



## CLEARING PERMIT

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

<b>Purpose Permit number:</b>	CPS 8916/1
<b>Permit Holder:</b>	B & J Catalano Pty Ltd
<b>Duration of Permit:</b>	From 3 September 2021 to 3 September 2031

The Permit Holder is authorised to clear *native vegetation* subject to the following conditions of this Permit.

### **PART I – CLEARING AUTHORISED**

**1. Clearing authorised (purpose)**

The Permit Holder is authorised to clear *native vegetation* for the purpose of sand extraction.

**2. Land on which clearing is to be done**

Lot 7 on Plan 40591, Wellesley

**3. Clearing authorised**

The Permit Holder must not clear more than 1.97 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

**4. Period during which clearing is authorised**

The Permit Holder must not clear any *native vegetation* after 3 September 2026.

### **PART II – MANAGEMENT CONDITIONS**

**5. 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.

## 6. 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.

## 7. Retain vegetative material and topsoil, and rehabilitation

- (a) The Permit Holder must retain the vegetative material and topsoil removed by clearing authorised under this Permit and stockpile the vegetative material and topsoil in an area that has already been cleared.
- (b) The Permit Holder must within 12 months of undertaking clearing authorised under this Permit and no later than 3 September 2027, *revegetate* and *rehabilitate* the areas that are no longer required for the purpose for which they were cleared under this Permit by:
  - (i) re-shaping the surface of the land so that it is consistent with the surrounding 5 metres of uncleared land;
  - (ii) ripping the ground on the contour to remove soil compaction; and
  - (iii) laying the vegetative material and topsoil retained under Condition 7(a) on the cleared area.
- (c) The Permit Holder must within 18 months of laying the vegetative material and topsoil on the cleared area in accordance with condition 7(b) of this Permit:
  - (i) engage an environmental specialist to determine the species composition, structure and density of the vegetation of area *revegetated* and *rehabilitated*; and
  - (ii) engage an environmental specialist to make a determination as to whether the composition, structure and density determined under condition 7(c)(i) of this Permit will, without further *revegetation*, result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area.
- (d) If the determination made by the environmental specialist under condition 7(c)(ii) is that the species composition, structure, and density determined under condition 7(c)(i) will not, without further *revegetation*, result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, the Permit Holder must *revegetate* the area by deliberately planting and/or direct seeding *native vegetation* seeds that will result in a similar species composition, structure, and density of *native vegetation* to pre-clearing vegetation types in that area.
- (e) Where additional planting or direct seeding of *native vegetation* is undertaken in accordance with condition 7(d), the Permit Holder must repeat the activities required by condition 7(c) and 7(d) within 12 months of undertaking the additional planting or direct seeding of native vegetation.
- (f) Where a determination is made by an environmental specialist under condition 7(c)(ii) that the composition, structure and density within areas *revegetated* and *rehabilitated* will result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, that determination shall be

submitted to the CEO within three months of the determination being made by the environmental specialist.

### **PART III - RECORD KEEPING AND REPORTING**

#### **8. 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	<ul style="list-style-type: none"> <li>(a) the species composition, structure, and density of the cleared area;</li> <li>(b) 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>(c) the date that the area was cleared;</li> <li>(d) the size of the area cleared (in hectares);</li> <li>(e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 5;</li> <li>(f) actions taken to minimise the risk of the introduction and spread of weeds and dieback in accordance with condition 6.</li> </ul>
2.	In relation to <i>revegetation</i> and <i>rehabilitation</i> of areas pursuant to condition 7 of this permit	<ul style="list-style-type: none"> <li>(a) a description of the <i>revegetation</i> and <i>rehabilitation</i> activities undertaken;</li> <li>(b) the size of the areas <i>revegetated</i> and <i>rehabilitated</i> (in hectares);</li> <li>(c) the date when <i>revegetation</i> and <i>rehabilitation</i> works began; and</li> <li>(d) actions taken in accordance with condition 7(d) to ensure the environmental benefits of <i>revegetation</i> and <i>rehabilitation</i> are achieved.</li> </ul>

#### **9. Reporting**

- (a) The Permit Holder must provide to the *CEO* on or before 30 June of each year, a written report:
  - (i) of records required under condition 8 of this Permit; and
  - (ii) concerning activities done by the Permit Holder under this Permit between 1 January and 31 December of the preceding calendar year.
- (b) If no clearing authorised under this Permit was undertaken between 1 January to 31 December of the preceding calendar year, a written report confirming that no clearing under this Permit has been carried out, must be provided to the *CEO* on or before 30 June of each year.
- (c) Prior to 3 June 2031, the Permit holder must provide to the *CEO* a written report of records required under condition 8 of this Permit, where these records have not already been provided under condition 9(a) of this Permit.

