



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: CPS 9291/1
File Number: DWERVT7956
Duration of Permit: From 16 October 2021 to 16 October 2023

PERMIT HOLDER

Shire of Serpentine Jarrahdale

LAND ON WHICH CLEARING IS TO BE DONE

Crown Reserve R 16634, Jarrahdale
Kingsbury Drive road reserve (PIN's 11539546 and 11539547), Jarrahdale

AUTHORISED ACTIVITY

The permit holder must not clear more than 0.117 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

CONDITIONS

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

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

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

2. Weed and dieback management

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

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;

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

3. Directional clearing

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

4. Records that must be kept

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

Table 1: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	<ul style="list-style-type: none"> (a) the species composition, structure, and density of the cleared area; (b) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings; (c) the date that the area was cleared; (d) the size of the area cleared (in hectares); (e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 1; (f) actions taken to minimise the risk of the introduction and spread of weeds and dieback in accordance with condition 2; and (g) direction of clearing in accordance with condition 3.

5. Reporting

The permit holder must provide to the *CEO* the records required under condition 4 of this permit when requested by the *CEO*.

DEFINITIONS

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

Table 2: Definitions

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

END OF CONDITIONS



Mathew Gannaway
MANAGER
NATIVE VEGETATION REGULATION
*Officer delegated under Section 20
of the Environmental Protection Act 1986*

