Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1. Application details and outcome

1.1. Permit application details

Permit number:	CPS 8994/1
Permit type:	Purpose Permit
Applicant name:	Shire of Murray
Application received:	4 August 2020
Application area:	0.8 hectares of native vegetation
Purpose of clearing:	Road construction and upgrades
Method of clearing:	Mechanical removal
Property:	Road Reserve – 11054005, Dwellingup Road Reserve – 11054004, Dwellingup Road Reserve – 11054006, Dwellingup Road Reserve – 1371906, Dwellingup Road Reserve – 11778488, Dwellingup Road Reserve – 1371874, Dwellingup Road Reserve – 1371873, Dwellingup Road Reserve – 1371921, Dwellingup State Forest 14, Dwellingup State Forest 14, Wuraming Unallocated Crown Land, Dwellingup
Location (LGA area/s):	Shire of Murray
Localities (suburb/s):	Dwellingup

1.2. Description of clearing activities

The Shire of Murray proposes to widen Nanga Road, Dwellingup, for roadside hazard clearing as a component of the State Black Spot program to improve safety. Widening of an average of two metres on both sides of Nanga Road is required for approximately two kilometres. The proposed clearing consists of up to 0.8 hectares of native vegetation within a clearing application area of 2.43 hectares. See Section 1.5, Figure 1.

1.3. Decision on application and key considerations

Decision:	Granted
Decision date:	7 April 2021
Decision area:	0.8 hectares of native vegetation on both sides of Nanga Road as depicted in Figure 1, 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 public comment for 21 days and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (Appendix B), relevant datasets (Appendix F2), the findings of a black cockatoo habitat assessment (Appendix A), the clearing principles set out in Schedule 5 of the EP Act (Appendix C), proposed avoidance and minimisation measures (Section 3.1), environmental impacts of the clearing (Section 3.2), relevant planning instruments, the purpose of the clearing which was to reduce roadside hazards as a component of the State Black Spot program to improve public safety and any other matters considered relevant to the assessment (Section 3.3).

The assessment identified that the proposed clearing may result in the loss of native vegetation that potentially supports Priority flora taxa and provides habitat value to three Threatened black cockatoo species. The proposed clearing may also result in the introduction and spread of dieback and weeds into adjacent vegetation managed for conservation purposes.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (Section 3.1), the Delegated Officer determined that the applicant has suitably demonstrated avoidance and minimisation measures and that the proposed clearing can be managed to be unlikely to lead to an unacceptable risk to environmental values.

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

- avoid all identified black cockatoo habitat trees; and
- implement dieback and weed management strategies.

1.5. Site map

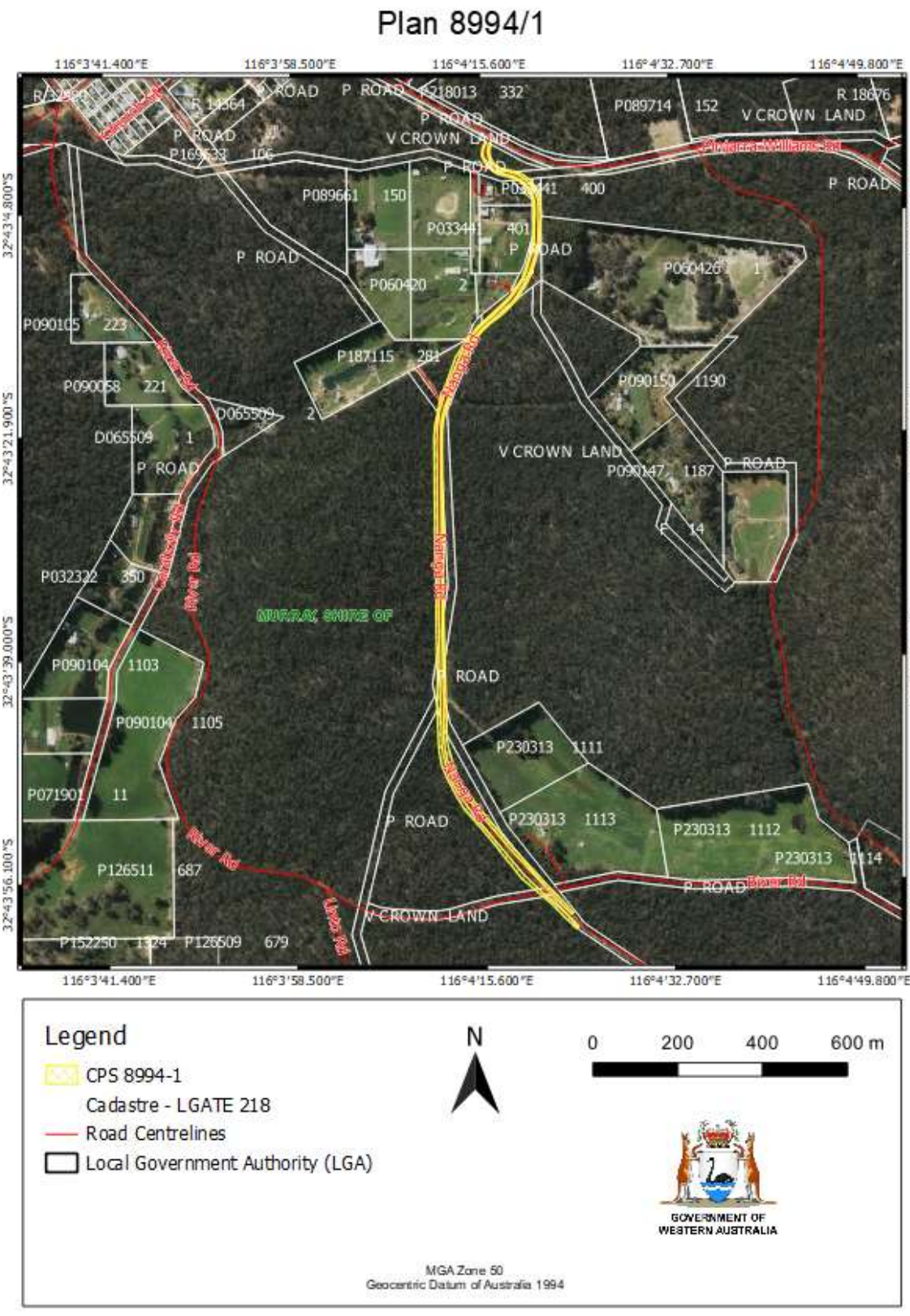

Figure 1. Map of the application area CPS 8994/1. The area cross-hatched yellow indicates the area within which 0.8 hectares of native vegetation is authorised to be cleared under the granted clearing permit.

