



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	6719/2
Permit Holder:	Shire of Waroona
Duration of Permit:	12 December 2015 – 30 June 2021

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

PART I – CLEARING AUTHORISED

1. Purpose for which clearing may be done

Clearing for the purpose of road widening.

2. Land on which clearing is to be done

Hainge Road reserve (PIN 1373450), Hamel

3. Area of Clearing

The Permit Holder must not clear more than 0.3 hectares of native vegetation within the area cross hatched yellow on attached Plan 6719/2.

4. Application

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

5. Type of clearing authorised

This Permit authorises the Permit Holder to clear native vegetation for the activities described in condition 1 of this Permit to the extent that the Permit Holder has the power to carry out works involving clearing for those activities under the *Local Government Act 1995* or any other written law.

PART II – MANAGEMENT CONDITIONS

6. 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:

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

7. Dieback and weed control

When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds* and *dieback*:

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

PART III - RECORD KEEPING AND REPORTING

8. Records to 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);
- (d) actions taken to avoid, minimise and reduce the impacts and the extent of clearing in accordance with condition 6 of this Permit; and
- (e) actions taken to minimise the risk of the introduction and spread of *dieback* and *weeds* in accordance with condition 7 of this Permit.

9. Reporting

The Permit Holder must provide to the *CEO* the records required under Condition 8 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*;

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

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

mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

weed/s means any plant -

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



Mathew Gannaway
MANAGER
NATIVE VEGETATION REGULATION




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

19 August 2020

Plan 6719/2

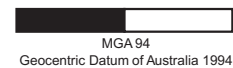


Legend

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



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Geocentric Datum of Australia 1994

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



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Clearing Permit Decision Report

1. Application details and outcome

1.1. Permit application details

Permit number:	CPS 6719/2
Permit type:	Purpose permit
Applicant name:	Shire of Waroona
Application received:	26 May 2020
Application area:	0.3 hectares (ha) of native vegetation
Purpose of clearing:	Road construction or upgrades
Method of clearing:	Mechanical clearing
Property:	Hainge Road reserve (PIN 1373450)
Location (LGA area/s):	Shire of Waroona
Localities (suburb/s):	Hamel

1.2. Description of clearing activities

The application is to increase the size of the clearing area approved under Clearing Permit CPS 6719/1 by 0.1 ha. The Shire of Waroona (the Shire) advised that an additional five to ten marri trees (*Corymbia calophylla*) scattered along approximately a 600 metre linear footprint (1.48 ha) along the existing Hainge Road reserve is required to be cleared for the reconstruction of the road. The extent of the proposed clearing is indicated in Figure 1 (see Section 1.5). The application was also made to extend the duration of the Clearing Permit 6719/1 until 30 June 2021.

1.3. Decision on application and key considerations

Decision:	Granted
Decision date:	19 August 2020
Decision area:	0.3 ha of native vegetation (see Figure 1, Section 1.5)

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 26 May 2020. 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 (see Appendix F), relevant planning instruments and any other pertinent matters that deemed relevant to the assessment (see Sections 3). The Delegated Officer also took into consideration that the purpose of the clearing is to improve road safety of Hainge Road reserve by widening the road.

The assessment identified that the proposed clearing will result in the following:

- loss of vegetation in association with a mapped watercourse
- the potential introduction and spread of weeds and dieback into adjacent vegetation, which could impact on quality of the adjacent vegetation and its habitat values.

The Delegated Officer considered the impacts of the proposed clearing are unlikely to have any long-term adverse impacts on the hydrological and ecological values of the watercourse and that weed and dieback management practices will mitigate any potential impacts from the proposed clearing.

After consideration of the available information, as well as the Shire's minimisation and mitigation measures, the Delegated Officer determined that the impacts of the proposed clearing could be minimised and managed to be environmental acceptable. The Delegated Officer decided to grant a clearing permit subject to conditions to:

- avoid, minimise and reduce the impacts and extent of clearing
- take steps to minimise the risk of the introduction and spread of weeds and dieback.

