



## **CLEARING PERMIT**

*Granted under section 51E of the Environmental Protection Act 1986*

### **PERMIT DETAILS**

Area Permit Number: CPS 9159/1  
File Number: DWERVT7230  
Duration of Permit: From 23 May 2021 to 23 May 2023

### **PERMIT HOLDER**

City of Bunbury

### **LAND ON WHICH CLEARING IS TO BE DONE**

Lot 101 on Plan 22088, Davenport

### **AUTHORISED ACTIVITY**

The permit holder must not clear more than 0.051 hectares of native vegetation within the area cross-hatched yellow in Figure 1 of Schedule 1.

### **CONDITIONS**

#### **1. Avoid, minimise, and reduce impacts and extent of clearing**

In determining the native vegetation authorised to be cleared under this permit, the permit holder must apply the following principles, set out in descending order of preference:

- (a) avoid the clearing of native vegetation;
- (b) minimise the amount of native vegetation to be cleared; and
- (c) reduce the impact of clearing on any environmental value.

## 2. Weed and dieback management

When undertaking any clearing authorised under this permit, the permit holder must take the following measures to minimise the risk of introduction and spread of *weeds* and *dieback*:

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) ensure that no known dieback or weed-affected soil, *mulch*, *fill*, or other material is brought into the area to be cleared; and
- (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

## 3. Records that must be kept

The permit holder must maintain records relating to the listed relevant matters in accordance with the specifications detailed in Table 1.

**Table 1: Records that must be kept**

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	<ol style="list-style-type: none"><li>(a) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings;</li><li>(b) the date that the area was cleared;</li><li>(c) the size of the area cleared (in hectares);</li><li>(d) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 1; and</li><li>(e) actions taken to minimise the risk of the introduction and spread of weeds and dieback in accordance with condition 2.</li></ol>

## 4. Reporting

The permit holder must provide to the *CEO* the records required under condition 3 of this permit when requested by the *CEO*.

## DEFINITIONS

In this permit, the terms in Table have the meanings defined.

**Table 2: Definitions**

Term	Definition
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the <i>Environmental Protection Act 1986</i> .
clearing	has the meaning given under section 3(1) of the EP Act.
condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
fill	means material used to increase the ground level, or to fill a depression.
dieback	means the effect of <i>Phytophthora</i> species on native vegetation.
department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
EP Act	<i>Environmental Protection Act 1986</i> (WA)
mulch	means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation.
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
weeds	means any plant – (a) that is a declared pest under section 22 of the <i>Biosecurity and Agriculture Management Act 2007</i> ; or (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.

---

## END OF CONDITIONS



**Meenu Vitarana**  
**A/Manager**

NATIVE VEGETATION REGULATION

*Officer delegated under Section 20  
of the Environmental Protection Act 1986*

29 April 2021

# SCHEDULE 1

The boundary of the area authorised to be cleared is shown in the map below (Figure 1).



**Figure 1: Map of the boundary of the area within which clearing may occur**



# Clearing Permit Decision Report

## 1 Application details and outcome

### 1.1. Permit application details

<b>Permit number:</b>	CPS 9159/1
<b>Permit type:</b>	Area permit
<b>Applicant name:</b>	City of Bunbury
<b>Application received:</b>	22 December 2020
<b>Application area:</b>	0.051 hectares of native vegetation
<b>Purpose of clearing:</b>	Constructing a hardstand area for a container deposit scheme facility
<b>Method of clearing:</b>	Mechanical
<b>Property:</b>	Lot 101 on Plan 22088, Davenport
<b>Location (LGA area/s):</b>	City of Bunbury
<b>Localities (suburb/s):</b>	Davenport

### 1.2. Description of clearing activities

The vegetation proposed to be cleared is distributed across two separate areas (see Figure 1, Section 1.5). The application is to selectively clear 0.051 hectares of native vegetation to facilitate the construction of a hardstand area for vehicle turning points around a container deposit scheme facility. The vegetation within the application areas comprise approximately ten *Corymbia calophylla* (marri) trees, one exotic tree and scattered non-native shrubs (Harewood, 2020).

### 1.3. Decision on application

<b>Decision:</b>	Granted
<b>Decision date:</b>	29 April 2021
<b>Decision area:</b>	0.051 hectares of native vegetation, as depicted in Section 1.5, below.

### 1.4. Reasons for decision

This clearing permit application was submitted, accepted, assessed and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). The Department of Water and Environmental Regulation (DWER) advertised the application for 21 days and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix A), relevant datasets (see Appendix E.1), the findings of a fauna survey (see Appendix D), the clearing principles set out in Schedule 5 of the EP Act (see Appendix B), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3).

The assessment identified that the proposed clearing may result in the potential introduction and spread of weeds and dieback into adjacent vegetation, which could impact on the quality of the vegetation and its habitat values. After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing is not likely to have long-term adverse impacts on wetlands, or flora or fauna of conservation significance. The proposed clearing can be managed to a degree that is not likely to lead to an unacceptable risk to the environment.

The Delegated Officer decided to grant a clearing permit subject to conditions to:

- avoid, minimise to reduce the impacts and extent of clearing
- implement hygiene measures to minimise the risk of the introduction and spread of weeds and dieback.

### 1.5. Site map

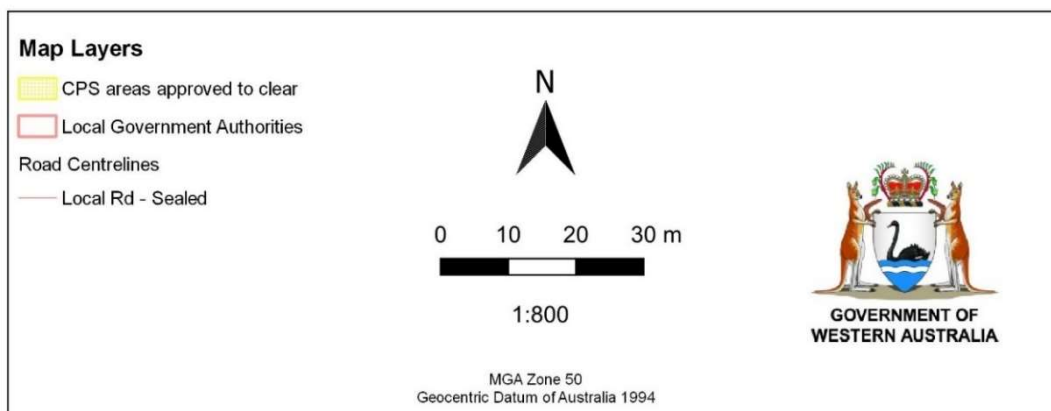


Figure 1. Map of the application area. The area crosshatched yellow indicates the area authorised to be cleared under the granted clearing permit.

