



## CLEARING PERMIT

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

<b>Purpose Permit number:</b>	CPS 10402/1
<b>Permit Holder:</b>	Shire of Kellerberrin
<b>Duration of Permit:</b>	From 20 December 2024 to 20 December 2029

### ADVICE NOTE

Regarding condition 8, it is noted that the permit holder has allocated 2.83 hectares of its banked offset site at Lot 19082 on Deposited Plan 403044, Kellerberrin (Crown Reserve R14411), for this project. The nominated 2.83-hectare area contains suitable foraging habitat for Carnaby's cockatoo (*Zanda latirostris*), and native vegetation in a very good (Keighery, 1994) condition.

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 road and drainage upgrades.

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

Doodlakine South road reserve (PIN 11648591), South Doodlakine  
Doodlakine South road reserve (PIN 11648592), South Doodlakine

#### 3. Clearing authorised

The permit holder must not clear more than 0.99 hectares of native vegetation within the combined areas cross-hatched yellow in Figure 1A, Figure 1B and Figure 1C of Schedule 1.

### PART II – MANAGEMENT CONDITIONS

#### 4. 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.

## 5. Weed 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*:

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

## 6. Directional clearing

The permit holder must conduct clearing activities in a slow, progressive manner in a single direction towards adjacent *native vegetation* to allow fauna to move into adjacent *native vegetation* ahead of the clearing activity.

## 7. Fauna management – black cockatoo (avoidance of trees)

The permit holder must not clear the ten (10) *black cockatoo habitat trees* highlighted in green in Figure 1 of Schedule 2 and list in Table 1 below.

Table 1: Habitat trees to be retained.

ID	Species	Easting	Northing
2129	<i>Eucalyptus salubris</i>	586162.6	6491333
2138	<i>Eucalyptus salmonophloia</i>	586239.0	6491677
2150	<i>Eucalyptus salmonophloia</i>	586411.3	6492520
2153	<i>Eucalyptus salmonophloia</i>	586403.9	6492610
2155	<i>Eucalyptus salubris</i>	586399.3	6492676
2158	<i>Eucalyptus salmonophloia</i>	586383.5	6492859
2166	<i>Eucalyptus salmonophloia</i>	586374.9	6492984
2167	<i>Eucalyptus salmonophloia</i>	586372.4	6493039
2170	<i>Eucalyptus loxophleba</i>	586365.0	6493121
2171	<i>Eucalyptus loxophleba</i>	586359.6	6493199

## 8. Offset – Management Order

Prior to 20 December 2025, the permit holder must provide to the *CEO* a copy of the amended management order, from the purpose of ‘gravel’ to ‘conservation’, for the area cross-hatched red on Figure 2 of Schedule 2, within Lot 19082 on Deposited Plan 403044 (Crown Reserve R14411).

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

### **9. 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 2.

**Table 2: Records that must be kept**

<b>No.</b>	<b>Relevant matter</b>	<b>Specifications</b>
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 GDA2020, 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 4;</li> <li>(f) actions taken to minimise the risk of the introduction and spread of <i>weeds</i> in accordance with condition 5;</li> <li>(g) actions taken to retain the 10 <i>black cockatoo habitat trees</i> in accordance with condition 7;</li> </ul>
2.	In relation to offset in accordance with condition 8 of this permit.	(a) evidence of the executed change in purpose of Crown Reserve R14411 in accordance with condition 8.

### **10. Reporting**

The permit holder must provide to the *CEO* the records required under condition 9 of this permit when requested by the *CEO*.

## **DEFINITIONS**

In this permit, the terms in Table 3 have the meanings defined.

**Table 3: Definitions**

<b>Term</b>	<b>Definition</b>
black cockatoo habitat trees	means trees that have a diameter, measured at 130 centimetres from the base of the tree, of 50 centimetres or greater (or 30 centimetres or greater for <i>Eucalyptus salmonophloia</i> or <i>Eucalyptus wandoo</i> ) that contain hollows suitable for breeding by black cockatoo species.

Term	Definition
black cockatoo species	means one or more of the following species: (a) <i>Zanda latirostris</i> (Carnaby's cockatoo); (b) <i>Zanda baudinii</i> (Baudin's cockatoo); and/or (c) <i>Calyptorhynchus banksii naso</i> (forest red-tailed black cockatoo).
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.
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.

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**END OF CONDITIONS**


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 Jessica Burton  
 A/MANAGER  
 NATIVE VEGETATION REGULATION

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

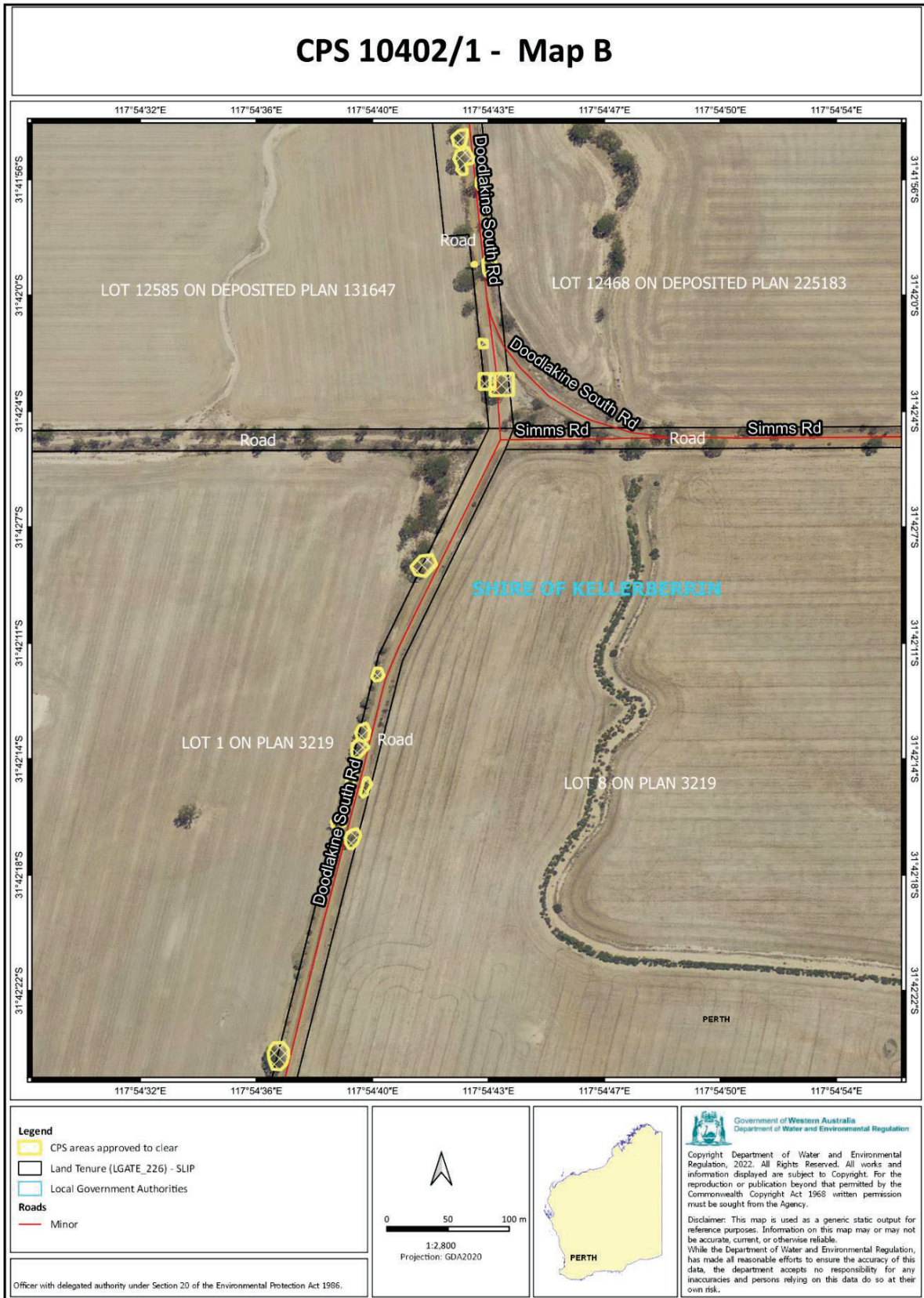
27 November 2024

# Schedule 1

The boundary of the areas authorised to be cleared is shown in the maps below (Figure 1A, Figure 1B and Figure 1C).



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



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



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

# Schedule 2



Figure 1. Map of *Black Cockatoo* habitat trees to be retained (outlined in green).





**Figure 2: Map of the boundary of the area within which condition 8 applies (cross-hatched red)**



# Clearing Permit Decision Report

## 1 Application details and outcome

### 1.1. Permit application details

<b>Permit number:</b>	CPS 10402/1
<b>Permit type:</b>	Purpose permit
<b>Applicant name:</b>	Shire of Kellerberrin
<b>Application received:</b>	01 November 2023
<b>Application area:</b>	0.99 hectare of native vegetation
<b>Purpose of clearing:</b>	Road and drainage upgrades
<b>Method of clearing:</b>	Mechanical
<b>Property:</b>	Doodlakine South Road reserve (PINs 11648592 and 11648591)
<b>Location (LGA area/s):</b>	Shire of Kellerberrin
<b>Localities (suburb/s):</b>	South Doodlakine

### 1.2. Description of clearing activities

The Shire of Kellerberrin is proposing to undertake the clearing of 0.99 hectares of native vegetation within a clearing footprint of 1.1 hectares. The clearing is within the Doodlakine South Road reserve (PINs 11648592 and 11648591), South Doodlakine for the purpose of facilitating road and drainage upgrades to improve road safety. The proposed clearing is distributed across multiple separate areas along Doodlakine South Road reserve (see Figure 1, Section 1.5).