22 September 2021

SCHEDULE 1

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

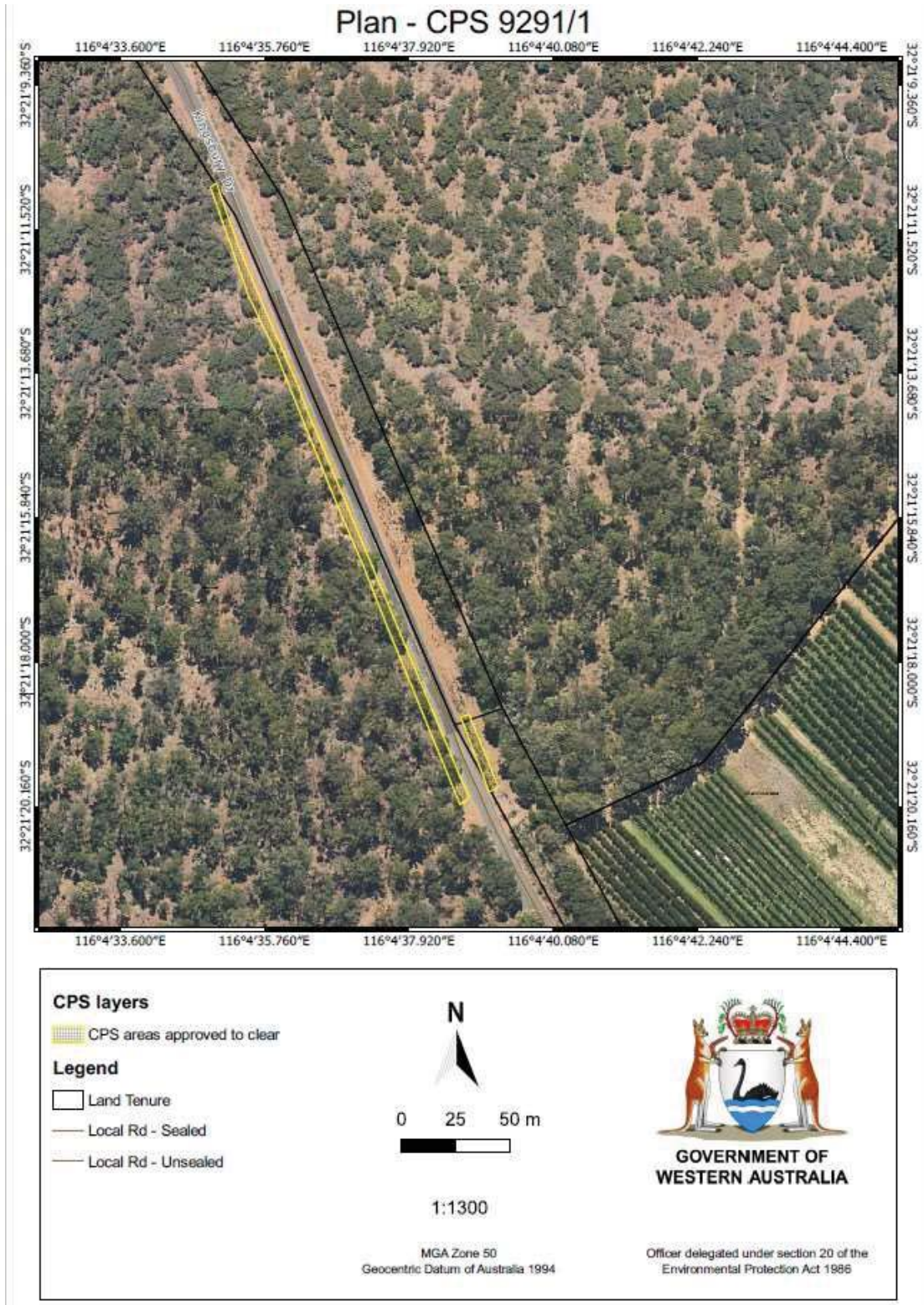


Figure 1: Map of the boundary of the area within which clearing may occur



Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 9291/1
Permit type:	Area permit
Applicant name:	Shire of Serpentine Jarrahdale
Application received:	17 May 2021
Application area:	0.117 hectares of native vegetation
Purpose of clearing:	Road maintenance
Method of clearing:	Mechanical
Property:	Crown Reserve R 16634 Kingsbury Drive road reserve (PIN's 11539546 and 11539547)
Location (LGA area/s):	Shire of Serpentine Jarrahdale
Localities (suburb/s):	Jarrahdale

1.2. Description of clearing activities

The 0.117 hectares of proposed clearing is for the purpose of road improvement works. It includes two adjacent linear sections of road reserve covering an area approximately 300 by 4 metres and 40 by 4 metres respectively (see Figure 1, Section 1.5). The vegetation within the smaller portion on the eastern side of the road comprises planted natives as part of road reserve rehabilitation. The larger western portion comprises mostly unvegetated road reserve and mid-sized trees forming the woodland periphery of a single contiguous area of extensive woodland.

1.3. Decision on application

Decision:	Granted
Decision date:	22 September 2021
Decision area:	0.117 hectares of native vegetation, as depicted in Section 1.5, below.

1.4. Reasons for decision

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

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

The assessment identified that the proposed clearing will result in:

- The loss of native vegetation that contains suitable foraging habitat for *Calyptorhynchus baudinii*, (Baudin's cockatoo), *Calyptorhynchus latirostris* (Carnaby's cockatoo), *Calyptorhynchus banksii* subsp. *naso* (Forest

red-tailed cockatoo), *Tyto novaehollandiae novaehollandiae* (masked owl (southwest), *Falsistrellus mackenziei* (Western false pipistrelle, western falsistrelle), *Cacatua pastinator pastinator* (Muir's corella), *Isodon fusciventer* (quenda), *Phascogale tapoatafa wambenger* (south-western brush-tailed phascogale), *Dasyurus geoffroyi* (chuditch), and *Pseudocheirus occidentalis* (Western ringtail possum).

- The loss of native vegetation that may also contain suitable habitat for *Acanthopis antarcticus* (southern death adder) and *Ctenotus delli* (Dell's skink).
- The potential introduction and spread of weeds and dieback into adjacent vegetation, which could impact to the quality of the adjacent vegetation and its habitat values.

The Delegated Officer considered that the loss of minimal foraging and breeding habitat within the application area was not significant due to its location within an extensively vegetated landscape. The small clearing area occurs within an area bounded by state forest where breeding and foraging habitat of better condition is likely to occur. Fauna individuals may be present at the time of clearing however. No impacts for flora or vegetation of conservation significance or impacts to an ecological linkage will occur.

After consideration of the available information, the Delegated Officer decided to grant a clearing permit subject to the following requirements conditioned on the clearing permit, to manage and address the impacts of clearing:

- Undertake slow, progressive clearing towards adjacent native vegetation, allowing terrestrial fauna to move into adjacent habitat ahead of the clearing activity.
- Take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback.

