GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: 8957/1
File Number: DWERVT6008
Duration of Permit: From 25 September 2020 to 25 September 2022

PERMIT HOLDER

Shire of Waroona

LAND ON WHICH CLEARING IS TO BE DONE

Somers Road reserve (PIN 11602705), Waroona.

AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 27 native trees within the area cross-hatched yellow on attached Plan 8957/1.

CONDITIONS

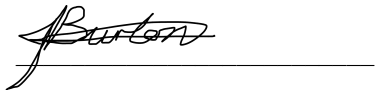
1. **Avoid, minimise and reduce the impacts and extent of clearing**
   In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:
   (a) avoid the clearing of native vegetation;
   (b) minimise the amount of native vegetation to be cleared; and
   (c) reduce the impact of clearing on any environmental value.

2. **Records must be kept**
   The Permit Holder must maintain the following records for activities done pursuant to this Permit, in relation to the clearing of native vegetation authorised under this Permit:
   (a) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
   (b) the date that the area was cleared;
   (c) the size of the area cleared (in hectares); and
   (d) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 1 of this Permit.

3. **Reporting**
   The Permit Holder must provide to the *CEO* the records required under condition 2 of this Permit, when requested by the *CEO*.

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

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



Jessica Burton
A/MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

27 August 2020

Plan 8957/1a

Legend

- CPS areas approved to clear
- base layers
- Local Government Authorities
- Cadastre - LGATE 218
- Roads - Landgate 012
- Image

N

0 25 50 m

MGA 94
Geocentric Datum of Australia 1994

Officer with delegated authority under Section 20 of the Environmental Protection Act 1986

GOVERNMENT OF WESTERN AUSTRALIA

Plan 8957/1b

Legend

- CPS areas approved to clear
- base layers
- Local Government Authorities
- Cadastre - LGATE 218
- Roads - Landgate 012
- Image

N

0 25 50 m

MGA 94
Geocentric Datum of Australia 1994

Officer with delegated authority under Section 20
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GOVERNMENT OF
WESTERN AUSTRALIA

Clearing Permit Decision Report

1. Application details and outcome

1.1. Permit application details

Permit number:	CPS 8957/1
Permit type:	Area permit
Applicant name:	Shire of Waroona
Application received:	30 June 2020
Application area:	27 native trees
Purpose of clearing:	Road widening and resurfacing
Method of clearing:	Mechanical clearing
Property:	Somers Road reserve (PIN 11602705)
Location (LGA area/s):	Shire of Waroona
Localities (suburb/s):	Waroona

1.2. Description of clearing activities

The application is to clear 27 native trees adjacent to an existing road formation within Somers Road reserve from straight line kilometre (SLK) 11.00 to SLK 12.03, for the purpose of road widening and reconstruction works. The extent of the proposed clearing is indicated in Figure 1 (see Section 1.5).

1.3. Decision on application and key considerations

Decision:	Granted
Decision date:	27 August 2020
Decision area:	27 native trees, as depicted in Section 1.5, below.

1.4. Reasons for decision

This clearing permit application was made in accordance with section 51E of the *Environmental Protection Act 1986* (EP Act) and was received by the Department of Water and Environmental Regulation (DWER) on 30 June. DWER advertised the application for public comment and no submissions were received.

In undertaking their assessment and in accordance with section 51O of the EP Act, the Delegated Officer has given consideration to the Clearing Principles in Schedule 5 of the EP Act (see Appendix B), relevant datasets available at the time of the assessment (see Appendix F), relevant planning instruments and any other pertinent matters they deemed relevant to the assessment (see Sections 3).

In particular, the Delegated Officer has determined that:

- The clearing is not likely to have significant impact on conservation significant flora, fauna or ecological communities.
- The clearing is not likely to have a significant or long-term impact on a mapped multiple use wetland within the application area.
- The clearing is not likely to have significant impact on an ecological linkage or a significant remnant of vegetation in a highly cleared landscape; and
- The applicant has suitably demonstrated avoidance and minimisation measures.

The Delegated Officer also took into consideration that the purpose of the clearing is to improve road safety of Somers Road.