### 1.3. Decision on application

<b>Decision:</b>	Granted
<b>Decision date:</b>	27 November 2024
<b>Decision area:</b>	0.99 hectare of native vegetation within a clearing footprint of 1.1 hectares, 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 F.1), the findings of a vegetation and flora survey, 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 Delegated Officer also took into consideration the purpose of the clearing to upgrade a road of regional significance to improve public safety.

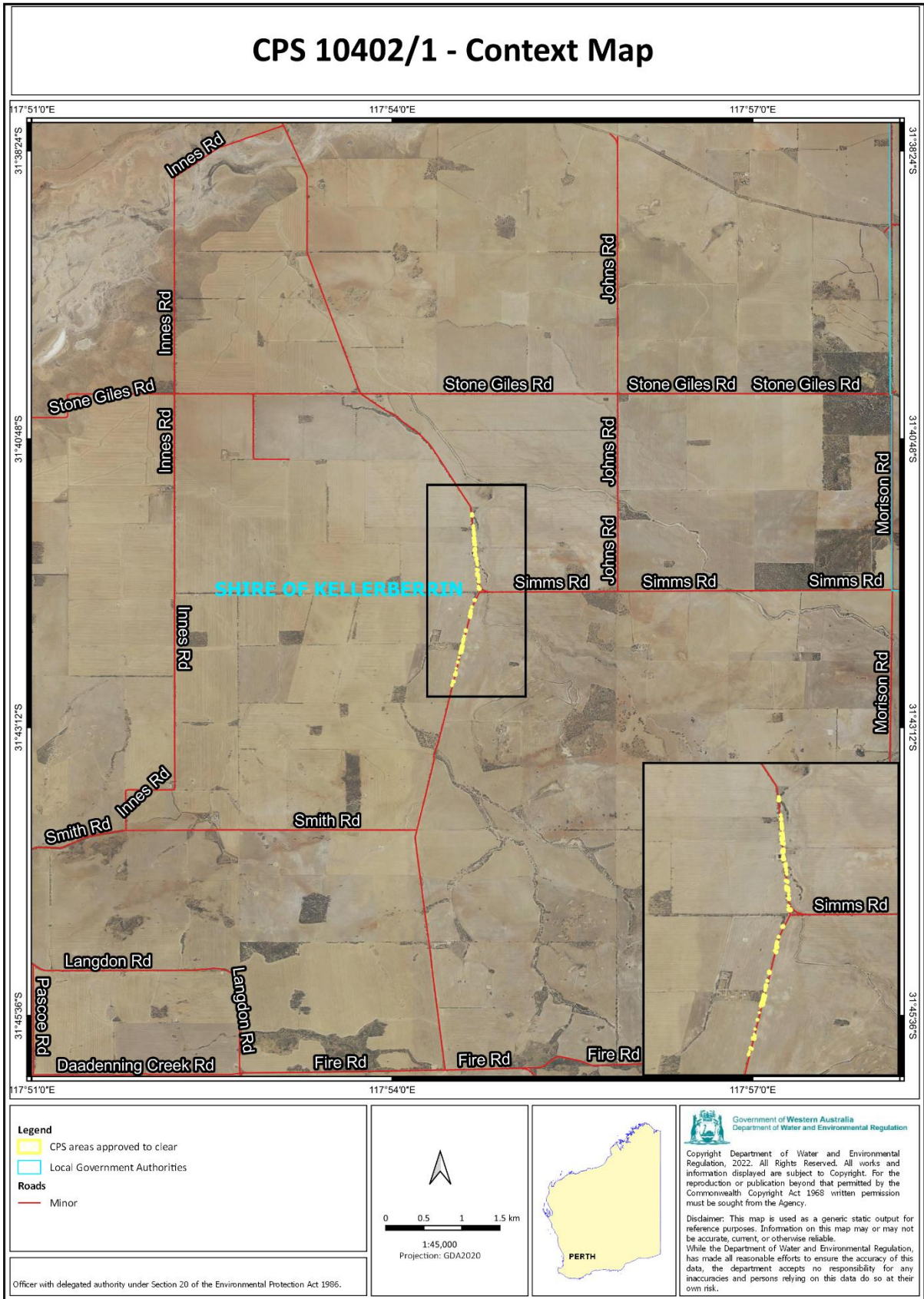
The assessment identified that the proposed clearing will result in the loss of native vegetation that represents a significant remnant of native vegetation in an area that has been extensively cleared area. The proposed clearing

may also result the removal of significant black cockatoo habitat, and the introduction and spread of dieback and weeds into surrounding areas.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined that the environmental impacts of the proposed clearing can be minimised and managed to be unlikely to lead to an unacceptable risk to environmental values. The Delegated Officer decided to grant a clearing permit subject to the following conditions:

- avoid, minimise to reduce the impacts and extent of clearing;
- implement slow directional clearing to allow fauna to move into adjacent vegetation ahead of the clearing activity;
- provide an offset to counterbalance the significant residual impacts to 0.99 hectares of native vegetation representing a significant remnant of native vegetation in an area that has been extensively cleared and 0.31 hectares of native vegetation representing significant black cockatoo habitat (see Section 4 and Figure 5); and
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback into adjacent areas of native vegetation.

1.5. Site maps



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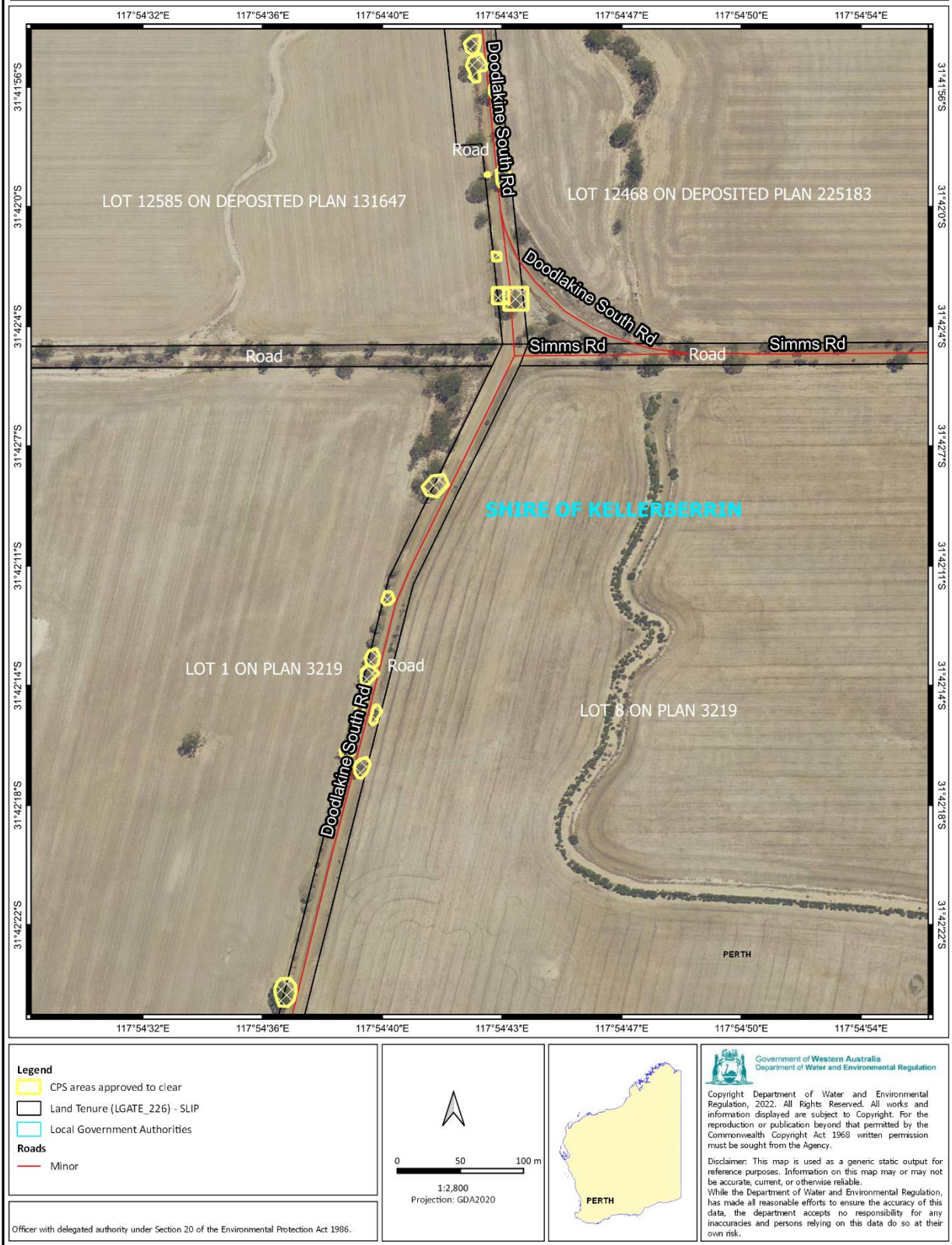
Figure 1: Context map of the application area. The area crosshatched yellow indicates the area authorised to be cleared under the granted clearing permit.



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Figure 2: Map A of the application area the area crosshatched yellow indicates the area authorised to be cleared under the granted clearing permit.

