



## CLEARING PERMIT

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

### PERMIT DETAILS

Area Permit Number: 9001/1

File Number: DWERVT6272

Duration of Permit: From 9 December 2020 to 9 December 2022

### PERMIT HOLDER

Shire of Augusta-Margaret River

### LAND ON WHICH CLEARING IS TO BE DONE

Rosa Glen Road Reserve (PIN – 1252481), Rosa Glen

Noakes Road Reserve (PIN – 1252482), Rosa Glen

### AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 0.304 hectares of native vegetation within the area cross-hatched yellow on attached Plan 9001/1.

### CONDITIONS

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

In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:

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

#### 2. Weed and dieback management

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

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

#### 3. Application

This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

#### 4. Records must be kept

In relation to the clearing of native vegetation authorised under this Permit:

- (a) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
- (b) the date that the area was cleared; and
- (c) the size of the area cleared (in hectares)
- (d) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 1 of this Permit; and

- (e) actions taken to minimise the risk of the introduction and spread of *dieback* and *weeds* in accordance with condition 2 of this Permit.

#### 5. Reporting

The Permit Holder must produce the records required under condition 4 of this Permit when required by the *CEO*.

#### DEFINITIONS

The following meanings are given to terms used in this Permit:

**CEO:** means the Chief Executive Officer of the Department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*;

**dieback** means the effect of *Phytophthora* species on native vegetation.

**fill** means material used to increase the ground level, or fill a hollow;

**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;

**planting** means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species;

**weed/s** means any plant -

- (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*;  
or
- (b) published in a Department of Biodiversity, Conservation and Attractions Regional Weed Rankings Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



Mathew Gannaway  
MANAGER  
NATIVE VEGETATION REGULATION

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

16 November 2020

# Plan 9001/1

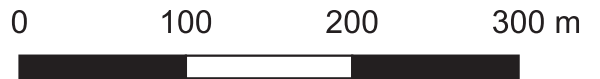


 CPS 9001-1

## base layers

 Road Centrelines

Cadastre - LGATE 218



Officer delegated under section 20 of the  
Environmental Protection Act 1986



GOVERNMENT OF  
WESTERN AUSTRALIA

MGA Zone 50  
Geocentric Datum of Australia 1994



# Clearing Permit Decision Report

## 1. Application details and outcome

### 1.1. Permit application details

<b>Permit number:</b>	CPS 9001/1
<b>Permit type:</b>	Area Permit
<b>Applicant name:</b>	Shire of Augusta-Margaret River
<b>Application received:</b>	07 August 2020
<b>Application area:</b>	0.304 hectares of native vegetation
<b>Purpose of clearing:</b>	Road construction and upgrades
<b>Method of clearing:</b>	Mechanical
<b>Property:</b>	Rosa Glen Road Reserve (PIN – 1252481), Rosa Glen Noakes Road Reserve (PIN – 1252482), Rosa Glen
<b>Location (LGA area/s):</b>	Shire of Augusta-Margaret River
<b>Localities (suburb/s):</b>	Rosa Glen

### 1.2. Description of clearing activities

The clearing is required to reconstruct and widen a 800 metre long section of Rosa Glen Road. The road is currently very narrow at three to four metres wide, which is insufficient for two vehicles to pass safely. It is proposed to widen the sealed road to 6.5 metres, with an additional one metre of unsealed edge on either side, with associated drainage works as required such as the construction of culverts. Five individual sections of native vegetation of approximately 2.5 metres width occur along the relevant section of roadway that will require clearing to accommodate the proposed widening. These five narrow sections occur on both sides of the road; three on the west and two on the east.

### 1.3. Decision on application and key considerations

<b>Decision:</b>	Granted
<b>Decision date:</b>	16 November 2020
<b>Decision area:</b>	0.304 hectares of native vegetation on both sides of Rosa Glen Road as depicted in Section 1.5, below.

### 1.4. Reasons for decision

This clearing permit application was made in accordance with section 51E of the *Environmental Protection Act 1986* (EP Act) and was received by the Department of Water and Environmental Regulation (DWER) on 7 August 2020. DWER advertised the application for public comment and no submissions were received.

In undertaking the assessment, and in accordance with section 51O of the EP Act, the Delegated Officer has given consideration to the Clearing Principles in Schedule 5 of the EP Act (Appendix B), supporting information provided by the applicant, relevant planning instruments, and any other pertinent matters they deemed relevant to the assessment (Section 3). The Delegated Officer also took into consideration the purpose of the clearing to improve community safety by widening Rosa Glen Road.

The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise the potential impacts of the proposed clearing (Section 3.1), and that native vegetation will be retained within the Rosa Glen road reserve. The Delegated Officer noted that the implementation of dieback and weed management strategies during construction will mitigate impacts to these adjacent areas. In determining to grant a clearing permit subject to conditions, the Delegated Officer found that the proposed clearing is not likely to lead to an unacceptable risk to the environment.

1.5. Site map

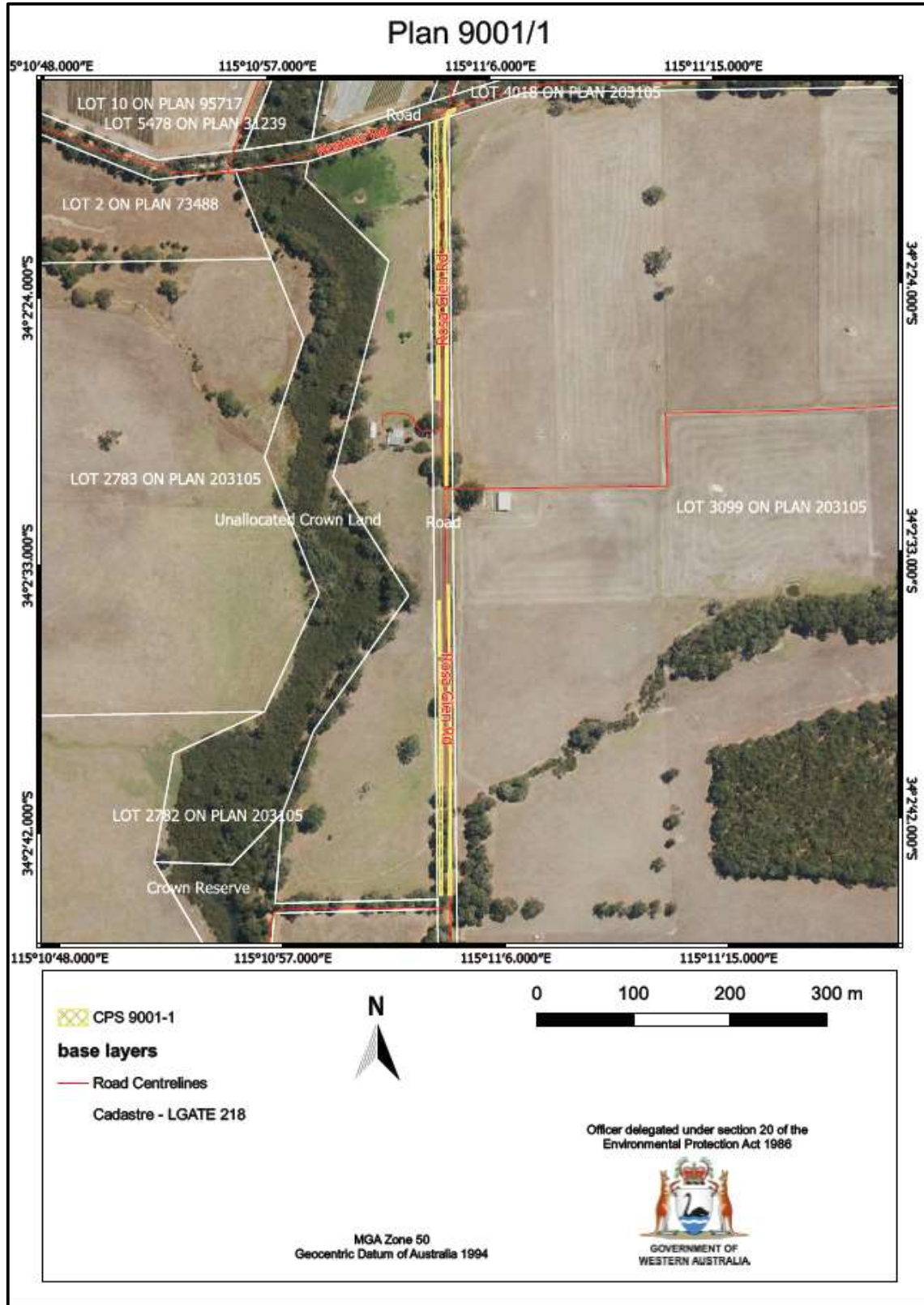


Figure 1. Map of area approved to clear. The area cross-hatched yellow indicates the areas authorised to be cleared under the granted clearing permit.