## 2 Legislative context

The clearing of native vegetation in Western Australia is regulated under the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act).

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2016).

## 3 Detailed assessment of application

### 3.1. Avoidance and mitigation measures

The City of Bunbury (2020) advised that the clearing extents are the minimum required to facilitate the turning circles around the new waste facility. The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values.

### 3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix A) and the extent to which the impacts of the proposed clearing present a risk to biological, conservation, or land and water resource values.

The assessment against the clearing principles (see Appendix B) identified that the impacts of the proposed clearing present a risk to biological values, including fauna and significant adjacent remnant vegetation. The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

#### 3.2.1. Biological values (fauna) Clearing Principle (b)

##### Assessment

According to available databases, one Priority 2, three Priority 3, five Priority 4, two species of special conservation interest (conservation dependent fauna), two other specially protected species, 27 threatened fauna and 15 specially protected (Migratory) fauna have been recorded within the local area (DBCA, 2007; Appendix A). None of these records occur over the application area. Of these species, *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo), *Calyptorhynchus baudinii* (Baudin's cockatoo), *Calyptorhynchus latirostris* (Carnaby's cockatoo), collectively known as black cockatoos, and *Pseudocheirus occidentalis* (western ringtail possum) have been identified as having the potential to occur within the application area (Appendix A and Appendix B).

##### **Western ringtail possum**

Fourty six records of western ringtail possum have previously been recorded within one kilometre of the application area (DBCA, 2007). The vegetation within the application area is situated within one of three management zones identified by the Department of Biodiversity, Conservation and Attractions (DBCA) for the species. This zone is known as the Swan Coastal Plain zone incorporating the *Agonis flexuosa* (peppermint) woodlands and peppermint / *Eucalyptus gomphocephala* (tuart) forests on the southern extremity of the Swan Coastal Plain, extending from north of Bunbury to Augusta (DPaW, 2014). Peppermint leaves form the basis of the western ringtail possum's diet in coastal areas and home ranges in peppermint dominated habitat average 0.4 hectares and 0.3 hectares for females and males respectively (DPaW 2014; Jones et al. 1994). Resting sites include hollows and dreys constructed in the canopy when hollows are not available. The application area is located approximately 145 metres from an area mapped as 'medium' habitat value for western ringtail possums (Figure 2).

Diurnal and nocturnal surveys did not observe any evidence of western ringtail possum within or nearby to the project area (Harewood, 2020). No hollows were identified within the application area (Harewood, 2020). Photographs, aerial imagery and information provided by the applicant indicate the vegetation within the application area primarily comprises *Corymbia calophylla* (marri) trees and with no canopy connectivity with other vegetation in surrounding areas (Harewood, 2020). The understory within the application area primarily comprises landscaped exotic grasses. Native midstorey or groundcover vegetation is absent. Noting the characteristics of the vegetation, fauna survey results, absence of peppermint trees and fragmentation of the application with other remnant vegetation, the vegetation within the application area is not likely to represent significant habitat for western ringtail possum, however may rarely be used by transient individuals (Harewood, 2020). The proposed clearing is not likely to disrupt habitat linkages or significantly impact foraging habitat availability.

Larger extents of remnant native vegetation to the north, south and surrounds, that are mapped as suitable habitat and where western ringtail possums have been recorded, are more likely to be a significant habitat for the species (Figure 2). The proposed clearing is restricted to small, isolated patch of trees and is likely to be of low value due to the fragmented nature of vegetation within the landscape. Suitable habitat in better condition and located directly north of application area may provide foraging habitat for this species.