## DEFINITIONS


In this Permit, the terms in Table 2 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.
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.
Dieback	means the effect of <i>Phytophthora</i> species on native vegetation.
Direct seeding	means a method of re-establishing vegetation through establishment of a seed bed and the introduction of seeds of the desired plant species
Environmental specialist	means a person who holds a tertiary qualification in environmental science or equivalent and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit, or who is approved by the CEO as a suitable environmental specialist.
EP act	<i>Environmental Protection Act 1986</i> (WA)
Fill	means material used to increase the ground level, or to fill a depression.
Local provenance	means <i>native vegetation</i> seeds and propagating material from natural sources within 100 kilometres and the same Interim Biogeographic Regionalisation for Australia (IBRA) subregion of the area cleared.
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.
Planting	means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species.
Rehabilitate/ed/ion	means actively managing an area containing native vegetation in order to improve the ecological function of that area
Revegetate/ed/ion	means the re-establishment of a cover of <i>local provenance</i> native vegetation in an area using methods such as natural regeneration, direct seeding and/or planting, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area
Weeds	means any plant – <ol style="list-style-type: none"> <li>(a) that is a declared pest under section 22 of the <i>Biosecurity and Agriculture Management Act 2007</i>; or</li> <li>(b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or</li> <li>(c) not indigenous to the area concerned.</li> </ol>

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## END OF CONDITIONS


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Ryan Mincham  
 MANAGER  
 NATIVE VEGETATION REGULATION

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

11 August 2021



## Schedule 1

The boundary of the area authorised to be cleared is shown in the map below.



**Figure 1: Map of the boundary of the area (cross-hatched yellow) within which clearing may occur.**



# Clearing Permit Decision Report

## 1. Application details and outcome

### 1.1. Permit application details

<b>Permit number:</b>	CPS 8916/1
<b>Permit type:</b>	Purpose permit
<b>Applicant name:</b>	B & J Catalano Pty Ltd (hereafter referred to as Catalano)
<b>Application received:</b>	21 May 2020
<b>Application area:</b>	1.97 hectares of native vegetation
<b>Purpose of clearing:</b>	Sand extraction
<b>Method of clearing:</b>	Mechanical
<b>Property:</b>	Lot 7 on Plan 40591
<b>Localities (suburb/s):</b>	Wellesley
<b>Location (LGA area/s):</b>	Shire of Harvey

### 1.2. Description of clearing activities

The vegetation applied to be cleared is contained within a single contiguous area (see Figure 1, Section 1.5). The application area contains approximately 0.16 hectares of native vegetation in the form of:

- *Corymbia calophylla* (marri)
- *Eucalyptus marginata* (jarrah); and
- *Agonis flexuosa* (peppermint).

The remaining 1.81 hectares of the application area comprise an understorey dominated by paddock grasses (Lundstrom Environmental Consultancy Pty Ltd (hereafter referred to as Lundstrom), 2020).

### 1.3. Decision on application and key considerations

<b>Decision:</b>	Granted
<b>Decision date:</b>	11 August 2021
<b>Decision area:</b>	1.97 hectares of native vegetation, as depicted in Section 1.5, below.

### 1.4. Reasons for decision

In undertaking the assessment, the Delegated Officer had regard for:

- the application area site characteristics (Appendix A)
- the 10 Clearing Principles set out in Schedule 5 of the EP Act (Appendix B)
- the flora species identified within the application area by Lundstrom (2020) (Appendix D)
- relevant datasets available at the time of the assessment (Appendix E)
- other matters considered relevant to the assessment (see Section 2 of this report)
- the decision of Shire of Harvey to grant a development approval and extractive industry licence for the proposed activities.

This clearing permit application was made, submitted, accepted, assessed and determined in accordance with section 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. No public submissions were received.

After consideration of the above information, the Delegated Officer determined that the proposed clearing will impact on native vegetation which provides habitat for conservation significant fauna. Noting the small extent of the proposed clearing, that the local area is highly vegetated and the adjacent vegetation is likely to comprise vegetation in similar or better condition than that present within the application area, the Delegated Officer determined that the fauna habitat is not considered significant in the local context. The Delegated Officer also noted that the impacts of the proposed clearing are only temporary. Permit conditions have been imposed which will require the permit holder to revegetate the application area post-extraction to achieve the pre-clearing composition, structure and density of vegetation within the application area.