1.5. Site map

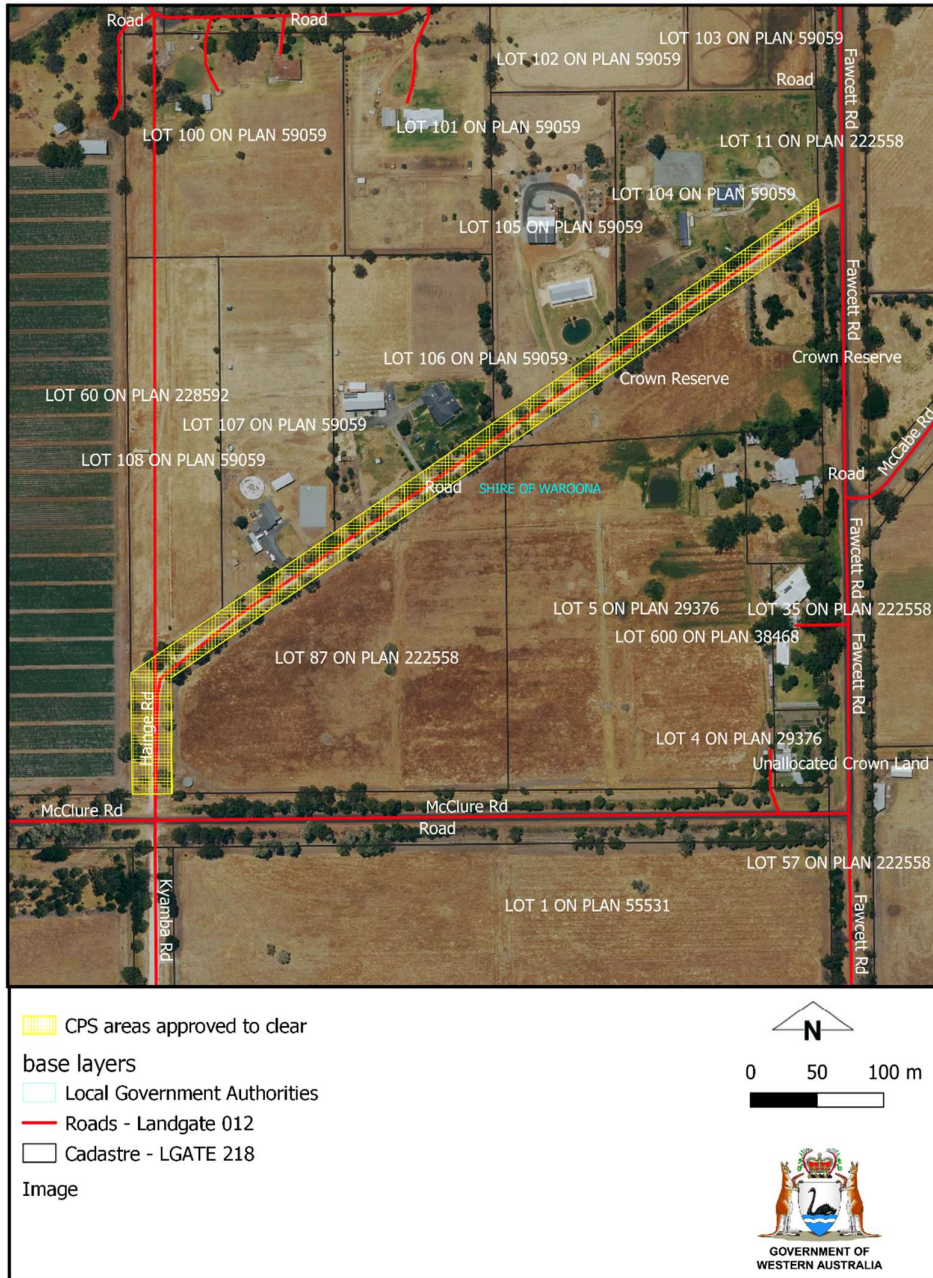


Figure 1. Map of the application area.

The area cross-hatched 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 1.3), 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; and
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

To minimise the need for clearing, the Shire has identified particular trees that require removal due to the widening of the existing road. The Shire has marked the trees requiring clearing to ensure that only the trees requiring clearing will be impacted, and thereby, reduced impacts on nearby vegetation.