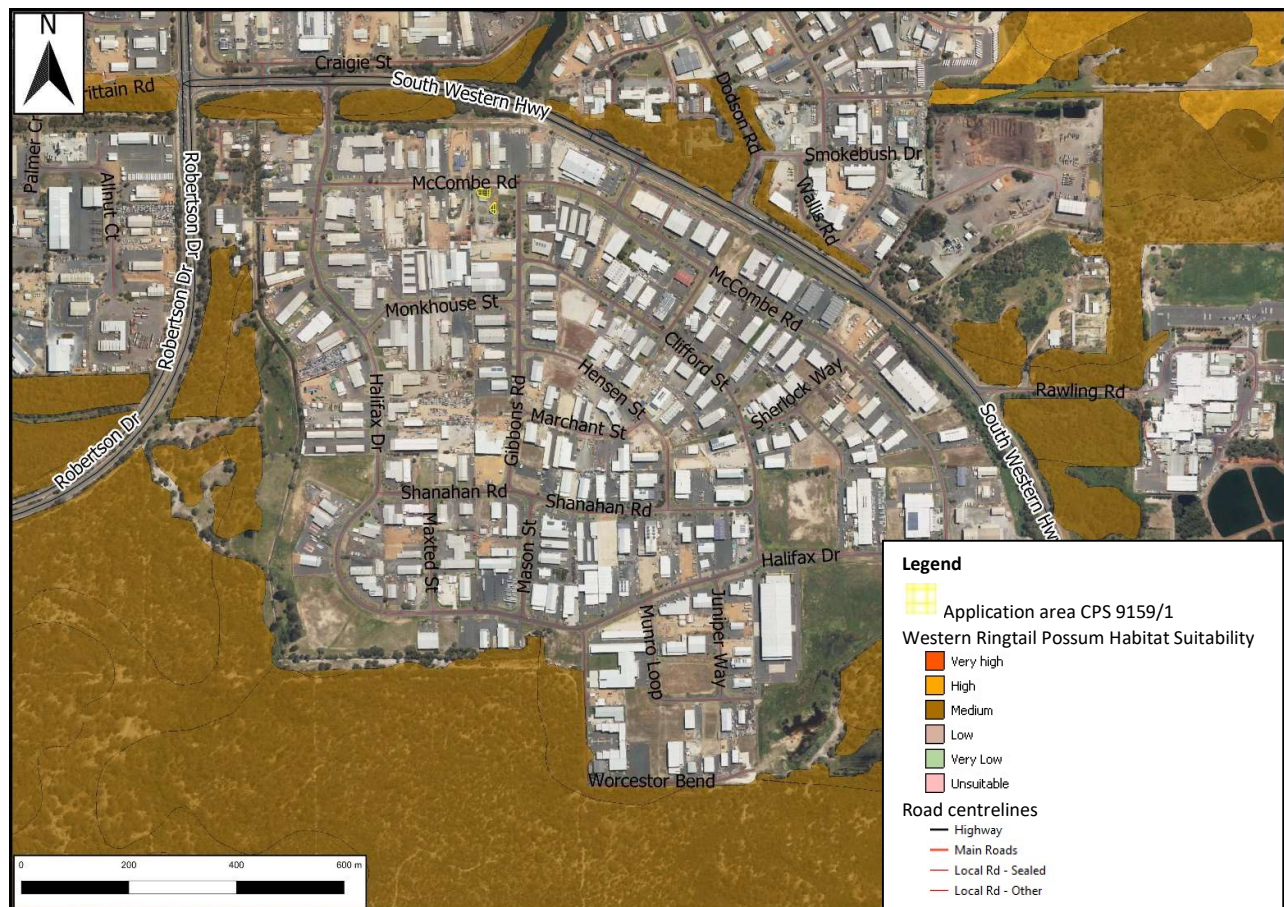


Figure 2. Western ringtail possum mapped habitat suitability in the vicinity of the application area

### Black cockatoos

Carnaby's cockatoo, forest red-tailed black cockatoo and Baudin's cockatoo are known from 82, 13 and seven records within the local area, respectively. Black cockatoos nest in hollows in live or dead trees of karri, marri, wandoo, tuart, salmon gum, jarrah, flooded gum, York gum, powder bark, bullich and blackbutt (Commonwealth of Australia, 2012). The vegetation within the application area primarily comprises marri. The fauna assessment identified three black cockatoo habitat trees with a diameter at breast height (DBH) greater than 50 centimetres within the application area, however, did not record any hollows or possible hollows potentially suitable for use by black cockatoos (Harewood, 2020). Eight confirmed black cockatoo roosting sites have been recorded within the local area, with the nearest record occurring approximately 1.2 kilometres from the application area. The fauna assessment did not record any evidence of roosting within the application area (Harewood, 2020). Noting the above and the extent of clearing



proposed, the vegetation within the application area is not likely to provide significant breeding or roosting habitat for black cockatoos.

Black cockatoos prefer foraging habitat that includes jarrah and marri woodlands and forest heathland and woodland dominated by proteaceous plant species such as *Banksia* sp., *Hakea* sp. and *Grevillea* sp. (Commonwealth of Australia, 2012). The fauna assessment observed a small number of marri nuts that had been chewed by Carnaby's black cockatoo within the application area (Harewood, 2020). Larger patches of vegetation in better condition within the surrounding area are likely provide more suitable foraging habitat for these species. Given the extent of vegetation proposed to be cleared, the extent of remnant vegetation remaining in the local area (Appendix A and Appendix B) and that the vegetation within the application comprises an isolated patch of individual marri trees, the vegetation within the application area is not likely to comprise significant foraging habitat for these species. The proposed clearing is not likely to significantly impact black cockatoo foraging habitat.

The Harewood (2020) fauna assessment also included an assessment of vegetation outside of the application area but within the property boundary of Lot 101 on Plan 22088 and Lot 103 on Plan 22088. The assessment identified four black cockatoo habitat trees with a DBH greater than 50 centimetres. One hollow was recorded within one habitat tree located outside the application area (Harewood, 2020). These habitat trees are to be retained by the applicant (Harewood, 2020).

The proposed clearing has the potential to introduce weeds and dieback to remnant vegetation adjacent to the application area.

#### Conclusion

For the reasons set out above, it is considered that the impacts of the proposed clearing on adjacent remnant vegetation can be managed by taking steps to minimise the risk of the introduction and spread of weeds and dieback.

The applicant may have notification responsibilities under the EPBC Act for impacts to Baudin's black cockatoo, Carnaby's cockatoo and forest red-tailed black cockatoo and their habitats as set out in the EPBC Act significant impact guidelines (Government of Australia, 2009). The applicant has been advised to contact the federal Department of Water, Agriculture and the Environment (DAWE) to discuss EPBC Act referral requirements.

#### Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- Management actions to minimise the risk of the introduction or spread of dieback disease and weeds.

### **3.3. Relevant planning instruments and other matters**

No known Aboriginal sites of significance have been mapped within the application area. It is the permit holder's responsibility to comply with the *Aboriginal Heritage Act 1972* (WA) and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

The application area is within an area classified under the *Contaminated Sites Act 2003* (CS Act) as "Report not substantiated". This means that the site was reported under the CS Act but that there was not enough information to indicate the presence of contamination at the site.