In determining to grant a clearing permit subject to avoid and minimise and reduce the impact and extent of clearing condition, the Delegated Officer found that the proposed clearing is not likely to lead to an unacceptable risk to the environment.

1.5. Site map

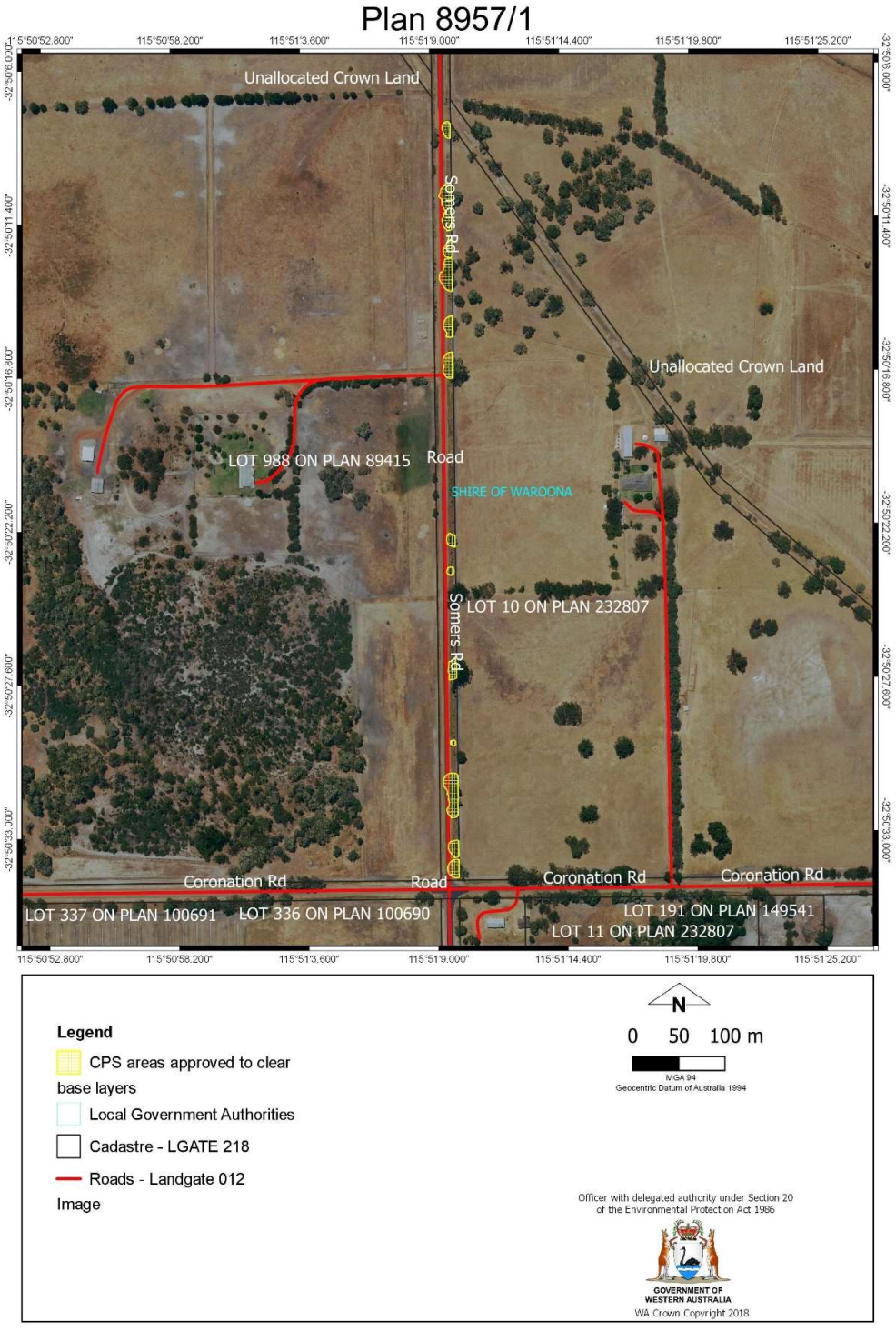

Figure 1. Map of the application area.