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

The Shire of Murray is planning the widening of Nanga Road for roadside hazard clearing as a component of the State Black Spot program to improve safety. Clearing has been limited to the minimum required, i.e. an average of two metres on both sides of Nanga Road. Trees and vegetation will be retained as much as possible within the areas required (Shire of Murray 2020).

Seventy-five black cockatoo habitat trees with a diameter at breast height (DBH) of over 500 millimetres have been identified over the application area. The Shire of Murray has committed to retaining all identified black cockatoo habitat trees (Shire of Murray 2021). If required, individual habitat trees will be pruned by a professional tree lopper *in lieu* of clearing.

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 B) and considered whether the clearing poses a risk to environmental values and whether any risk can be managed to be environmentally acceptable. An assessment against the Clearing Principles is contained in Appendix C.

The assessment identified that the clearing may pose a risk to the environmental values of biological values and conservation areas, 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 (flora) – Clearing Principles (a) to (d)

Assessment

The application area is situated within the Northern Jarrah Forest subregion (JAF01) and the proposed clearing comprises native vegetation on both sides of Nanga Road, Dwellingup. The application area comprises the south west forest vegetation units of Dwellingup D1 (SWF 78) in the lateritic upland areas and Yarragil 1 (SWF 318) on slopes on valleys (Mattiske and Havel 1998). Both units comprise an open forest of Jarrah *(Eucalyptus marginata)* and Marri *(Corymbia calophylla),* with the Yarragil unit also incorporating Blackbutt *(Eucalyptus patens)* and Bullich *(Eucalyptus megacarpa)*. Vegetation is along an existing road verge and is in Degraded to Good condition according to the values of Keighery (1994).

There are no TECs endorsed by the Western Australian Minister for the Environment or listed under the EPBC Act mapped within ten kilometres of the application area. Similarly, there are no PECs listed by the Department of Biodiversity, Conservation and Attractions (DBCA) within ten kilometres of the application area.

No Threatened flora taxa listed under the BC Act or the EPBC Act have been recorded within ten kilometres of the application area. Fourteen Priority flora taxa listed by DBCA have been recorded, however; one Priority 2, six Priority 3 and seven Priority 4 (Appendix B2c). Of these, the habitat in the application area is consistent with the requirements of the four Priority taxa listed below, and these have been assessed as possibly occurring in the application area.

- *Acacia horridula* (P3) can occur in gravelly soils, sand and rocky hillsides in loam over laterite, concretionary gravels or lateritic gravel, and has been recorded in the local area. *Acacia horridula* has been recorded from the Jarrah Forest and Swan Coastal Plain Bioregions from Gingin, north of Perth, east to Beverley and south to Harvey (WAH 1998-).
- *Grevillea manglesii subsp. dissectifolia* (P3) can be found in gravelly loam, sandy loam, and clay, including along roadsides, and has been recorded in the local area within 600 metres of the application area. *Grevillea manglesii subsp. dissectifolia* has been recorded from the Jarrah Forest Bioregion from Mundaring to Boddington and east to Beverley and Wandering (WAH 1998-).
- *Calothamnus graniticus subsp. leptophyllus* (P4) occurs in lateritic gravels, including disturbed areas, and has been recorded in the local area within 500 metres of the application area. *Calothamnus graniticus subsp. leptophyllus* has been recorded from the Jarrah Forest and Swan Coastal Plain Bioregions from north of Perth, to Harvey and east of Collie (WAH 1998-).
- *Pimelea rara* (P4) occurs in Jarrah Woodland and has been recorded along Nanga Road in the local area (WA Herb). *Pimelea rara* has been recorded from the Jarrah Forest Bioregion from Mundaring to Waroona and east to Wandering (WAH 1998-).

No TECs, PECs or Threatened flora taxa are considered likely to occur in the application area.

The application area is narrow and located immediately adjacent to an existing road.. The Priority species identified with the potential to occur have relatively large distributions and, given that the vegetation type and soil types within the application area extend over a large areas around and beyond the application area, it is likely that, if present, each of these species would also occur in similar numbers in expansive areas associated with the adjacent State Forest 14. The potential impacts of clearing in the application area are unlikely to affect the conservation statuses of these species and are not considered to be significant, given the species' distributions and the abundance of nearby habitat.

Two Priority 3 fungi are also known from the local area *(Amanita fibrillopes* and *Amanita kalamundae)*. Both have widespread distributions in forest habitats from Perth to Albany. The potential impacts of clearing in the application area are unlikely to affect the conservation statuses of these species and are not considered to be significant, given the species' distributions and the abundance of nearby habitat.

Noting that the vegetation under application forms part of a very large remnant that is contiguous with State Forests the proposed clearing may result in the spread of weeds and dieback *(Phytophthora sp.)* into areas managed by DBCA and vested in the Conservation and Parks Commission. Weed and dieback management practices would assist in minimising this risk.

Outcome

Based on the above assessment, the Delegated Officer has determined that the proposed clearing is considered acceptable **subject to relevant conditions** in relation to this environmental value.

Conditions

To address the above impacts, the following conditions will be added to the permit:

- Implementation of dieback and weed management strategies.

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

Assessment

According to available databases, four birds, ten mammals and one reptile of conservation significance have been recorded within ten kilometres of the application area (Appendix B2d). Of these, the species most likely to occur in the application area are the three vagile species of Threatened black cockatoo that could utilise the tree canopy present, as well as the Priority 4 Quenda *(Isoodon fusciventer).*

The Endangered Carnaby's Cockatoo *(Calyptorhynchus latirostris)* and Baudin's Cockatoo *(Calyptorhynchus baudinii),* as well as the Vulnerable Forest Red-tailed Black Cockatoo *(Calyptohynchus 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 (Commonwealth of Australia 2017; DPaW 2013; DSEWPaC 2012; EPA 2019). Following breeding, they will flock in search of food, usually within six kilometres of a night roost (DSEWPaC 2012; Commonwealth of Australia 2017; 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 (DAWE 2020). 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).