**End**

## Appendix A. Site characteristics

### A.1. Site characteristics

Characteristic	Details												
Local context	The area proposed to be cleared comprises two isolated patches of native vegetation in the intensive land use zone of Western Australia. It is surrounded by land zoned for industrial land uses, predominantly cleared of native vegetation. Small, isolated patches of native vegetation are situated within the immediate surrounds of the application area. The property on which the application area is located is zoned for the purpose of light industrial purposes under the local planning scheme. At a broader scale, the land within the local area is zoned for regional open space, regional roads and railways, and urban land uses. Aerial imagery and spatial data indicate the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 17 per cent of the original native vegetation cover.												
Ecological linkage	No Environmentally Sensitive Areas (ESAs) records transect the application area. Six ESAs occurring in association with wetlands and threatened ecological communities are mapped within approximately one kilometre from the application area. The application area is located approximately 1.4 kilometres north from a mapped occurrence of the South West Regional Ecological Linkage. The vegetation within the application area is not contiguous with vegetation mapped within the linkage or ESAs.												
Conservation areas	The nearest mapped conservation areas include an unmanaged reserve (reserve number 45781) located approximately 415 metres south east from the application area for the purpose of drainage and a Section 5(1)(g) reserve (R 41724) mapped approximately 350 metres east from the application area.												
Vegetation description	The vegetation within the application areas comprise approximately ten <i>Corymbia calophylla</i> (marri) trees, one exotic tree and scattered non-native shrubs (Harewood, 2020). Based on photographs of vegetation within the application area, the understorey vegetation primarily consists of landscaped, exotic grasses (Harewood, 2020). Representative photographs, survey descriptions and maps are available in Appendix D. This is partially consistent with the mapped vegetation type, Southern River Complex, which is described as open woodland of <i>Corymbia calophylla</i> (marri) - <i>Eucalyptus marginata</i> (jarrah) - Banksia species with fringing woodland of <i>Eucalyptus rudis</i> (flooded gum) - <i>Melaleuca raphiophylla</i> (swamp paperbark) along creek beds (Heddle, 1980). The mapped vegetation type retains approximately 18.4 per cent of the original extent (Government of Western Australia, 2019).												
Vegetation condition	Photographs provided by the applicant (Harewood, 2020) indicate that the vegetation within the proposed clearing area is in degraded (Keighery, 1994) condition, described as “ <i>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/or grazing</i> ”. The full Keighery (1994) condition rating scale is provided in Appendix C. Representative photographs, full survey descriptions and mapping are available in Appendix D.												
Soil description	The soil within the application area is mapped as Bassendean B2 Phase, described as flat to very gently undulating sandplain with well to moderately well drained deep bleached grey sands with a pale yellow B horizon or a weak iron-organic hardpan 1-2 metres.												
Land degradation risk	Land degradation risk ratings mapped over the application area are provided in the table below (DPIRD 2019). <table border="1" data-bbox="435 1738 1430 1875"> <thead> <tr> <th>Risk categories</th> <th>Risk</th> <th>Bassendean B2 Phase subsystem</th> </tr> </thead> <tbody> <tr> <td>Wind erosion</td> <td>M2</td> <td>30-50% of map unit has a high to extreme wind erosion risk</td> </tr> <tr> <td>Water erosion</td> <td>L1</td> <td>&lt;3% of map unit has a high to extreme water erosion risk</td> </tr> <tr> <td>Salinity</td> <td>L1</td> <td>&lt;3% of map unit has a moderate to high salinity risk or is presently saline</td> </tr> </tbody> </table>	Risk categories	Risk	Bassendean B2 Phase subsystem	Wind erosion	M2	30-50% of map unit has a high to extreme wind erosion risk	Water erosion	L1	<3% of map unit has a high to extreme water erosion risk	Salinity	L1	<3% of map unit has a moderate to high salinity risk or is presently saline
Risk categories	Risk	Bassendean B2 Phase subsystem											
Wind erosion	M2	30-50% of map unit has a high to extreme wind erosion risk											
Water erosion	L1	<3% of map unit has a high to extreme water erosion risk											
Salinity	L1	<3% of map unit has a moderate to high salinity risk or is presently saline											

Characteristic	Details		
	Subsurface Acidification	H2	>70% of map unit has a high subsurface acidification risk or is presently acid
	Flood risk	L1	<3% of the map unit has a moderate to high flood risk
	Waterlogging	L2	3-10% of map unit has a moderate to very high waterlogging risk
	Phosphorus export risk	H2	>70% of map unit has a high to extreme phosphorus export risk
Waterbodies	The desktop assessment and aerial imagery indicates one multiple use (palusplain) wetland of the Swan Coastal Plain intersects the application area. An artificial lake (basin) is located approximately 95 metres north from the application area.		
Hydrogeography	The vegetation within the application area is located within the Bunbury Groundwater Area as proclaimed under the <i>Rights in Water and Irrigation Act 1914</i> . Less than three per cent of the soil type map unit has a moderate to high flood risk or salinity risk (or is presently saline).		
Flora	<p>Thirty three conservation significant flora taxa have been recorded within the local area, comprising four threatened taxa, and two Priority 1, five Priority 2, eleven Priority 3 and eleven Priority 4 taxa (Western Australian Herbarium, 1998-). None of these records are located within the application area. Eighteen of the flora taxa recorded are typically associated with hydrological features. Whilst the application area is partially mapped within a multiple use category wetland, photographs and aerial imagery of the application area indicate that the area of interest does not comprise defined natural surface water features or channels.</p> <p>Four records of <i>Caladenia speciose</i> (Priority 4) occur within one kilometre from the application area, and are recorded within the same soil and vegetation types mapped over the application area (Western Australian Herbarium, 1998-). Three additional flora taxa typically not associated within hydrological features, and that occur within the same soil and vegetation types mapped over the application area have been recorded in the local area. These taxa include <i>Lasiopetalum membranaceum</i> (Priority 3), <i>Platysace ramosissima</i> (Priority 3) and <i>Thelymitra variegata</i> (Priority 2) (Western Australian Herbarium, 1998-).</p> <p>Four threatened flora taxa, including <i>Austrostipa bronwenae</i> (endangered), <i>Austrostipa jacobsiana</i> (critically endangered), <i>Diuris drummondii</i> (vulnerable) and <i>Drakaea micrantha</i> (endangered), have been recorded within the local area (Western Australian Herbarium, 1998-) within different soil and vegetation types to those mapped over the application area.</p>		
Ecological communities	<p>No conservation significant ecological communities have been mapped over the application area and eleven conservation significant ecological communities have been recorded within the local area. The nearest records include:</p> <ul style="list-style-type: none"> <li>• Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region (Priority 3), located approximately 0.14 kilometres from the application area and listed as endangered under the EPBC Act. The vegetation within the application area intersects Banksia Dominated Woodlands of the Swan Coastal Plain community buffer.</li> <li>• Dense shrublands on clay flats (floristic community type 9 as originally described in Gibson et al. (1994)) (vulnerable), located approximately 0.8 kilometres from the application area and listed as critically endangered under the EPBC Act.</li> <li>• Tuart (<i>Eucalyptus gomphocephala</i>) woodlands and forests of the Swan Coastal Plain (Priority 3), located approximately 1.9 kilometres from the application area and listed as critically endangered under the EPBC Act.</li> <li>• Herb rich saline shrublands in clay pans (floristic community type 7 as originally described in Gibson et al. (1994)) (vulnerable), located approximately 1.2 kilometres from the application area and listed as critically endangered under the EPBC Act.</li> <li>• Herb rich shrublands in clay pans (floristic community type 8 as originally described in Gibson et al. (1994)) (vulnerable), located approximately 1.3 kilometres from the application area and listed as critically endangered under the EPBC Act.</li> </ul>		
Fauna	According to available databases, 35 birds, 13 mammals, three reptile, two invertebrates and two fish of conservation significance have been recorded within ten kilometres of the		