The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

2. Legislative context

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

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.3), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

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

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)

The key guidance documents which inform this assessment are:

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

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

The Shire has considered to avoid clearing of native vegetation by widening the already cleared western side of Somers Road reserve however this was not deemed viable as the Shire advised that they attempts to retain and reuse as much of existing road formation as possible. In the case of Somers Road reserve, the most efficient way of doing this was to centre the new road pavement over the existing which allowed the Shire to reuse the existing longitudinal drainage without major earthworks, as well as to use as much of the old formation as sub-base as possible.

The Shire submitted that to move the new construction to one side of the existing road would have trigger significant earthworks involved in excavating new longitudinal drainage and a requirement to purchase additional clean, suitable material to backfill the existing drain to allow adequate performance as a sub-grade. In addition, a shifted road would not align with previous widening to the north of the application area and the intersection with Coronation Road which would result in unwanted kinks along the road and a full reconstruction of intersection at the Coronation Road reserve. The Shire also stated it could not move the Coronation Road intersection to the west as there is Water Corporation infrastructure immediately north-west of that intersection.

The Shire also advised that the applied area is a worst case scenario situation and the Shire will attempt to minimise the need for clearing as clearing is an expensive activity and the more vegetation is cleared, the less road the Shire can build (Shire of Waroona, 2020a).

Furthermore, the Shire has marked the trees requiring clearing to ensure than only the trees requiring clearing will be impacted, and thereby, reduced impacts on nearby vegetation.

This adequately demonstrated that reasonable efforts had been taken to avoid and minimise potential impacts of the clearing on environmental values.

3.2. Assessment of environmental impacts

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

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

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

Assessment:

According to available databases, 159 records of 22 conservation significant fauna species have been recorded within the local area (Department of Biodiversity, Conservation and Attractions (DBCA), 2007). Noting the habitat requirements of the recorded species, the mapped vegetation type and the condition of the vegetation within the application area, the application area is likely to comprise suitable habitat for three black cockatoo species: forest red-tailed black cockatoo (*Calyptorhynchus banksia* subsp. *naso*), Carnaby's cockatoo (*Calyptorhynchus latirostris*) and Baudin's cockatoo (*Calyptorhynchus baudinii*) (collectively referred to as black cockatoo herein this report) south-western brush-tailed phascogale (*Phascogale tapoatafa* subsp. *wambenger*) and peregrine falcon (*Falco peregrinus*).

Black cockatoos

According to available databases, 35 records of forest red-tailed black cockatoo, 29 records of Carnaby's cockatoo and seven records of Baudin's cockatoo have been recorded in the local area (DBCA, 2007).

The application area is not likely to provide suitable breeding habitat. Suitable breeding habitat for black cockatoos includes trees which either have a suitable nest hollow or are of a suitable dimeter at breast height (DBH) to develop a nest hollow. For most tree species a suitable DBH is 500 millimetres (Commonwealth of Australia, 2012). A review of the photographs of the application area supplied by the Shire (2020b) did not identify any trees with hollows.

Noting typical food resources for black cockatoos, the application area provides foraging habitat for these species. Forest red-tailed black cockatoo forages within jarrah and marri woodlands and forest, and edges of karri forests including wandoo and blackbutt, within the range of the subspecies. The species largely feeds and seeds on marri and jarrah, as well as other *Eucalyptus* species and *Allocasuarina* cones (Commonwealth of Australia, 2012). Baudin's cockatoo prefer foraging within Eucalypt woodlands and forest, and proteaceous woodland and heath. During the breeding season (October to late January/early February) this species has a preference for marri seeds. Outside the breeding season the species may feed in fruit orchards and tips of *Pinus* spp. (Commonwealth of Australia, 2012). Carnaby's cockatoo feeds on the seeds, nuts and flowers of a large variety of plants including Proteaceous species (*Banksia*, *Hakea* and *Grevillea*), as well as Allocasuarina and Eucalyptus species, *Corymbia calophylla* and a range of introduced species (Valentine and Stock, 2008).

The local area comprises approximately 3,140 ha of native vegetation mapped as black cockatoo foraging habitat and the application area represents approximately 0.009 per cent of this extent.

