GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 8770/1
Permit Holder:	Shire of Waroona
Duration of Permit:	2 October 2020 – 2 October 2025

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 improving road safety.

2. **Land on which clearing is to be done**
   Willowdale Road reserve (PINs: 1383264, 1134667, 1383258, 1383259, 1383254, 1383253, 1383252, 1383251, 1383237, 1383249, 1383238, 1383236, 1383235, 1383239, 1383226 and 1383225), Wagerup
   Lot 700 on Deposited Plan 59305, Wagerup
   Lot 514 on Deposited Plan 109077, Wagerup
   Lot 351 on Deposited Plan 246088, Wagerup
   Lot 1 on Deposited Plan 11067, Wagerup
   Lot 1 on Diagram 53224, Wagerup
   STATE FOREST 14 (PINs 557013, 557092 and 1134668), Wagerup

3. **Area of Clearing**
   The Permit Holder must not clear more than 0.4 hectares of native vegetation and 122 native trees within the area cross-hatched yellow on attached Plan 8770/1a and Plan 8770/1b.

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:

(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.

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*:

(a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
(b) ensure that no *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.

8. Vegetation management

The Permit Holder shall not clear native vegetation within 10 metres of any *watercourse* within and/or adjacent to the area cross-hatched yellow on Plan 8770/1a and Plan 8770/1b.

PART III - RECORD KEEPING AND REPORTING

9. Record keeping

The Permit Holder must maintain the following records 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(s) 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 extent of clearing in accordance with condition 6 of this Permit;
(e) actions taken to minimise the risk of the introduction and spread of *dieback* and *weeds* in accordance with condition 7 of this Permit; and
(f) Actions taken to avoid clearing within 10 metres of any *watercourse* in accordance within condition 8 of this Permit.

10. Reporting

The Permit Holder must produce the records required under condition 9 of this Permit when required by the *CEO*.

DEFINITIONS

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

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

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

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

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

watercourse has the meaning given to it in section 3 of the *Rights in Water and Irrigation Act 1914*;

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 species-led ecological impact and invasiveness ranking summary, regardless of ranking; or
(c) not indigenous to the area concerned