The Delegated Officer was satisfied that the applicant has made all reasonable efforts to avoid and minimise potential impacts of the proposed 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 the biological values (fauna), significant remnant vegetation 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, 200 records of 18 conservation significant fauna species have been recorded within the local area (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) and south-western brush-tailed phascogale (*Phascogale tapoatafa* subsp. *wambenger*).

Black cockatoos

According to available databases, 52 records of forest red-tailed black cockatoo, 27 records of Carnaby's cockatoo and 21 records of Baudin's cockatoo have been recorded in the local area (DBCA, 2007).

Suitable breeding habitat for black cockatoos includes trees which either have a suitable nest hollow or are of a suitable diameter 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 (2020) did not identify any trees with hollows. Noting this, the application area is not likely to provide suitable breeding habitat.

Considering the foraging habitat for black cockatoos, the application area provides food resources 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).

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 areas are located approximately 20 km northeast and west of the application area. Noting this, the application area is not likely to provide significant foraging habitat that supports black cockatoos breeding.

Individual night roosting sites need food 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 3.6 (roosting site 1), 5.4 (roosting site 2) and 8.1 (roosting site 3) km from the application area. Given this, the proposed clearing will impact black cockatoo foraging habitat that supports night roosting. The extents of native vegetation within a 6 km perimeter of the roosting sites 1 and 2 are approximately 28.5 and 33.1 per cent of its original extent. However, the proposed clearing of additional 0.1 ha of native vegetation is not likely to be significant habitat as the vegetation remaining within the road reserve will still provide habitat for black cockatoos. Considering this, the application area is not likely to provide significant foraging habitat that supports black cockatoo roosting.

South-western brush-tailed phascogale

According to available databases, there is eight records of south-western brush-tailed phascogale in the local area, with the closest record approximately 2.8 km northeast 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 be significant for this species.

It has been noted that approximately 192,000 ha of remnant vegetation in nearby Dwellingup State Forest (Class A) and Lane Poole Reserve (Class A) is likely to provide similar or better habitat for the south-western brush-tailed phascogale .

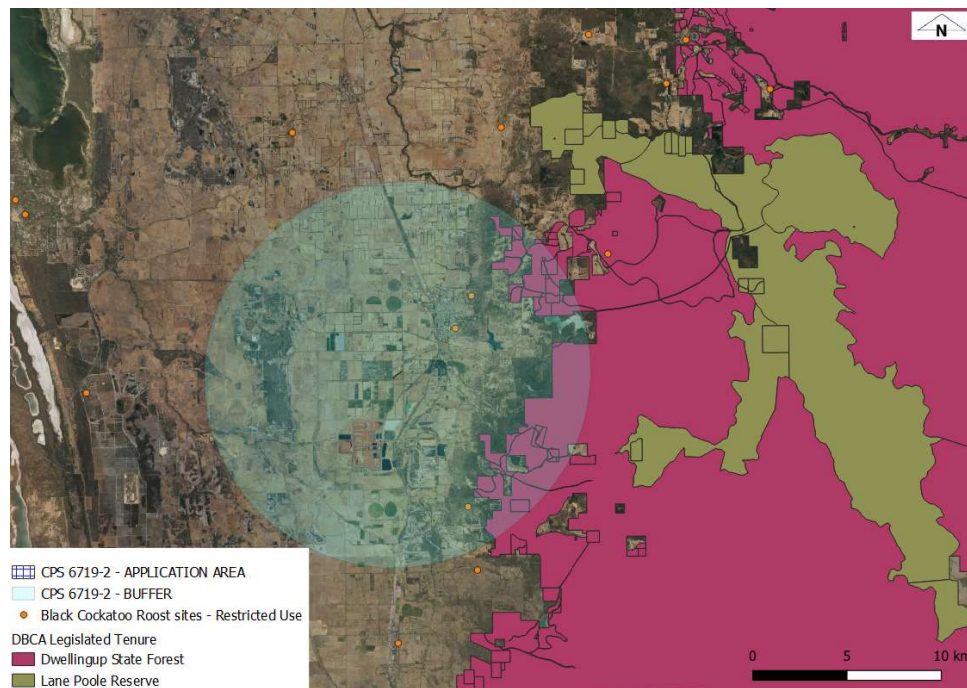


Figure 1 Department of Biodiversity, Conservation and Attractions (DBCA) Legislated Tenures nearby the application area.