Given this, the Delegated Officer has decided to grant a clearing permit subject to the following conditions:

- avoid, minimise to reduce the impact and extent of clearing
- weed and dieback management to minimise the risk of introduction and spread of weeds
- revegetation and rehabilitation to restore the environmental values impacted by the clearing.

The Delegated Officer considered that the impacts of the proposed clearing are unlikely to have any long-term adverse impacts on the environmental values in the local area and that the abovementioned management practices will mitigate any potential impacts.

## 1.5. Site map



Figure 1 The area cross-hatched 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 1.3), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

1. the precautionary principle;
2. the principle of intergenerational equity;
3. the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Aboriginal Heritage Act 1972*
- *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* (December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- *Technical guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016).



### 3. Detailed assessment of application

#### 3.1. Assessment of environmental impacts

In assessing the application in accordance with section 51O of the EP Act, the Delegated Officer has examined the application and site characteristics (Appendix A) and considered whether the clearing poses a risk to environmental values. The assessment against the Clearing Principles is contained in Appendix B.

This assessment identified that the clearing may pose a risk to the environmental values of biological values (fauna) and that these required further consideration. The detailed consideration and assessment of the clearing impacts against the specific environmental values is provided below. Where the assessment found that the clearing presents an unacceptable risk to environmental values, conditions aimed at controlling and/or ameliorating the impacts have been imposed under sections 51H and 51I of the EP Act. These are also identified below.

##### 3.1.1. Environmental value: biological values (fauna) – Clearing Principle (b)

###### Assessment outcomes:

The assessment has identified that the application area is not likely to provide significant habitat for conservation significant fauna.

###### Conditions:

The Delegated Officer has determined that weed and dieback hygiene measures to mitigate the risk of impacts to adjacent native vegetation will adequately mitigate the potential impacts of the proposed clearing on the fauna values and adjacent native vegetation. These requirements have been conditioned on the clearing permit. In addition, to restore the habitat values impacted by the proposed clearing, under a condition of the clearing permit, the permit holder will be required to conduct revegetation activities which will result in a similar species composition, structure and density to that of pre-clearing vegetation types in the application area.

###### Assessment:

Noting the habitat requirements, distribution of the species recorded in the local area (a 10-kilometre radius measured from the perimeter of the application area), the mapped vegetation type, condition of the vegetation within the application area and the species identified within the application area (Lundstrom, 2020), the application area may provide suitable habitat for the following conservation significant fauna species:

- Baudin's cockatoo (*Calyptorhynchus baudinii*)
- Carnaby's cockatoo (*Calyptorhynchus latirostris*)
- Forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*)
- Peregrine falcon (*Falco peregrinus*)
- South-western brush-tailed phascogale (*Phascogale tapoatafa wambenger*)
- Western ringtail possum (*Pseudocheirus occidentalis*).

#### Black cockatoos

The application area is located within the modelled distribution of forest red-tailed black cockatoo (*Calyptorhynchus banksia* subsp. *naso*), Carnaby's cockatoo (*Calyptorhynchus latirostris*) and Baudin's cockatoo (*Calyptorhynchus baudinii*) (collectively referred to as black cockatoos herein this report) (Commonwealth of Australia, 2012). The seasonal movements of black cockatoos mean they require large areas of habitat for breeding, night roosting and foraging, as well as connectivity between these habitats to assist their movement through the landscape (Commonwealth of Australia, 2012). The assessment has considered the impacts of the proposed clearing on all black cockatoo habitat types.