1.5. Site map

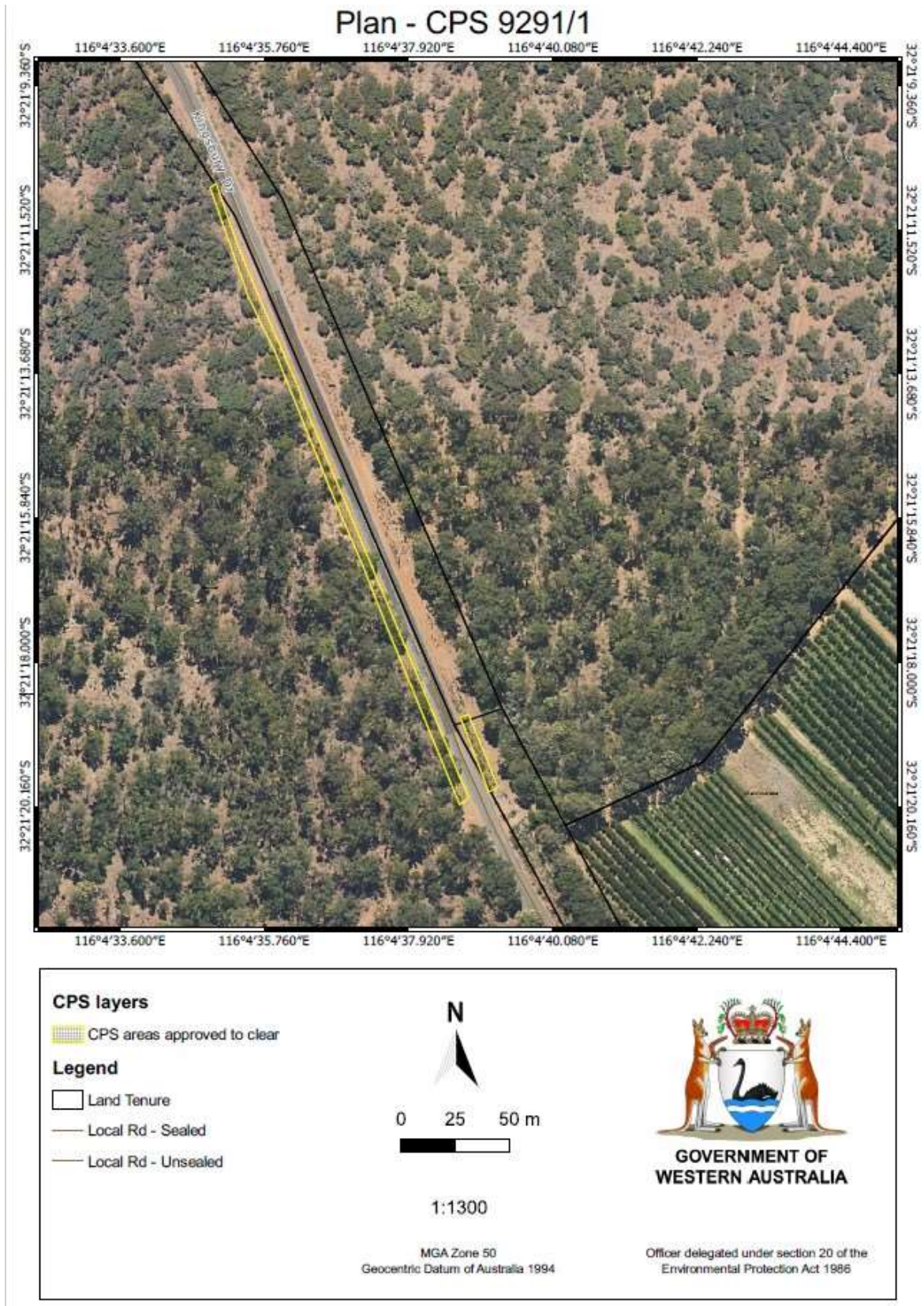


Figure 1 Map of the application area.

The area crosshatched yellow indicates the area authorised to be cleared under the granted clearing permit.

2 Legislative context

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

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

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

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Planning and Development Act 2005* (WA) (P&D Act)
- *Soil and Land Conservation Act 1945* (WA)

Relevant policies considered during the assessment include:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

The applicant advised that only those plants or trees that are too close to the road upgrade and table drain will be removed. The Shire of Serpentine-Jarrahdale will prioritise pruning to removal where possible (Shire of Serpentine-Jarrahdale, 2021).