## 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 3), 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; and
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment includes:

- *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)
- *Soil and Land Conservation Act 1945* (WA)

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)

## 3. Detailed assessment of application

### 3.1. Avoidance and mitigation measures

Rosa Glen Road is frequented by large trucks and machinery to support surrounding agricultural land uses. The relevant section of the road at its current width does not provide for the safe passage of vehicles. In order to improve the safety of the relevant 800 metre section of Rosa Glen Road, it is necessary to widen the road to allow two vehicles to pass safely (Shire of Augusta-Margaret River 2020a).

The road widening has been designed to avoid any unnecessary disturbance to vegetation, particularly large habitat trees, and avoidance strategies have been proposed by the Shire of Augusta-Margaret River (2020a) to minimise impacts to roadside native vegetation. The proposed widening of Rosa Glen Road has been minimised wherever possible, informed by a site inspection by Shire of Augusta-Margaret River environment and landcare officers (Shire of Augusta-Margaret River 2020a; Appendix D). Measures have been taken to avoid the removal of large habitat trees in particular. Clearing has been restricted to between one to two metres on either side of Rosa Glen Road, with the widening avoiding a number of large Marri (*Corymbia calophylla*), Blackbutt (*Eucalyptus patens*) and Jarrah (*Eucalyptus marginata*) trees. Due to the road reserve width of 20 metres, clearing will not impact the entire reserve, with roadside vegetation, including large habitat trees, retained in the remaining portion on each side of the revised road. Where branches pose a safety hazard, retrenchment pruning will be undertaken as an alternative to clearing.

The Shire of Augusta-Margaret River (2020a) have also provided additional mitigation strategies including the maintenance of existing surface water hydrology and drainage patterns, and the implementation of dieback and weed hygiene measures during construction.

Additionally, the Shire of Augusta-Margaret River (2020b) have provided detail on a revegetation strategy for the Rosa Glen Road reserve, with the aim of reinstating habitat for black cockatoo species including:

- The planting of a minimum of 40 trees comprising a mix of Marri, Blackbutt, and Jarrah.
- Utilising seedlings greater than one metre tall.
- All planting occurring within the Rosa Glen Road reserve.
- Planting to occur in winter, and within 12 months of the clearing.
- A commitment from the Shire of Augusta-Margaret River to maintain the revegetated areas for a minimum of at least three years.

### 3.2. 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 and whether these can be managed to be environmentally acceptable. An assessment against the Clearing Principles is contained in Appendix B. The assessment identified that the clearing may pose a risk to the environmental values of fauna, and watercourses or wetlands, and that these required further consideration. 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. Environmental value: biological values (fauna) – Clearing Principle (b)

**Assessment:** The application area consists of five patches of roadside vegetation on both sides of an 800 metre long section of Rosa Glen Road, located approximately 13 kilometres south-east of Margaret River. Native roadside trees comprise of isolated stands of Marri (*Corymbia calophylla*), Blackbutt (*Eucalyptus patens*) and Jarrah (*Eucalyptus marginata*). Introduced tree species are also interspersed along the road including pines, swamp mahogany (*Eucalyptus robusta*), and exotic garden species.

The vegetation condition within the application area is Completely Degraded or Degraded (Keighery 1994), with some native understorey scattered along the road verge (predominantly Bracken Fern - *Pteridium esculentum*), and weeds dominant throughout (Shire of Augusta-Margaret River 2020a). Representative photographs are provided in Appendix D. The proposed road widening works will result in the removal of approximately 32 native trees of various age classes, with four trees larger than 600 millimetres diameter at breast height (DBH).

According to available databases three birds, six mammals, two amphibians, two fish, and three invertebrates of conservation significance have been recorded within ten kilometres of the application area. Due to the ephemeral and degraded nature of the culverted drain that bisects the application area (section 3.2.2) aquatic species are unlikely to be present. Similarly, the Threatened White-bellied Frog (*Geocrinia alba*) that has been recorded in damplands over one kilometre to the west has not been recorded in the Upper Chapman Brook between 70 metres and 200 metres west of the application area. It is very unlikely to be present within the degraded vegetation of the application area itself.

Of the mammals of conservation significance recorded within the local area, the Water-Rat (*Hydromys chrysogaster*) is unlikely to occur due to the lack of appropriate aquatic habitat. The Chuditch (*Dasyurus geoffroii*), Brush-tailed Phascogale (*Phascogale tapoatafa wambenger*), and Western Brush Wallaby (*Notamacropus Irma*) are all unlikely to occur due to degraded habitats (in particular the disturbed understorey), and the lack of ecological connectivity to large areas of surrounding remnant vegetation in good or better condition.

The closest record of the Priority 4 Quenda (*Isoodon fusciventer*) is approximately 6.7 kilometres to the north-west of the application area. Quenda require a dense understorey for cover (van Dyck and Strahan 2008), that can include exotic species, and any dense vegetation could potentially be utilised. Although habitats could support dispersing Quenda, due to the separation distance to remnant vegetation, and lack of records within six kilometres of the application area, the species is unlikely to occur.

The Critically Endangered Western Ringtail Possum (*Pseudocheirus occidentalis*) is known from the local area. The application area is located outside the three key management zones for the Western Ringtail Possum identified by the former Department of Parks and Wildlife (DPaW 2014), based upon core areas of the known current distribution of the species. The application area is therefore located outside of areas mapped as suitable Western Ringtail Possum habitat. The application area is located east of the Swan Coastal Plain Management Zone with records of the species predominantly west of the application area, with the closest over 3.3 kilometres distant (Appendix A2).

Common themes for Western Ringtail Possum habitat are high nutrient foliage availability, suitable structures for protection/nesting, and canopy continuity to avoid or escape predation (DPaW 2014), particularly from foxes and cats. Canopy cover along the Rosa Glen Roadside is disjunct and isolated from much larger areas of remnant native vegetation. Considering the lack of a continuous canopy, the isolated and disjunct nature of the native vegetation present, and the distances to known records, it is unlikely that the Western Ringtail Possum is present, or that the application area provides suitable habitat.

Of the vertebrate fauna species of conservation significance identified, the species most likely to occur over the application area are the three vagile species of black cockatoo known from the local area that could utilise the tree canopy present. The Carnaby's Cockatoo (*Calyptorhynchus latirostris*), Baudin's Cockatoo (*Calyptorhynchus baudinii*), and the Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) are all known from the vicinity of the application area.

Black cockatoo habitat can be considered in terms of breeding habitat, night roosting habitat, and foraging habitat. Black cockatoos will generally forage up to 12 kilometres from an active breeding site (DSEWPaC 2012; DPaW 2013). Following breeding, they will flock in search of food, usually within six kilometres of a night roost (DSEWPaC 2012; DPaW 2013), but may range up to 20 kilometres (Commonwealth of Australia 2017).