The BirdLife Australia Great Cocky Count (Peck *et al.* 2019) identified five confirmed night roosts within 12 kilometres of the application area being utilised during the 2019 season including five used by 'white-tailed black cockatoos' and, of these, two being shared with the Forest Red-tailed Black-Cockatoo, the closest of which is approximately 720 metres north-west of the application area.

Peck *et al.* (2019) combine Carnaby's Cockatoo and Baudin's Cockatoo records as 'white-tailed black cockatoos', however, numerous records of both species have been made from the local area and it can be assumed that along with the Forest Red-tailed Black-Cockatoo both Carnaby's Cockatoo and Baudin's Cockatoo roost within 12 kilometres of the application area.

The application area is within the breeding distribution for all three black cockatoo species, however, no active black cockatoo breeding sites have been recorded from the local area. (There are several recorded breeding sites for both 'white-tailed black cockatoos' and the Forest Red-tailed Black-Cockatoo within 35 kilometres of the application area).

The application area is located within foraging distance of confirmed black cockatoo roosts, and potentially within foraging distance from unrecorded breeding sites, and the application area should be viewed in respect to supporting breeding and foraging resources for local populations of Carnaby's Cockatoo, Baudin's Cockatoo and Forest Red-tailed Black-Cockatoo.

A black cockatoo habitat assessment was undertaken over the application area by Emerge (2021). Seventy-five habitat trees were recorded over the application are consisting of 56 Jarrah *(Eucalyptus marginata),* 15 Marri *(Corymbia calophylla*) and three Blackbutt *(Eucalyptus patens).* One Jarrah at 62 centimetres DBH contained a hollow that was considered potentially suitable for use as breeding habitat by black cockatoos (Appendix E2; Appendix E3). No other habitat trees recorded potential breeding hollows, and no evidence of black cockatoo roosting activity was observed over the application area.

All three black cockatoo species forage on the Marri and Jarrah canopy dominating the application area with Red-tailed Black Cockatoos feeding predominantly on Jarrah but also Marri, Baudin's Cockatoo feeding on Marri but also Jarrah and Carnaby's Cockatoo feeding on predominantly on proteaceous plant species, but also Marri and Jarrah. Emerge (2021) recorded a total of 1.98 hectares of black cockatoo foraging habitat over the 2.43 hectare footprint of the application area comprising primary foraging plants for Carnaby's Cockatoo and Forest Red-tailed Black Cockatoo and a mixture of primary and secondary plants for Baudin's Cockatoo.

The application area is within foraging distance of known roosts utilised by three Threatened black cockatoo species. No evidence of black cockatoo roosting activity was observed, and just one tree contained a potential hollow. The Shire of Murray has committed to retaining all identified black cockatoo habitat trees (Section 3.1). Available foraging habitat consists of dominant eucalypts and the retention identified black cockatoo habitat trees will ensure foraging habitat is retained over the application area.

Quenda are known from the vicinity and within 425 metres of the application area. Quenda require a dense understorey for cover (van Dyck and Strahan 2008). The narrow strip proposed for clearing is unlikely to provide large areas of dense vegetation. Proposed clearing is unlikely to remove core habitat for the Quenda, nor inhibit the species capacity to disperse across the landscape.

The application area represents the general habitat requirements of the Vulnerable Chuditch *(Dasyurus geoffroii),* Conservation Dependant South-western Brush-tailed Phascogale *(Phascogale tapoatafa wambenger)*, as well as the Priority 4 listed Western Brush Wallaby (*Notamacropus irma),* Western False Pipistrelle *(Falsistrellus mackenziei)* and the Darling Range Heath Ctenotus *(Ctenotus delli).* That is, sclerophyll forests of the Darling Plateau. The Chuditch and Brush-tailed Phascogale are 'critical weight range' (CWR) mammals whose distribution and abundance have declined severely, most likely due to fox and feral cat predation (Burbidge and McKenzie 1989). Both are wide-ranging with large home ranges requiring large areas of habitat such as Lane Poole Reserve approximately four kilometres to the south where feral predator control is being implemented (DBCA 2020b). The Western Brush Wallaby has been recorded in the vicinity, but is a grazer and optimum habitat is more open forest or woodland, particularly open seasonally wet flats with low grasses (DBCA 2020c). The Western False Pipistrelle *(*a bat) may potentially

overfly the application area, however, its range has contracted to old growth forest and higher rainfall eucalypt woodlands (Richards *et al.* 2012). The Darling Range Heath Ctenotus (a skink) typically requires dense undergrowth not present over the application area, but also occurs on laterites of the Darling Plateau (Smithies 2016).

Outcome

Based on the above assessment, the Delegated Officer has determined that the proposed clearing is considered acceptable **subject to relevant conditions** in relation to this environmental value.

Conditions

To address the above impacts, the following conditions will be added to the permit:

- Avoidance of all identified black cockatoo habitat trees.
- Implementation of dieback and weed management strategies.

3.2.3. Environmental value: nearby conservation areas – Clearing Principle (h)

Assessment:

Proposed clearing comprises native vegetation on both sides of Nanga Road, Dwellingup in Degraded to Good condition utilising the values of Keighery (1994). The application area along Nanga Road, traverses road reserves. However, due to historical road construction, cadastral boundaries and the actual road alignment do not align as they should and as such proposed clearing also incorporates areas outside of the road reserve in lands vested in the Conservation Commission and managed by DBCA. That is, State Forest 14 Dwellingup and Wuraming (as well as a small area of Unallocated Crown Land). DBCA is aware of the inconsistency of tenure and have given in principle agreement to the proposed clearing (see Section 3.3 below).

State Forest 14 abuts Lane Poole Reserve approximately four kilometres to the south-west of the application area. Lane Poole Reserve is a Conservation Park which is managed identically to a National Park. Vegetation of the application area is contiguous with State Forest 14 and Lane Poole Reserve.

Over 80 per cent of both the Dwellingup D1 (SWF 78) and Yarragil 1 (SWF 318) vegetation units have been retained, and over 70 percent of remnant vegetation remains in the local area of a ten kilometre radius of the application area (Appendix B3). The clearing of up to 0.8 hectares of native vegetation along both sides of the existing Nanga Road alignment is unlikely to impact State Forest 14 or Lane Poole Reserve. However, the construction process has the potential to introduce or spread dieback and weeds into adjacent native vegetation managed for conservation purposes, and the implementation of dieback and weed management strategies will reduce this risk.