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

3.2. Assessment of impacts on environmental values

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

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

3.2.1. Biological values, Clearing Principle (b)

Assessment

According to available datasets, *Calyptorhynchus banksii naso* (Forest red-tailed cockatoo), *Calyptorhynchus latirostris* (Carnaby's cockatoo) and *Calyptorhynchus baudinii* (Baudin's cockatoo), have been recorded within 0.46, 1.2, and 2.3 kilometres from the application area respectively.

Fifteen black cockatoo roosts have been recorded within the local area. Black cockatoo roost sites are usually located in the tallest trees within a landscape, and in proximity to a food and water supply (Commonwealth of Australia, 2017). Black cockatoo flocks will utilise different roosts, often for weeks, or until the local food supply is exhausted. Black cockatoo flocks show some consistency in roost site preference, with sites used in most years to access high-quality feeding sites. However, not all roosts are used in every year (DPAW, 2013). Foraging resources within 6 kilometres, and up to 12 kilometres of roost sites are important to sustain populations (Commonwealth of Australia 2017). The nearest roost is recorded 2.9 kilometres from the application area. Noting this, the vegetation proposed to be cleared likely provides foraging resource to black cockatoos utilising this roost. Based on available databases, this mapped roost site occurs within a continuous tract of native vegetation approximately 58,637 hectares in size, mapped as black cockatoo feeding habitat, available within the local area, including portions of Serpentine National Park. The loss of 0.117 hectares of foraging habitat in a highly vegetated landscape is unlikely to significantly impact foraging and roosting habitat for black cockatoo species.

Six white tailed black cockatoo breeding sites are recorded in the local area, with the nearest breeding site at 2.5 kilometres east of the application area. Suitable breeding habitat for black cockatoos include trees which either have a suitable nest hollow, or of a suitable diameter at breast height (DBH) to develop a nest hollow. For most tree

species, including jarrah and marri trees, a DBH of at least 500 millimetres is required to develop hollows of suitable size for use by black cockatoos (Commonwealth of Australia, 2012). Photographs supplied by the applicant (see Appendix D) indicate that the vegetation within the application area is comprised of planted natives for road reserve rehabilitation or secondary growth woodland. No trees with a sufficient DBH or contained a hollow of a sufficient size were identified.

Fauna recorded in the local area, such as, *Phascogale tapoatafa wambenger* (south-western brush-tailed phascogale), *Dasyurus geoffroi* (Chuditch) and *Pseudocheirus occidentalis* (Western ringtail possum), *Tyto novaehollandiae novaehollandiae* (Masked owl (southwest), *Cacatua pastinator pastinator* (Muir's corella) and *Falsistrellus mackenziei* (Western false pipistrelle, western falsistrelle), may range through the application area as they forage. However, due to the limited number of trees, their trunk size and proximity to the road, the application area is unlikely to contain breeding habitat for arboreal species.

The proposed clearing may also impact habitat for ground dwelling conservation significant fauna, such as *Isoodon fusciventer* (Quenda), *Setonix brachyurus* (Quokka), *Ctenotus delli* (Dell's skink), and *Acanthopis antarcticus* (southern death adder), as it is possible the home range of the above species could include the application area. Given the small size of the application area (0.117 hectares), and the availability of more extensive, similar quality vegetation adjoining the application area, the proposed clearing is unlikely to significantly impact the available habitat for the above species.

Conclusion

Based on the above assessment, given the small size of the proposed clearing and the availability of suitable habitat in better condition with the adjacent vegetation, the proposed clearing will not result in a significant loss of habitat for the above fauna species. The potential direct impact to fauna present at the time of clearing may be managed by the implementation of a fauna management condition. Weed and dieback management will also assist in ensuring that the adjacent fauna habitat is not impacted by the proposed clearing.

Conditions

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

- Requiring the permit holder to conduct directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity.
- Implement weed and dieback management measures to mitigate impacts to adjacent vegetation.

3.3. Relevant planning instruments and other matters

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

The DWER advertised the application for 21 days on 11 June 2021. No submissions were received in relation to this application.