Black cockatoo night roosts are usually located in the tallest trees of an area, and in close proximity to both a food supply and surface water (Commonwealth of Australia 2017). Flocks will use different night roosts, often for weeks, or until the local food supply is exhausted. Flocks show some fidelity to night roosts with sites used in most years to access high-quality feeding sites. However, not all night roosts are used in every year (DPaW 2013).

Food resources within the range of breeding sites and roost sites are important to sustain populations, and foraging resources are therefore viewed in the context of known breeding and night roosting sites, particularly within 12 kilometres of an impact area (Commonwealth of Australia 2017).

No records within the immediate vicinity of the application area have been made for any of the three species of black cockatoo, with all records greater than three kilometres distant. However, five roosts have been recorded within the local area, with two roosts recorded within six kilometres. These have been recorded as either 'white-tailed black cockatoos' (that could refer to either Carnaby's Cockatoo or Baudin's Cockatoo) or species unknown. No breeding sites have been recorded within 12 kilometres of the application area (however the application area has been mapped within the breeding range of Carnaby's Cockatoo).

Although four of the approximately 32 native trees were considered large enough to support nesting hollows, no hollows large enough to support black cockatoos were recorded by the Shire of Augusta-Margaret River (2020a) within the trees identified for removal. Similarly no roosts have been identified along the Rosa Glen Roadside, and none are likely as they are unlikely to represent the tallest trees within the vicinity.

Foraging resources over the application area should be viewed in respect to recorded roosts within the local area required to support local populations. Large areas of native vegetation surrounding the application area have been mapped as black cockatoo feeding areas.

Potential black cockatoo foraging habitat within the application area consists of the fruit of Marri (*Corymbia calophylla*) and Jarrah (*Eucalyptus marginata*) with the occasional Blackbutt (*Eucalyptus patens*). Baudin's Cockatoo and the Forest Red-tailed Black-Cockatoo potentially feed on the foraging resource present over the application area, with Baudin's Cockatoo feeding predominantly on Marri, but also Jarrah, and Forest Red-tailed Black-Cockatoo feeding predominantly on Jarrah, but also Marri and Blackbutt. Carnaby's Cockatoo prefers proteaceous plant species such as banksia species., but will also feed on all three eucalypts.

The Commonwealth of Australia (2017) provide a foraging habitat assessment tool. Due to the disjunct nature of the vegetation along Rosa Glen Road the vegetation description aligns with 'small stands of foraging plants', equating to low quality foraging habitat. In the local context, large areas of native vegetation providing foraging resources for black cockatoos have been mapped in the local area of a ten kilometre radius, with approximately 58.8 per cent native vegetation retained and the majority within lands protected for conservation (Appendix A1). Large areas of Unallocated Crown Lands also occur in the local area within 1.3 kilometres to the west.

The required clearing has been minimised to allow for the retention of native vegetation along the Rosa Glen Roadside as clearing will not impact the entire reserve. Where branches pose a safety hazard retrenchment pruning will be undertaken as an alternative to clearing (Shire of Augusta-Margaret River 2020b). Large habitat trees will remain along the road reserve as not all are identified for removal, and others are located outside of the clearing footprint (Figure 2). Some of the species identified for retention are susceptible to Dieback disease (*Phytophthora* species) (Barber, *et al.* 2013) and the implementation of dieback and weed management strategies during construction will mitigate impacts to adjacent vegetation.

The Shire of Augusta-Margaret River (2020b) have also committed to replacing all native trees removed, by planting native tree species suitable as black cockatoo roosting, foraging, and breeding habitat at a ratio of greater than one-to-one within the Rosa Glen Road reserve (Section 3.1).

Outcome: Based on the above assessment, the Delegated Officer has determined that the proposed clearing is not considered to pose a risk in relation to this environmental value.

Conditions: Weed and dieback management measures will assist in mitigating impacts to adjacent vegetation.



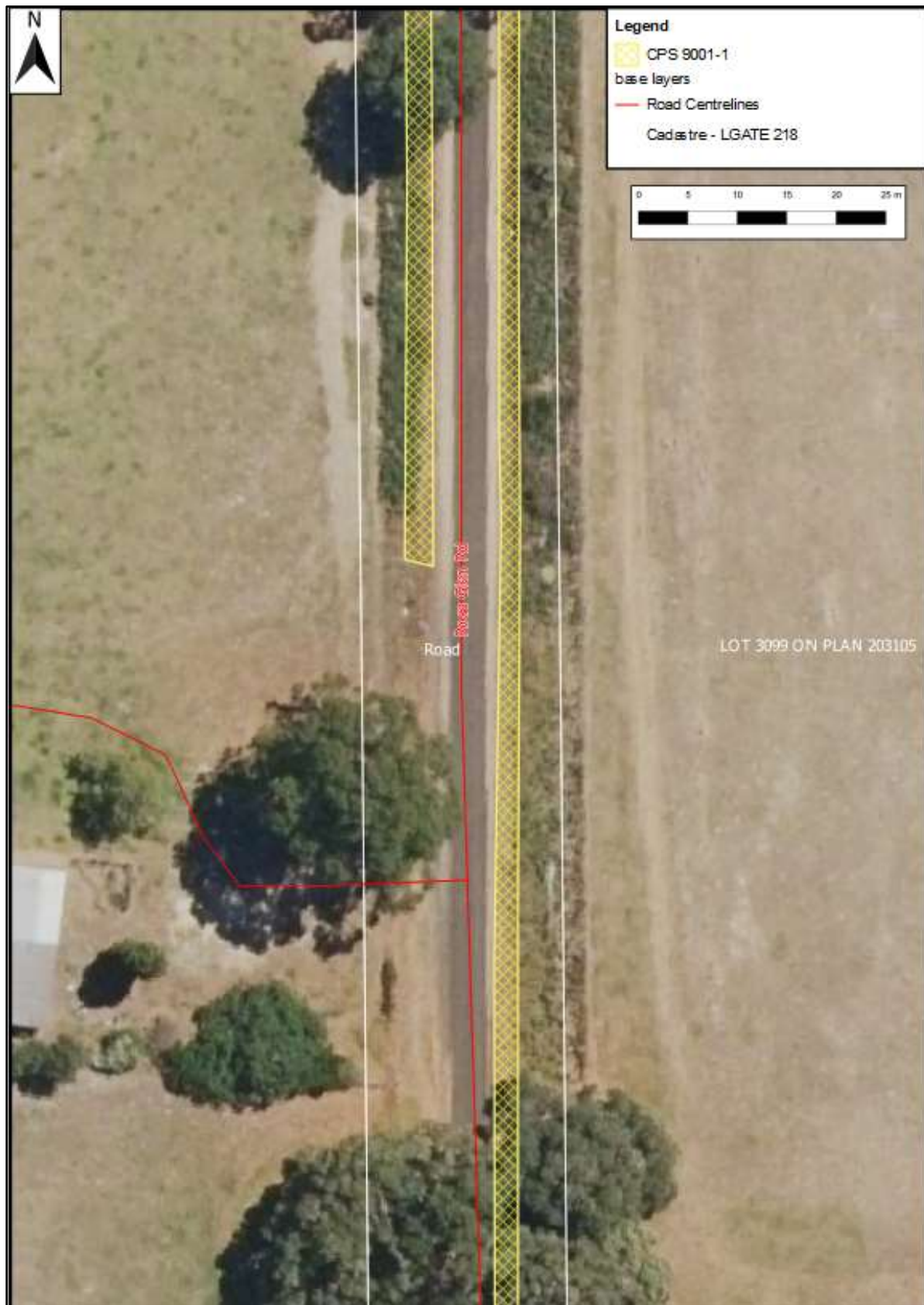


Figure 2. Map showing detail of the width of the clearing proposed and retention of roadside vegetation

### 3.2.2. Environmental value: watercourses or wetlands – Clearing Principles (f) and (i)

**Assessment:** The Upper Chapman Brook is located between 68 metres and 200 metres to the west of the application area, and a small un-named drainage line bisects the northern section of the application area. The hydrology of the area is significantly altered due to existing roadside infrastructure including culverts at this point.