Characteristic	Details
	<p>application area (Appendix A.3). These comprise one Priority 2, three Priority 3, five Priority 4, two species of special conservation interest (conservation dependent fauna), two other specially protected species, 27 threatened fauna and 15 specially protected (migratory) fauna (Appendix A.3). None of these records occurred over the application area. Of these conservation significant fauna recorded within the local area, 40 are typically associated with marine or aquatic environments. These habitats are primarily absent from the application area.</p> <p>The vegetation within the application area is within 0.15 kilometres from a mapped occurrence of <i>Pseudocheirus occidentalis</i> (western ringtail possum) habitat suitability. There are 46 western ringtail possum records within one kilometre from the application area. The nearest record is located approximately 0.16 kilometres from the application area.</p> <p>Two black cockatoo roost sites have been recorded within two kilometres from the application area. <i>Calyptorhynchus latirostris</i> (Carnaby's cockatoo; endangered), <i>Calyptorhynchus baudinii</i> (Baudin's cockatoo; endangered) and <i>Calyptorhynchus banksii naso</i> (forest red-tailed black cockatoo; vulnerable), collectively known as black cockatoos, have been recorded within 0.9 kilometres, 0.4 kilometres and 2.4 kilometres from the application area, respectively.</p>

## A.2. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion*					
Swan Coastal Plain	1,501,209	587,889	39.2	195,835	33.3
Vegetation complex					
Southern River Forest complex**	58,781	10,832	18.4	1,721	1.6
Local area (10 km)					
Local area	31,488	5,345	17.0	-	-

\*Government of Western Australia (2019b)

\*\*Government of Western Australia (2019a)

## A.3. Fauna analysis table

With consideration to the site characteristics set out above and relevant datasets (see Appendix E.1).

Species		Conservation Status	Suitable habitat present
Scientific name	Common name		
<b>MAMMALS</b>			
<i>Dasyurus geoffroii</i>	chuditch, western quoll	VU	No
<i>Hydromys chrysogaster</i>	water-rat, rakali	P4	No
<i>Isoodon fusciventer</i>	Quenda, southwestern brown bandicoot	P4	No
<i>Notamacropus irma</i>	Western brush wallaby	P4	No
<i>Phascogale tapoatafa wambenger</i>	South-western brush-tailed phascogale, wambenger	CD	No
<i>Pseudocheirus occidentalis</i>	Western ringtail possum, ngwayir	CR	Yes
<i>Setonix brachyurus</i>	Quokka	VU	No
<b>REPTILES</b>			
<i>Ctenotus ora</i>	Coastal Plains skink	P3	No

Species		Conservation Status	Suitable habitat present
Scientific name	Common name		
<b>INVERTEBRATES</b>			
<i>Idiosoma sigillatum</i>	Swan Coastal Plain shield-backed trapdoor spider	P3	No
<b>BIRDS</b>			
<i>Anous tenuirostris melanops</i>	Australian lesser noddy	EN	No
<i>Arenaria interpres</i>	Ruddy turnstone	MI	No
<i>Calidris acuminata</i>	Sharp-tailed sandpiper	MI	No
<i>Calidris canutus</i>	Red knot	EN	No
<i>Calidris ferruginea</i>	curlew sandpiper	CR	No
<i>Calidris ruficollis</i>	Red-necked stint	MI	No
<i>Calidris tenuirostris</i>	Great knot	CR	No
<i>Calyptorhynchus banksii naso</i>	forest red-tailed black cockatoo	VU	Yes
<i>Calyptorhynchus baudinii</i>	Baudin's cockatoo	EN	Yes
<i>Calyptorhynchus latirostris</i>	Carnaby's cockatoo	EN	Yes
<i>Calyptorhynchus sp. 'white-tailed black cockatoo'</i>	White-tailed black cockatoo	EN	Yes
<i>Charadrius leschenaultii</i>	Greater sand plover, large sand plover	VU	No
<i>Diomedea exulans</i>	wandering albatross	VU	No
<i>Falco peregrinus</i>	Peregrine falcon	OS	Yes
<i>Ixobrychus flavicollis australis (southwest subpop.)</i>	black bittern (southwest subpop.)	P2	No
<i>Limosa lapponica</i>	Bar-tailed godwit	MI	No
<i>Limosa limosa</i>	Black-tailed godwit	MI	No
<i>Macronectes giganteus</i>	southern giant petrel	MI	No
<i>Numenius madagascariensis</i>	Eastern curlew	CR	No
<i>Numenius phaeopus</i>	Whimbrel	MI	No
<i>Oceanites oceanicus</i>	Wilson's storm-petrel	MI	No
<i>Oxyura australis</i>	Blue-billed duck	P4	No
<i>Plegadis falcinellus</i>	Glossy ibis	MI	No
<i>Pluvialis fulva</i>	Pacific golden plover	MI	No
<i>Pluvialis squatarola</i>	Grey plover	MI	No
<i>Psophodes nigrogularis</i>	western whipbird	EN	No
<i>Psophodes nigrogularis</i>	western whipbird (western heath)	EN	No
<i>Sterna hirundo</i>	Common tern	MI	No
<i>Thalassarche carteri</i>	Indian yellow-nosed albatross	EN	No
<i>Thalassarche chrysostoma</i>	Grey-headed albatross	VU	No
<i>Thalassarche melanophris</i>	black-browed albatross	EN	No
<i>Thalasseus bergii</i>	Crested tern	MI	No
<i>Thinornis rubricollis</i>	hooded plover, hooded dotterel	P4	No
<i>Tringa nebularia</i>	Common greenshank, greenshank	MI	No
<i>Tringa stagnatilis</i>	Marsh sandpiper, little greenshank	MI	No

#### A.5. Conservation code definitions (DBCA, 2019)

Code	Name	Definition
<b>T</b>	<b>Threatened species</b>	<p>Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the Biodiversity Conservation Act 2016 (BC Act).</p> <p>Threatened fauna is that subset of 'Specially Protected Fauna' listed under schedules 1 to 3 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018 for Threatened Fauna.</p> <p>Threatened flora is that subset of 'Rare Flora' listed under schedules 1 to 3 of the Wildlife Conservation (Rare Flora) Notice 2018 for Threatened Flora.</p>