# CPS 10402/1 - Map B



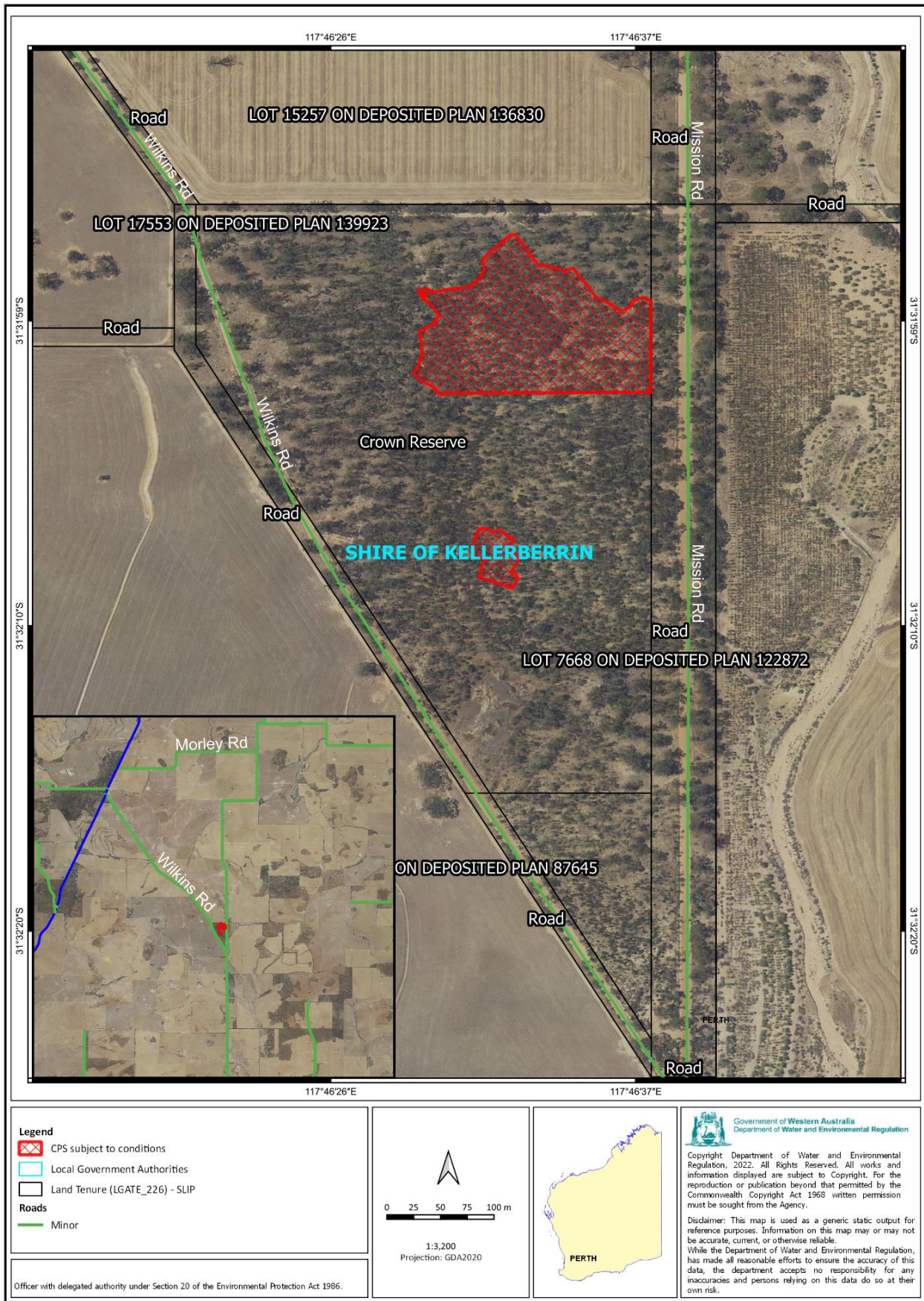
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Figure 3: Map B of the application area the area crosshatched yellow indicates the area authorised to be cleared under the granted clearing permit.



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Figure 4: Map C of the application area the area crosshatched yellow indicates the area authorised to be cleared under the granted clearing permit.



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Figure 5: Map of the offset area location within Lot 19082 on Deposited Plan 403044 (Crown Reserve R14411).



## 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 polluter pays principle
- 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)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Planning and Development Act 2005* (WA) (P&D Act)

Relevant policies considered during the assessment include:

- *Environmental Offsets Policy* (2011)

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)
- *Environmental Offsets Guidelines* (August 2014)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2016)

## 3 Detailed assessment of application

### 3.1. Avoidance and mitigation measures

To reduce the amount of clearing required, the Shire of Kellerberrin have reduced the final constructed road width from 19 metres to 17 metres during the design phase of the project. This decision allowed the surrounding vegetation, including approximately ten trees (two *Eucalyptus loxophleba*, six *Eucalyptus salmonophobia*, and two *Eucalyptus salubris*) and accompanying vegetation, to be avoided.

The Shire of Kellerberrin has marked trees to be retained on site and will avoid clearing them during construction. The proposed clearing area, excluding vegetation marked for retention, is shown in the combined Figure 2, Figure 3 and Figure 4. Habitat trees proposed for retention and proposed for clearing are shown in Figure 6 and 7.

After consideration of avoidance and mitigation measures, it was determined that an offset is required to counterbalance the significant residual impacts to significant remnant native vegetation in an area that has been extensively cleared, as well as suitable Carnaby's cockatoo habitat. An offset has been provided in accordance with the Government of Western Australia's Environmental Offsets Policy and Environmental Offsets Guidelines.

The Delegated Officer was satisfied that the applicant had made a reasonable effort to avoid and minimize the potential impacts of the proposed clearing on environmental values.



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Figure 6: Map of the application area with trees to be retained in green and trees to be cleared in blue.



Figure 7: Map of the application area with trees to be retained in green and trees to be cleared in blue.

### 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 **Error! Reference source not found.**) identified that the impacts of the proposed clearing present a risk to biological values (fauna) and significant 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 (biodiversity and fauna) - Clearing Principles (a & b)

##### Assessment

The application area is located within the Shire of Kellerberrin within the wheatbelt bioregion. Photographs supplied by the applicant indicate the vegetation within the proposed clearing area is in degraded (Keighery, 1994) condition,

A targeted declared rare or priority flora survey of the application area conducted on the 9<sup>th</sup> of October 2023, determined that there were no significant landscape features within the application area. The vegetation structure was found to have been disrupted due to historical clearing, resulting in an area predominantly containing remnant trees, with minimal native understorey remaining. As a result of past disturbances and weed invasion, small to medium native species were found to be mostly absent from the survey area. Notable exceptions include (*Acacia enervia* subsp. *enervia*, *Grevillea paniculata*, *Eremophila drummondii*, and *Melaleuca hamata*) all of which are common species found from one or two occurrences within the application area. No Threatened or Priority flora species, recorded within 25 kilometres of the application area, were found within the survey area (Shire of Kellerberrin, 2023b). The vegetation consisted of *Eucalyptus salmonophloia* (Salmon Gum) – *Eucalyptus salubris* (Gimlet), *Eucalyptus capillosa* (Wheatbelt Wandoo), and *Eucalyptus Loxophleba* (York Gum) which is likely to provide suitable habitat for local fauna species (see Appendix E).

According to available database, seven conservation significant fauna species have been recorded within the local area comprising of one Priority 4, three Endangered, and three Vulnerable fauna taxa. Noting the habitat requirements, the distribution of the recorded species, the mapped vegetation types, and the condition of the vegetation within the application area, the application area may comprise of suitable habitat for *Zanda latirostris* (Carnaby's cockatoo).

##### **Carnaby's Cockatoo**

The habitat of Carnaby's Cockatoos can be categorized into three distinct groups: foraging, breeding, and roosting. Carnaby's Cockatoos typically forage within a 12-kilometre radius of their active breeding site (Commonwealth of Australia, 2022). Following breeding, they will flock in search of food sources within six kilometres of their night roost (Commonwealth of Australia, 2022). However, they may travel up to 20 kilometres or more (Commonwealth of Australia, 2022). To maintain their population, it is crucial to have an abundance of food resources within the range of breeding and roosting sites. Consequently, foraging resources are evaluated based on known breeding and night roosting sites, primarily within 12 kilometres of a breeding or roosting site (Commonwealth of Australia, 2022).

The application area is located within the extreme north-eastern edge of the modelled breeding range of Carnaby's Cockatoo. The range of the species has contracted west and south from its former range. Available databases indicate that no breeding or roosting sites have been recorded within 20 kilometres of the application area and just two records have been made within the local area; one from 1975 and one from 1979.

##### Breeding Habitat

Black cockatoo species are known to nest in hollows of live in dead trees, including *Corymbia calophylla* (Marri), *Eucalyptus marginata* (Jarrah), *Eucalyptus diversicolor* (Karri), *Eucalyptus wandoo* (Wandoo), *Eucalyptus gomphocephala* (Tuart), *Eucalyptus rudis* (Flooded gum), and other *Eucalyptus* spp. (Commonwealth of Australia, 2022). 'Breeding habitat' for black cockatoos includes trees of these species that either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow, where suitable DBH for nest hollows is  $\geq 50$  centimetres for most tree species (Commonwealth of Australia, 2022).