Ecological linkage

According to available databases, the application area is mapped approximately 2 km south 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 may function as an ecological linkage enabling fauna to move between areas of remnant vegetation. However, noting the extent of the proposed clearing and that approximately 1 ha of native vegetation will remain within the road reserve, the proposed clearing is not likely to have a significant impact on vegetation acting as a stepping stone for fauna movement.

Outcome:

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

3.2.2. Environmental value: significant remnant vegetation – Clearing Principles (e)

Assessment:

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

The extent of native vegetation within the local area is inconsistent with the national targets as it retains approximately 27.5 per cent vegetation cover (approximately 9,040.2 ha). Given this, the application area is located within an extensively cleared landscape. The application represents approximately 0.001 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 9,040.1 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 Dardanup, which has been mapped within the application area, retains approximately 5.7 per cent of its original vegetation extent. While this vegetation complex 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.

There is a risk of weeds and dieback spreading into remnants of native vegetation adjacent to the proposed clearing and the applicant will be required to adhere to weed and dieback management measures (as conditioned on the clearing permit) to minimise this risk.

Outcome:

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

Conditions:

To address the above impacts, it is considered that the impacts of the proposed clearing on adjacent remnant vegetation can be managed by requiring the applicant to take steps to minimise the risk of the introduction and spread of weeds and dieback.

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

Assessment:

According to available databases, the application area is mapped within an unknown multiple use dampland. 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 than 0.3 ha, of which 0.2 ha has already been cleared, scattered along an approximately 1.48 ha 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

There are no Aboriginal Site and Heritage Places 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.

During the assessment of the amendment application DWER noted that an administrative error occurred at the time of granting Clearing Permit CPS 6719/1. Although the application was for a Purpose Permit, an Area Permit instrument was granted. The Shire had been notified of this issue and confirmed it wished to continue with the Purpose Permit amendment application (the Shire, 2020b). Administrative changes were made to bring the conditions of the Clearing Permit in line with current DWER practice accordingly.

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	<p>The proposed clearing is part of approximately a 1.12 ha remnant of native vegetation within the Hainge Road reserve.</p> <p>Spatial data indicate the local area (10 km radius of the proposed clearing area, which is equal to approximately 32,853 ha) retains approximately 27 per cent (9,040.2 ha) of the original native vegetation cover.</p> <p>Approximately 4,120 ha of remnant vegetation within the local area (approximately 12.5 per cent of the local area) occurs within DBCA managed estate.</p>
Vegetation description	<p>The application area occurs within the SCP IBRA bioregion and is mapped as Dardanup complex which is described as mosaic of vegetation types characteristic of adjacent vegetation complexes such as Serpentine River, Southern River and Guildford (Heddle et al., 1980).</p> <p>A site inspection of the application area was conducted by DER on 14 October 2015.</p> <p>The site inspection identified the application area comprises <i>Corymbia calophylla</i>, <i>Eucalyptus marginata</i>, <i>Melaleuca</i> sp. and <i>Allocasuarina</i> over <i>Kingia</i> sp., <i>Xanthorrhoea preissii</i>, <i>Agonis flexuosa</i> and <i>Acacia decurrens</i> in midstorey, with dominated species invasive <i>Acacia decurrens</i>. Highly invasive species <i>Watsonia meriana</i> var. <i>bulbillifera</i> dominates the understorey.</p> <p>The north eastern end of the application area was observed to be heavily infested with weeds and the western end of the application area was cleared historically and almost completely devoid of native species (DER, 2015).</p> <p>Photographs supplied by the Shire (2020) indicate the application area consists of vegetation dominated by <i>Corymbia calophylla</i> over minimal understorey dominated by weedy grasses. Representative photos are available in Appendix D.</p>
Vegetation condition	<p>DER site inspection (2015) and the photographs supplied by the Shire (2020) indicate the vegetation within the proposed clearing area is in degraded (Keighery, 1994) to completely degraded (Keighery, 1994) condition.</p> <p>The full Keighery condition rating scale is provided in Appendix C. Representative photos are available in Appendix D.</p>
Soil description	<p>The soil is mapped as 'Pinjarra P3 Phase' subsystem (Department of Primary Industries and Regional Development (DPIRD) (2020), which is described as flat to very gently undulating plain with deep, imperfect to poorly drained acidic gradational yellow or grey-brown earths and mottled yellow duplex soils, with loam to clay loam surface horizons (Schoknecht et al., 2004).</p>
Land degradation risk	<p>The mapped land subsystems have low of risk of land degradation in form of soil erosion (water and wind erosion), salinity, eutrophication and flooding (including waterlogging).</p> <p>The full land degradation risk summary for the mapped soil subsystem is provided in Appendix E.</p>
Waterbodies	<p>The desktop assessment and aerial imagery indicates that the application area is mapped within an unknown multiple use dampland (ID 1795).</p>