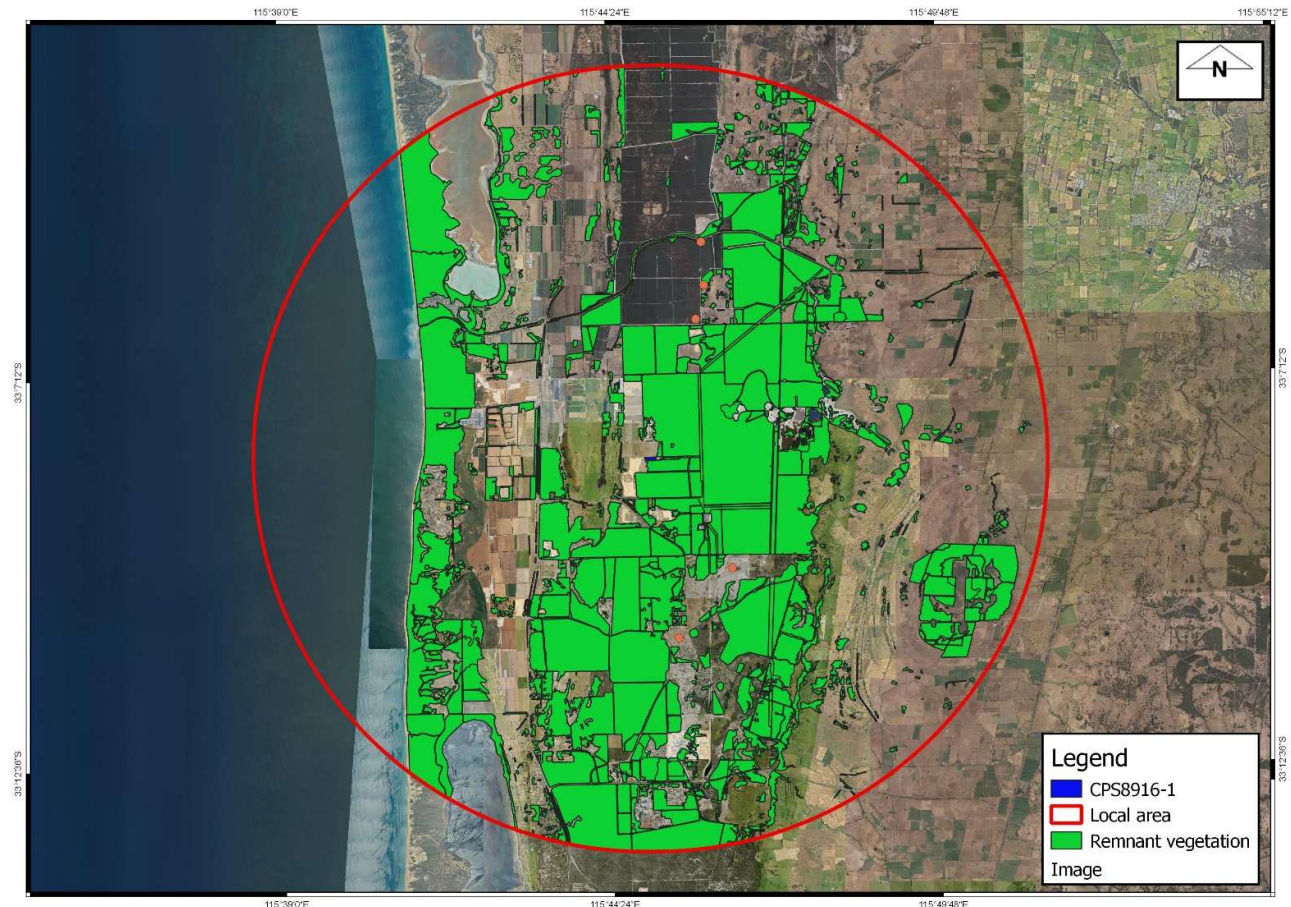
The application area is unlikely to provide suitable breeding habitat for black cockatoos in the form of hollow-bearing trees. Suitable breeding habitat for these species includes trees which either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow. For most tree species a suitable DBH is 500 millimetres (Commonwealth of Australia, 2012). Carnaby's cockatoo typically nests in eucalypt woodlands, primarily in the hollows of wandoo (*Eucalyptus wandoo*), salmon gum (*E. salmonophloia*) and marri (*Corymbia calophylla*) (Groom, 2015). The most important breeding trees for forest red-tailed black cockatoos are large, mature marri trees, approximately 120-150 years in age with a mean overall height of 20.24 metres (Johnston, Kirkby and Sarti, 2013). The survey undertaken by Lundstrom (2020) identified 12 habitat trees within the application area. None of the trees contained hollows and only one tree was over 15 metres in height.

The application area provides foraging habitat for black cockatoos. The foraging habitat requirements for black cockatoos vary dependent on the species. Forest red-tailed black cockatoo forages within jarrah and marri



woodlands and forest, and edges of karri forests including wandoo and blackbutt, within the range of the subspecies. The species largely feeds on seeds of marri and jarrah, as well as other *Eucalyptus* species and *Allocasuarina* cones (Commonwealth of Australia, 2012). Baudin's cockatoo prefers foraging within *Eucalypt* woodlands and forest, and proteaceous woodland and heath. During the breeding season (October to late January/early February) this species has a preference for marri seeds. Outside the breeding season the species may feed in fruit orchards and tips of *Pinus* spp. (Commonwealth of Australia, 2012). Carnaby's cockatoo feeds on the seeds, nuts and flowers of a large variety of plants including Proteaceous species (*Banksia*, *Hakea* and *Grevillea*), as well as *Allocasuarina* and *Eucalyptus* species, *Corymbia calophylla* and a range of introduced species (Valentine and Stock, 2008). On the Swan Coastal Plain, this species primarily utilise *Banksia attenuata*, *B. menziesii*, *B. grandis*, *B. ilicifolia*, *B. sessilis*, *B. prionotes*, marri and jarrah (Shah, 2006).