The application area is not likely to provide significant foraging habitat that supports black cockatoo breeding. Foraging habitat for black cockatoos within 7 kilometres (km) of a breeding site is important to adequately support breeding pairs (EPA, 2019). The application area is not located within the mapped confirmed breeding area for Carnaby's cockatoo and according to available databases, there are no confirmed breeding points within the local area. The closest confirmed breeding area is located approximately 16.3 km southwest of the application area. Noting this, the proposed clearing is unlikely to reduce the amount of food available to breeding birds or affect chick survival rates.

The application area is not likely to provide significant foraging habitat that supports black cockatoo night roosting. Individual night roosting sites need suitable foraging habitat and water within 6 km (EPA, 2019). Overlapping foraging ranges within 12 km also support roosting sites and maintain habitat connectivity and movement across the landscape (EPA, 2019). There are three confirmed black cockatoo roosting sites within the local area located approximately 7.4, 8.3 and 8.8 km from the application area. Noting the distance from the roosting sites, the proposed clearing will not impact significant foraging habitat surrounding night roosting sites.

Taking into account the small size of the application area and that the application area is not within an ecological linkage, the proposed clearing is not likely to restrict black cockatoo ability to migrate across the landscape.

South-western brush-tailed phascogale

According to available databases, seven records of south-western brush-tailed phascogale have been recorded in the local area with closest record approximately 5.3 km southwest of the application area.

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

Peregrine falcon

According to available databases, four records of peregrine falcon have been recorded in the local area, with the closest record approximately 7.4 km west of the application area.

The species is found in most habitats, from rainforests to the arid zone and at most altitudes, from the coast to alpine areas. It requires abundant prey and secure nest sites and prefers coastal and inland cliffs or open woodlands near

water and may even be found nesting on high city buildings (Australian Museum, 2020). This species is widespread, highly mobile and is found in various habitats. The application area may comprise suitable habitat for this species, however, noting habitat preferences and the small extent of the proposed clearing, the application area is unlikely to comprise a significant habitat for this species.

Ecological linkage

According to available databases, the application area is mapped approximately 1.1 km north of a mapped South West Regional Ecological Linkage. Given the distance and the minimal extent of remnant vegetation within the application area, the proposed clearing is not likely to have an impact on the environmental value of this linkage.

A review of aerial imagery indicates that the vegetation in the application area is isolated and not likely to function as an ecological linkage enabling fauna to move between areas of remnant vegetation. In addition, aerial imagery and spatial datasets also indicate that larger patches of remnant vegetation occur in close proximity to the application area which are more likely to be used by fauna for movement across the landscape. Therefore, the proposed clearing is not likely to have an impact on vegetation acting as a significant stepping stone for fauna movement.

Outcome:

Based on the above assessment, the Delegated Officer has determined that no fauna management conditions are required.

3.2.2. Environmental value: significant remnant vegetation and conservation areas – Clearing Principle (e)

Assessment:

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

The extent of native vegetation within the local area is inconsistent with the national targets as it retains approximately 10.8 per cent vegetation cover (approximately 3,574.2 ha). Given this, the application area is located within an extensively cleared landscape. The application represents approximately 0.008 per cent of the remaining vegetation within the local area and the proposed clearing will reduce the extent of native vegetation within the local area to 3,573.93 ha.

The application area is located within the 'Swan Coastal Plain' (SCP) Interim Biogeographic Regionalisation for Australia (IBRA) which retains approximately 32.5 per cent of its pre-European vegetation extent (Government of Western Australia, 2019).

The SCP vegetation complex Serpentine River, which has been mapped within the application area, retains approximately 9.77 per cent of its original vegetation extent. While this vegetation has been extensively cleared, the application area is dominated by *Corymbia calophylla* over weedy understorey, and therefore, the vegetation in the application area is not considered representative of this vegetation complex.

Taking into account the minimal extent of the proposed clearing in a degraded (Keighery, 1994) to completely degraded (Keighery, 1994) condition and that the application area is unlikely to provide significant habitat for fauna, be a part of a significant ecological linkage or be necessary to maintain ecosystem services (such as hydrological processes), the vegetation within the application area is not considered as a significant remnant of native vegetation in an extensively cleared landscape.

Outcome:

Based on the above assessment, the Delegated Officer has determined that the proposed clearing will not significantly impact on this environmental value.