Outcome: Based on the above assessment, the Delegated Officer has determined that the proposed clearing is considered **acceptable subject to relevant conditions (see below)** in relation to this environmental value.

Conditions: To address the above impacts, the following conditions will be added to the permit:

- Implementation of dieback and weed management strategies.

3.3. Relevant planning instruments and other matters

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

Proposed clearing comprises native vegetation on both sides of Nanga Road, Dwellingup. The application area along Nanga Road traverses gazetted road reserves, however, due to historical road construction cadastral boundaries and the actual road alignment do not align as they should, and as such proposed clearing also incorporates areas outside of the road reserve in lands vested within the Conservation Commission and managed by DBCA. That is, State Forest 14 Dwellingup and State Forest 14 Wuraming. DBCA is aware of the inconsistency of tenure and have given in principle agreement to the proposed clearing contingent upon all trees removed off State Forest during the process being stacked aside for assessment and use by the Forest Products Commission (FPC) (DBCA 2020a).

Local government approvals under the *Planning and Development Act 2005,* or any other Act, are not required and clearing is consistent with the Shire of Murray Town Planning Scheme No. 4.

The application area is not located within any clearing control catchment under the *Country Areas Water Supply Act 1947* (CAWS Act), or any public drinking water source area. The application area is located within the Murray River System surface water area, proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act). There are no rivers proclaimed under the RIWI Act in the vicinity of the application area and there will be no disturbance to watercourses.

The application area is located within the boundaries of the Gnaala Karla Booja Indigenous Land Use Agreement (WI2015/005) and registered Native Title claim (WAD6274/1998). No Aboriginal sites of significance have been

recorded within the application area. It is the applicant's responsibility to ensure compliance with any obligations under the *Aboriginal Heritage Act 1972.*

The Delegated Officer noted the purpose of the clearing to reduce roadside hazards as a component of the State Black Spot program to improve public safety.

Appendix A –Information provided by applicant

Summary	Reference
Supporting Information for clearing permit application CPS 8994/1 including a justification and description of clearing activities, avoidance and minimisation actions, and representative photographs of the application area.	Shire of Murray (2020)
Additional supporting information for clearing permit application CPS 8994/1 that included avoidance and minimisation actions, and a black cockatoo habitat assessment that considered the habitat variables of breeding habitat, roosting habitat, and foraging habitat for three species of black cockatoo recorded from the local area.	Shire of Murray (2021) Emerge (2021)

Appendix B – 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 C.

1. Site summary

Site characteristic	Details
Local context	The application area is situated within the Jarrah Forest bioregion (JAF) of Thackway and Cresswell (1995), and the Northern Jarrah Forest subregion (JAF01). The proposed clearing area comprises 0.8 hectares on both sides of Nanga Road, Dwellingup. Spatial data indicates that the local area (ten kilometre radius of the proposed clearing area) retains over 75 per cent of the original native vegetation cover.

Vegetation description (Mattiske and Havel 1998)	Mattiske and Havel (1998) as updated by Webb *et al.* (2016) have described and mapped the application area as:
	• Central portion
	  ○ Dwellingup, D1 (SWF 78): Open forest of *Eucalyptus marginata subsp. marginata - Corymbia calophylla* on lateritic uplands in mainly humid and subhumid zones.
	• Northern and Southern portions
	  ○ Yarragil 1 (SWF 318): Open forest of *Eucalyptus marginata subsp. marginata - Corymbia calophylla* on slopes with mixtures of *Eucalyptus patens* and *Eucalyptus megacarpa* on the valley floors in humid and subhumid zones.
	
	Assessing the photographs provided by the applicant (Appendix D) overstorey vegetation consists of Marri *(Corymbia calophylla)* and Jarrah *(Eucalyptus marginata)* over low shrubs, consistent with regional mapping.

Vegetation condition (Keighery 1994)	Based on the representative photographs provided (Appendix E) vegetation immediately adjacent to the road is in Degraded to Good condition utilising the scale of Keighery (1994) (Appendix D).

Soil description (Schoknecht, *et al.* 2004)	The application area is located within the Darling Plateau System. That is, a lateritic plateau with duplex sandy gravels, loamy gravels and wet soils supporting Jarrah-Marri-Wandoo forest and woodland.
	
	Two soils units have been mapped and described corresponding to the two regional vegetation units:
	• Dwellingup Subsystem (255Dp-DW)
	  ○ Divides lower to upper slopes and hillcrests:
	  ▪ Duplex sandy gravels and loamy gravels with minor areas of shallow gravels, deep sandy gravels, yellow deep sands and yellow and pale deep sands, often gravelly.
	• Yarragil Subsystem (255Dp-YG)
	  ○ Shallow, narrow, upper valleys of the deeply dissected Murray, Bindoon and Helena units:
	  ▪ Alluvial, clay and loam soils, moderately well drained, often gravelly, with some sands and loams. Salt prone.

<table>
<tr><td>Land degradation risk (DPIRD 2017).</td><td>Land degradation risk ratings are provided in the table below.
<table>
<tr><th rowspan="3">Aspect</th><th colspan="4">Degradation risk</th></tr>
<tr><th colspan="2">Dwellingup Subsystem</th><th colspan="2">Yarragil Subsystem</th></tr>
<tr><th colspan="2">Hazard Rating</th><th colspan="2">Hazard Rating</th></tr>
<tr><td>Wind Erosion</td><td>H2</td><td>+High</td><td>H1</td><td>-High</td></tr>
<tr><td>Water Erosion</td><td>L2</td><td>+Low</td><td>M1</td><td>-Medium</td></tr>
<tr><td>Waterlogging</td><td>L1</td><td>-Low</td><td>M1</td><td>-Medium</td></tr>
<tr><td>Water repellance</td><td>M1</td><td>-Medium</td><td>M1</td><td>-Medium</td></tr>
<tr><td>Phosphorus export</td><td>M1</td><td>-Medium</td><td>M2</td><td>+Medium</td></tr>
<tr><td>Salinity</td><td>L1</td><td>-Low</td><td>L1</td><td>-Low</td></tr>
<tr><td>Flood Risk</td><td>L1</td><td>-Low</td><td>L2</td><td>+Low</td></tr>
</table>
Acid sulphate soil risk has not been mapped over the application area.</td></tr>
<tr><td>Waterbodies</td><td>The application area is located in the Western Darling Range hydrological zone and the Murray River Catchment.