The application area provides foraging and roosting habitat for black cockatoos, however, does not providing any suitable breeding habitat. Foraging habitat for black cockatoos within seven kilometres of a breeding site is important to adequately support breeding pairs (EPA, 2019). Foraging habitat within six kilometres, with overlapping foraging ranges to 12 kilometres, is important to support night roosting sites and maintain habitat connectivity and movement across the landscape (EPA, 2019). The closest breeding site from the application area is a Carnaby's cockatoo breeding site recorded approximately 14 kilometres north-east of the application area. Five black cockatoo roosting sites occur within six kilometres from the application area. Based on the current mapping of potential black cockatoo foraging habitat within the SCP and Jarrah Forest, there is approximately 10,170.25 hectares available within the local area (Figure 2). The proposed clearing of less than 0.16 hectares of black cockatoo foraging habitat represents approximately 0.0016 per cent of the available habitat.



**Figure 2** Extent of native vegetation within the local area

Significant habitat refers to the resources (breeding, resting and feeding), connectivity or habitat area for a species or community that is critical for its survival. The Australian Department of the Environment (2013) notes that an action is likely to have significant impacts on critically endangered or endangered species, which include black cockatoos, if there is real possibility that it will (including but not limited):

- lead to a long-term decrease in the size of a population

- fragment an existing population into two or more populations
- decrease the availability or quality of habitat to the extent that the species is likely to decline.

Taking this into consideration, the minimal extent of the application area, and with regards to the extent of remnant vegetation in the local area, the application area is unlikely to provide significant habitat for black cockatoos.

Considering the small extent of the application area and that native vegetation within adjacent properties provides similar or better habitat, the proposed clearing is not likely to restrict black cockatoo ability to migrate across the landscape.

#### **Peregrine falcon**

The species is found in most habitats, from rainforests to the arid zone and at most altitudes, from the coast to alpine areas. It requires abundant prey and secure nest sites and prefers coastal and inland cliffs or open woodlands near water and may even be found nesting on high city buildings (Australian Museum, 2020). This species is widespread, highly mobile and is found in various habitats. The application area may comprise suitable habitat for this species, however, noting habitat preferences and the small extent of the proposed clearing, the application area is unlikely to comprise a significant habitat for this species.

#### **Western ringtail possum**

Western ringtail possum (WRP) generally occurs within coastal or near coastal forest that includes peppermint trees (*Agonis flexuosa*) as a major component (Commonwealth of Australia, 2009). Habitat critical to survival for WRP is not well understood but commonly contains high nutrient foliage availability food, suitable structure for protection/nesting and canopy continuity to avoid/escape predation and other threats (Department of Parks and Wildlife (DPaW), 2017). The application area contains two peppermint trees and discontinuous jarrah-marri vegetation. WRPs generally prefer sites with canopy connectivity to provide for movement across the landscape (DPaW, 2017). Immediately adjacent to the application area is approximately 170 hectares of remnant native vegetation considered likely to provide better quality habitat and connectivity. Given this, the application area is not likely to provide significant habitat for WRP.

#### **Southern brush-tailed phascogale**

The preferred habitat for this species in Western Australia is within dry sclerophyll forests and open woodlands that contain hollow bearing trees (Department of Environment and Conservation, 2012). Noting the historical disturbance of the site, lack of a continuous tree canopy linking nearby remnants which would assist this species in avoiding predators and the absence of hollow bearing trees, the application area is unlikely to provide significant habitat for this species.

#### **Ecological linkages**

The application area does not intersect the mapped ecological linkages but occurs approximately 200 metres west of the South West Regional Ecological Linkages mapped by Molloy et. al., (2009). Given the separation distance between this linkage and the application area, the proposed clearing is unlikely to impact on the linkage.

The application area is adjacent to a larger remnant of native vegetation. Therefore, it may be part of an ecological linkage which supports fauna movement across the landscape. However, noting the minimal extent of the proposed clearing lack of a continuous tree canopy, the proposed clearing is unlikely to decrease the effectiveness of the linkage.

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

The Shire of Harvey granted Development Approval and an Extractive Industry Licence on 10 September 2020 and 19 July 2021, respectively.

The application area does not occur within an Aboriginal Site of Significance. 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.