Conditions:

For the reasons set out above, it is considered that no clearing permit conditions are necessary in relation to this matter.

3.2.3. Environmental value: land and water resources – Clearing Principles (f)

Assessment:

According to available databases, the application area is mapped within an unknown multiple use palusplain. A review of photographic evidence supplied by the Shire (2020) did not identify distinctive riparian vegetation, however, it is noted that there is vegetation growing in, or in association with the wetland. Noting the proposed clearing will be

limited to no more 27 native trees scattered along an approximately 1.02 km linear footprint, the proposed clearing is not likely to have a significant impact upon riparian vegetation or the environmental values of the wetland.

Outcome:

Based on the above assessment, the Delegated Officer has determined that the proposed clearing will not significantly impact on this environmental value.

Conditions:

For the reasons set out above, it is considered the impacts of the proposed clearing are unlikely to have any long-term adverse impacts on the hydrological and ecological values of the wetland. No clearing permit conditions are necessary in relation to this matter.

3.3. Relevant planning instruments and other matters

On 9 July 2020, in accordance with section 51E(4)(b) of the EP Act, comments on the application was sought from the Coolup Local Conservation District Committee. No comments were received.

The closest Aboriginal site and heritage place is Buller Road Camp located approximately 2.7 km southwest of 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.

Appendix A – Site characteristics

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

1. Site characteristics

Site characteristic	Details
Local context	The proposed clearing area is part of approximately a 21.75 ha of native vegetation scattered along approximately 14.5 km Somers Road reserve. The majority of the road reserve is devoid of native vegetation. Spatial data indicate the local area (10 km radius of the application area, which is equal to approximately 33,086 ha) retains approximately 10.8 per cent (3,574 ha) of the original native vegetation cover within 984 remnant areas. The vast majority (approximately 85 per cent) of the remnant areas are less than 5 ha. Approximately 380 ha of remnant vegetation within the local area (approximately 1.1 per cent of the local area) occurs within DBCA managed estate.
Vegetation description	Photographs supplied by the Shire (2020b) indicate the vegetation within the proposed clearing area consists of 27 scattered *Corymbia calophylla* over weedy understorey of introduced grasses. It has been noted that a section of the application area has been impacted by a recent fire. Representative photos are available in Appendix D. This is inconsistent with the mapped Swan Coastal Plain vegetation type: • Serpentine River Complex, which is described as closed scrub of *Melaleuca* species and fringing woodland of *Eucalyptus rudis* (Flooded Gum) - *Melaleuca rhaphiophylla* (Swamp Paperbark) along streams (Heddle et al., 1980).
Vegetation condition	Photographs supplied by the Shire (2020b) indicate the vegetation within the proposed clearing area is in degraded (Keighery, 1994) to completely degraded (Keighery, 1994) condition. The full Keighery condition rating scale is provided in Appendix C. Representative photos are available in Appendix D.
Soil description	The soil within the application area is mapped as the following subsystems (Department of Primary Industries and Regional Development (DPIRD), 2020): • Bassendean B6 Phase (60 per cent of the application area (16 native trees), which is described as sandplain and broad extremely low rises with imperfectly drained deep or very deep grey siliceous sands (Shepherd et al, 2001). • Bassendean B4 Phase (40 per cent of the application area (11 native trees), which is described as broad poorly drained sandplain with deep grey siliceous sands or bleached sands, underlain at depths generally greater than 1.5 m by clay or less frequently a strong iron-organic hardpan (Shepherd et al, 2001).
Land degradation risk	The mapped soil types within the application area have high risk of acidification and moderate risk of sub surface compact. In addition, the northern section of the application area has high risk of water repel and water storage. The soil types have also low microbial purification and high risk of phosphorus loss. The full land degradation risk summary for the mapped soil subsystems is provided in Appendix E.
Waterbodies	The desktop assessment and aerial imagery indicates that the application is mapped within an unknown multiple use palusplain (ID 7364). Additionally, Waroona drain is mapped just north of the application area (ID 11247).
Conservation areas	The closest conservation area is Buller Nature Reserve (Class A) located approximately 3.3 kilometres southwest of the application area.
Climate and landform	*Rainfall:* 1000 millimetres *Evapotranspiration:* 800 millimetres *Groundwater Salinity (Total Dissolved Soilds):* 500-1000 milligrams per litre total dissolved solids

2. Flora, fauna and ecosystem analysis

With consideration for the site characteristics set out above, relevant datasets (see Appendix F), the following conservation significant flora and fauna species, and ecological communities may be impacted by the clearing.