No wetlands or watercourses bisect the application area. There are no geomorphic wetlands within the vicinity of the application area, with the closest located over seven kilometres to the west.

Archies Brook, a minor tributary of the Murray River is located approximately 30 metres to the west of the application area and Davis Brook, a minor river and tributary of the Murray River, is located approximately 860 to the east of the application area. Drainage reports to the Murray River, a mainstream river approximately 2.6 kilometres to the south.

The application area is located within the Murray River System surface water area, proclaimed under the Rights in Water and Irrigation Act 1914 (RIWI Act).

The Dwellingup Groundwater Area, proclaimed under the RIWI Act, is located approximately 470 metres to the north-west of the application area.

There are no rivers proclaimed under the RIWI Act in the vicinity of the application area.

The application area is not located within a clearing control catchment under the Country Areas Water Supply Act 1947 (CAWS Act), or a public drinking water source area.

A public drinking water source area is located approximately 2.1 kilometres north of the application area.

Groundwater is mapped at 500-1,000 TDS. (That is, ‘fresh’).</td></tr>
<tr><td>Conservation areas</td><td>The application area intersects State Forest 14 Dwellingup (F14) and State Forest 14 Wuraming (F14) at several areas. State Forest 14 is a Class A reserve vested in the Western Australian Conservation and Parks Commission and managed by the Department of Biodiversity, Conservation and Attractions (DBCA).

Lane Poole Reserve is a Conservation Park vested in the Western Australian Conservation and Parks Commission, and managed by the DBCA, located approximately four kilometres to the south-west and approximately five kilometres to the south-east of the application area.

The application area is not within an Environmentally Significant Area (ESA).</td></tr>
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Climate and landform	The climate of Dwellingup is warm and temperate. The winter months have higher rainfall than summer months with an annual rainfall of approximately 1,228 millimetres (BOM 2020). The application area is located within the Darling Plateau System. That is, a lateritic plateau with duplex sandy gravels, loamy gravels and wet soils supporting Jarrah-Marri-Wandoo forest and woodland.

2. Ecosystem, flora, and fauna analysis

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

2a) Ecological Linkages
There are no recognised ecological linkages within the local area.

2b) Ecological Communities
There are no TECs endorsed by the Western Australian Minister for the Environment mapped within ten kilometres of the application area.

There are no TECs listed under the EPBC Act mapped within ten kilometres of the application area.

There are no PECs listed by the DBCA within ten kilometres of the application area.

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

Fourteen Priority flora taxa have been recorded within ten kilometres of the application area; One P2; six P3; and seven P4.

Taxon	Status	Soils/Habitat present	Likelihood	~ Closest record (km)
Grevillea manglesii subsp. ornithopoda	P2	No	Unlikely	3.9
Grevillea manglesii subsp. dissectifolia	P3	Yes	Possible	0.5
Acacia horridula	P3	Yes	Possible	7.7
Acacia oncinophylla subsp. oncinophylla	P3	No	Unlikely	0.4
Boronia capitata subsp. gracilis	P3	No	Unlikely	8.4
Lasiopetalum membranaceum	P3	No	Unlikely	0.5
Tetratheca pilifera	P3	No	Unlikely	7.2
Calothamnus graniticus subsp. leptophyllus	P4	Yes	Possible	0.4
Chorizema ulotropis	P4	No	Unlikely	0.6
Eucalyptus x graniticola	P4	No	Unlikely	9.9
Parsonsia diaphanophleba	P4	No	Unlikely	1.9
Pimelea rara	P4	Yes	Possible	7.1
Senecio leucoglossus	P4	No	Unlikely	3.8
Stylidium ireneae	P4	No	Unlikely	5.5

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

Three black cockatoos of conservation significance are known from the local area and likely to occur, as is the Priority 4 Quenda.

The vulnerable Chuditch, and conservation dependant South-west Brush-tailed Phascogale possible occur, as well as the Priority 4 Western Brush Wallaby and Western False Pipistrelle.

Taxon	Common name	Status	Habitat present	Likelihood	~ Closest record (km)
Birds					
Calyptorhynchus baudinii	Baudin's Cockatoo	EN	Yes	Likely	1.2
Calyptorhynchus latirostris	Carnaby's Cockatoo	EN	Yes	Likely	0.4
Calyptorhynchus banksii naso	Forest Red-tailed Black Cockatoo	VU	Yes	Likely	0.1

Taxon	Common name	Status	Habitat present	Likelihood	~ Closest record (km)
Leipoa Ocellata	Malleefowl	VU	No	Unlikely	9.8
Mammals					
Bettongia penicillata ogilbyi	Woylie	CR	Yes	Unlikely	4.4
Pseudocheirus occidentalis	Western Ringtail Possum	CR	No	Unlikely	3.8
Myrmecobius fasciatus	Numbat	EN	No	Unlikely	0.8
Dasyurus geoffroii	Chuditch	VU	Yes	Possible	0.3
Setonix brachyurus	Quokka	VU	No	Unlikely	0.8
Phascogale calura	Red-tailed Phascogale	CD	No	Unlikely	0.4
Phascogale tapoatafa wambenger	Brush-tailed Phascogale (SW)	CD	Yes	Possible	3.9
Isoodon fusciventer	Quenda	P4	Yes	Likely	0.4
Notamacropus irma	Western Brush Wallaby	P4	Yes	Possible	0.4
Hydromys chrysogaster	Water Rat	P4	No	Unlikely	0.9
Falsistrellus mackenziei	Western False Pipistrelle	P4	Yes	Possible	0.4
Reptiles					
Ctenotus delli	Darling Range Heath Ctenotus	P4	Yes	Possible	9.1

2e) Black cockatoo habitat assessment

Habitat trees (DBH >50cm)	No.	Potential hollows
Jarrah	56	One
Marri	15	None
Blackbutt	3	None
Unknown stag	1	None
	75	**1**