The Upper Chapman Brook is a tributary of the Blackwood River and flows to the south parallel with Rosa Glen Road. Associated with the Upper Chapman Brook is a geomorphic wetland (that is, a Palusvale – or seasonally inundated flat) (Figure 3).

The small un-named drainage line that bisects the northern section of the application enters and exits the road reserve (i.e. the application area) via cleared agricultural land, and the drainage line bisects the application area through concrete culverts. This drainage line is ephemeral, with flows generally resultant of winter rainfall, and is the only drainage line intersecting the application area. The Shire of Augusta-Margaret River (2020a) inspected this site, with the vegetation recorded as Completely Degraded (Keighery 1994) and consisting of Tea tree (*Taxandria? sp.*), Bracken fern (*Pteridium esculentum*) and assorted weeds (Plate 1).



**Plate 1: Location of the small ephemeral drainage line bisecting the application area (ID 20200710\_110210)**

Groundwater has been mapped at less than 500 total dissolved salts (TDS) milligrams per litre (mg/L), and salinity risk is rated low (DPIRD 2017). Soils will not be excavated at depth and impacts to groundwater from the proposed clearing are unlikely.

Indirect impacts to the downstream Upper Chapman Brook via construction works are possible. However, design and standard construction methodologies are likely to mitigate any potential impacts such as sedimentation and altered flows. Proposed works are confined to the Rosa Glen Road reserve and the design of the road upgrade has considered water run-off management with the Shire of Augusta-Margaret River (2020a) committing to the maintenance of existing surface water hydrology and drainage patterns (Section 3.1). The existing culvert will be replaced as a component of the road widening with surface water flow regimes maintained, and final levels will not restrict or alter the current flow regime (Shire of Augusta-Margaret River 2020a).

Due to the Completely Degraded condition of the vegetation and adjacent cleared agricultural areas, the proposed clearing is not likely to impact the attributes of riparian systems. Given the small scale of the proposed clearing, and the design and standard construction methodologies employed, the proposed clearing is unlikely to cause deterioration in the quality of surface or underground water.

**Outcome:** Based on the above assessment, the Delegated Officer has determined that the proposed clearing is not likely to significantly impact on this environmental value.

**Conditions:** No management conditions required.

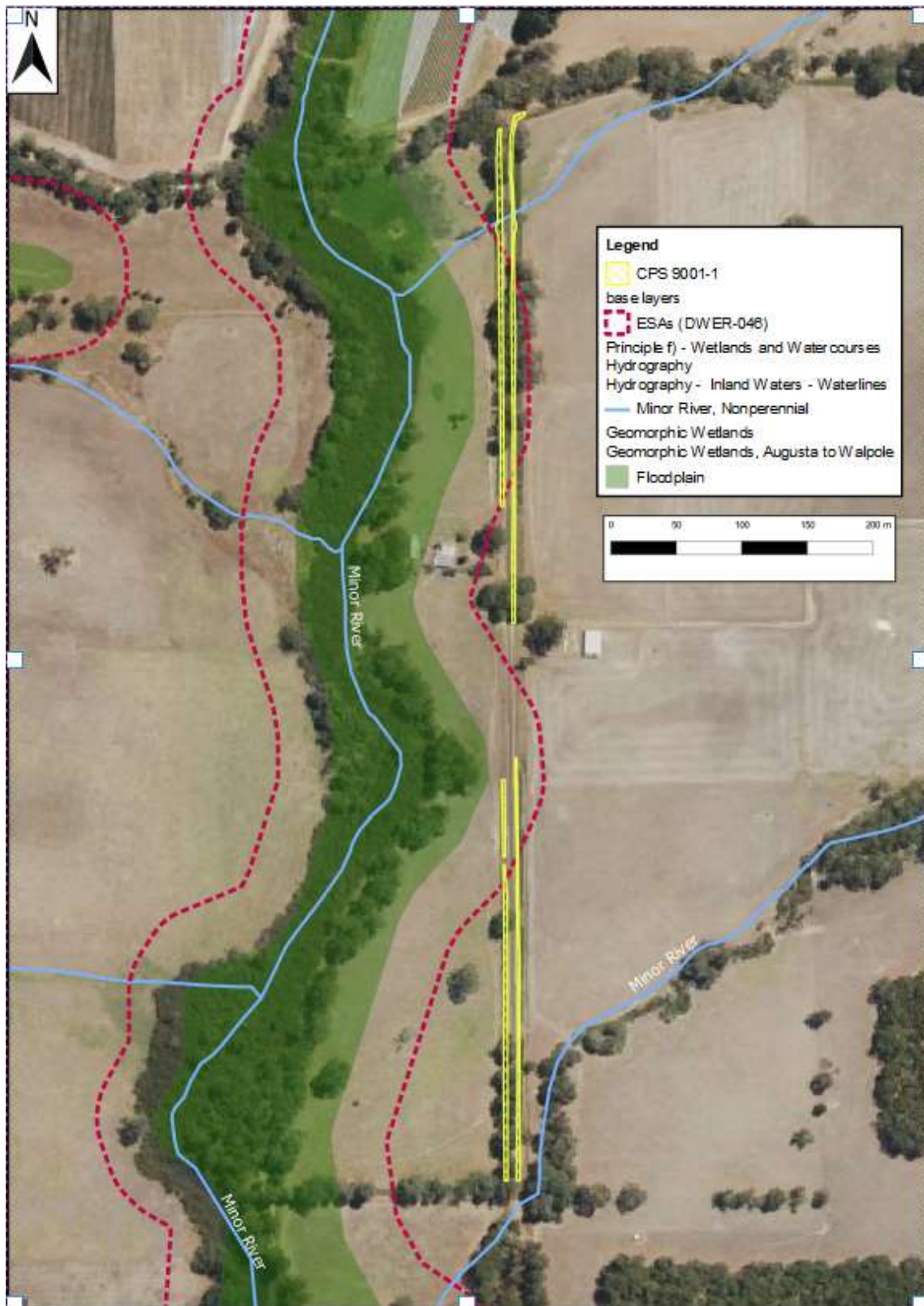


Figure 3. Map showing water courses in the vicinity of proposed clearing

### 3.3. Relevant planning instruments and other matters

The application was advertised on the DWER website for a 21 day public comment period on 2 September 2020. No public submissions were received in relation to this application.

The Shire of Augusta-Margaret River is the public authority that manages the application area. The application area is zoned Local Road, with the surrounding lands zoned Priority Agriculture. The clearing purpose is consistent with the Shire of Augusta-Margaret River Local Planning Scheme 1.

The application area is located in the Donnybrook Hydrological Zone, and the Blackwood River catchment. Proposed clearing is within the Lower Blackwood River Surface Water Area proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act) (UFI 53), as well as the Blackwood Groundwater Area proclaimed under the RIWI Act (UFI 31). No rivers proclaimed under the RIWI Act intersect the application, and the application is not located in any *Country Areas Water Supply Act 1947* (CAWS Act) clearing control catchments nor Public Drinking Water Source Areas.

An un-named drainage channel bisects the application area via an underground culvert, and an application for a Permit to interfere with the bed and banks of a watercourse has been submitted to DWER by the Shire of Augusta-Margaret River (reference no. 037960.). No issues preventing the issuing of a Permit have been identified (DWER 2020), however, the necessary approvals from DWER under the RIWI Act are required prior to undertaking the proposed clearing.