End

Appendix A. Site characteristics

A.1. Site characteristics

The information provided below describes the key characteristics of the area proposed to be cleared and is based on the best information available to 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.

Characteristic	Details
Local context	The application area is part of a road reserve transecting an extensive tract of Jarrah Forest. Spatial data indicates the local area (10-kilometre radius from the perimeter of the application area) retains approximately 86 per cent of pre-European native vegetation cover.
Ecological linkage	The application area is an informal part of a road conservation linkage between surrounding areas of remnant native vegetation, including Jarrahdale State Forest. The proposed clearing is not likely to sever or reduce the functionality of this linkage.
Conservation areas	The application area falls within Jarrahdale State Forest, which also adjoins Serpentine National Park 0.56 kilometres west of the application area.
Vegetation description	<p>Photographs supplied by the applicant (Shire of Serpentine Jarrahdale 2021) indicate the vegetation within the proposed clearing area consists of <i>Eucalyptus marginata</i> subsp. <i>marginata</i>-<i>Corymbia calophylla</i> woodland. Representative photos are available in Appendix D.</p> <p>This is consistent with the mapped vegetation types:</p> <ul style="list-style-type: none"> • Yarragil 2, which is described as an, Open Forest of <i>Eucalyptus marginata</i> subsp. <i>thalassica</i>-<i>Corymbia calophylla</i> on slopes, woodland of <i>Eucalyptus patens</i>-<i>Eucalyptus rudis</i> with <i>Hakea prostrata</i> and <i>Melaleuca viminea</i> on valley floors in subhumid and semiarid zones (Government of Western Australia, 2019). • Dwellingup D2, which is described as, an open forest of <i>Eucalyptus marginata</i> subsp. <i>marginata</i>-<i>Corymbia calophylla</i> on lateritic uplands in subhumid and semiarid zones (Government of Western Australia, 2019). <p>The mapped vegetation types retain approximately 92 and 82 per cent of the original extent, respectively (Government of Western Australia, 2019).</p>
Vegetation condition	<p>Photographs supplied by the applicant (Shire of Serpentine Jarrahdale 2021) indicate the vegetation within the proposed clearing area ranges from excellent (Keighery, 1994) to degraded (Keighery, 1984) condition.</p> <p>The full Keighery (1994) condition rating scale is provided in Appendix C. Representative photos are available in Appendix D.</p>
Climate and landform	<ul style="list-style-type: none"> • Mean annual rainfall: 1158.3 millimetres • Temperature (mean annual minimum): 19.2 degrees centigrade • Temperature (mean annual maximum): 25.6 degrees centigrade • Landform: Darling Plateau System. Lateritic plateau. Duplex sandy gravels, loamy gravels and wet soils. Jarrah-marri-wandoo forest and woodland.
Soil description	<p>The soil is mapped as:</p> <ul style="list-style-type: none"> • Yarragil 1 Phase: Very gentle to moderately inclined concave side slopes. Moderately well drained yellow duplex soils and yellow and brown massive earths and gravels. • Dwellingup 2 Phase: Very gently to gently undulating terrain (<10%) with well drained, shallow to moderately deep gravelly brownish sands, pale brown sands and earthy sands overlying lateritic duricrust.
Land degradation risk	The soil type mapped within the application area has a low risk of water erosion, salinity, waterlogging, flooding, and phosphorus export risk. However, has high susceptibility to subsurface acidification and wind erosion.