3. Vegetation extent

3a) Regional vegetation mapping

Factor		Pre-European Extent (ha)	Current Extent (ha)	Remaining (%)	Protected for Conservation (ha)	Protected for Conservation (%)
SWF (78)	Dwellingup D1	208,491	181,039	86.8	17,407	8.3
SWF (318)	Yarragil 1	80,203	64,927	81.0	7,912	9.9
JAF	Jarrah Forest	4,506,660	2,399,838	53.3	617,065	13.7
JAF(01)	Northern Jarrah Forest	1,898,781	1,108,380	58.4	188,182	9.9

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

Remnant Vegetation	Hectares	Remaining %
Total Area (10 km radius)	35,262	100
Remnant vegetation remaining	26,724	75.8

Appendix C – Assessment against the Clearing Principles

Assessment against the Clearing Principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: Vegetation is along an existing road verge and in Degraded to Good condition using the values of Keighery (1994). There are no TECs endorsed by the Western Australian Minister for the Environment, or listed under the EPBC Act mapped within ten kilometres of the application area and no PECs listed by the DBCA. Fourteen Priority flora taxa listed by the DBCA have been recorded within ten kilometres of the application area of which habitat is consistent with four Priority taxa.	Not likely to be at variance	Yes See Section 3.2.1
Principle (b): *"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."* Assessment: Fauna species of conservation significance have been recorded in the vicinity of the application area that have the potential to occur within the habitats present, including; three black cockatoos of conservation significance, as well as the Priority 4 Quenda.	Not likely to be at variance	Yes See Section 3.2.2
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: No Threatened flora taxa have been recorded within ten kilometres of the application area, and the application area is unlikely to include, or be necessary for, the continued existence of Threatened flora."	Not likely to be at variance	No
Principle (d): *"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."* Assessment: No TECs endorsed by the Western Australian Minister for Environment have been mapped within ten kilometres of the application area. Vegetation over the application area does not align with any TECs, and the application area is unlikely to comprise the whole or a part of, or be necessary for the maintenance of, a Threatened Ecological Community.	Not at variance	No
Environmental values: significant remnant vegetation and conservation areas		
Principle (e): *"Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."* 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 the year 1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia 2001). Two south west forests vegetation complexes of Mattiske and Havel (1998) have been mapped over the application area (Mattiske and Havel, 1998 as updated by Webb *et al.* 2016): SWF (78) Dwellingup D1, and SWF (318) Yarragil 1. Both these complexes have over 80 per cent of their original extent remaining (Government of Western Australia 2019) (Appendix B.3). Within a ten kilometre radius of the application area over 75 per cent of native vegetation is retained (Appendix B3). Vegetation in the application area is not considered to be part of a significant ecological linkage in the local area. The	Not at variance	No

Assessment against the Clearing Principles	Variance level	Is further consideration required?
application area is not considered significant as a remnant of native vegetation in an area that has been extensively cleared.		
Principle (h): *"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."* Assessment: Proposed clearing comprises native vegetation on both sides of Nanga Road, Dwellingup in Degraded to Good condition utilising the values of Keighery (1994). The application area along Nanga Road, traverses road reserves. However, due to historical road construction cadastral boundaries and the actual road alignment do not align as they should, and as such proposed clearing also incorporates areas outside of the road reserve in lands vested in the Conservation Commission and managed by DBCA. That is, State Forest 14 Dwellingup and Wuraming (as well as a small area of Unallocated Crown Land).	May be at variance	Yes See Section 3.2.3
Environmental values: land and water resources		
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment: The application area is located in the Western Darling Range hydrological zone and the Murray River Catchment. No wetlands or watercourses bisect the application area, and there are no geomorphic wetlands within the vicinity of the application area, with the closest located over seven kilometres to the west. Archies Brook, a minor tributary of the Murray River is located approximately 30 metres to the west of the application area and Davis Brook, a minor river and tributary of the Murray River, is located approximately 860 to the east of the application area. There are no watercourses intersecting the application area vegetation is not growing in, or in association with, an environment associated with a watercourse or wetland.	Not at variance	No
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: The mapped soils of the Dwellingup and Yarragil sub-systems are susceptible to wind erosion (DPIRD 2017). Other aspects are rated at medium or low (Appendix B1). Standard and staged 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 minor extent of proposed clearing along an existing road, the proposed clearing is not likely to cause appreciable land degradation.	Not likely to be at variance	No
Principle (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."* Assessment: The application area is located within the Murray River System surface water area, proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act). The Dwellingup Groundwater Area, proclaimed under the RIWI Act, is located approximately 470 metres to the north-west of the application area. There are no rivers proclaimed under the RIWI Act in the vicinity of the application area.	Not likely to be at variance	No

Assessment against the Clearing Principles	Variance level	Is further consideration required?
The application area is not located within a clearing control catchment under the *Country Areas Water Supply Act 1947* (CAWS Act), or a public drinking water source area. Proposed clearing will not intersect groundwater, and there are no watercourses intersection the application area and clearing of the vegetation is unlikely to cause deterioration in the quality of surface or underground water.		
Principle (j): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."* Assessment: The mapped soils of the Dwellingup and Yarragil sub-systems are not susceptible to flooding or water-logging (DPIRD 2017), and the application area is located outside of any recognised floodplain areas. The hydrology of the area is altered due to existing roadside infrastructure. Surface flow may occur over short distances for short periods during, and immediately after, very intense rainfall. Standard road construction methodologies will be implemented including strategies for drainage controls and water erosion and any potential for flooding can be managed through appropriate drainage design. Given the small scale of the proposed clearing and standard construction methodologies employed proposed clearing is unlikely to cause, or exacerbate, the incidence or intensity of flooding.	Not at variance	No

Appendix D – 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 E –Biological survey information

1. Representative photographs of the application area

2. Biological survey excerpts (Emerge 2021)

4.4 Habitat trees

A total of 75 black cockatoo habitat trees were recorded within the site as shown in **Figure 3**.

The habitat trees comprised 15 *Corymbia calophylla* (marri), 3 *Eucalyptus patens* (Swan River blackbutt), 56 *Eucalyptus marginata* (jarrah) and 1 stag (dead tree).

One jarrah tree was determined to have a 'potentially suitable hollow(s)' (tree ID 282). No hollow inspection was undertaken for this tree as it was located close to the road and use of the pole camera was considered unsafe without traffic management. The hollow in tree ID 282 did not exhibit any signs of use when viewed from the ground. The remaining trees were determined to not contain hollows suitable for black cockatoos.