Jessica Burton
A/MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

3 September 2020

Plan 8770/1a

CPS layers

CPS areas approved to clear

Road Centrelines

Cadastre - LGATE 218

N

0 0.1 0.2 km

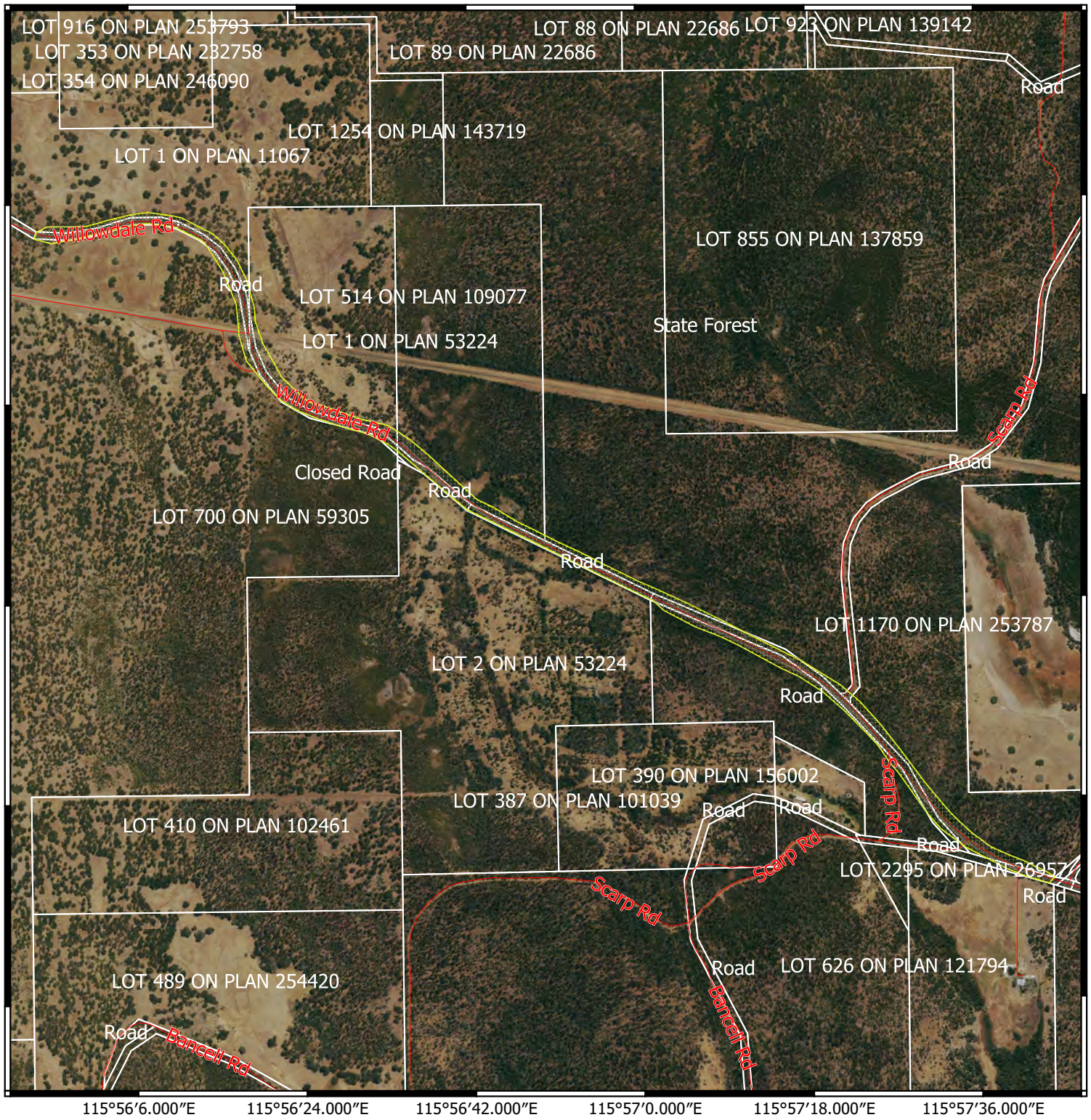
1:12050

MGA Zone 50
Geocentric Datum of Australia 1994

Officer delegated under section 20 of the Environmental Protection Act 1986

GOVERNMENT OF WESTERN AUSTRALIA

Plan 8770/1b



CPS layers

CPS areas approved to clear

Road Centrelines

Cadastre - LGATE 218

N

0 0.1 0.2 km

1:15192

MGA Zone 50
Geocentric Datum of Australia 1994

Officer delegated under section 20 of the Environmental Protection Act 1986

GOVERNMENT OF WESTERN AUSTRALIA

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 8770/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: Shire of Waroona
Application received date: 18 December 2019

1.3. Property details

Property: Willowdale Road reserve
Local Government Authority: Shire of Waroona
Localities: Wagerup

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	Purpose category:
0.4	122	Mechanical Removal	Road construction or upgrades

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 3 September 2020

Reasons for Decision:

The clearing permit application was received on 18 December 2019 and has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986* (EP Act). It has been concluded that the proposed clearing may be at variance to principles (f) and (h) and is not likely to be at variance with any of the remaining clearing principles.

Through assessment, the Delegated Officer determined that the proposed clearing may cause the spread of weeds and dieback into adjacent areas of remnant vegetation and Dwellingup State Forest. To mitigate potential impacts to adjacent remnant vegetation, a weed and dieback management condition has been placed on the permit. The weed and dieback management condition requires earth-moving machinery to be clean of weeds and dieback when entering and exiting the clearing area, 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 area to be cleared.

The applicant has advised that no clearing within 10 metres of the Yalup Brook will occur. A vegetation management condition will be placed on the permit to mitigate impacts to riparain vegetation associated with this watercourse.

Given the above, the Delegated Officer decided to grant a clearing permit subject to weed and dieback management and vegetation management conditions. The Delegated Officer determined that the proposed clearing is not likely to lead to an unacceptable risk to the environment.

2. Site Information

Clearing Description

The amended application is to clear 0.4 hectares of native vegetation and 122 native trees within a 24.84 hectare footprint within various land parcels in Wagerup for the purpose of improving road safety by removing dangerous branches and burnt trees from road side and to improve vision for motorists.