Species / Ecological Community	Conservation status	Distance of closest record to application area (kilometres)	Suitable soil type? (flora, ecological community)	Suitable vegetation type? (flora, ecological community)	Suitable habitat features (fauna)	Are surveys adequate to identify? (Y, N, N/A)
Flora						
Amanita fibrillopes	3	7.5	N	N		N/A
Angianthus drummondii	3	5.3	N	N		N/A
Aponogeton hexatepalus	4	5.4	N	N		N/A
Boronia capitata subsp. *gracilis*	3	4.7	Y	N		N/A
Caladenia huegelii	T	4.2	Y	N		N/A
Caladenia speciosa	4	0.8	Y	N		N/A
Carex tereticaulis	3	9.7	Y	N		N/A
Chamaescilla gibsonii	3	5.5	N	N		N/A
Conostylis pauciflora subsp. pauciflora	4	7.5	N	N		N/A
Diuris drummondii	T	6.0	N	N		N/A
Eleocharis keigheryi	T	5.4	N	N		N/A
Eryngium sp. *Ferox* (G.J. Keighery 16034)	3	6.0	N	N		N/A
Grevillea bipinnatifida subsp. *pagna*	1	5.9	N	N		N/A
Hemigenia microphylla	3	8.6	Y	Y		N/A
Melaleuca viminalis	2	6.4	N	N		N/A
Myriophyllum echinatum	3	5.6	N	N		N/A
Ornduffia submersa	4	6.4	N	N		N/A
Parsonsia diaphanophleba	4	9.6	N	N		N/A
Phyllangium palustre	2	6.0	N	N		N/A
Schoenus capillifolius	3	6.5	N	N		N/A
Schoenus natans	4	5.5	Y	Y		N/A
Schoenus sp. Waroona (G.J. Keighery 12235)	3	5.4	N	N		N/A
Stylidium aceratum	3	5.4	N	N		N/A
Synaphea odocoileops	1	5.5	Y	N		N/A
Synaphea stenoloba	T	9.9	N	N		N/A
Trithuria australis	4	5.5	N	N		N/A
Ecological communities						
Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	1.3	Y	N		N/A

Species / Ecological Community	Conservation status	Distance of closest record to application area (kilometres)	Suitable soil type? (flora, ecological community)	Suitable vegetation type? (flora, ecological community)	Suitable habitat features (fauna)	Are surveys adequate to identify? (Y, N, N/A)
Corymbia calophylla - Eucalyptus marginata woodlands on sandy clay soils of the southern Swan Coastal Plain	Vulnerable	6.3	Y	N		N/A
Corymbia calophylla - Kingia australis woodlands on heavy soils, Swan Coastal Plain	Critically Endangered	5.4	N	N		N/A
Herb rich shrublands in clay pans	Vulnerable	5.5	N	N		N/A
Shrublands on dry clay flats	Endangered	7.8	N	N		N/A
Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain	Priority 3	9.6	N	N		N/A
Fauna						
Baudin's cockatoo	Endangered	5.8			Y	N/A
Blue-billed duck	P4	1.6			N	N/A
Carnaby's cockatoo	Endangered	3.7			Y	N/A
Carter's freshwater mussel	Vulnerable	7.5			N	N/A
Caspian Tern	Migratory bird protected under an international agreement	7.3			N	N/A
Chuditch, western quoll	Vulnerable	1.8			N	N/A
Coastal Plains skink	P3	9.6			N	N/A
Common greenshank, greenshank	Migratory bird protected under an international agreement	5.4			N	N/A
Common Sandpiper	Migratory bird protected under an international agreement	7.3			N	N/A
Forest red-tailed black cockatoo	Vulnerable	3.4			Y	N/A
Glossy ibis	Migratory bird protected under an international agreement	6.8			N	N/A
noisy scrub-bird, tjimiluk	Endangered	9.6			N	N/A
Numbat, walpurti	Endangered	5.5			N	N/A
Osprey, eastern osprey	Migratory bird protected under an international agreement	1.1			N	N/A
Peregrine falcon	Other specially protected fauna	9.5			Y	N/A
Quenda, southwestern brown bandicoot	P4	1.1			N	N/A