A summary of the habitat trees recorded within the site is provided in **Table 5** and an inventory in **Appendix C.**

Table 5: Habitat trees recorded within the site

Category	No. trees	No. hollows
Confirmed nest	-	-
Potential nest	-	-
Suitable hollow(s)	-	-
Potentially suitable hollow(s)	1	1
No suitable hollow(s)	74	N/A
Total	**75**	**1**

4.5 Roosting habitat

No roosts or secondary evidence of roosting was observed within the site during the survey.

Native and non-native trees within the site have the potential to provide roosting habitat for black cockatoos.

4.6 Foraging habitat

No black cockatoos were observed foraging within the site during the field survey.

Foraging evidence in the form of chewed marri fruits attributed to forest red-tailed black cockatoos was observed throughout the site.

A total of 1.98 ha of black cockatoo foraging habitat occurs within the site that consists of marri and jarrah trees. The location of the foraging habitat mapped within the site is shown **Figure 3**.

Marri is a primary foraging plant for all three species of black cockatoo and jarrah is a primary foraging plant for Carnaby's cockatoo and forest red-tailed black cockatoo and a secondary foraging plant for Baudin's cockatoo All of the mapped foraging habitat comprises a mixture of marri and jarrah and so was classified as comprising primary or a mix of primary and secondary foraging plants by species as outlined in **Table 6**.

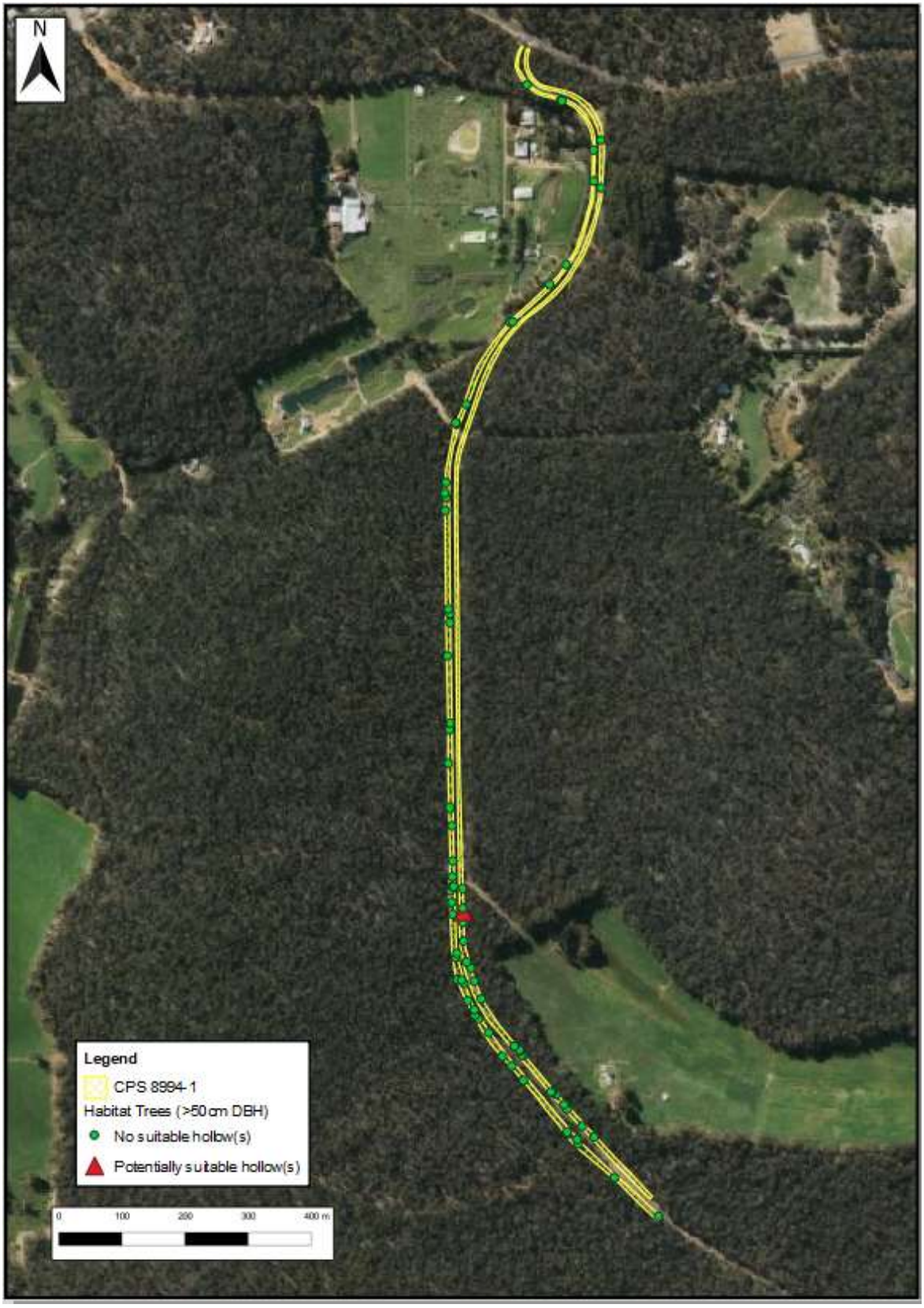
Table 6: Proportion of primary, secondary and non-foraging plants within patches of foraging habitat

	Carnaby's	Baudin's	Forest red-tailed
	ha	ha	ha
Primary foraging plants	1.98	0.39	29.68
Secondary foraging plants	0	1.58	0
Non-foraging plants	**0**	**0**	**0**
Total	1.98	1.98	29.68