## Appendix A – Site characteristics

The information provided below describes the key characteristics of the area proposed to be cleared and is based on the best information available to DWER at the time of this assessment. This information was used to inform the assessment of the clearing against the Clearing Principles, contained in Appendix B.

### 1. Site characteristics

Site characteristic	Details
Local context	<p>The application area occurs approximately 4.9 kilometres east of the Binningup townsite within the Intensive Land Use Zone of Western Australia. It is mapped in the Swan Coastal Plain IBRA bioregion, Perth sub-bioregion.</p> <p>The proposed clearing area occurs at the edge of an expansive tract of native vegetation which extends to the south and east of the application area. It is surrounded by cleared land to the north and west.</p> <p>Spatial data indicates the local area (approximately 27,512 hectares excluding the ocean) retains approximately 37 per cent of its original native vegetation cover (approximately 10,170 hectares).</p>
Ecological linkages	No ecological linkages intersect the application area. The closest mapped linkage is the South West Regional Ecological Linkage mapped approximately 200 metres east of the application area.
Conservation areas	The application area is not situated within any mapped Bush Forever Sites or DBCA managed lands. Myalup State Forest, which occurs approximately 3.4 kilometres north of the application area, is the nearest conservation area.
Vegetation description	<p>The application area is mapped as the Swan Coastal Plain Karrakatta vegetation complex – Central and South, which is described as predominantly open forest of <i>Eucalyptus gomphocephala</i> – <i>E. marginata</i> - <i>E. calophylla</i> and woodland of <i>E. marginata</i> – <i>Banksia</i> spp. (Hedde <i>et al.</i>, 1980). This vegetation complex retains approximately 24 per cent of its original vegetation cover (Government of WA, 2019).</p> <p>A reconnaissance vegetation survey (Lundstrom, 2020) identified that the vegetation within the application area consists of <i>Corymbia calophylla</i>, <i>Eucalyptus marginata</i> and two <i>Agonis flexuosa</i> individuals.</p> <p>Given the application area does not contain <i>Eucalyptus gomphocephala</i> and <i>Banksia</i> spp. but contains peppermint trees, the vegetation in the application area does not represent the mapped vegetation complex Karrakatta – Central and South.</p>
Vegetation condition	<p>The vegetation is considered to be in a completely degraded (Keighery, 1994) condition (Lundstrom, 2020).</p> <p>The full Keighery (1994) condition rating scale is provided in Appendix C.</p>
Soil description	The proposed clearing area is mapped within Spearwood S1b' Phase soil subsystem, which is described as dune ridges with deep siliceous yellow brown sands or pale sands with yellow-brown subsoil and slopes up to 15 per cent (Department of Primary Industries and Regional Development, 2021).
Land degradation risk	The mapped soils subsystem has low risks of water erosion, salinity, eutrophication and flooding (including waterlogging). The risk of wind erosion is moderate.
Climate and landform	<p>Rainfall: 900 millimetres</p> <p>Evapotranspiration: 1,800 millimetres</p> <p>Groundwater Salinity (Total Dissolved Solids): 500-1000 milligrams per litre total dissolved solids</p>
Waterbodies	<p>No watercourses transect the application area. The closest watercourses is a man-made drain approximately two kilometres northwest of the application area.</p> <p>The application area does not occur within mapped wetlands. The closest mapped wetland is a Multiple Use Wetland (unique feature identifies 5728) mapped approximately 685 metres west of the application area.</p>

Site characteristic	Details
Hydrogeography	The application area is: <ul style="list-style-type: none"> <li>mapped within a proclaimed South West Coastal Groundwater Area</li> <li>not mapped within a proclaimed Surface Water Area</li> <li>not mapped within Public Drinking Water Source Areas</li> </ul>
Flora	According to available databases: <ul style="list-style-type: none"> <li>six flora species listed as Threatened under the BC Act; and</li> <li>40 Priority listed flora by DBCA have been recorded within the local area.</li> </ul> <p>Noting the vegetation identified within the application area (Lundstrom, 2020) and its condition, the application area is unlikely to provide suitable habitat for the recorded species.</p>
Fauna	According to available databases, 41 conservation significant fauna species have been recorded within the local area (DBCA, 2007). Given the boundary of the local area overlaps the ocean, a number of the recorded species are exclusively associated with marine, estuarine or freshwater habitats that do not occur within the application area. Noting the habitat requirements, distribution of the recorded species, the mapped vegetation type, the condition of the vegetation within the application area, it was considered that the application area is likely to comprise suitable habitat for: <ul style="list-style-type: none"> <li>Baudin's cockatoo (<i>Calyptorhynchus baudinii</i>)</li> <li>Carnaby's cockatoo (<i>Calyptorhynchus latirostris</i>)</li> <li>Forest red-tailed black cockatoo (<i>Calyptorhynchus banksii naso</i>)</li> <li>Peregrine falcon (<i>Falco peregrinus</i>)</li> <li>South-western brush-tailed phascogale (<i>Phascogale tapoatafa wambenger</i>)</li> <li>Western ringtail possum (<i>Pseudocheirus occidentalis</i>).</li> </ul>
Ecological communities	According to available databases the following conservation significant ecological communities occur within the local area: <ul style="list-style-type: none"> <li>Three ecological communities which are listed as threatened under the BC as well as the EPBC Act</li> <li>Three ecological communities which are listed as threatened under the EPBC Act and priority by DBCA</li> <li>One state listed priority ecological community.</li> </ul> <p>The native vegetation in the application area does not represent the threatened and priority ecological communities mapped in the local area.</p>