Species / Ecological Community	Conservation status	Distance of closest record to application area (kilometres)	Suitable soil type? (flora, ecological community)	Suitable vegetation type? (flora, ecological community)	Suitable habitat features (fauna)	Are surveys adequate to identify? (Y, N, N/A)
South-western brush-tailed phascogale, wambenger	Critically endangered	5.3			Y	N/A
Swan Coastal Plain shield-backed trapdoor spider	P3	6.5			N	N/A
Water-rat, rakali	P4	1.8			N	N/A
Western brush wallaby	P4	3.8			N	N/A
Western false pipistrelle, western falsistrelle	P4	2.2			N	N/A
Wood sandpiper	Migratory bird protected under an international agreement	9.6			N	N/A

3. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	% remaining	Current extent in all DBCA managed land (ha)	% current extent in all DBCA managed land (proportion of pre-European extent)
IBRA bioregion					
Swan Coastal Plain	850,785.09	276,461.42	32.49	35,939.98	13.25
Vegetation complex					
Serpentine River Complex	19,855.41	1,940.18	9.77	517.49	2.61

Appendix B – 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: Considering the application is to clear 27 individual marri trees over grassy weeds, the proposed clearing will have limited impacts on habitat for threatened or priority flora. The application area does not comprise significant habitat for fauna and vegetation in the application area is not representative of threatened or priority ecological communities.	Not likely to be at variance	No
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: The application area comprises suitable habitat for three black cockatoo species, south-western brush-tailed phascogale and peregrine falcon. Noting the shape and extent of the proposed clearing, lack of hollow bearing trees, its location in close proximity to patches of remnant vegetation and the sparse weed-dominated understorey, the vegetation proposed to be cleared is not likely to comprise a significant habitat for these or other native fauna.	Not likely to be at variance	Yes Refer to Section 3.2.1 above.
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: Considering the application is to clear up to 27 marri trees over grassy weeds, suitable habitat for threatened flora is unlikely to occur within the application area.	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: The proposed clearing area does not contain species composition indicative of a threatened ecological community listed by the Western Australian Minister for Environment.	Not likely to be 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 extent of native vegetation in the local area is inconsistent with the national objectives and targets for biodiversity conservation in Australia. However, the vegetation in the application area is not considered a significant remnant as it is not a part a significant ecological linkage, is not likely to provide habitat for conservation significant flora and fauna and is not likely to be representative of threatened or priority ecological community.	Not likely to be at variance	Yes Refer to Section 3.2.2 above.
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."*	Not likely to be at variance	No

Assessment against the Clearing Principles	Variance level	Is further consideration required?
Assessment: Given the distance to conservation areas and the extent of the proposed clearing, the proposed clearing is not likely to have an impact on the environmental values of any nearby conservation areas.		
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 mapped within an unnamed multiple use palusplain, therefore, the vegetation proposed to be cleared is growing in an environment associated with a wetland. However, no distinctive riparian vegetation will be cleared.	Is at variance	Yes Refer to Section 3.2.3 above.
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: The mapped soil types within the application area have some limiting land degradation characteristics. However, noting the minimal extent of the proposed clearing in degraded (Keighery, 1994) to completely degraded (Keighery, 1994) condition scattered along the application area, 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: Noting the minimal extent of the proposed clearing in degraded (Keighery, 1994) to completely degraded (Keighery, 1994) condition scattered along the application area, the proposed clearing is not likely to cause deterioration in the quality of surface or underground water.	Not likely to be at variance	No
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: Noting the minimal extent of the proposed clearing scattered along the application area, the proposed clearing is not likely to cause, or exacerbate, the incidence or intensity of flooding.	Not likely to be 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.