Characteristic	Details
Waterbodies	The application area does not transect any wetland or water body. The nearest water body is an unnamed nonperennial water course originating approximately 0.32 kilometres west of the application area.
Hydrogeography	<p>The application area falls within the RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037).</p> <p>The application area falls within the western darling range hydrological zone. Groundwater discharge may occur in drainage lines and on valley floors in cleared catchments within the hydrozone. Aquifers are local only a few kilometres. Groundwaters in the hydrozone range from fresh to saline but are predominantly brackish.</p>
Flora	<p>According to available databases, there are 37 conservation significant flora in the local area including three Priority fungi, <i>Amanita fibrillopes</i>, <i>Amanita kalamundae</i>, and <i>Amanita wadjukiorum</i>, and one Priority 4 Lichen <i>Xanthoparmelia darlingensis</i>. Conservation significant vascular plants included 29 Priority flora and seven Threatened flora. The nearest record is for the Priority 4 species <i>Pimelea rara</i>, at 1.2 kilometres from the application area. The seven Threatened flora are confined to specific habitats (Western Australian Herbarium 1998-) these include:</p> <ul style="list-style-type: none"> • <i>Anthocercis gracilis</i>; associated with gannet outcropping. Nearest record occurs 9.4 kilometres from the application area. • <i>Lasiopetalum pterocarpum</i>; confined to the Murray valley, the nearest record occurs 9.4 kilometres from the application area. • <i>Synaphea</i> sp. Fairbridge Farm (D. Papenfus 696), <i>Synaphea</i> sp. Pinjarra Plain (A.S. George 17182 and <i>Synaphea</i> sp. Pinjarra Plain (A.S. George 17182); have overlapping populations, confined to an area of approximately seven square kilometres of the Pinjarra plain on grey sands. The nearest record occurs 9.5 kilometres from the application area. • <i>Tetraria australiensis</i>; also confined to the Pinjarra plain on grey sands. • <i>Verticordia plumosa</i> var. <i>ananeotes</i>: also confined to the Pinjarra plain on grey sands. <p>See Appendix A3 for further analysis of Priority flora most likely to occur within the application area.</p>
Ecological communities	There are 10 Threatened or Priority ecological communities within the local area, the nearest record is for, the Priority 3, Granite communities of the northern Jarrah Forest, 4.4 kilometres east of the application area.
Fauna	<p>According to available databases, a total of 24 conservation significant fauna species have been recorded in the local area. Due to the site context (a partially cleared road reserve) and the limited extent of the clearing (0.117 hectares), the application area has been determined to be unsuitable to support species with larger space requirements, such as <i>Myrmecobius fasciatus</i> (numbat), and <i>Notamacropus irma</i> (Western brush wallaby).</p> <p>Black cockatoo habitat within the local area includes:</p> <ul style="list-style-type: none"> • six white tailed black cockatoo breeding sites, The nearest mapped breeding site is 2.5 kilometres east of the application area. • Three confirmed red tail black cockatoo breeding sites ochre approximately 2.9 kilometres south. • A total of 15 black cockatoo roosts sites. The nearest is 2.9 kilometres north-east of the application area. • Approximately 80 percent of all remnant vegetation in the local area, is mapped as cockatoo feeding habitat. <p>Habitat suitability analysis is provided in Appendix A.4.</p>

A.2. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion*					
Jarrah Forest	4,506,660.25	2,399,838.15	53.25	617,065.14	13.69
Vegetation complex					
Yarragil 2*	50,259.16	46,475.31	92.47	43,941.16	87.43
Dwellingup, D2*	86,128.33	71,055.96	82.50	58,975.34	68.47
Local area					
10km radius	32031.95	27552.04	86.01	-	-

*Government of Western Australia (2019)

A.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix E.1), and impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Pimelea rara</i>	P4	Yes	Yes	Yes	1.2	9	Yes
<i>Grevillea pimeleoides</i>	P4	Yes	Yes	yes	4.4	3	Yes
<i>Andersonia</i> sp. Audax (F. Hort, B. Hort & J. Hort 3179)	P3	Yes	Yes	Yes	4.5	2	Yes
<i>Drosera occidentalis</i>	P4	No	No	No	5.1	9*	Yes
<i>Paracaleana gracilicordata</i>	P1	No	Yes	Yes	5.7	4	Yes
<i>Johnsonia pubescens</i> subsp. <i>cygnorum</i>	P2	No	No	No	5.5	2	Yes
<i>Lasiopetalum glutinosum</i> subsp. <i>glutinosum</i>	P3	Yes	Yes	Yes	5.7	2	Yes
<i>Millotia tenuifolia</i> var. <i>laevis</i>	P2	Yes	Yes	Yes	5.9	3	Yes
<i>Acacia oncinophylla</i> subsp. <i>oncinophylla</i>	P3	No	No	No	6.2	3	Yes
<i>Acacia horridula</i>	P3	No	Yes	No	6.5	22	Yes
<i>Thysanotus anceps</i>	P3	Yes	Yes	No	6.7	2	Yes
<i>Stackhousia</i> sp. Red-blotched corolla (A. Markey 911)	P3	Yes	Yes	Yes	6.9	1	Yes
<i>Pithocarpa corymbulosa</i>	P3	No	Yes	No	7.7	2	Yes
<i>Boronia tenuis</i>	P3	Yes	Yes	No	8.8	2	Yes