The application area is located within the boundaries of the Single Noongar Claim (Area 1) (WAD6006/2003), and the registered South West Boojarah #2 Indigenous Land Use Agreement (WI2017/013). No Aboriginal Sites of Significance have been identified within the application area itself, however, Registered Aboriginal Heritage Place ID 20434 (Blackwood River) is located within 40 metres to the west of the application area and Place ID 5769 (Upper Chapman Brook) is located within 160 metres to the west. 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 summary

Site characteristic	Details
<b>Local context</b>	<p>The application area is situated within the Jarrah Forest bioregion (JAF) of Thackway and Cresswell (1995), and the Southern Jarrah Forest subregion (JAF02).</p> <p>Clearing of up to 0.304 hectares is required to widen a 800 metre long section Rosa Glen Road, immediately south of Noakes Road. Clearing will be between one to two metres in five individual sections on either side of the road. The application area is approximately 13 kilometres south-east of Margaret River.</p> <p>Spatial data indicates that the local area (ten kilometre radius of the proposed clearing area) retains approximately 58.8 per cent of the original native vegetation cover.</p>
<b>Vegetation description</b> <b>Mattiske and Havel (1998)</b>	<p>The application area has been mapped by Mattiske and Havel (1998) as updated by Webb <i>et al.</i> (2016) as the Blackwood Complex which is described as an open forest of <i>Corymbia calophylla-Eucalyptus marginata</i> subsp. <i>marginata</i> on the variable slopes in perhumid and humid zones.</p> <p>The vegetation complex occurs within the valleys of the Blackwood Plateau and Plain subregion as described by Webb <i>et al.</i> (2016).</p> <p>Roadside trees predominantly comprise isolated stands of Marri (<i>Corymbia calophylla</i>), Blackbutt (<i>Eucalyptus patens</i>) and Jarrah (<i>Eucalyptus marginata</i>). Introduced tree species are also interspersed along the road, and include pines, swamp mahogany (<i>*Eucalyptus robusta</i>), and garden species. Native understory vegetation is scattered along the road verge, however weeds are dominant throughout. Many of the Marri trees along the road verge are affected by canker fungus (Shire of Augusta-Margaret River 2020a). Representative photographs taken over the application area are included in Appendix D.</p>
<b>Vegetation condition</b> <b>(Keighery 1994)</b>	<p>The vegetation within the application area is in a Degraded to Completely Degraded condition based on Keighery (1994) (Appendix C), with small isolated stands of native vegetation, interspersed with weeds. Representative photographs are available in Appendix D.</p>
<b>Soil description</b> <b>(Schoknecht, et al. 2004)</b>	<p>The application area is located within the Treeton fertile flats Phase (214ThTRf) described as well drained valley flats and floodplains with deep alluvial soils, often red brown loams (i.e. Marybrook soils). Soils occur as duplex sandy gravels, wet and semi-wet soils, deep sands and loamy gravels.</p>

Site characteristic	Details																																								
<b>Land degradation risk (DPIRD 2017)</b>	<p>Land degradation risk ratings mapped over the application area are provided in the table below.</p> <table border="1" data-bbox="435 275 1162 915"> <thead> <tr> <th data-bbox="443 285 630 317">Aspect</th> <th colspan="3" data-bbox="638 285 1154 317">Hazard rating</th> </tr> </thead> <tbody> <tr> <td data-bbox="443 327 630 380">Wind Erosion</td> <td data-bbox="638 327 735 380">Medium</td> <td data-bbox="743 327 829 380">(M1)</td> <td data-bbox="837 327 1146 380">10-30% of mapped unit has a high to extreme risk</td> </tr> <tr> <td data-bbox="443 390 630 443">Water Erosion</td> <td data-bbox="638 390 735 443">Low</td> <td data-bbox="743 390 829 443">(L1)</td> <td data-bbox="837 390 1146 443">&lt;3% of mapped unit has a high to extreme risk</td> </tr> <tr> <td data-bbox="443 453 630 506">Waterlogging</td> <td data-bbox="638 453 735 506">Medium</td> <td data-bbox="743 453 829 506">(M1)</td> <td data-bbox="837 453 1146 506">10-30% of mapped unit has a high to extreme risk</td> </tr> <tr> <td data-bbox="443 516 630 569">Water repellance</td> <td data-bbox="638 516 735 569">Low</td> <td data-bbox="743 516 829 569">(L2)</td> <td data-bbox="837 516 1146 569">3-10% of mapped unit has a high to extreme risk</td> </tr> <tr> <td data-bbox="443 579 630 632">Phosphorus export</td> <td data-bbox="638 579 735 632">Low</td> <td data-bbox="743 579 829 632">(L2)</td> <td data-bbox="837 579 1146 632">3-10% of mapped unit has a high to extreme risk</td> </tr> <tr> <td data-bbox="443 642 630 695">Salinity</td> <td data-bbox="638 642 735 695">Low</td> <td data-bbox="743 642 829 695">(L1)</td> <td data-bbox="837 642 1146 695">&lt;3% of mapped unit has a high to extreme risk</td> </tr> <tr> <td data-bbox="443 705 630 758">Flood Risk</td> <td data-bbox="638 705 735 758">Low</td> <td data-bbox="743 705 829 758">(L1)</td> <td data-bbox="837 705 1146 758">&lt;3% of mapped unit has a high to extreme risk</td> </tr> <tr> <td data-bbox="443 768 630 821">Subsurface acidification</td> <td data-bbox="638 768 735 821">High</td> <td data-bbox="743 768 829 821">(H2)</td> <td data-bbox="837 768 1146 821">&gt;70% of mapped unit has a high to extreme risk</td> </tr> <tr> <td data-bbox="443 831 630 905">Acid Sulphate Soils</td> <td colspan="2" data-bbox="638 831 829 905">Moderate to Low</td> <td data-bbox="837 831 1146 905">(Class 2)</td> </tr> </tbody> </table>	Aspect	Hazard rating			Wind Erosion	Medium	(M1)	10-30% of mapped unit has a high to extreme risk	Water Erosion	Low	(L1)	<3% of mapped unit has a high to extreme risk	Waterlogging	Medium	(M1)	10-30% of mapped unit has a high to extreme risk	Water repellance	Low	(L2)	3-10% of mapped unit has a high to extreme risk	Phosphorus export	Low	(L2)	3-10% of mapped unit has a high to extreme risk	Salinity	Low	(L1)	<3% of mapped unit has a high to extreme risk	Flood Risk	Low	(L1)	<3% of mapped unit has a high to extreme risk	Subsurface acidification	High	(H2)	>70% of mapped unit has a high to extreme risk	Acid Sulphate Soils	Moderate to Low		(Class 2)
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<b>Waterbodies</b>	<p>The application area is located in the Donnybrook Hydrological Zone, and the Blackwood River catchment. The Upper Chapman Brook, a tributary of the Blackwood River, is located approximately 68 metres to the west of the application area at its closest point and flows to the south parallel with Rosa Glen Road. A small drainage line bisects the application area and drains into the Upper Chapman Brook.</p> <p>A Geomorphic Wetland (Augusta to Walpole) associated with the Upper Chapman Brook is located approximately nine metres to the west of the application area at its closest point (that is, a floodplain - seasonally inundated flat).</p> <p>Groundwater is mapped at less than 500-1,000 TDS./ mg/L (That is, 'fresh').</p>																																								
<b>Conservation areas</b>	<p>Lands managed by the Department of Biodiversity, Conservation and Attractions and Land Management (DBCA) surround the application area.</p> <table border="1" data-bbox="435 1360 1162 1843"> <thead> <tr> <th data-bbox="443 1371 898 1455">Description</th> <th data-bbox="906 1371 1036 1455">Proximity (m)</th> <th data-bbox="1044 1371 1154 1455">Number in local area</th> </tr> </thead> <tbody> <tr> <td data-bbox="443 1465 898 1528">Timber Reserves Conservation Commission Of WA</td> <td data-bbox="906 1465 1036 1528">347</td> <td data-bbox="1044 1465 1154 1528">108</td> </tr> <tr> <td data-bbox="443 1539 898 1591">Blackwood River National Park Conservation Commission Of WA</td> <td data-bbox="906 1539 1036 1591">3,161</td> <td data-bbox="1044 1539 1154 1591">2</td> </tr> <tr> <td data-bbox="443 1602 898 1654">Forest Grove National Park Conservation Commission Of WA</td> <td data-bbox="906 1602 1036 1654">5,274</td> <td data-bbox="1044 1602 1154 1654">3</td> </tr> <tr> <td data-bbox="443 1665 898 1717">Bramley National Park Conservation Commission Of WA</td> <td data-bbox="906 1665 1036 1717">6,845</td> <td data-bbox="1044 1665 1154 1717">6</td> </tr> <tr> <td data-bbox="443 1728 898 1780">Leeuwin-Naturaliste National Park Conservation Commission Of WA</td> <td data-bbox="906 1728 1036 1780">9,058</td> <td data-bbox="1044 1728 1154 1780">1</td> </tr> <tr> <td data-bbox="443 1791 898 1843">Blackwood State Forest Conservation Commission Of WA</td> <td data-bbox="906 1791 1036 1843">9,472</td> <td data-bbox="1044 1791 1154 1843">1</td> </tr> </tbody> </table>	Description	Proximity (m)	Number in local area	Timber Reserves Conservation Commission Of WA	347	108	Blackwood River National Park Conservation Commission Of WA	3,161	2	Forest Grove National Park Conservation Commission Of WA	5,274	3	Bramley National Park Conservation Commission Of WA	6,845	6	Leeuwin-Naturaliste National Park Conservation Commission Of WA	9,058	1	Blackwood State Forest Conservation Commission Of WA	9,472	1																			
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Site characteristic	Details
<b>Climate and landform</b>	The application area is located within the Treeton fertile flats of well-drained valley flats and floodplains. The climate of the area is warm and temperate. The winter months have higher rainfall than summer months with an annual rainfall of approximately 952 millimetres (BOM 2020).