Code	Name	Definition
		<b><i>The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.</i></b>
CR	Critically endangered species	Threatened species considered to be “facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines”. Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines. Published under schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018 for critically endangered fauna or the Wildlife Conservation (Rare Flora) Notice 2018 for critically endangered flora.
EN	Endangered species	Threatened species considered to be “facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines”. Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018 for endangered fauna or the Wildlife Conservation (Rare Flora) Notice 2018 for endangered flora.
VU	Vulnerable species	Threatened species considered to be “facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines”. Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines. Published under schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018 for vulnerable fauna or the Wildlife Conservation (Rare Flora) Notice 2018 for vulnerable flora.
-	<b>Extinct species</b>	<i>Listed by order of the Minister as extinct under section 23(1) of the BC Act as extinct or extinct in the wild.</i>
EX	Extinct species	Species where “there is no reasonable doubt that the last member of the species has died”, and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act). Published as presumed extinct under schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018 for extinct fauna or the Wildlife Conservation (Rare Flora) Notice 2018 for extinct flora.
EW	Extinct in the wild species	Species that “is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form”, and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act). Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice.
-	<b>Specially protected species</b>	<b><i>Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection.</i></b> <b><i>Species that are listed as threatened species (critically endangered, endangered or vulnerable) or extinct species under the BC Act cannot also be listed as Specially Protected species.</i></b>
MI	Migratory species	Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act). Includes birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and fauna subject to the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species. Published as migratory birds protected under an international agreement under schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018.
CD	Species of special conservation interest (conservation dependent fauna)	Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act). Published as conservation dependent fauna under schedule 6 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018.
OS	Other specially protected species	Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act). Published as other specially protected fauna under schedule 7 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018.
<b>P</b>	<b>Priority species</b>	<b><i>Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories</i></b>

Code	Name	Definition
		<p><b>are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or flora.</b></p> <p><b>Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.</b></p> <p><b>Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.</b></p>
P1	Priority 1: Poorly-known species	Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.
P2	Priority 2: Poorly-known species	Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.
P3	Priority 3: Poorly-known species	Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.
P4	Priority 4: Rare, Near Threatened and other species in need of monitoring	<p>(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands.</p> <p>(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent.</p> <p>(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.</p>

<sup>1</sup> The definition of flora includes algae, fungi and lichens

<sup>2</sup>Species includes all taxa (plural of taxon - a classificatory group of any taxonomic rank, e.g. a family, genus, species or any infraspecific category i.e. subspecies or variety, or a distinct population).

## Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
<b>Environmental value: biological values</b>		
<p><u>Principle (a):</u> “Native vegetation should not be cleared if it comprises a high level of biodiversity.”</p> <p><u>Assessment:</u> The vegetation present is not likely to support flora or fauna species of conservation significance, does not represent a significant ecological community, and does not comprise a high level of biodiversity.</p> <p>The vegetation within the application area is mapped adjacent to and within the buffer of an occurrence of the ‘<i>Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region</i>’. Given the small patch size and absence of banksia species and native understorey, vegetation within the application area does not meet the key diagnostic characteristics set out in the approved conservation advice for the for the banksia woodland ecological community (TSSC, 2016). The vegetation within the application area does not represent this community. The proposed clearing is not likely to significantly impact this or other conservation significant ecological communities recorded within the local area.</p> <p>Eight priority flora have been recorded in the local area and occur within the same mapped soil and vegetation types as those mapped the application area, including <i>Caladenia speciose</i>, <i>Lasiopetalum membranaceum</i> (Priority 3), <i>Platysace ramosissima</i> (Priority 3) and <i>Thelymitra variegata</i> (Priority 2). Four threatened flora taxa have been recorded in the local area within different soil and vegetation types to those within the application area (Appendix A.1). Noting the degraded vegetation condition, absence of understorey vegetation and current land use and disturbances within the application area and surrounds, the vegetation within the application area is not likely to comprise or significantly impact conservation significant flora or habitat.</p> <p>The vegetation within the application area is mapped adjacent to habitat suitable for western ringtail possum and within habitat suitable for use by black cockatoos (see Principle b below). However, the vegetation within the application area is not likely to comprise significant vegetation for conservation significant fauna (see Section 3.2.1).</p>	Not likely to be at variance	No
<p><u>Principle (b):</u> “Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.”</p> <p><u>Assessment:</u> The area proposed to be cleared does not contain significant foraging, roosting, breeding, critical habitat for conservation significant fauna.</p> <p>According to available databases, one Priority 2, three Priority 3, five Priority 4, two species of special conservation interest (conservation dependent fauna), two other specially protected species, 27 threatened fauna and 15 specially protected (Migratory) fauna have been recorded within the local area. None of these records occur within the application area. Most of the conservation significant fauna recorded within the local area are typically associated with marine and aquatic environments, which are absent from the application area.</p> <p>The western ringtail possum (<i>Pseudocheirus occidentalis</i>) is listed as Critically Endangered under the <i>Biodiversity Conservation Act 2016</i>, and Critically Endangered under the commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act). The application area is located 140 metres from an area mapped as very high suitability for western ringtail possum, with 46 records of the species known from within one kilometre of the application area (DBCA, 2007). Two black cockatoo roost sites have been recorded within two kilometres from the application area. <i>Calyptorhynchus latirostris</i> (Carnaby's cockatoo; endangered), <i>Calyptorhynchus baudinii</i> (Baudin's cockatoo; endangered) and <i>Calyptorhynchus banksii naso</i> (forest red-tailed black</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.1, above</i>