During the assessment of potential breeding habitat, all trees within the application area that had a DBH >300mm were measured and assessed for evidence of Carnaby's breeding habitat. Of all the trees assessed, 48 had no hollows, eight had small hollows otherwise unsuitable for Carnaby's cockatoo breeding and one had hollows of a suitable size for black cockatoos however on inspection with a pole camera was determined not to be suitable. All remaining hollows were checked with a pole camera and there was no sign of past or current breeding activity by black cockatoos. Several non-black cockatoo bird species were recorded to be nesting within the application area including a *Falco cenchroides* (Nankeen kestrel) found in a Salmon Gum hollow, four *Eolophus roseicapilla* (Galah) within Salmon Gums, three occurrences of *Barnardius zonarius* (Australian Ringneck) in Salmon Gums and a single *Manorina flavigula* (Yellow-throated Miner) within a Salmon Gum hollow. All species found were classified as least concern conservation status. Furthermore, one hollow was occupied by a bee colony (*Apis mellifera*) (Shire of Kellerberrin, 2023a). Given these findings, it is not considered for suitable breeding habitat for Carnaby's cockatoo to occur within the application area, however the vegetation is likely to provide important habitat for local fauna given the extensively cleared local landscape.

#### Foraging Habitat

Carnaby's cockatoos forage on a variety of seeds, nuts, flowers, and plants, including *Proteaceous* species (*Banksia* spp., *Hakea* spp., and *Grevillea* spp.), as well as *Allocasuarina* and *Eucalyptus* species, marri, and a range of introduced species (Valentine & Stock, 2008).

The eucalypt canopy of the application area provides potential foraging habitat for Carnaby's cockatoo consisting of 0.31 hectares of Salmon Gum, Wheatbelt Wandoo, and York Gum, all species that provide both primary and secondary foraging habitat for Carnaby's cockatoo.

In consideration of the lack of Carnaby's cockatoo records from the local area, that known roost sites and breeding sites are beyond the recognised 'foraging distance' for Carnaby's cockatoo, and that the application area provides a scattered foraging resource, it is unlikely that the foraging habitat present in the application would be utilised by roosting or breeding Carnaby's cockatoo populations.

#### Roosts

Following breeding, Black cockatoos will assemble into flock and move through the landscape searching for suitable food resources, usually foraging within 6 kilometres of a night roost (Commonwealth of Australia 2022). Black cockatoo species will utilise a wide range of native and non-native trees situated within a variety of land-use types to roost and will usually roost in tall (average of >25 metres) trees species that have a relatively thick trunk (DBH of 1 metre) and medium foliage density (average of 50%) (Le Roux, 2017). According to available databases, there are no roosts sites recorded within a 12-kilometre radius of the application area. The closest known roost site for black cockatoo species is approximately 36.50 kilometres from the application area. Roosting typically occurs within suitable trees that are in close proximity to an important water source and within an area of quality foraging habitat (Commonwealth of Australia, 2022).

Due to the lack of local records, the lack of nearby watering sources and the scattered available foraging habitat within the application area, it is not considered likely to be utilised as a roosting site.

#### Conclusion

Based on the above assessment, the proposed clearing will result in the loss of 0.31 hectares of native vegetation, which provides moderate foraging habitat value for black cockatoo species.

In consideration of the application area's location, lack of records, and that known roost and breeding sites are beyond the recognised 'foraging distance' for Carnaby's cockatoo, it is unlikely that the foraging habitat present is currently utilised by roosting or breeding Carnaby's cockatoo populations. Considering the mobility of the species, the foraging resource has the potential to be utilised if breeding or roosting occurs within 20 kilometres of the application area.

The proposed clearing intersects patches of native vegetation in the surrounding area and provides an ecological linkage for the movement of local fauna species through an extensively cleared landscape. The proposed clearing is likely to contribute to the fragmentation of this linkage. In addition, the introduction or spread of weed species through clearing activities may compromise the condition of adjacent habitat.

### Conditions

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

- undertake slow, progressive one-directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity;
- avoid the 10 eucalyptus trees proposed to be retained;
- avoidance and minimisation to reduce the impacts and extent of clearing; and
- provide an offset to counterbalance the significant residual impacts to 0.351 hectares of moderate Carnaby's cockatoo foraging habitat.

### **3.2.2. Significant remnant vegetation and conservation areas (extensively cleared) - Clearing Principles (e)**

#### Assessment

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).

The local area (10 kilometre radius) retains approximately 8.42 per cent of its pre-European vegetation, Additionally the application is mapped within the MT. Caroline\_1023 Complex which retains approximately 5.70 per cent of its pre-European extent.

The MT. Caroline\_1023 Complex is described as Wheatbelt; York gum, salmon gum etc. *Eucalyptus loxophleba*, *E. salmonophloia*. Goldfields; gimlet, redwood etc. *E. salubris*, *E. oleosa*. Riverine; rivergum *E. camaldulensis*. Tropical; messmate, woolyb. While the vegetation within the application area is considered to be in degraded condition (Keighery, 1994), the presence of Salmon Gum, Wheatbelt Wandoo, and York Gum within the proposed clearing area indicates that there may be some affinity with the mapped vegetation type.

The areas surrounding the application area are largely cleared agricultural lands with small remnants scattered throughout. The trees proposed to be cleared is likely to facilitate the movement of local fauna species into surrounding remnants by acting as 'stepping stones' or 'ecological linkage' within an extensively cleared landscape.

#### Conclusion

Based on the above assessment, the proposed clearing will result in the loss of significant remnant vegetation within an extensively cleared area.

#### Conditions

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

- Avoid, minimise to reduce the impacts and extent of clearing;
- Take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback into adjacent areas of native vegetation.
- Provide an offset to counterbalance the significant residual impacts to 0.99 hectares of native vegetation representing a significant remnant of native vegetation in an area that has been extensively cleared.

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

The proposed clearing is confined to the Road Reserve, zoned as a Local Road, and the applicant has access and authorisation to undertake the upgrade works proposed.

The application area is located within the Avon River System, a proclaimed surface water area under the *Rights in Water and Irrigation Act 1914* (RIWI Act). The application area does not intersect any watercourses.

No 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.

## 4 Suitability of offsets

### Avoidance and Mitigation

The Delegated Officer is satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values (Section 3.1).

### Assessment of Impacts

An assessment of the impacts of the clearing area includes the loss of:

- 0.31 hectares of native vegetation that is considered suitable foraging habitat for Carnaby's cockatoos; and
- 0.99 hectares of native vegetation that is a significant remnant within an extensively cleared landscape.

### Offset Background

The applicant has a banked offset within the Crown Reserve R14411 (Lot 19082 on plan 403044). This offset was submitted and approved by the DWER on 4th April 2022, under clearing permit CPS 8590/1. The applicant considers that the Reserve R14411 is a viable option as an offset to counterbalance the significant residual impacts resulting from the proposed clearing. Based on the results of a vegetation survey, the offset site was considered suitable for offsetting native vegetation that is a significant remnant within an extensively cleared landscape and provides foraging value to the Carnaby's cockatoos (Copeland, 2023). The vesting of the reserve was changed from a 'gravel' reserve to a 'conservation' reserve as per the condition requirements imposed on Clearing Permit CPS 8590/1.

The applicant's banked offset site Crown Reserve R14411, is a 20.6 hectares lot with approximately 19.8 hectares of remnant vegetation and has been used by the applicant as an offset for two current clearing permits. A total of 9.01 hectares has been committed as an offset for clearing under Clearing Permit 8590/1 and 4.91 hectares for Clearing Permit 9674/1. A total of 5.88 hectares of suitable foraging habitat for black cockatoos remains unallocated within the banked offset site.

### Offset

The applicant submitted an offset proposal to utilise sections of the remaining 5.88 hectares of Crown Reserve R14411, submitting an offset area of 2.83 hectares of native vegetation (see Figure 8). In assessing whether the proposed offset is adequately proportionate to the significance of the environmental values being impacted, calculations using the WA Offset Metric Calculator were undertaken. Calculating the required extent of the offset area to counterbalance the residual impacts of the proposed clearing to Carnaby's cockatoo foraging habitat and vegetation within an extensively cleared area are based on acquisition and long-term security.

The calculated outputs and value justifications are provided under Appendix D.

The calculations have identified that:

- to offset clearing of 0.99 hectares of native vegetation within an extensively cleared area, conservation of 2.83 hectares of native vegetation in very good to excellent (Keighery, 1994) condition is required.
- to offset clearing of approximately 0.31 hectares of black cockatoo foraging habitat, conservation of 2.20 hectares of Carnaby's cockatoo foraging habitat is required.

Given the above, the offset proposed by the applicant adequately counterbalances the significant residual impacts listed above, representing 100 per cent of the offset contribution consistent with the WA Environmental Offset Policy. The Delegated Officer considers that the proposed offset adequately counterbalances the significant residual impacts resulting from the proposed clearing. The remaining banked offset within Crown Reserve R14411 is approximately 3.05 hectares of vegetation.

