____, 202__.

MAYOR

CHIEF EXECUTIVE OFFICER



1. FINAL ADOPTION BY COUNCIL

Adopted for Final Approval by Resolution of the City of Cockburn at the _____ Meeting of Council held on the _____ day of _____.

The Common Seal of the City of Cockburn was hereunto affixed by authority of a resolution of the Council in the presence of:

MAYOR

CHIEF EXECUTIVE OFFICER

2. RECOMMENDED / SUBMITTED FOR FINAL APPROVAL:

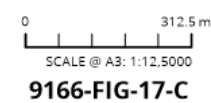
DELEGATED UNDER S.16 OF PD ACT 2005

Date: _____

3. FINAL APPROVAL GRANTED

MINISTER FOR PLANNING

Date: _____



PLANNING AND DEVELOPMENT ACT, 2005

CITY OF COCKBURN
TOWN PLANNING SCHEME NO 3
AMENDMENT NO. 152

The City of Cockburn under and by virtue of the powers conferred upon it by the *Planning and Development Act 2005*, hereby amend the above Town Planning Scheme for the following purposes:

1. Rezoning Lot 3 on Diagram 30047, Lot 6 on Diagram 91027, Lot 7 on Plan 21402, Lot 139 on Plan 18946, and Lot 509 on Diagram 91028 in the locality of Jandakot from 'Special Use' to 'Development'.
2. Rezoning Lot 512 on Diagram 94292 from 'Residential R40' to 'Development'.
3. Including the following new provisions in Table 9 – Development Areas:

REF. NO.	AREA	PROVISIONS
DA 45	Glen Iris Estate, Jandakot	3. An approved Structure Plan together with all approved amendments shall be given due regard in the assessment of applications for subdivision and development in accordance with clause 27(1) of the Deemed Provisions. 4. The Structure Plan is to provide an appropriate mix of residential and compatible land uses.

4. Deleting 'Special Use 1' and 'Special Use 6' from Table 8.
5. Amending the Scheme map accordingly.

The Amendment is complex under the provisions of the *Planning and Development (Local Planning Schemes) Regulations 2015* for the following reason(s):

2. *an amendment that is not addressed by any local planning strategy;*
2. *an amendment relating to development that is of a scale, or will have an impact, that is significant relative to development in the locality.*

ADOPTION

Adopted by resolution of the Council of the City of Cockburn at the ordinary meeting of the Council held on day of 20XX.

MAYOR

CHIEF EXECUTIVE OFFICER

FINAL APPROVAL

Adopted for final approval by resolution of the City of Cockburn at the Meeting of the Council held on the day of 20XX, and the Common Seal of the City of Cockburn was hereunto affixed by the authority of a resolution of the Council in the presence of:

(Seal)

.....
MAYOR

.....
CHIEF EXECUTIVE OFFICER

Recommended/Submitted for Final Approval

.....
DELEGATED UNDER S.16 PLANNING

AND DEVELOPMENT ACT 2005

DATE.....

Final Approval Granted

.....
MINISTER FOR PLANNING

DATE.....

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