Assessment against the clearing principles	Variance level	Is further consideration required?
<p>cockatoo; vulnerable), collectively known as black cockatoos, have been recorded within the local area.</p> <p>The vegetation within the application area may provide suitable habitat for other conservation significant fauna, such as <i>Falco peregrinus</i> (Peregrine falcon). However, noting the extent of the clearing proposed, the degraded vegetation condition and absence of native understorey and hollows (Harewood, 2020), it is not likely to provide significant habitat, and fauna are likely to be transient.</p>		
<p><b>Principle (c):</b> <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p><b>Assessment:</b> The area proposed to be cleared is not likely to contain habitat for flora species listed under the <i>Biodiversity Conservation Act 2016</i>. Four threatened flora taxa have been recorded within the local area, including <i>Austrostipa bronwenae</i>, <i>Austrostipa jacobsiana</i>, <i>Diuris drummondii</i> and <i>Drakaea micrantha</i>. These taxa have been recorded within different soil types than those mapped over the application area. Noting the degraded vegetation condition, absence of understorey and current land use and disturbance within the application area and surrounds, the vegetation within the application area is not likely to comprise threatened flora. The vegetation within the application area is not likely necessary for the continued existence of threatened flora.</p>	Not likely to be at variance	No
<p><b>Principle (d):</b> <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community.”</i></p> <p><b>Assessment:</b> The area proposed to be cleared does not contain species that can indicate a threatened ecological community.</p>	Not likely to be at variance	No
<b>Environmental value: significant remnant vegetation and conservation areas</b>		
<p><b>Principle (e):</b> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><b>Assessment:</b> The Environmental Protection Authority (EPA) recognises the Greater Bunbury Region to be a constrained area, within which a minimum 10 per cent representation threshold for ecological communities is recommended (EPA, 2003). The application area is mapped within the Southern vegetation complex of which 18.4 per cent of the pre-European extent is remaining (Government of Western Australia, 2019) and the local area retains approximately 17 per cent (5,345 hectares) of remnant native vegetation, both of which are above the EPA’s objective.</p> <p>The extent of the mapped vegetation type and native vegetation remaining in the local area is consistent with the national objectives and targets for biodiversity conservation in Western Australia. The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.</p> <p>The vegetation proposed to be cleared is predominantly in degraded condition, does not comprise high biological diversity, significant habitat for fauna, threatened or priority flora or threatened ecological communities, and is not considered to be significant as a remnant of native vegetation.</p>	Not likely to be at variance	No
<p><b>Principle (h):</b> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.”</i></p> <p><b>Assessment:</b> Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas. The nearest mapped conservation area is mapped more than 350 metres from the application area. Noting the distance to nearest</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
conservation area, the degraded vegetation condition and relatively small extent of clearing, the proposed clearing is not likely to significantly impact conservation areas in the local area.		
<b>Environmental value: land and water resources</b>		
<p><u>Principle (f):</u> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u> The application is partially mapped within a multiple use wetland. Multiple use category wetlands comprise few important ecological attributes and functions remaining. Photographs and aerial imagery indicate that the application area does not contain any defined natural surface water features or channels. The nearest mapped watercourse is an artificial lake (basin), located approximately 100 metres north from the application area. Aerial imagery and photographs provided by the applicant indicate that the vegetation within the application area does not comprise vegetation that typically represents vegetation growing in association with a wetland or watercourse (Harewood, 2020).</p> <p>Given the vegetation within the application area is located within a mapped occurrence of a wetland, the proposed clearing is at variance with clearing principle (f). However, noting the absence of physical hydrological features and riparian vegetation, the degraded vegetation condition and small extent of clearing, the clearing proposed is not likely to significantly impact hydrology and water quality.</p>	May be at variance	No
<p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u> The mapped soil types are highly susceptible to phosphorus export and subsurface acidification risk. Noting the extent of the application area and the condition of the vegetation, the proposed clearing is not likely to have an appreciable impact on land degradation.</p>	Not likely to be at variance	No
<p><u>Principle (i):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.”</i></p> <p><u>Assessment:</u> No Public Drinking Water Sources Areas or watercourses are mapped within the application area. The application area is located within the Bunbury Groundwater Area, a proclaimed groundwater area under the <i>Rights in Water and Irrigation Act 1914</i> (RIWI Act). One mapped multiple use wetland is mapped over the application area. Aerial imagery and photographs provided by the applicant indicate that the vegetation within the application area does not comprise any defined natural surface water features or channels, or vegetation that typically represents riparian vegetation. Noting the vegetation characteristics, degraded vegetation condition and small extent of clearing, the clearing proposed is not likely to significantly impact surface or ground water quality.</p>	Not likely to be at variance	No
<p><u>Principle (j):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment:</u> The mapped soil types and topographic contours over the application and surrounding areas indicate that the proposed clearing is not likely to contribute to an increased incidence or intensity of flooding. The mapped soil types indicate a low risk of flooding and waterlogging. Noting the above and the small extent of the application area, the proposed clearing is not likely to cause, or exacerbate, the incidence or intensity of flooding or waterlogging.</p>	Not likely to be at variance	No

## Appendix C. Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Keighery (1994).

### Measuring vegetation condition for the South West and Interzone Botanical Province (Keighery, 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
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/or grazing.
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/or grazing.
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.

## Appendix D. Biological survey information excerpts and photographs of the vegetation

Harewood (2020) conducted a fauna survey which included the two proposed clearing areas. Some of the vegetation within the facility boundary (Lot 101 and Lot 103) which is to be retained was also assessed (Harewood, 2020). The scope of the survey comprised the following (Harewood, 2020):

1. A fauna survey of the proposed clearing area and adjoining areas with a focus upon but not limited to black cockatoo and western ringtail possum habitat, involving:
  - A day time survey to record any evidence of black cockatoo and western ringtail possums habitat (e.g. observed individuals, evidence of their presence onsite such as dreys, scats, chewed fruits, nest hollow bite marks etc.) and their habitat (e.g. breeding, roosting/denning, foraging habitat), consistent with available literature in addition to noting the presence of other species of conservation significance and/or their habitat; and
  - a nocturnal survey to determine the distribution and abundance of western ringtail possums within the project area (Harewood, 2020).
2. Preparation of a report documenting methods, results and legislative requirements including a review against published Commonwealth referral guidelines (Harewood, 2020).

On 7 December 2020, Harewood (2020) assessed vegetation within and adjacent to the project area and conducted a nocturnal survey aimed at detecting western ringtail possum activity (Harewood, 2020).

### Fauna habitats

Vegetation remaining within the waste recycling centre boundary comprises scattered trees and small groves of trees, most of which are *Corymbia calophylla* (marri). Two planted exotic trees (species unknown) and several planted non-endemic shrubs are also present (Harewood, 2020). The two proposed clearing areas contain approximately ten marri trees of various sizes, one small exotic tree and some non-endemic shrubs. Representative photographs of the vegetation within the application areas are shown in Figure D1 below (Harewood, 2020).