3. Habitat tree locations (Emerge 2021 data)

EP20-146(01) Habitat Tree Data

Easting	Northing	DBH_cm	Species	Forage_ev	Hollows	Hollow_sui	Recorder	Rec_Date	BC_Label
412831.1455	6379050.834	66	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
412831.7636	6379023.122	69	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
412832.8718	6379067.702	63	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
412833.2713	6379043.536	55	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
412835.0956	6378792.986	64	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
412836.7777	6378622.704	64	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
412836.7893	6378866.951	55	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
412838.2805	6378675.713	56	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
412838.947	6378845.35	54	Corymbia calophylla	FRTBC	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
412839.0089	6378859.653	74	Eucalyptus marginata	None	Yes	FALSE	SCM	10/12/2020	No suitable hollow(s)
412839.1664	6378553.432	79	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
412839.3644	6378402.761	61	Eucalyptus marginata	None	Maybe	FALSE	SCM	10/12/2020	No suitable hollow(s)
412839.6883	6378686.147	52	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
412840.0297	6378423.056	55	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
412842.217	6378526.184	52	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
412842.2508	6378404.893	74	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
412842.6868	6378429.953	55	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
412842.9264	6378445.366	67	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
412843.5417	6378385.946	67	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
412843.6445	6378470.318	50	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
412845.1242	6378429.864	66	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
412848.0677	6379162.296	51	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
412848.4525	6378317.582	65	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
412849.8934	6378324.247	53	Corymbia calophylla	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
412849.9595	6379160.317	57	Corymbia calophylla	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
412850.6351	6378282.455	65	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
412857.7664	6378281.409	52	Corymbia calophylla	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
412859.1155	6378426.661	53	Eucalyptus marginata	None	No	FALSE	MS	10/12/2020	No suitable hollow(s)
412859.2952	6378395.508	79	Eucalyptus marginata	None	No	FALSE	MS	10/12/2020	No suitable hollow(s)
412859.7739	6378373.005	53	Eucalyptus marginata	None	No	FALSE	MS	10/12/2020	No suitable hollow(s)
412860.0945	6378389.86	62	Eucalyptus marginata	None	Yes	TRUE	MS	10/12/2020	Potentially suitable hollow(s)
412860.5002	6378343.631	52	Eucalyptus marginata	None	No	FALSE	MS	10/12/2020	No
412861.654	6378276.232	73	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No
412864.774	6379191.601	54	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No
412865.4783	6378310.303	51	Eucalyptus marginata	None	No	FALSE	MS	10/12/2020	No
412867.5176	6378248.788	63	Eucalyptus marginata	None	Maybe	FALSE	SCM	10/12/2020	No
412872.216	6378300.716	69	Eucalyptus marginata	FRTBC	No	FALSE	MS	10/12/2020	No
412877.6454	6378280.031	61	Eucalyptus marginata	FRTBC	No	FALSE	MS	10/12/2020	No
412877.8578	6378234.466	52	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No
412879.0562	6378226.05	55	Corymbia calophylla	FRTBC	Maybe	FALSE	SCM	10/12/2020	No
412884.4479	6378220.332	56	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No
412888.8588	6378251.636	65	Eucalyptus marginata	FRTBC	No	FALSE	MS	10/12/2020	No
412900.8532	6378198.302	63	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No
412922.2682	6378160.683	60	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No
412934.203	6379321.928	80	Corymbia calophylla	None	No	FALSE	SCM	10/12/2020	No
412936.8337	6378145.4	51	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No
412938.6984	6379322.3	50	Corymbia calophylla	None	No	FALSE	SCM	10/12/2020	No
412941.3374	6378176.816	64	Eucalyptus marginata	None	No	FALSE	MS	10/12/2020	No
412949.4504	6378170.678	59	Eucalyptus marginata	None	No	FALSE	MS	10/12/2020	No
412949.8407	6378168.908	67	Eucalyptus marginata	None	No	FALSE	MS	10/12/2020	No
412952.8956	6378162.504	54	Corymbia calophylla	FRTBC	No	FALSE	MS	10/12/2020	No
412955.5203	6378162.416	69	Eucalyptus marginata	None	No	FALSE	MS	10/12/2020	No
412955.6808	6378122.726	62	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No
412961.2743	6379697.903	52	Corymbia calophylla	None	No	FALSE	MS	10/12/2020	No
412997.2267	6379381.241	54	Corymbia calophylla	None	No	FALSE	SCM	10/12/2020	No
412999.0412	6378104.48	70	Eucalyptus marginata	None	No	FALSE	MS	10/12/2020	No
413002.232	6378103.954	52	Eucalyptus marginata	None	No	FALSE	MS	10/12/2020	No
413007.9789	6378100.456	52	Eucalyptus marginata	None	No	FALSE	MS	10/12/2020	No
413015.4695	6379673.986	52	Corymbia calophylla	FRTBC	No	FALSE	MS	10/12/2020	No
413016.5159	6379672.221	51	Corymbia calophylla	FRTBC	No	FALSE	MS	10/12/2020	No
413020.2084	6378084.376	56	Eucalyptus marginata	None	No	FALSE	MS	10/12/2020	No
413023.3777	6379413.068	62	Eucalyptus patens	None	No	FALSE	SCM	10/12/2020	No
413024.7693	6378077.21	63	Eucalyptus marginata	None	No	FALSE	MS	10/12/2020	No
413025.0888	6378040.736	89	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
413025.2078	6378037.855	55	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
413040.841	6378029.011	50	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
413041.9339	6378021.925	52	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
413048.7169	6378049.924	64	Eucalyptus marginata	None	No	FALSE	MS	10/12/2020	No suitable hollow(s)
413066.8713	6379594.388	60	Eucalyptus patens	None	No	FALSE	MS	10/12/2020	No suitable hollow(s)
413067.2055	6379545.498	51	Eucalyptus patens	None	No	FALSE	MS	10/12/2020	No suitable hollow(s)
413067.7933	6378033.128	74	Corymbia calophylla	FRTBC	No	FALSE	MS	10/12/2020	No suitable hollow(s)
413078.2627	6379610.01	51	Corymbia calophylla	FRTBC	No	FALSE	MS	10/12/2020	No suitable hollow(s)
413078.7359	6379534.512	82	Stag	None	No	FALSE	MS	10/12/2020	No suitable hollow(s)
413099.9357	6377968.883	67	Corymbia calophylla	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)
413169.9126	6377907.297	83	Eucalyptus marginata	None	No	FALSE	SCM	10/12/2020	No suitable hollow(s)


N
Legend
CPS 8994-1
Habitat Trees (>50cm DBH)
No suitable hollow(s)
Potentially suitable hollow(s)
0
100
200
300
400 m

Appendix F – References and databases

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2. GIS datasets

Publicly available GIS Databases used (sourced from 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)