## 2. Ecosystem, flora and fauna analysis

With consideration for the site characteristics set out above, and relevant datasets (Appendix E), an analysis of relevant ecosystem, flora, and fauna factors are presented below.

### 2a) Ecological Linkages

The application area is not within the vicinity of any recognised ecological linkages, and no data is available for roadside conservation values for Rosa Glen Road. Within the local area, conceptual linkages for the South West Regional Ecological Linkages occur approximately 2.25 kilometres to the north of the application area, 3.8 kilometres to the west and 3.8 kilometres to the south.

### 2b) Ecological Communities

No Threatened Ecological Communities (TECs) endorsed by the Western Australian Minister for the Environment have been mapped within ten kilometres of the application area. One Priority Ecological Community (PEC) occurs approximately 6.0 kilometres to the south-east of the application area: The Priority 1 *Reedia spathacea* - *Empodisma gracillimum* - *Sporadanthus rivularis* dominated floodplains and paluslopes of the Blackwood Plateau.

### 2c) Conservation significant flora recorded within ten kilometres of the application area

Two Threatened flora taxa have been recorded within ten kilometres of the application area, and 14 Priority flora taxa. No significant flora taxa have been recorded within 1.4 kilometres of the application area.

Threatened flora taxa recorded within 10 kilometres of the application area	Status	No. of records	Closest record (m)	Suitable vegetation type / comments	
<i>Drakaea micrantha</i>	EN	1	9,854	No	Isolated and degraded vegetation
<i>Reedia spathacea</i>	EN	3	6,147	No	Isolated and degraded vegetation
Priority flora taxa recorded within 10 kilometres of the application area	Status	No. of records	Closest record (m)		
<i>Deyeuxia inaequalis</i>	P1	1	8,285	No	Isolated and degraded vegetation
<i>Synaphea macrophylla</i>	P1	1	9,627	No	Isolated and degraded vegetation
<i>Synaphea</i> sp. Redgate Road (J. Scott 16)	P1	1	7,802	No	Isolated and degraded vegetation
<i>Tetralia</i> sp. Nannup (P.A. Jurjevich 1133)	P1	1	1,494	No	Isolated and degraded vegetation
<i>Xyris maxima</i>	P2	1	9,459	No	Isolated and degraded vegetation
<i>Acacia inops</i>	P3	5	4,082	No	Isolated and degraded vegetation
<i>Actinotus repens</i>	P3	6	7,672	No	Isolated and degraded vegetation
<i>Calothamnus lateralis</i> var. <i>crassus</i>	P3	1	5,463	No	Isolated and degraded vegetation
<i>Grevillea bronwenae</i>	P3	1	3,600	No	Isolated and degraded vegetation
<i>Juncus meianthus</i>	P3	4	6,389	No	Isolated and degraded vegetation
<i>Pimelea ciliata</i> subsp. <i>longituba</i>	P3	1	3,930	No	Isolated and degraded vegetation
<i>Tetralia</i> sp. Blackwood River (A.R. Annels 3043)	P3	1	7,544	No	Isolated and degraded vegetation
<i>Acacia semitrullata</i>	P4	1	8,531	No	Isolated and degraded vegetation
<i>Acacia tayloriana</i>	P4	2	4,486	No	Isolated and degraded vegetation

## 2d) Conservation significant fauna recorded within ten kilometres of the application area:

Three birds, six mammals, two amphibians, two fish and three invertebrates of conservation significance have been recorded within ten kilometres of the application area.

Fauna species of conservation significance recorded within 10 kms	Taxon	Status	No. of records	Closest record (m)	Suitable habitat / comments	
<b>Birds</b>						
Carnaby's Cockatoo	<i>Calyptorhynchus latirostris</i>	EN	21	3,110	Yes	Canopy habitat
Baudin's Cockatoo	<i>Calyptorhynchus baudinii</i>	EN	58	3,120	Yes	Canopy habitat
Forest Red-tailed Black Cockatoo	<i>Calyptorhynchus banksii naso</i>	VU	6	3,869	Yes	Canopy habitat
<b>Mammals</b>						
Western Ringtail Possum	<i>Pseudocheirus occidentalis</i>	CR	38	3,320	No	Discontinuous canopy
Chuditch	<i>Dasyurus geoffroii</i>	VU	10	8,120	No	Isolated and degraded vegetation
Brush-tailed Phascogale (SW)	<i>Phascogale tapoatafa wambenger</i>	CD	17	5,963	No	Isolated and degraded vegetation
Quenda	<i>Isoodon fusciventer</i>	P4	3	6,785	No	Isolated and degraded vegetation
Water-Rat	<i>Hydromys chrysogaster</i>	P4	3	8,120	No	Semi-aquatic
Western Brush Wallaby	<i>Notamacropus irma</i>	P4	3	5,470	No	Isolated and degraded vegetation
<b>Amphibians</b>						
White-bellied Frog	<i>Geocrinia alba</i>	CR	54	1,168	No	Semi-aquatic
Orange-bellied Frog	<i>Geocrinia vitellina</i>	VU	1	9,004	No	Semi-aquatic
<b>Fish</b>						
Pouched Lamprey	<i>Geotria australis</i>	P3	1	4,368	No	Aquatic
Western Dwarf Galaxias	<i>Galaxiella munda</i>	VU	5	1,083	No	Aquatic
<b>Invertebrates</b>						
Dunsborough Burrowing Crayfish	<i>Engaewa reducta</i>	EN	11	5,667	No	Aquatic
Carter's Freshwater Mussel	<i>Westralunio carteri</i>	VU	1	9,604	No	Aquatic
Grey Vernal Katydid (SW)	<i>Kawaniphila pachomai</i>	P1	1	9,709	No	Isolated and degraded vegetation