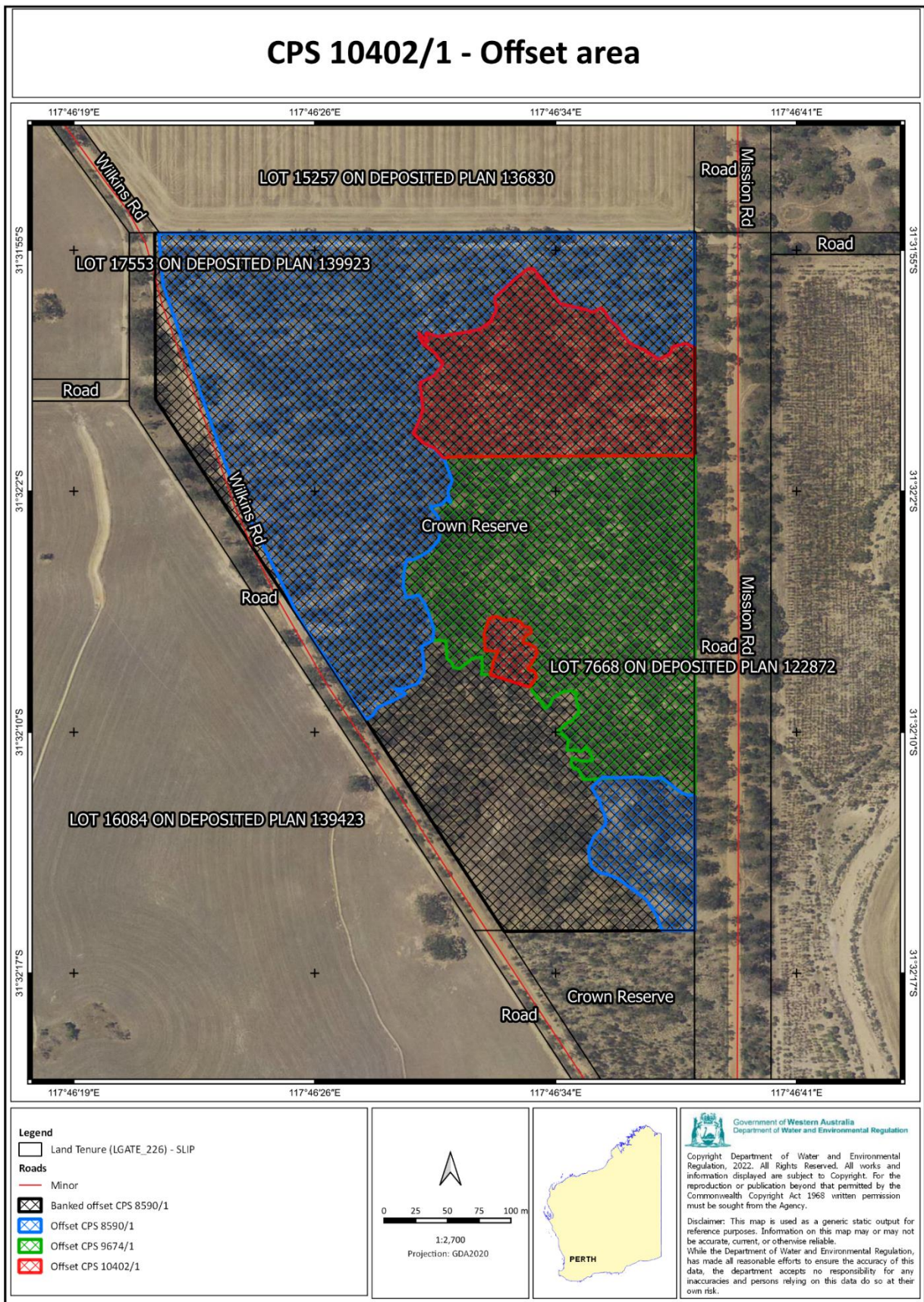


Figure 8: Map of the portions allocated to clearing permits within the Shire of Kellerberrin's banked offset site at Lot 19082 on Deposited Plan 403044 (R14411).



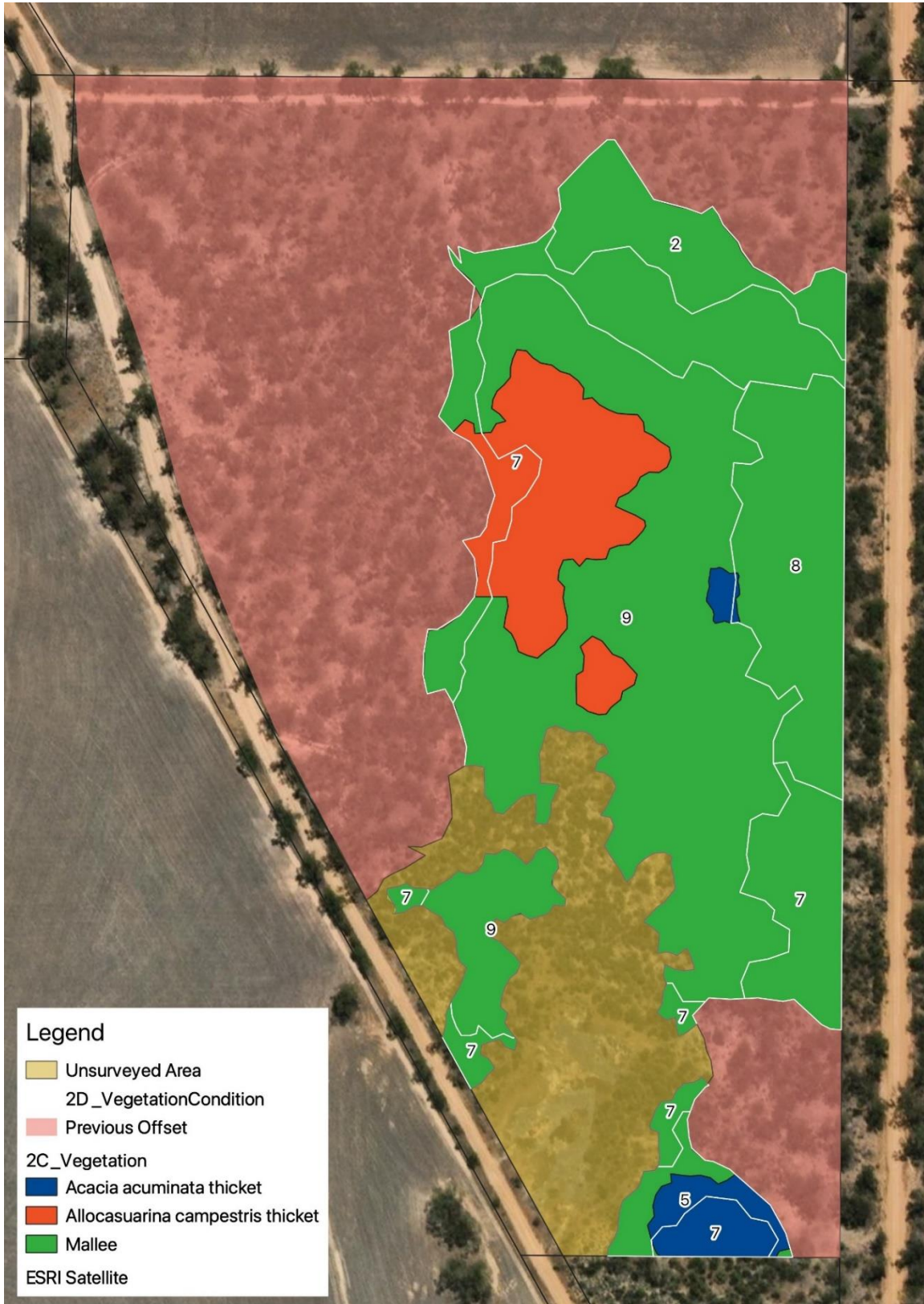


Figure 9: Vegetation condition within Lot 19082 on Deposited Plan 403044 (crown reserve R14411).

**End**

## Appendix A. Site characteristics

### A.1. 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 the department 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.

Characteristic	Details												
Local context	<p>The area proposed to be cleared is a 0.99 hectare tract within a long and linear 1.10-hectare footprint in the intensive land use zone of Western Australia. The area proposed to be cleared is patchy vegetation distributed along Doodlakine South Road reserve and is surrounded by rural industry and extensively cleared agricultural land.</p> <p>Arial imagery indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 8.42 per cent of the original native vegetation cover.</p>												
Ecological linkage	The application area is not a part of any formal ecological linkages. The clearing is part of an informal roadside vegetation linkage or stepping stone. The proposed clearing will not sever this linkage but will further contribute to fragmentation.												
Conservation areas	<p>The application area does not overlap with any reserves or conservation areas.</p> <p>The closest conservation areas and reserves to the application area are the following:</p> <table border="1"> <thead> <tr> <th>Conservation area type</th> <th>Name/ID</th> <th>Approximate Distance from application area (km)</th> <th>Direction from application area</th> </tr> </thead> <tbody> <tr> <td>Conservation covenant</td> <td>2815</td> <td>1.04</td> <td>South</td> </tr> <tr> <td>Conservation covenant</td> <td>2500</td> <td>1.59</td> <td>Southwest</td> </tr> </tbody> </table>	Conservation area type	Name/ID	Approximate Distance from application area (km)	Direction from application area	Conservation covenant	2815	1.04	South	Conservation covenant	2500	1.59	Southwest
Conservation area type	Name/ID	Approximate Distance from application area (km)	Direction from application area										
Conservation covenant	2815	1.04	South										
Conservation covenant	2500	1.59	Southwest										
Vegetation description	<p>Photographs supplied by the applicant and a fauna survey indicate the vegetation within the proposed clearing area consists of the following species:</p> <ul style="list-style-type: none"> <li>• <i>Eucalyptus salmonophloia</i> (Salmon Gum)</li> <li>• <i>Eucalyptus salubris</i> (Gimlet)</li> <li>• <i>Eucalyptus capillosa</i> (Wheatbelt Wandoo)</li> <li>• <i>Eucalyptus Loxophleba</i> (York Gum)</li> </ul> <p>This is consistent with the mapped vegetation type: MT. CAROLINE_1023: Wheatbelt; York gum, salmon gum etc. <i>Eucalyptus loxophleba</i>, <i>E. salmonophloia</i>. Goldfields; gimlet, redwood etc. <i>E. salubris</i>, <i>E. oleosa</i>. Riverine; rivergum <i>E. camaldulensis</i>. Tropical; messmate, woolyb</p> <p>The mapped vegetation type retains approximately 5.70 per cent of the original extent (Government of Western Australia, 2019).</p>												
Vegetation condition	<p>Photographs supplied by the applicant indicate the vegetation within the proposed clearing area is in degraded (Keighery, 1994) condition, mostly consistent of trees over weeds.</p> <p>The full Keighery 1994 condition rating scale is provided in Appendix C. Representative photos are available in <b>Error! Reference source not found.</b></p>												
Climate and landform	<p>The climate experienced in the application area is Mediterranean, characterized by hot and dry summers and cool and wet winters. According to the Bureau of Meteorology (2023), the proposed clearing area has an average annual rainfall of 325.9 millimetres and average monthly maximum temperatures ranging from 18.0°C to 33.6°C. The data was gathered from the closest open Meteorological site (ID 010127) located approximately 1.15 kilometres West of the application.</p> <p>The elevation of the application area is relatively level with the surrounding area, ranging from 270 meters Isohyet on the north of the application area rising to 290 meters Isohyet to the south of the application area.</p>												