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Grevillea manglesii</i> subsp. <i>ornithopoda</i>	P2	Yes	Yes	Yes	8.8	2	Yes
<i>Bossiaea modesta</i>	P2	Yes	Yes	No	9	3	Yes
<i>Isopogon autumnalis</i>	P3	No	No	No	9.2	2	Yes
<i>Paracaleana granitica</i>	P1	No	No	No	9.5	2	Yes
<i>Calectasia grandiflora</i>	P2	No	No	No	9.6	1	Yes
<i>Hibbertia acrotoma</i>	P1	No	No	No	9.7	1	Yes
<i>Lepyrodia heleocharoides</i>	P3	No	No	Yes	9.7	1	Yes
<i>Parsonsia diaphanophleba</i>	P4	No	No	No	9.7	1	Yes
<i>Halgania corymbosa</i>	P3	No	No	No	9.9	1	Yes

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

A.4. Fauna analysis table

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Calyptorhynchus banksii</i> naso (forest red-tailed black cockatoo)	Vu	Yes	Yes	0.46	165	Yes
<i>Calyptorhynchus latirostris</i> (Carnaby's cockatoo)	EN	Yes	Yes	1.22	337	Yes
<i>Setonix brachyurus</i> (Quokka)	VU	No	Yes	1.33	17	Yes
<i>Isoodon fusciventer</i> (Quenda)	P4	No	Yes	1.33	44	Yes
<i>Tyto novaehollandiae novaehollandiae</i> (masked owl (southwest))	P3	Yes	Yes	2.19	1	Yes
<i>Cacatua pastinator pastinator</i> (Muir's corella)	CD	Yes	Yes	2.27	2	Yes
<i>Dasyurus geoffroyi</i> (Chuditch, western quoll)	VU	Yes	Yes	2.3	26	Yes
<i>Acanthophis antarcticus</i> (southern death adder)	P3	Yes	Yes	2.36	10	Yes
<i>Calyptorhynchus baudinii</i> (Baudin's cockatoo)	EN	Yes	Yes	2.36	107	Yes
<i>Pseudocheirus occidentalis</i> (western ringtail possum)	CR	Yes	Yes	3.2	1	Yes
<i>Phascogale tapoatafa wambenger</i> (South-western brush-tailed phascogale, wambenger)	P4	Yes	Yes	3.49	2	Yes
<i>Ctenotus delli</i> (Dell's skink, Darling Range Southwest Ctenotus)	P4	Yes	Yes	5.3	6	Yes

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Falsistrellus mackenziei</i> (Western false pipistrelle, western falsistrelle)	P4	Yes	Yes	5.4	6	Yes

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority CD. Conservation dependent

* The local area also includes 25 records for *Calyptorhynchus* spp. 'white-tailed black cockatoo' observations.

A.5. Land degradation risk table

Risk categories	<i>Dwellingup 2 Phase</i>	<i>Yarragil 1 Phase</i>
Wind erosion	>70% of map unit has a high to extreme wind erosion risk	10-30% of map unit has a high to extreme wind erosion risk
Water erosion	<3% of map unit has a high risk	<3% of map unit has a high risk
Salinity	<3% of map unit has a high risk	<3% of map unit has a high risk
Subsurface Acidification	50-70% of map unit has a high to extreme risk	50-70% of map unit has a high to extreme risk
Flood risk	<3% of map unit has a high risk	<3% of map unit has a high risk
Water logging	<3% of map unit has a high risk	<3% of map unit has a high risk
Phosphorus export risk	<3% of map unit has a high risk	10-30% of map unit has a high to extreme Phosphorus export risk

Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p><u>Principle (a):</u> <i>“Native vegetation should not be cleared if it comprises a high level of biodiversity.”</i></p> <p><u>Assessment:</u></p> <p>Considering the application area is limited to 0.117 hectares, comprising mostly of planted natives and unvegetated road reserve, the proposed clearing is unlikely to significantly impact any populations of Priority flora. Photographs supplied by the applicant (Shire of Serpentine Jarrahdale 2021) indicate the vegetation within the application area does not contain any locally or regionally significant, fauna, habitats, or assemblages of plants. A high proportion of conservation significant flora recorded in the local area are associated with soil and habitat types not present in the application area.</p>	Not likely to be 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></p> <p>The area proposed to be cleared contains suitable foraging habitat for Black cockatoo species and a number of conservation significant fauna.</p>	May be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (c):</u> <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p><u>Assessment:</u></p> <p>None of the seven threatened flora recorded in the local area have a restricted range or occur in soil and habitat features not found within the application area. Therefore, the proposed clearing is unlikely to contain habitats suitable for Threatened flora species listed under the BC Act.</p>	Not likely to be at variance	No
<p><u>Principle (d):</u> <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community.”</i></p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared does not contain species that indicate a threatened ecological community.</p>	Not at variance	No
Environmental value: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u></p> <p>The extent of the mapped native vegetation in the local area is consistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation proposed to be cleared is not considered to be a significant remnant.</p>	Not at variance	No
<p><u>Principle (h):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.”</i></p> <p><u>Assessment:</u></p> <p>Although the boundary of Serpentine National Park is 0.56 kilometres west of the application area, the limited extent of the proposed clearing is not likely to have an impact on the environmental values of this conservation area.</p>	Not at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: land and water resources		
<p><u>Principle (f):</u> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u></p> <p>Given the proposed clearing will be limited to 0.117 hectares it is unlikely to impact on- or off-site hydrology and water quality of the adjacent minor non-perennial water course. No vegetation growing in association with a watercourse or wetland was observed within the application area.</p>	Not at variance	No
<p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u></p> <p>Noting the proposed clearing is for 0.117 hectares within an extensively vegetated landscape, the proposed clearing is not likely to cause appreciable land degradation.</p>	Not at variance	No
<p><u>Principle (i):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.”</i></p> <p><u>Assessment:</u></p> <p>Given no wetlands, and/or Public Drinking Water Sources Areas are recorded within the application area, the proposed clearing is unlikely to impact surface or ground water quality.</p>	Not at variance	No
<p><u>Principle (j):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment:</u></p> <p>Noting the size of the proposed clearing with the mapped soils having a very low risk of flooding and waterlogging, the proposed clearing is not likely to result in increased flooding,</p>	Not at variance	No

Appendix C. Vegetation condition rating scale

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

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Measuring vegetation condition for the Southwest and Interzone Botanical Province (Keighery, 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Appendix D. Photographs of the vegetation Provided by the applicant





Figure 2 Photographs a-c represent the application starting from north (a) to the south (c). Rehabilitation vegetation can be seen Photograph (c) on the left side of the road (Shire of Serpentine-Jarrahdale, 2021).

Appendix E. Sources of information

E.1. GIS databases

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

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)

- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems
- Wheatbelt Wetlands Stage 1 (DBCA-021)

Restricted GIS Databases used:

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

E.2. References

Commonwealth of Australia (2017). Revised draft referral guideline for three threatened black cockatoo species: Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-tailed Black Cockatoo

Commonwealth of Australia (2012) EPBC Act referral guidelines for three threatened black cockatoo species, Canberra.

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

Department of Parks and Wildlife (DPAW) (2013). Carnaby's Cockatoo (*Calyptorhynchus latirostris*) Recovery Plan. Western Australian Department of Parks and Wildlife (Now the Department of Biodiversity, Conservation and Attractions). Perth. Western Australia.

Government of Western Australia (2019) *2018 South West Vegetation Complex Statistics. Current as of March 2019*. WA Department of Biodiversity, Conservation and Attractions, Perth, <https://catalogue.data.wa.gov.au/dataset/dbca>

Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Shire of Serpentine-Jarrahdale (2021) Clearing permit application CPS 9291/1, Vegetation and Tree assessment received 17 May 2021 (DWER Ref: A2013985).

Western Australian Herbarium (1998-). *FloraBase - the Western Australian Flora*. Department of Biodiversity, Conservation and Attractions, Western Australia. <https://florabase.dpaw.wa.gov.au/> (Accessed 02 September 2021)