## 2. Flora, fauna and ecosystem analysis

Given the application area contains jarrah, marri and peppermint trees over degraded understorey dominated by paddock grasses, the application area is not likely to provide habitat for conservation significant flora or contain native vegetation which represents threatened or priority ecological communities.

With consideration for the site characteristics set out above, relevant datasets (see Appendix E), and the vegetation assessment (Lundstrom, 2020), the following conservation significant fauna species may be impacted by the clearing.

Species name	Conservation status	Suitable habitat features?	Distance of closest record (km)	Are surveys adequate to identify?
Baudin's cockatoo	EN	Yes	8.1	No
Carnaby's cockatoo	EN	Yes	1.9	No
Forest red-tailed black cockatoo	VU	Yes	2.4	No
Peregrine falcon	OS	Yes	5.6	No
South-western brush-tailed phascogale, wambenger	CD	Yes	1.3	No
Western ringtail possum, ngwayir	CR	Yes	2.5	No

CR: critically endangered, EN: endangered, VU: vulnerable, CD: Conservation dependent fauna, OS: Other specially protected fauna

### 3. Vegetation extent

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).

	Pre-European extent (ha)	Current extent (ha)	Vegetation extent remaining (%)	Current extent in all DBCA managed land (ha)	% current extent in all DBCA managed land (proportion of pre-European extent)
<b>IBRA bioregion</b>					
Swan Coastal Plain	1,501,221.93	579,813.47	38.62	222,916.97	14.85
<b>Vegetation complex</b>					
Karrakatta Complex – Central and South	53,080.99	12,467.20	23.49	4,282.73	8.07
<b>Local area</b>					
10-kilometre radius	27,511.97	10,170.25	36.97	-	-



## 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> <i>“Native vegetation should not be cleared if it comprises a high level of biodiversity.”</i></p> <p><u>Assessment:</u></p> <p>According to Lundstrom (2020) the application area comprises jarrah, marri and peppermint trees over a completely degraded (Keighery, 1994) understory dominated by paddock grasses. The proposed clearing area is unlikely to contain locally or regionally significant flora, fauna, habitats, assemblages of plants.</p>	Not Likely to be at variance	Yes
<p><u>Principle (b):</u> <i>“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.”</i></p> <p><u>Assessment:</u></p> <p>The application area contains habitat for conservation significant fauna. No black cockatoo hollow-bearing trees were recorded within the application area (Lundstrom, 2020).</p>	May be at variance	Yes Refer to Section 3.2.1, above.
<p><u>Principle (c):</u> <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p><u>Assessment:</u></p> <p>Given the completely degraded (Keighery, 1994) understory within the application area dominated by paddock grasses, the application area is unlikely to provide habitat for flora species listed as threatened under the BC Act.</p>	Not likely to be at variance	No
<p><u>Principle (d):</u> <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><u>Assessment:</u></p> <p>The proposed clearing area does not contain species composition indicative of a TEC listed by the Western Australian Minister for Environment.</p>	Not likely to be at variance	No
<b>Environmental values: significant remnant vegetation and conservation areas</b>		
<p><u>Principle (e):</u> <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><u>Assessment:</u></p> <p>The extent of the native vegetation in the local area is consistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation in the application area does not represent the mapped vegetation complex Karrakatta – Central and South which has been extensively cleared.</p>	Not likely to be at variance	No
<p><u>Principle (h):</u> <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><u>Assessment:</u></p>	Not likely to be at variance	No