Characteristic	Details																								
Soil description	<p>The soil type across the application area is mapped as the following:</p> <table border="1"> <tr> <td>Name</td> <td>Kellerberrin, Belka Subsystem</td> </tr> <tr> <td>Soils</td> <td>258KbBE</td> </tr> <tr> <td>Description</td> <td>Medium data quality, midscale or imprecise mapping</td> </tr> </table>	Name	Kellerberrin, Belka Subsystem	Soils	258KbBE	Description	Medium data quality, midscale or imprecise mapping																		
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Land degradation risk	<p>The degradation risk factors mapped over the application area are detailed below:</p> <table border="1"> <thead> <tr> <th colspan="2">Kellerberrin, Belka Subsystem</th> </tr> </thead> <tbody> <tr> <td>Wind erosion</td> <td>M2 30-50% of the map has high to extreme risk</td> </tr> <tr> <td>Water erosion</td> <td>L1 &lt; 3-10% of the map has high to extreme risk</td> </tr> <tr> <td>Salinity risk</td> <td>L1 &lt; 3-10% of the map has high to extreme risk</td> </tr> <tr> <td>Phosphorous export</td> <td>H2 &gt;70% of the map has high to extreme risk</td> </tr> <tr> <td>Waterlogging</td> <td>H2 &gt;70% of the map has high to extreme risk</td> </tr> <tr> <td>Subsurface acidification</td> <td>H2 &gt;70% of the map has high to extreme risk</td> </tr> <tr> <td>Flooding</td> <td>L1 &lt; 3-10% of the map has high to extreme risk</td> </tr> <tr> <td>Floodplains</td> <td>No</td> </tr> </tbody> </table>	Kellerberrin, Belka Subsystem		Wind erosion	M2 30-50% of the map has high to extreme risk	Water erosion	L1 < 3-10% of the map has high to extreme risk	Salinity risk	L1 < 3-10% of the map has high to extreme risk	Phosphorous export	H2 >70% of the map has high to extreme risk	Waterlogging	H2 >70% of the map has high to extreme risk	Subsurface acidification	H2 >70% of the map has high to extreme risk	Flooding	L1 < 3-10% of the map has high to extreme risk	Floodplains	No						
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Floodplains	No																								
Waterbodies	<p>The desktop assessment and aerial imagery indicated that there are no wetlands or natural watercourses within the application area. The closest wetland is a perennial manmade dam 10 meters from the application area.</p>																								
Hydrogeography	<table border="1"> <tr> <td>Hydrological Zone</td> <td colspan="2">Northern Zone of Ancient Drainage</td> </tr> <tr> <td>Basin</td> <td colspan="2">Avon River (615)</td> </tr> <tr> <td>Hydrographic Catchment</td> <td colspan="2">SwanAvon_Yilgarn</td> </tr> </table> <table border="1"> <tr> <td>RIWI Act Surface Water and Irrigation District</td> <td>Yes</td> <td>Avon River System</td> </tr> <tr> <td>RIWI Act Rivers</td> <td>No</td> <td></td> </tr> <tr> <td>RIWI Act Groundwater Areas</td> <td>No</td> <td></td> </tr> <tr> <td>CAWS Act Clearing Control Catchment</td> <td>No</td> <td></td> </tr> <tr> <td>Public Drinking Water Source Areas</td> <td>No</td> <td></td> </tr> </table> <p>The salinity of the application area is mapped at 14000-35000 total dissolved solids milligrams per litre.</p>	Hydrological Zone	Northern Zone of Ancient Drainage		Basin	Avon River (615)		Hydrographic Catchment	SwanAvon_Yilgarn		RIWI Act Surface Water and Irrigation District	Yes	Avon River System	RIWI Act Rivers	No		RIWI Act Groundwater Areas	No		CAWS Act Clearing Control Catchment	No		Public Drinking Water Source Areas	No	
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Flora	<p>According to available database, 41 conservation significant flora species have been recovered within the local area (10-kilometre buffer). Comprising five Priority 1, nine Priority 2, 17 Priority 3, three Priority 4, and seven threatened, flora taxa.</p> <p>Based on the site photos and the findings of a flora survey, there are no priority or Threatened flora species recorded within the application area (Shire of Kellerberrin, 2023b).</p>																								
Ecological communities	<p>According to spatial data, there are no Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) within the application area. Although the closest mapped TEC is approximately 0.03 kilometres from the application area, the vegetation is in a degraded condition and is unlikely to represent a TEC.</p>																								
Fauna	<p>According to available database, seven conservation significant fauna species have been recorded within the local area comprising of one Priority 4, three Endangered, and three Vulnerable, fauna taxa.</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*					
Avon Wheatbelt	9,517,109.95	1,761,187.42	18.51	174,980.68	1.84
Vegetation complex					
MT. Caroline_1023	146,082.80	8,332.55	5.70	1,164.37	0.80
Local area					
10km radius	36,816.26	3,100.07	8.42	-	-

\*Government of Western Australia (2019a)

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

**A.3. Fauna analysis table**

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)
<b>Birds</b>					
<i>Ixobrychus dubius</i> (Australian little bittern)	P4	N	N	9.18	1
<i>Leipoa ocellata</i> (malleefowl)	VU	Y	N	4.25	12
<i>Zanda latirostris</i> (Carnaby's cockatoo)	EN	Y	Y	19.48	1
<b>Mammals</b>					
<i>Macrotis lagotis</i> (bilby, dalgyte, ninu)	VU	N	N	9.18	2
<i>Myrmecobius fasciatus</i> (numbat, walpurti)	EN	Y	N	13.70	1
<i>Petrogale lateralis lateralis</i> (black-flanked rock-wallaby)	EN	N	N	19.39	2
<b>Reptiles</b>					
<i>Egernia stokesii badia</i> (western spiny-tailed skink)	VU	Y	N	19.39	2

**A.4. Ecological community analysis table**

Community name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
Eucalypt woodlands of the Western Australian Wheatbelt	P3	N	Y	Y	0.03	314	N/A

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

## 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> The area proposed to be cleared consists of a small footprint of roadside remnant native vegetation in a Degraded (Keighery, 1994) condition and is not likely to be floristically diverse. The application area is not mapped as any PEC or contain threatened or priority flora. The vegetation comprised of trees over weeds. However, the application area contains foraging habitat for black cockatoo species and habitat for local fauna species.</p>	May be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<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> The application area provides suitable habitat for Carnaby's cockatoo. Local fauna are also likely to use the application area to traverse the landscape.</p>	At variance	Yes <i>Refer to Section 3.2.1, above.</i>
<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> The area proposed to be cleared is unlikely to contain habitat for threatened flora species. No threatened flora has been recorded within the application area (Shire of Kellerberrin, 2023b).</p>	Not 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> According to spatial data, the area proposed to be cleared is not mapped as a TEC and does not contain species that can indicate a TEC and the application area is within a degraded to completely degraded condition.</p>	Not likely to be at variance	No
<b>Environmental value: 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> The extent of native vegetation in the local area is inconsistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation proposed to be cleared is considered to be part of a significant ecological linkage in the local area.</p>	At variance	Yes <i>Refer to Section 3.2.2, above.</i>
<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> Given the separation distance to the nearest conservation area is approximately 1.04 kilometres, the proposed clearing is not likely to have an impact on the environmental values of any adjacent or nearby conservation areas.</p>	Not at variance	No
<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> Given no water courses or wetlands are recorded within the application area and the nearest watercourse within 2 kilometres radius is a</p>	Not at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<p>perennial manmade wetland, the proposed clearing is unlikely to impact on riparian vegetation.</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> The mapped soils, Kellerberrin, Belka Subsystem are prone to wind erosion however given the long and linear nature and relatively small area of the proposed clearing, appreciable land degradation is unlikely to occur. Standard and staged road construction methodologies will be implemented, including strategies for drainage controls and wind and water erosion.</p>	Not 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></p> <p>No wetland or watercourses occur in close proximity to the proposed clearing. Given this and the extent of the proposed clearing and the surrounding agricultural cleared areas surrounding the application area, the proposed clearing is unlikely to impact surface or ground water quality.</p>	Not 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 soils and topographical contours in the surrounding area indicate that the application area is not susceptible to flooding. The proposed clearing is unlikely to cause flooding or lead to waterlogging.</p>	Not 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, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