Site characteristic	Details
Conservation areas	The closest conservation area is Hamel State Forest located approximately 1.1 km west of the application area.
Climate and landform	Rainfall: 1000 and 1100 millimetres Evapotranspiration: 800 millimetres Geology: Alluvial, shoreline, and eolian deposits Groundwater Salinity (Total Dissolved Solids): 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) and photographs supplied by the Shire (2020), the following conservation significant flora and fauna species, and ecological communities may be impacted by the clearing.

Species / Ecological Community	Conservation Code	Distance of closest record to application area (km)	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						
<i>Acacia flagelliformis</i>	Priority (P) 4	8.8	No	No		N/A
<i>Acacia oncinophylla</i> subsp. <i>patulifolia</i>	P4	8.2	No	No		N/A
<i>Acacia semitrullata</i>	P4	8.3	No	No		N/A
<i>Amanita fibrillopes</i>	P3	2.2	No	No		N/A
<i>Angianthus drummondii</i>	P3	6.5	No	No		N/A
<i>Aponogeton hexatepalus</i>	P4	6.4	No	No		N/A
<i>Boronia capitata</i> subsp. <i>gracilis</i>	P3	6.2	No	No		N/A
<i>Caladenia huegelii</i>	T	6.1	No	No		N/A
<i>Caladenia speciosa</i>	P4	5.1	No	No		N/A
<i>Cardamine paucijuga</i>	P2	9.5	No	No		N/A
<i>Chamaescilla gibsonii</i>	P3	4.6	Yes	No		N/A
<i>Conostylis pauciflora</i> subsp. <i>pauciflora</i>	P4	2.3	No	No		N/A
<i>Diuris drummondii</i>	T	4.5	No	No		N/A
<i>Drakaea elastica</i>	T	7.3	No	No		N/A
<i>Drakaea micrantha</i>	T	8.3	No	No		N/A
<i>Eleocharis keigheryi</i>	T	6.4	Yes	No		N/A