**Figure D1** – Representative photographs of the application area (Harewood, 2020)

### **Black cockatoo habitat assessment**

#### **Breeding habitat**

The proposed clearing areas were found to contain three habitat trees with a diameter at breast height greater than 50 centimetres (Figure D2). These three trees do not appear to contain hollows of any size. There are an additional four "habitat trees" within sections of the waste recycling centre outside of the application area that are to be retained (Harewood, 2020).

#### **Foraging habitat**

The proposed clearing areas contain marri trees which is a favoured foraging resource for all three species of black cockatoos. The total extent of this vegetation is less 500 m<sup>2</sup>. Foraging evidence was found in these areas in the form of a small number of chewed marri fruit which was attributed to feeding Carnaby's black cockatoo (Harewood, 2020).

#### **Roosting habitat**

No evidence of cockatoos roosting within the survey area was observed and it is considered unlikely that trees in or near the site would ever be used for this purpose (Harewood, 2020).

### **Western ringtail possum habitat assessment**

No evidence of western ringtail possums using propose clearing areas or the balance of the area surveyed was observed during the day survey. No western ringtail possums were observed within or near the project area during the single night survey (Harewood, 2020). The vegetation within the two prosed clearing areas is largely comprised of marri trees. There is no native midstorey or groundcover vegetation and the trees present have no canopy connectivity with other vegetation in adjoining areas. Based on the observations made it is the authors opinion that the proposed clearing areas do not represent western ringtail possum habitat of any value and it is unlikely to ever be utilised by the species for any purpose except possibly on very rare occasions, for example by transient individuals (Harewood, 2020).

### **Other fauna species of conservation significance**

No evidence of any other fauna species of conservation significance was observed during the survey period. The nature of the habitats present, and their limited extent would suggest that the area is unlikely to not represent habitat for any other that fauna species of concern (Harewood, 2020).



**Figure 2** – Black cockatoo habitat trees (DBH >50 centimetres) (Harewood, 2020)

## Appendix E. Sources of information

### E.1. GIS databases

Publicly available GIS Databases used (sourced from [www.data.wa.gov.au](http://www.data.wa.gov.au)):

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available

Restricted GIS Databases used:

- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

### E.2. References

City of Bunbury (2020) *Clearing permit application CPS 9159/1*, received 22 December 2020 (DWER Ref: DWERDT395766).

Commonwealth of Australia (2001) *National Objectives and Targets for Biodiversity Conservation 2001-2005*, Canberra.

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

Department of Biodiversity, Conservation and Attractions (DBCA) (2007- ) *NatureMap: Mapping Western Australia's Biodiversity*. Department of Parks and Wildlife. URL: <http://naturemap.dpaw.wa.gov.au/> (accessed April 2021).

- Department of Biodiversity, Conservation and Attractions (2019). *Conservation codes for Western Australian Flora and Fauna*. Perth. Available from: <https://www.dpaw.wa.gov.au/images/documents/plants-animals/threatened-species/Listings/Conservation%20code%20definitions.pdf> (accessed April 2021).
- Department of Parks and Wildlife (DPaW) (2014) Western Ringtail Possum (*Pseudocheirus occidentalis*) Recovery Plan. Wildlife Management Program No. 58. Western Australia Department of Parks and Wildlife, now the Department of Biodiversity, Conservation and Attractions.
- Department of Water and Environmental Regulation (DWER; 2014). *Contaminated Sites Fact Sheet 4. Site classifications and appeals*. Department of Water and Environmental Regulation. Available from: [https://www.der.wa.gov.au/images/documents/your-environment/contaminated-sites/Fact sheets tech advice/Fact sheet 4.pdf](https://www.der.wa.gov.au/images/documents/your-environment/contaminated-sites/Fact%20sheets%20tech%20advice/Fact%20sheet%204.pdf).
- Department of Environment Regulation (DER) (2013). *A guide to the assessment of applications to clear native vegetation*. Perth. Available from: [https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2\\_assessment\\_native\\_veg.pdf](https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2_assessment_native_veg.pdf).
- Department of Primary Industries and Regional Development (DPIRD) (2019). *NRInfo Digital Mapping. Department of Primary Industries and Regional Development*. Government of Western Australia. URL: <https://maps.agric.wa.gov.au/nrm-info/> (accessed April 2021).
- Department of Water and Environmental Regulation (DWER) (2019). *Procedure: Native vegetation clearing permits*. Joondalup. Available from: [https://dwer.wa.gov.au/sites/default/files/Procedure\\_Native vegetation clearing permits v1.PDF](https://dwer.wa.gov.au/sites/default/files/Procedure_Native_vegetation_clearing_permits_v1.PDF).
- Environmental Protection Authority (EPA) (2003) Greater Bunbury Region Scheme. Bulletin 1109, Environmental Protection Authority, Perth, Western Australia.
- Government of Australia (2009) *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) Policy Statement 3.10 Significant Impact Guidelines for the vulnerable western ringtail possum (Pseudocheirus occidentalis) in the southern Swan Coastal Plain, Western Australia*. Department of the Environment, Water, Heritage and the Arts (DEWHA), now the Department of Agriculture, Water and the Environment (DAWE). Canberra.
- Government of Western Australia (2019a) *2018 South West Vegetation Complex Statistics. Current as of March 2019*. WA Department of Biodiversity, Conservation and Attractions, Perth, <https://catalogue.data.wa.gov.au/dataset/dbca>.
- Government of Western Australia. (2019b) *2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019*. WA Department of Biodiversity, Conservation and Attractions. <https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics>.
- Harewood, G (2020). *Fauna Survey - Waste Recycling Centre - 21 McCombe Road – Davenport*, dated 20 December 2020.
- 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, Atlas of Natural Resources, Darling System, Western Australia.
- Jones, B.A., How, R.A. and Kitchener, D.J. (1994). A Field Study of *Pseudocheirus occidentalis* (Marsupialia: Petauridae). II. Population Studies. *Wildlife Research* 21; 189-201.
- Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, 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*. Department of the Environment and Energy, Canberra.
- Western Australian Herbarium (1998-). *FloraBase - the Western Australian Flora*. Department of Biodiversity, Conservation and Attractions, Western Australia. <https://florabase.dpaw.wa.gov.au/> (Accessed April 2020).