### Measuring vegetation condition for the Southwest 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. Offset calculator value justification

Calculation	Score (Area)	Rationale
<b>Conservation significance black cockatoo habitat</b>		
Description	Carnaby's Black cockatoos	Habitat that is black cockatoo habitat Carnaby's cockatoo foraging habitat
Type of environmental value	Species	<i>Zanda latirostris</i> (Carnaby's cockatoo).
Conservation significance of environmental value	Rare/threatened species – endangered	As above
<b>Significant impact</b>		
Description	0	
Significant impact (hectares)	0.31	
Quality (scale)	7	The application area contains scattered Wandoo, Samon Gum, Gimlet and York Gum vegetation in a degraded condition, providing moderate quality foraging habitat for black cockatoos. Potential roosting and breeding habitat also occur.
<b>Offset</b>		
Description	0	Land acquisition
proposed offset (area in hectares)	2.20	Conservation of 2.20 hectares of black cockatoo native vegetation in very good (Keighery, 1994) condition, within the banked offset area R14411 on Lot 19082 on

		plan 403044 historically a suitable location for similar works e.g. CPS 8590/1 and 9674/1
Current quality of offset site	5.00	According to the survey, the quality of the vegetation in the offset area is considered to be in a very good (Keighery, 1994) condition and provides low to moderate quality foraging habitat for black cockatoos.
Future quality WITHOUT offset	5.00	It is assumed that the vegetation would remain in an averaged very good (Keighery, 1994) condition even if security is not placed over the reserve.
Future quality WITH offset	5.00	It is assumed that the quality of the vegetation would remain the same with the security over the property as no additional management measures are implemented given the vegetation is already high quality.
Time until ecological benefit (years)	1.00	Time for the offset area to be modified to include the 2.20 hectares under the conservation.
Confidence in offset result (%)	0.9	There is a high level of confidence that the change in purpose of reserve R14411 will mitigate the risk of loss of the proposed offset site. This is because the offset area is already banked and has been used for clearing permits CPS 8590/1 and 9674/1.
Duration of offset implementation (maximum 20 years)	20.00	The offset it to be places under conservation covenant in perpetuity.
Time until offset site secured (years)	0	The offset site is already secured as it is a banked offset.
Risk of future loss WITHOUT offset (%)	30	The vegetation in gravel reserves within the Wheatbelt Region are subject to continuing clearing and land degradation pressures.
Risk of future loss WITH offset (%)	10	A change of purpose for R14411 from 'gravel' to 'conservation' will reduce the risk of loss to 10%.

Calculation	Score (Area)	Rationale
<b>Remnant vegetation within an Extensively cleared landscape</b>		
Description	Significant remnant vegetation	0.99 hectares of native vegetation located within an extensively cleared landform.
Type of environmental value	Vegetation/habitat	Remnant vegetation in an extensively cleared area.
Conservation significance of environmental value	Terrestrial native vegetation complex <10% extent remaining in a constrained area	10km radius of the area is 8.42% remaining, the mapped vegetation within the application area (MT. Caroline_1023) retains approximately 5.70%
<b>Significant impact</b>		
Description	Remnant vegetation in an extensity cleared area	Fragmentation of remnant vegetation, Loss of 0.99 hectares of native vegetation.
Significant impact (hectares)	0.99	As above
Quality (scale)	4.00	The vegetation condition ranged from very poor - poor - good condition (Shire of Kellerberrin, 2023a) within the application area.
<b>Offset</b>		
Description		
proposed offset (area in hectares)	2.83	Conservation of 2.83 hectares of native vegetation in very good to excellent (Keighery, 1994) condition, within the banked offset area R14411 on Lot 19082 on plan 403044 historically a suitable location for similar works e.g. CPS 8590/1 and 9674/1
Current quality of offset site	7.00	According to the survey, the quality of the vegetation in the offset area is considered to be in a very good to excellent (Keighery, 1994) condition.



Future quality WITHOUT offset	7.00	It is assumed that the vegetation would remain in an averaged very good to excellent (Keighery, 1994) condition even if security is not placed over the reserve.
Future quality WITH offset	7.00	It is assumed that the quality of the vegetation would remain the same with the security over the property as no additional management measures are implemented given the vegetation is already high quality.
Time until ecological benefit (years)	1.00	Time for the offset area to be modified to include the 2.83 hectares under the conservation.
Confidence in offset result (%)	0.9	There is a high level of confidence that the change in purpose of reserve R14411 will mitigate the risk of loss of the proposed offset site. This is because the offset area is already banked and has been used for clearing permits CPS 8590/1 and 9674/1.
Duration of offset implementation (maximum 20 years)	20.00	The offset it to be places under conservation covenant in perpetuity.
Time until offset site secured (years)	0	The offset site is already secured as it is a banked offset.
Risk of future loss WITHOUT offset (%)	30%	The vegetation in gravel reserves within the Wheatbelt Region are subject to continuing clearing and land degradation pressures.
Risk of future loss WITH offset (%)	10%	A change of purpose for R14411 from 'gravel' to 'conservation' will reduce the risk of loss to 10%.

## Appendix E. Biological survey information excerpts / photographs of the vegetation (Shire of Kellerberrin 2023a and 2023b )

Table 1: GPS coordinates of the proposed clearing trees, species name and colour spray indicating if the three intends to be cleared (Green – retained) (Blue – Cleared) Doodlakine South Road

Waypoint	Easting	Northing	Species	Spray colour	DBH	Status	Rank	Comments
2123	586080.3	6490954	<i>Eucalyptus salubris</i>	BLUE	650	ALIVE	5	
2124	586091.7	6491019	<i>Eucalyptus salubris</i>	NO SPRAY	750	ALIVE	5	
2125	586100.3	6491047	<i>Eucalyptus salmonophloia</i>	BLUE	700	ALIVE	5	Nankeen Kestrel nesting
2126	586111.8	6491045	<i>Eucalyptus salubris</i>	BLUE	550	ALIVE	5	Australian Ringneck interested in hollows
2127	586115.9	6491075	<i>Eucalyptus salubris</i>	BLUE	500	ALIVE	5	
2128	586121.4	6491146	<i>Eucalyptus salubris</i>	BLUE	500	DEAD	5	
2129	586162.6	6491333	<i>Eucalyptus salubris</i>	GREEN	600	ALIVE	5	
2130	586187.7	6491390	<i>Eucalyptus salmonophloia</i>	BLUE	550	ALIVE	5	
2131	586201.9	6491457	<i>Eucalyptus salmonophloia</i>	BLUE	600	ALIVE	5	Galah nesting
2132	586207	6491476	<i>Eucalyptus salmonophloia</i>	BLUE	650	ALIVE	5	
2133	586220.2	6491576	<i>Eucalyptus salmonophloia</i>	BLUE	500	ALIVE	5	
2134	586224.2	6491592	<i>Eucalyptus salmonophloia</i>	BLUE	600	ALIVE	5	
2135	586218.2	6491588	<i>Eucalyptus salmonophloia</i>	NO SPRAY	550	ALIVE	5	
2136	586241.4	6491617	<i>Eucalyptus salmonophloia</i>	NO SPRAY	750	ALIVE	5	
2137	586232	6491641	<i>Eucalyptus salubris</i>	BLUE	850	ALIVE	4	
2138	586239	6491677	<i>Eucalyptus salmonophloia</i>	GREEN	850	ALIVE	5	Galah nesting
2139	586250.8	6491720	<i>Eucalyptus salmonophloia</i>	BLUE	800	ALIVE	4	Australian Ringneck nesting
2140	586254	6491726	<i>Eucalyptus salmonophloia</i>	BLUE	650	ALIVE	5	
2141	586249.8	6491733	<i>Eucalyptus salmonophloia</i>	NO SPRAY	500	ALIVE	5	Yellow-throated Miner nesting
2142	586299.3	6491951	<i>Eucalyptus loxophleba</i>	BLUE	550	ALIVE	5	
2143	586317.3	6492021	<i>Eucalyptus capillosa</i>	BLUE	500	ALIVE	5	
2144	586321.8	6492031	<i>Eucalyptus capillosa</i>	BLUE	650	ALIVE	5	
2145	586374.4	6492189	<i>Eucalyptus salmonophloia</i>	BLUE	850	ALIVE	3	3 hollows inspected with pole camera. No nests seen
2146	586376.7	6492212	<i>Eucalyptus salmonophloia</i>	NO SPRAY	700	ALIVE	5	Several hollows too small for CBC
2147	586437.5	6492371	<i>Eucalyptus salmonophloia</i>	BLUE	850	ALIVE	5	
2148	586413.9	6492477	<i>Eucalyptus salmonophloia</i>	NO SPRAY	1100	ALIVE	5	
2149	586427.6	6492481	<i>Eucalyptus salmonophloia</i>	BLUE	550	ALIVE	5	
2150	586411.3	6492520	<i>Eucalyptus salmonophloia</i>	GREEN	800	ALIVE	5	
2151	586421.4	6492563	<i>Eucalyptus salubris</i>	BLUE	600	ALIVE	5	
2152	586407.5	6492586	<i>Eucalyptus salmonophloia</i>	BLUE	750	ALIVE	5	
2153	586403.9	6492610	<i>Eucalyptus salmonophloia</i>	GREEN	500	ALIVE	5	Australian Ringneck interested in hollows
2154	586401.6	6492668	<i>Eucalyptus salubris</i>	BLUE	500	ALIVE	5	
2155	586399.3	6492676	<i>Eucalyptus salubris</i>	GREEN	600	ALIVE	5	
2156	586395.5	6492724	<i>Eucalyptus salubris</i>	NO SPRAY	500	ALIVE	4	
2157	586400.9	6492833	<i>Eucalyptus salmonophloia</i>	BLUE	850	ALIVE	5	
2158	586383.5	6492859	<i>Eucalyptus salmonophloia</i>	GREEN	850	ALIVE	4	
2159	586384.7	6492888	<i>Eucalyptus salmonophloia</i>	BLUE	800	ALIVE	5	
2160	586379.7	6492904	<i>Eucalyptus salmonophloia</i>	NO SPRAY	550	ALIVE	5	
2161	586381.6	6492919	<i>Eucalyptus salmonophloia</i>	BLUE	600	ALIVE	4	
2162	586382.5	6492920	<i>Eucalyptus salmonophloia</i>	BLUE	550	ALIVE	4	
2163	586379.9	6492961	<i>Eucalyptus salmonophloia</i>	BLUE	600	ALIVE	5	
2164	586375.1	6492966	<i>Eucalyptus salmonophloia</i>	NO SPRAY	550	ALIVE	5	
2165	586377.1	6492980	<i>Eucalyptus salmonophloia</i>	BLUE	700	ALIVE	5	
2166	586374.9	6492984	<i>Eucalyptus salmonophloia</i>	GREEN	650	ALIVE	5	
2167	586372.4	6493039	<i>Eucalyptus salmonophloia</i>	GREEN	500	ALIVE	5	
2168	586372.6	6493048	<i>Eucalyptus salmonophloia</i>	BLUE	650	DEAD	5	
2169	586369.5	6493091	<i>Eucalyptus salmonophloia</i>	BLUE	650	ALIVE	5	
2170	586365	6493121	<i>Eucalyptus loxophleba</i>	GREEN	550	DEAD	4	
2171	586359.6	6493199	<i>Eucalyptus loxophleba</i>	GREEN	750	ALIVE	5	
2172	586347.9	6493363	<i>Eucalyptus salmonophloia</i>	NO SPRAY	650	ALIVE	5	
2173	586340.5	6493407	<i>Eucalyptus salubris</i>	NO SPRAY	600	ALIVE	5	
2174	586340.5	6493417	<i>Eucalyptus salubris</i>	NO SPRAY	500	ALIVE	5	
2175	586338.1	6493438	<i>Eucalyptus salubris</i>	NO SPRAY	600	ALIVE	4	
2176	586337	6493469	<i>Eucalyptus salubris</i>	NO SPRAY	500	ALIVE	5	
2177	586345.5	6493494	<i>Eucalyptus salmonophloia</i>	BLUE	500	ALIVE	5	
2178	586346.1	6493502	<i>Eucalyptus salubris</i>	BLUE	650	ALIVE	5	
2179	586346.2	6493515	<i>Eucalyptus salmonophloia</i>	BLUE	500	ALIVE	5	