Species / Ecological Community	Conservation Code	Distance of closest record to application area (km)	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)
<i>Eryngium</i> sp. Ferox (G.J. Keighery 16034)	P3	7.5	Yes	No		N/A
<i>Eucalyptus x graniticola</i>	P4	7.1	No	No		N/A
<i>Grevillea bipinnatifida</i> subsp. <i>pagna</i>	1	6.1	Yes	No		N/A
<i>Hemigenia microphylla</i>	P3	8.1	No	No		N/A
<i>Melaleuca viminalis</i>	P2	3.7	No	No		N/A
<i>Millotia tenuifolia</i> var. <i>laevis</i>	P2	8.2	No	No		N/A
<i>Myriophyllum echinatum</i>	P3	6.8	Yes	No		N/A
<i>Ornduffia submersa</i>	P4	8.6	Yes	No		N/A
<i>Phyllangium palustre</i>	P2	7.4	Yes	No		N/A
<i>Schoenus capillifolius</i>	P3	7.9	No	No		N/A
<i>Schoenus natans</i>	P4	6.6	No	No		N/A
<i>Schoenus</i> sp. <i>Waroona</i> (G.J. Keighery 12235)	P3	6.4	No	No		N/A
<i>Stylidium aceratum</i>	P3	6.2	No	No		N/A
<i>Stylidium ireneae</i>	P4	7.9	No	No		N/A
<i>Synaphea odocoileops</i>	P1	6.6	Yes	No		N/A
<i>Synaphea</i> sp. <i>Serpentine</i> (G.R. Brand 103)	T	6.6	Yes	No		N/A
<i>Synaphea stenoloba</i>	T	5	No	No		N/A
<i>Tetraria australiensis</i>	T	5.6	No	No		N/A
<i>Trithuria australis</i>	P4	6.7	No	No		N/A
Fauna						
Baudin's cockatoo	Endangered	1.7			Yes	N/A
Blue-billed duck	P4	4.2			No	N/A
Carnaby's cockatoo	Endangered	2.8			Yes	N/A
Carter's freshwater mussel	Vulnerable	2.6			No	N/A

Species / Ecological Community	Conservation Code	Distance of closest record to application area (km)	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)
Chuditch, western quoll	Vulnerable	4.2			No	N/A
Forest red-tailed black cockatoo	Vulnerable	2.8			Yes	N/A
noisy scrub-bird, tjimiluk	Endangered	7.2			No	N/A
Numbat, walpurti	Endangered	4.4			No	N/A
Pouched lamprey	P3	6.6			No	N/A
Quenda, southwestern brown bandicoot	P4	3.2			No	N/A
Quokka	Vulnerable	8.6			No	N/A
South-western brush-tailed phascogale, wambenger	Critically endangered	2.7			Yes	N/A
Swan Coastal Plain shield-backed trapdoor spider	P3	6.5			No	N/A
Water-rat, rakali	P4	4.6			No	N/A
Western brush wallaby	P4	6.2			No	N/A
Western false pipistrelle, western falsistrelle	P4	3.6			No	N/A
White-tailed black cockatoo	Endangered	4.9			Yes	N/A
Ecological communities						
<i>Banksia attenuata</i> and/or <i>Eucalyptus marginata</i> woodlands of the eastern side of the Swan Coastal Plain (floristic community type 20b as originally described in Gibson et al. (1994))	Endangered	5.6	No	No		N/A
<i>Corymbia calophylla</i> - <i>Eucalyptus marginata</i> woodlands on sandy clay soils of the southern Swan Coastal Plain (floristic community type 3b as originally described in Gibson et al. (1994))	Vulnerable	7.3	No	Yes		N/A
Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	P3	2.1	No	No		N/A

Species / Ecological Community	Conservation Code	Distance of closest record to application area (km)	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)
<i>Corymbia calophylla</i> - <i>Xanthorrhoea preissii</i> woodlands and shrublands, Swan Coastal Plain (floristic community type 3c as originally described in Gibson et al. (1994))	Critically Endangered	6.6	No	Yes		N/A
<i>Corymbia calophylla</i> - <i>Kingia australis</i> woodlands on heavy soils, Swan Coastal Plain (floristic community type 3a as originally described in Gibson et al. (1994))	Critically Endangered	6.0	No	Yes		N/A
Dense shrublands on clay flats (floristic community type 9 as originally described in Gibson et al. (1994))	Vulnerable	6.7	No	No		N/A
Shrublands on dry clay flats (floristic community type 10a as originally described in Gibson et al. (1994))	Endangered	6.5	No	No		N/A
Herb rich shrublands in clay pans (floristic community type 8 as originally described in Gibson et al. (1994))	Vulnerable	6.6	No	No		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					
e.g. Swan Coastal Plain	850,785.09	276,461.42	32.49	35,939.98	13.25
Vegetation complex					
Dardanup complex	8,948.33	510.43	5.70	134.95	1.51