Measuring Vegetation Condition for the South West and Interzone Botanical Province (Keighery, 1994)

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

Appendix D –Photographs of the vegetation

Appendix E – Land qualities summary – (column 1 most limiting, 4 least)

C	C1		C2		C3		C4	
Bassendean Phase	**B6**	**B4**	**B6**	**B4**	**B6**	**B4**	**B6**	**B4**
pH								
0-10 acidity	very strongly acid: 0 %	very strongly acid: 0 %	strongly acid: 10 %	strongly acid: 0 %				
0-10 alkalinity	strongly alkaline: 0 %	strongly alkaline: 0 %	alkaline: 0 %	alkaline: 0 %				
50-80 acidity	very strongly acid: 0 %	very strongly acid: 0 %	strongly acid: 0 %	strongly acid: 0 %				
50-80 alkalinity	strongly alkaline: 0 %	strongly alkaline: 0 %	alkaline: 15 %	alkaline: 2 %				
acidification risk	presently acid: 100 %	presently acid: 100 %	high: 0 %	high: 0 %	moderate: 0 %	moderate: 0 %	low: 0 %	low: 0 %
SALINITY								
salinity risk	presently saline: 0 %	presently saline: 0 %	high: 0 %	high: 0 %	moderate: 0 %	moderate: 0 %	nil or partial: 100 %	nil or partial: 100 %
surface salinity	extreme: 0 %	extreme: 0 %	high: 0 %	high: 0 %	moderate: 0 %	moderate: 0 %	slight to nil: 100 %	slight to nil: 100 %
SOME PLANT LIMITS								
rooting depth	very shallow: 0 %	very shallow: 0 %	shallow: 0 %	shallow: 0 %	moderately shallow: 0 %	moderately shallow: 0 %	v deep to moderate: 100 %	v deep to moderate: 100 %
sub surface compact	high: 0 %	high: 0 %	moderate: 100 %	moderate: 100 %	low: 0 %	low: 0 %		
water repel	high: 95 %	high: 17 %	moderate: 0 %	moderate: 0 %	low: 0 %	low: 0 %	nil: 5 %	nil: 83 %
water storage	extremely low: 80 %	extremely low: 12 %	very low: 5 %	very low: 3 %	low: 10 %	low: 0 %	high to moderate: 5 %	high to moderate: 85 %
EROSION								
flood risk	high: 0 %	high: 0 %	moderate: 0 %	moderate: 0 %	low: 0 %	low: 0 %	low: 100 %	low: 100 %
instability	high: 0 %	high: 0 %	moderate: 0 %	moderate: 0 %	low: 0 %	low: 0 %	nil to very low: 100 %	nil to very low: 100 %
water erosion	extreme; 0 %	extreme; 0 %	very high: 0 %	very high: 0 %	high: 0 %	high: 0 %	nil to moderate: 100 %	nil to moderate: 100 %
wind erosion	extreme; 0 %	extreme; 0 %	very high: 25 %	very high: 5 %	high: 60 %	high: 10 %	nil to moderate: 15 %	nil to moderate: 85 %
WATER & DRAINAGE								
site drainage	very poor: 0 %	very poor: 0 %	poor: 5 %	poor: 83 %	moderate: 35 %	moderate: 12 %	high: 60 %	high: 5 %
waterlogging	very high: 0 %	very high: 0 %	high: 0 %	high: 0 %	moderate: 35 %	moderate: 12 %	nil to low: 60 %	nil to low: 5 %
OTHER QUALITIES								
excavation ease	very low: 0 %	very low: 0 %	low: 0 %	low: 0 %	moderate: 5 %	moderate: 83 %	high: 95 %	high: 17 %
microbial purification	very low: 55 %	very low: 93 %	low: 45 %	low: 7 %	moderate: 0 %	moderate: 0 %	high: 0 %	high: 0 %
phosphorus loss	extreme: 65 %	extreme: 12 %	very high: 20 %	very high: 81 %	high: 5 %	high: 0 %	nil to moderate: 10 %	nil to moderate: 7 %

Appendix F – References and databases

1. GIS datasets

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

- Aboriginal Heritage Places (DPLH-001)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- IBRA Vegetation Statistics
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Regional Parks (DBCA-026)
- Soil and Landscape Mapping – Best Available

Restricted GIS Databases used:

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

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