Table 2: GPS coordinates of the proposed clearing trees, species name and colour spray indicating if the tree intends to be cleared (Green – retained) (Blue – Cleared) Kellerberrin-Yelbeni Road

Waypoint	Easting	Northing	Species	Spray colour	DBH	Status	Rank	Comments
2180	565475.3	6509252	<i>Eucalyptus salmonophloia</i>	NO SPRAY	1600	ALIVE	5	
2181	565482.5	6509085	<i>Eucalyptus loxophleba</i>	NO SPRAY	550	ALIVE	5	
2182	565481.4	6508968	<i>Eucalyptus loxophleba</i>	NO SPRAY	500	ALIVE	5	
2183	565480	6508946	<i>Eucalyptus loxophleba</i>	NO SPRAY	500	ALIVE	5	
2184	565467.4	6508926	<i>Eucalyptus loxophleba</i>	NO SPRAY	650	ALIVE	5	
2185	565466.7	6508550	<i>Eucalyptus salmonophloia</i>	White X	650	DEAD	4	
2186	565464.8	6508518	<i>Eucalyptus salmonophloia</i>	NO SPRAY	750	ALIVE	5	
2187	565465.1	6508516	<i>Eucalyptus salmonophloia</i>	NO SPRAY	600	ALIVE	5	
2188	565466.3	6508514	<i>Eucalyptus salmonophloia</i>	NO SPRAY	700	ALIVE	5	
2189	565467.2	6508511	<i>Eucalyptus salmonophloia</i>	NO SPRAY	550	ALIVE	5	
2190	565488.1	6508464	<i>Eucalyptus salmonophloia</i>	NO SPRAY	650	ALIVE	5	
2191	565521	6508376	<i>Eucalyptus salmonophloia</i>	NO SPRAY	1100	ALIVE	4	
2192	565541.5	6508341	<i>Eucalyptus salmonophloia</i>	NO SPRAY	600	ALIVE	5	Galah nesting
2193	565550.9	6508325	<i>Eucalyptus capillosa</i>	NO SPRAY	650	ALIVE	5	
2194	565562.2	6508306	<i>Eucalyptus capillosa</i>	NO SPRAY	750	ALIVE	5	
2195	565571.1	6508292	<i>Eucalyptus salubris</i>	NO SPRAY	700	ALIVE	5	
2196	565581.4	6508274	<i>Eucalyptus capillosa</i>	NO SPRAY	450	ALIVE	5	
2197	565593.8	6508254	<i>Eucalyptus salmonophloia</i>	NO SPRAY	600	ALIVE	5	
2198	565591.2	6508252	<i>Eucalyptus salmonophloia</i>	NO SPRAY	550	ALIVE	5	
2190	565597.1	6508244	<i>Eucalyptus salmonophloia</i>	NO SPRAY	650	ALIVE	5	
2200	565604.6	6508236	<i>Eucalyptus capillosa</i>	NO SPRAY	550	ALIVE	5	
2201	565639	6508180	<i>Eucalyptus capillosa</i>	NO SPRAY	650	ALIVE	5	
2202	565647.6	6508165	<i>Eucalyptus salmonophloia</i>	NO SPRAY	550	ALIVE	5	
2203	565655.3	6508157	<i>Eucalyptus salmonophloia</i>	NO SPRAY	550	ALIVE	5	
2204	565681	6508134	<i>Eucalyptus salmonophloia</i>	NO SPRAY	700	ALIVE	4	
2205	565685.3	6508101	<i>Eucalyptus salmonophloia</i>	NO SPRAY	550	ALIVE	5	
2206	565694.9	6508084	<i>Eucalyptus salmonophloia</i>	NO SPRAY	1100	ALIVE	3	Corella nesting
2207	565738.7	6508018	<i>Eucalyptus loxophleba</i>	NO SPRAY	750	ALIVE	4	good vertical spout, unoccupied
2208	565940.4	6507682	<i>Eucalyptus capillosa</i>	NO SPRAY	700	ALIVE	5	
2209	565945.5	6507675	<i>Eucalyptus capillosa</i>	NO SPRAY	1000	ALIVE	3	good spout
2210	566113.2	6507561	<i>Eucalyptus capillosa</i>	NO SPRAY	800	ALIVE	5	
2211	566123.9	6507562	<i>Eucalyptus capillosa</i>	NO SPRAY	450	ALIVE	4	
2212	566142	6507563	<i>Eucalyptus capillosa</i>	NO SPRAY	500	ALIVE	5	
2213	566244.3	6507558	<i>Eucalyptus capillosa</i>	NO SPRAY	450	ALIVE	5	
2214	566258.1	6507562	<i>Eucalyptus capillosa</i>	NO SPRAY	550	ALIVE	4	
2215	566294.5	6507562	<i>Eucalyptus salmonophloia</i>	NO SPRAY	500	ALIVE	5	
2216	566362.6	6507560	<i>Eucalyptus capillosa</i>	NO SPRAY	500	ALIVE	5	
2217	566669.1	6507561	<i>Eucalyptus loxophleba</i>	NO SPRAY	750	ALIVE	4	
2218	566689.5	6507559	<i>Eucalyptus loxophleba</i>	NO SPRAY	500	ALIVE	5	
2219	567189.9	6507553	<i>Eucalyptus loxophleba</i>	NO SPRAY	800	ALIVE	5	Bees in small spout



Figure 10. Representative site photos of trees to be cleared with (blue spray) and to be retained (green spray)



Figure 11. Representative site photos of trees to be cleared with (blue spray) and to be retained (green spray)



Figure 12. Representative site photos of trees to be cleared with (blue spray) and to be retained (green spray)



Figure 13. Representative site photos of trees to be cleared with (blue spray) and to be retained (green spray)



Figure 14. Representative site photos of trees to be cleared with (blue spray) and to be retained (green spray)



Figure 15. Representative site photos of trees to be cleared with (blue spray) and to be retained (green spray)



Figure 16. Representative site photos of trees to be cleared with (blue spray) and to be retained (green spray)



Figure 17. Representative site photos of trees to be cleared with (blue spray) and to be retained (green spray)



Figure 18. Representative site photos of tree to be cleared with (blue spray).



Figure 19. Representative site photos of tree to be cleared with (blue spray).



Figure 20. Representative site photos of trees to be cleared with (blue spray) and to be retained (green spray).



Figure 21. Representative site photos of trees to be cleared with (blue spray) and to be retained (green spray).

## Appendix F. Sources of information

### F.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)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- 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)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- 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 – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems
- Wheatbelt Wetlands Stage 1 (DBCA-021)

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)

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