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> “Native vegetation should not be cleared if it comprises a high level of biodiversity.”</p> <p><u>Assessment:</u> Considering the application is to clear up to 10 marri trees, the proposed clearing will have limited impacts on the understorey in the application area, and therefore, no threatened or priority flora is likely to be impacted. 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.</p>	Not likely to be at variance	No
<p><u>Principle (b):</u> “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.”</p> <p><u>Assessment:</u> The application area comprises suitable habitat for three black cockatoo species and south-western brush-tailed phascogale. Noting the shape and extent of the proposed clearing, 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 of other native fauna.</p>	May be at variance	Yes Refer to Section 3.2.1 above.
<p><u>Principle (c):</u> “Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</p> <p><u>Assessment:</u> Considering the application is to clear up to 10 marri trees, the proposed clearing will have limited impacts on the understorey within the application area, and therefore no threatened flora is likely to be impacted.</p>	Not likely to be at variance	No.
<p><u>Principle (d):</u> “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.”</p> <p><u>Assessment:</u> The proposed clearing area does not contain species composition indicative of a threatened ecological community listed by the Western Australian Minister for Environment.</p>	Not likely to be at variance	No
Environmental values: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> “Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</p> <p><u>Assessment:</u> The extent of native vegetation in the local area is inconsistent with the national objectives and targets for biodiversity conservation in Australia. Vegetation in the application area is not considered to be part of 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.</p>	May be at variance	Yes Refer to Section 3.2.2 above.
<p><u>Principle (h):</u> “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.”</p> <p><u>Assessment:</u> 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.</p>	Not likely to be at variance	No

Assessment against the Clearing Principles	Variance level	Is further consideration required?
Environmental values: 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> The application area is mapped within an unknown multiple use dampland therefore the vegetation proposed to be cleared is growing in an environment associated with a wetland. However, no distinctive riparian vegetation will be cleared.</p>	Is at variance	Yes Refer to Section 3.2.3 above.
<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> 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.</p>	Not likely to be at variance	No
<p><u>Principle (i):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.”</i></p> <p><u>Assessment:</u> 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.</p>	Not likely to be 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> 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.</p>	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 degradation risk summary

C	C1	C2	C3	C4
pH				
0-10 acidity	very strongly acid: 0 %	strongly acid: 0 %		
0-10 alkalinity	strongly alkaline: 0 %	alkaline: 0 %		
50-80 acidity	very strongly acid: 0 %	strongly acid: 0 %		
50-80 alkalinity	strongly alkaline: 0 %	alkaline: 10 %		
acidification risk	presently acid: 45 %	high: 50 %	moderate: 0 %	low: 5 %
SALINITY				
salinity risk	presently saline: 5 %	high: 0 %	moderate: 0 %	nil or partial: 95 %
surface salinity	extreme: 0 %	high: 5 %	moderate: 0 %	slight to nil: 95 %
SOME PLANT LIMITS				
rooting depth	very shallow: 0 %	shallow: 5 %	moderately shallow: 15 %	v deep to moderate: 80 %
sub surface compact	high: 40 %	moderate: 35 %	low: 25 %	
water repel	high: 0 %	moderate: 0 %	low: 0 %	nil: 100 %
water storage	extremely low: 5 %	very low: 20 %	low: 0 %	high to moderate: 75 %
EROSION				
flood risk	high: 0 %	moderate: 0 %	low: 0 %	low: 100 %
instability	high: 0 %	moderate: 0 %	low: 0 %	nil to very low: 100 %
water erosion	extreme; 0 %	very high: 0 %	high: 0 %	nil to moderate: 100 %
wind erosion	extreme; 0 %	very high: 0 %	high: 0 %	nil to moderate: 100 %
WATER & DRAINAGE				
site drainage	very poor: 15 %	poor: 60 %	moderate: 25 %	high: 0 %
waterlogging	very high: 15 %	high: 15 %	moderate: 25 %	nil to low: 0 %
OTHER QUALITIES				
excavation ease	very low: 0 %	low: 15 %	moderate: 60 %	high: 25 %
microbial purification	very low: 80 %	low: 20 %	moderate: 0 %	high: 0 %
phosphorus loss	extreme: 0 %	very high: 0 %	high: 0 %	nil to moderate: 100 %

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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