Assessment against the Clearing Principles	Variance level	Is further consideration required?
<p>Given the separation distance between the application area the nearest conservation area, the proposed clearing is unlikely to have an impact on the environmental values of adjacent or nearby conservation areas.</p>		
<p><b>Environmental values: land and water resources</b></p>		
<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></p> <p>Given no watercourses or wetlands are recorded within or adjacent to the proposed clearing area, the clearing is unlikely to impact on- or off-site hydrology and water quality.</p>	<p>Not likely to be at variance</p>	<p>No</p>
<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></p> <p>The mapped soils are susceptible to wind erosion. Noting the small extent of the proposed clearing and the condition of the vegetation, the proposed clearing is not likely to cause appreciable land degradation.</p>	<p>Not likely to be at variance</p>	<p>No</p>
<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></p> <p>Noting the extent and condition of the vegetation proposed to be cleared, the proposed clearing is not likely to cause deterioration in the quality of surface or underground water.</p>	<p>Not likely to be at variance</p>	<p>No</p>
<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></p> <p>The mapped soils and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding.</p>	<p>Not likely to be at variance</p>	<p>No</p>

### 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.

#### 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 F – Species identified within the application area**



**Figure 3** Flora survey area (Lundstrom, 2020)

Numbering	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
A	<i>Corymbia calophylla</i>	3	50 to 100	None	NA	No Signs	No Signs	No	
B	<i>Corymbia calophylla</i>	4	<50	None	NA	No Signs	No Signs	No	Multiple trunks
C	<i>Agonis flexuosa</i>	6	<50	NA	NA	NA	NA	NA	Multiple trunks. No other signs of fauna useage
D	<i>Agonis flexuosa</i>	3	<50	NA	NA	NA	NA	NA	
E	<i>Eucalyptus marginata subsp. marginata?</i>	3	<50	NA	NA	NA	NA	NA	
F	<i>Corymbia calophylla</i>	4	<50	None	NA	No Signs	No Signs	No	
G	<i>Corymbia calophylla</i>	4	<50	None	NA	No Signs	No Signs	No	

**Figure 4a** List of species identified within the application area (Lundstrom, 2020)



H	<i>Corymbia calophylla</i>	7	50 to 100	None	NA	No Signs	No Signs	No	
I	<i>Eucalyptus marginata</i>	15+	>100	NA	NA	No Signs	No Signs	NA	
J	<i>Corymbia calophylla</i>	2.5	<50	None	NA	No Signs	No Signs	No	
K	<i>Corymbia calophylla</i>	3	<50	None	NA	No Signs	No Signs	No	
L	<i>Corymbia calophylla</i>	3	<50	None	NA	No Signs	No Signs	No	
M	<i>Corymbia calophylla</i>	2.5	<50	None	NA	No Signs	No Signs	No	
N	<i>Corymbia calophylla</i>	1.5	<50	None	NA	No Signs	No Signs	No	
O	<i>Corymbia calophylla</i>	15	>100	None	NA	No Signs	No Signs	No	Multiple trunks
P	<i>Corymbia calophylla</i>	4	<50	None	NA	No Signs	No Signs	No	
Q	<i>Corymbia calophylla</i>	6	<50	None	NA	No Signs	No Signs	No	
R	<i>Corymbia calophylla</i>	6	<50	None	NA	No Signs	No Signs	No	
S	<i>Corymbia calophylla</i>	2	<50	None	NA	No Signs	No Signs	No	
T	<i>Corymbia calophylla</i>	5	<50	None	NA	No Signs	No Signs	No	
U	<i>Corymbia calophylla</i>	6	<50	None	NA	No Signs	No Signs	No	
V	<i>Corymbia calophylla</i>	3	<50	None	NA	No Signs	No Signs	No	
W	<i>Corymbia calophylla</i>	3	<50	None	NA	No Signs	No Signs	No	
X	<i>Corymbia calophylla</i>	2.5	<50	None	NA	No Signs	No Signs	No	
Y	<i>Corymbia calophylla</i>	5	<50	None	NA	No Signs	No Signs	No	
Z	<i>Corymbia calophylla</i>	3	<50	None	NA	No Signs	No Signs	No	
Za	<i>Corymbia calophylla</i>	3	<50	None	NA	No Signs	No Signs	No	
Zb	<i>Corymbia calophylla</i>	2.5	<50	None	NA	No Signs	No Signs	No	

Figure 4b List of species identified within the application area (Lundstrom, 2020)

## Appendix G – References and databases

### 1. GIS datasets

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

- Aboriginal Heritage Places (DPLH-001)
- Cadastre Address (LGATE-002)
- 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)
- IBRA Vegetation Statistics
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Regional Parks (DBCA-026)
- Soil and Landscape Mapping – Best Available

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

### 2. References

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