## 3. Vegetation extent

### 3a) Regional vegetation mapping (Government of Western Australia 2019a and 2019b)

Factor		Pre-European Extent (ha)	Current Extent (ha)	Remaining (%)	Protected for Conservation (ha)	Protected for Conservation (%)
Jarrah Forest Bioregion	JAF	4,506,660	2,399,838	53.25	617,065	13.69
SWF Blackwood	ID 23	21,362	19,801	92.70	19,091	89.37

### 3b) Remnant vegetation within ten kilometres of the application area

Remnant Vegetation	Hectares (ha)	Remaining %
Total Area (10 km radius)	31,899	(100 %)
Remnant vegetation remaining	18,758	58.8



## 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 application area is predominantly parkland cleared, disjunct, and in a Completely Degraded to Degraded condition. The vegetation of the application area does not align with any Threatened Ecological Communities (TEC) or Priority Ecological Communities (Appendix A2). Due to separation distances and degraded habitat, none of the Threatened and Priority flora taxa recorded in the local area are likely to occur, and the application area is unlikely to provide significant fauna habitat. The native vegetation occurring does not comprise a high level of biodiversity.</p>	Not at variance	No
<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> Due to the isolated and degraded condition of the vegetation none of the ground-dwelling conservation significant fauna species are likely to occur, and aquatic habitat is not present. Three vagile black cockatoo species of conservation significance have the potential to utilise the canopy of native trees present over the application area. However, no breeding or roosting habitat is available, and foraging habitat is negligible.</p>	Not likely to be at variance	Yes See Section 3.2.2
<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> No Threatened flora taxa have been recorded within six kilometres of the application area (Appendix A2). The application area is predominantly parkland cleared, disjunct and in a Completely Degraded to Degraded condition. The application area is unlikely to include, or be necessary for the continued existence of, Threatened flora.</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> No TECs endorsed by the Western Australian Minister for Environment have been mapped within six kilometres of the application area (Appendix A2), and vegetation over the application area does not align with any known TECs.</p>	Not 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> The national objectives and targets for biodiversity conservation in Australia has a target to prevent the clearance of ecological communities with an extent below 30 per cent of that present prior to the year 1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia 2001). The mapped vegetation association and vegetation remaining within the local area and region are all above 50 percent.</p> <p>The vegetation proposed to be cleared is isolated, Completely Degraded to Degraded and not considered significant as a remnant of native vegetation, nor is it within an area that has been extensively cleared.</p>	Not at variance	No

Assessment against the Clearing Principles	Variance level	Is further consideration required?
<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> The application area is not within the vicinity of any recognised ecological linkages and is surrounded by cleared freehold land for farming and viticulture purposes, and does not provide a significant link to any areas of nearby remnant vegetation.</p> <p>Due to separation distances, proposed clearing is unlikely to have an impact on the environmental values of any adjacent or nearby conservation areas.</p>	Not at variance	No
<b>Environmental values: land and water resources</b>		
<p><u>Principle (f):</u> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u> The Upper Chapman Brook, a tributary of the Blackwood River, is located between approximately 68 metres (at its closest point) and 200 metres to the west of the application area (Figure 3), and flows to the south parallel with Rosa Glen Road. A Geomorphic Wetland (Draft Resource Enhancement) associated with this brook is located approximately nine metres to the west of the application area at its closest point (that is, a Palusvale – or seasonally inundated flat).</p> <p>A small un-named drainage line bisects the northern section of the application and enters the Upper Chapman Brook to the west (Figure 3), and is the only drainage line intersecting the application area. This drainage line enters and exits the road reserve via cleared agricultural land.</p>	Is at variance	Yes See Section 3.2.2
<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 of the Treeton fertile flats Phase (214ThTRf) have a medium risk of wind erosion and water-logging (DPIRD 2017), but a low risk of salinity, Phosphorus export, and water repellence (Appendix A1).</p> <p>Standard road construction methodologies will be implemented including strategies for drainage controls and wind and water erosion. Soils will not be excavated at depth, and any impacts to surrounding landscapes, soils, or drainage systems can also be managed through appropriate design. Noting the condition of the vegetation and the minor extent of proposed clearing, the proposed clearing is not likely to cause appreciable land degradation.</p>	Not likely to be at variance	No
<p><u>Principle (i):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.”</i></p> <p><u>Assessment:</u> The Upper Chapman Brook (a tributary of the Blackwood River), is located approximately 68 metres to the west of the application area (at its closest point). A small un-named drainage line bisects the northern section of the application and enters this brook to the west (Figure 3). Soils will not be excavated at depth and standard road construction methodologies including strategies for drainage controls and water erosion will be implemented, and proposed clearing is unlikely to cause any deterioration in the quality of any surface waters or groundwater.</p>	Not likely to be at variance	Yes See Section 3.2.2
<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>	Not at variance	No

Assessment against the Clearing Principles	Variance level	Is further consideration required?
<p><u>Assessment:</u> The application area is located outside of any recognised floodplain areas (DWER-020), or areas subject to flooding or inundation.</p> <p>The landform of the application area consists of well-drained valley flats with soils of deep alluvium, occurring as duplex sandy gravels, wet and semi-wet soils, deep sands, and loamy gravels. These soils have a Low (L1) flood risk and a Medium (M1) risk of waterlogging (Appendix A1).</p> <p>Given the small scale of the proposed clearing and standard construction methodologies employed, the proposed clearing is unlikely to cause, or exacerbate, the incidence or intensity of flooding.</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 D – Photographs of the application area**

**Appendix D1 Locations of photographs taken (Shire of Augusta-Margaret River 2020a)**



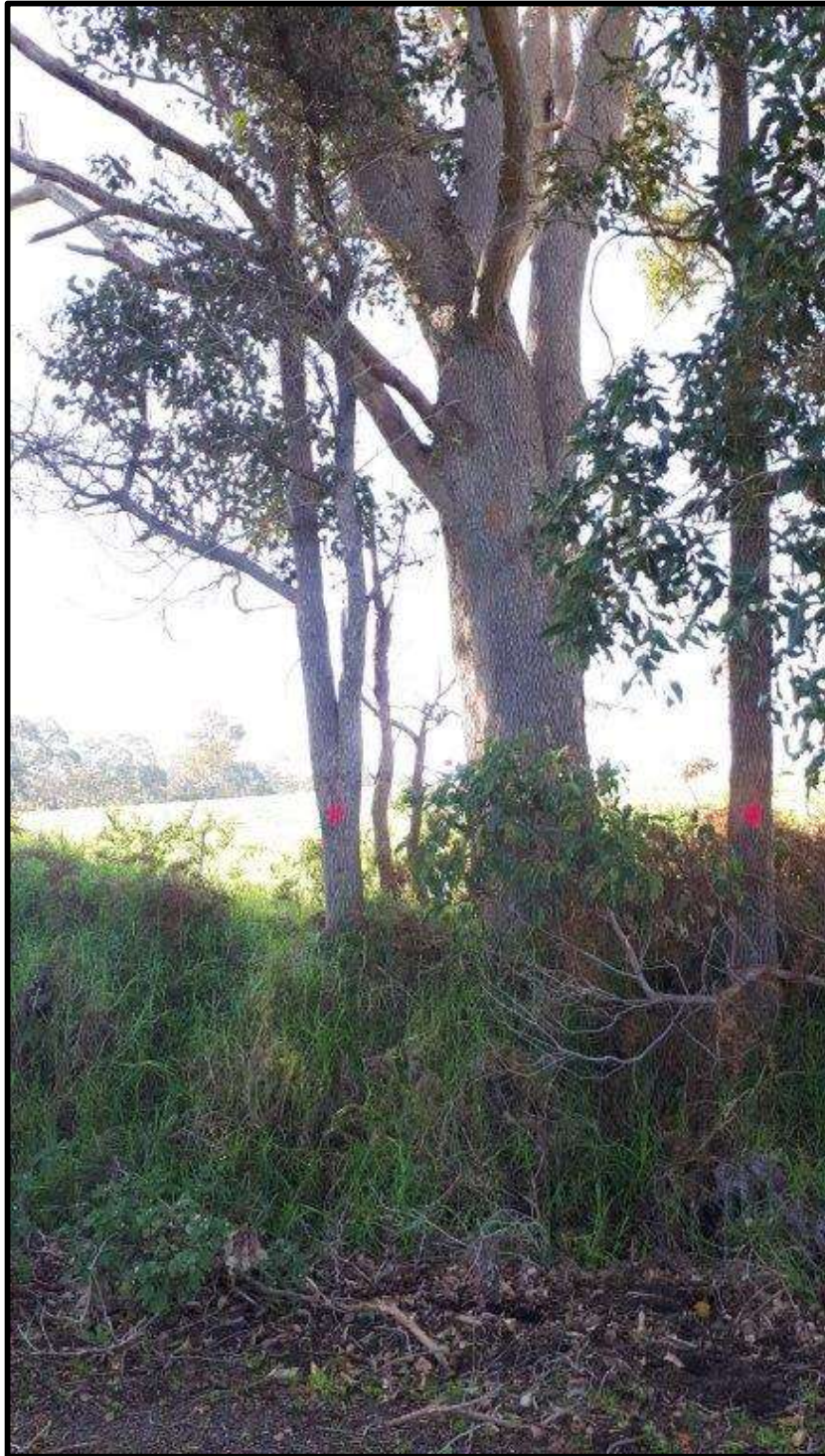
**Appendix D2 Representative photographs of the application area (Shire of Augusta-Margaret River 2020a)**



**ID 20200710\_114743**



**ID 20200710\_113622**



ID 20200710\_113240



ID 20200710\_113230





ID 20200710\_113221



ID 20200710\_113206



ID 20200710\_115526



ID 20200710\_112035



ID 20200710\_111010



ID 20200710\_110757



**ID 20200710\_110658**



**ID 20200710\_110414**

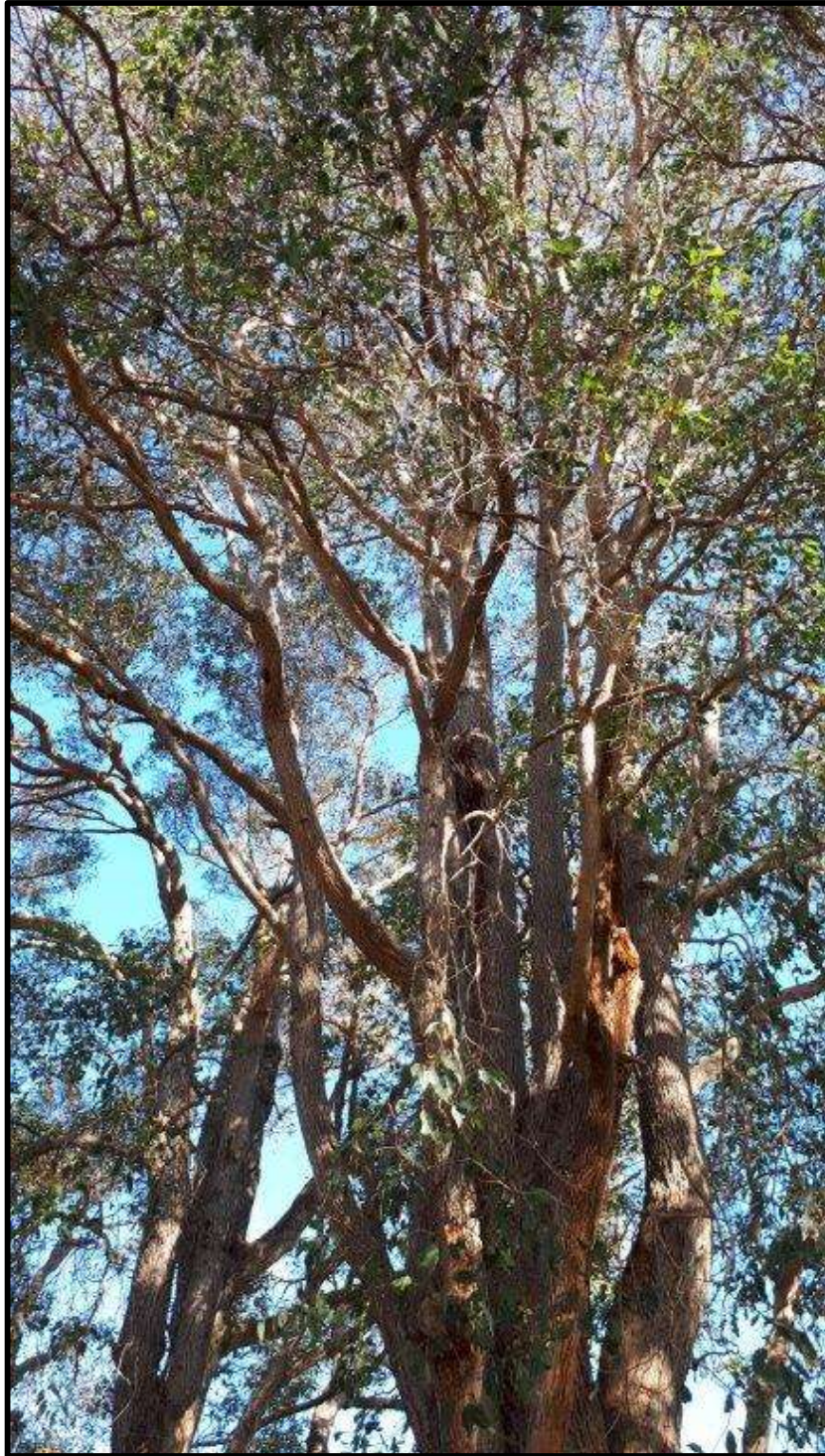


**ID 20200710\_110210**



**ID 20200710\_105929**





ID 20200710\_115544

## Appendix E – References and databases

### 1. References

- Barber, P.A., Paap, T., Burgess, T.I., Dunstan, W., Hardy, G E St. (2013) A diverse range of *Phytophthora* species are associated with dying urban trees. *Urban Forestry and Urban Greening*: 12 (2013) Pp569–575. Published by Elsevier GmbH.
- Bureau of Meteorology (BOM) (2020) Climate classification maps. Available from: [http://www.bom.gov.au/jsp/ncc/climate\\_averages/climate-classifications/index.jsp?maptype=kpn#maps](http://www.bom.gov.au/jsp/ncc/climate_averages/climate-classifications/index.jsp?maptype=kpn#maps)
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- Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) (2012) EPBC Act referral guidelines for three threatened black cockatoo species: Carnaby's cockatoo (Endangered) *Calyptorhynchus latirostris*, Baudin's cockatoo (Vulnerable) *Calyptorhynchus baudinii*, Forest red-tailed black cockatoo (Vulnerable) *Calyptorhynchus banksii naso*. Department of Sustainability, Environment, Water, Population and Communities (now the Department of Agriculture, Water, and the Environment). Canberra.
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## 2. GIS datasets

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

- 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)