Vegetation Description

The application area has been divided into two distinct areas (Figure 1):

Area 1 has been mapped as the following Swan Coastal Plain vegetation complexes:

- **Forrestfield Complex**: vegetation ranges from open forest of *Corymbia calophylla* (marri) - *Eucalyptus wandoo* (wandoo) - *Eucalyptus marginata* (jarrah) to open forest of *Eucalyptus marginata* (jarrah) - *Corymbia calophylla* (marri) - *Allocasuarina fraseriana* (sheoak) - *Banksia* species. Fringing woodland of *Eucalyptus rudis* (Flooded Gum) in the gullies that dissect this landform (Heddle et al., 1980).
- **Guildford Complex**: A mixture of open forest to tall open forest of *Corymbia calophylla* (marri) - *Eucalyptus wandoo* (wandoo) - *Eucalyptus marginata* (jarrah) and woodland of *Eucalyptus wandoo* (wandoo) (with rare occurrences of

Eucalyptus lane-poolei (salmon white gum)). Minor components include *Eucalyptus rudis* (flooded gum) - *Melaleuca rhaphiophylla* (swamp paperbark) (Heddle et al., 1980).

Area 2 has been mapped as the following south west vegetation complexes:

- **My1**: open forest of *Eucalyptus marginata* subsp. *marginata* - *Corymbia calophylla* - *Eucalyptus patens* on valley slopes to woodland of *Eucalyptus rudis* - *Melaleuca rhaphiophylla* on the valley floors in humid and subhumid zones (Mattiske 1998).
- **He1**: mosaic of open forest of *Corymbia calophylla* - *Eucalyptus patens* - *Eucalyptus marginata* subsp. *marginata* with some *Eucalyptus rudis* on the deeper soils ranging to closed heath and lithic complex on shallow soils associated with granite on steep slopes of valleys in humid and subhumid zones (Mattiske and Havel, 1998).
- **DS2**: mosaic of open forest of *Eucalyptus marginata* subsp. *marginata* - *Corymbia calophylla*, with some admixtures with *Eucalyptus laeliae* in the north (subhumid zone), with occasional *Eucalyptus marginata* subsp. *elegantella* (mainly in subhumid zone) and *Corymbia haematoxylon* in the south (humid zone) on deeper soils adjacent to outcrops, woodland of *Eucalyptus wandoo* (subhumid and semiarid zones), low woodland of *Allocasuarina huegeliana* on shallow soils over granite outcrops, closed heath of Myrtaceae - Proteaceae species and lithic complex on or near granite outcrops in all climate zones.
- **D1**: Open forest of *Eucalyptus marginata* subsp. *marginata* - *Corymbia calophylla* on lateritic uplands in mainly humid and subhumid zones (Mattiske 1998).

The 122 native trees within Area 1 are predominantly *Corymbia calophylla* (marri) and the vegetation proposed to be cleared within Area 2 consists predominantly of *Acacia Pycnatha*, *Acacia Myrtifolia*, *Acacia Merinthophora* and juvenile *Eucalypt* sp (Shire of Waroona 2020b).

Vegetation Condition

Area 1 is predominantly in completely degraded (Keighery, 1994) condition. The vegetation located within Area 2 ranges from completely degraded to very good (Keighery, 1994) condition as described below:

- Completely Degraded: The structure of the vegetation is no longer intact and the area is completely or almost completely without native species (Keighery, 1994);
- Degraded (Keighery 1994): Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management.
- Good: Vegetation structure significantly altered by very obvious signs of multiple disturbance; retains basic structure or ability to regenerate (Keighery 1994); and
- Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994);

Soil type

The application area has been mapped as the following land subsystems:

Area 1

- Forrestfield F2c Phase: low slopes and foot slopes up to 5-10% slopes with well drained deep uniform yellowish brown sands which are generally free of laterite or gravel.
- Pinjarra P1d Phase: flat to very gently undulating plain with deep acidic mottled yellow duplex (or defective duplex) soils. Shallow pale sand to sandy loam over clay; imperfect to poorly drained and moderately susceptible to salinity.
- Forrestfield F5 Phase: poorly defined stream channels on lowest slopes with deep acidic yellow duplex soils and sandy alluvial gradational brown earths.
- Forrestfield F4 Phase: incised stream channels within gentle slopes with deep acidic yellow duplex soils and sandy alluvial gradational brown earths.
- Forrestfield F1b Phase: 1-15% lower slopes with well drained moderately deep to deep, gravelly acidic yellow duplex soils and rare laterite.

Area 2

- Murray Valleys DR1 Phase: gentle to moderate slopes of scarp face (5-25%) with red and yellow gradational earths and duplex soils with variable depth and common rock outcrop.
- Murray Subsystem: deeply incised valley of the Murray River; red and yellow earths and minor duplex soils; occasional rock outcrops; narrow sandy terrace.
- Hester Subsystem: ridges and hill crests on laterite and gneiss, relief 5-40 m, slopes 5-15%. Soils are sandy gravels, loamy gravels and loamy earths (Schonknecht et al., 2004).

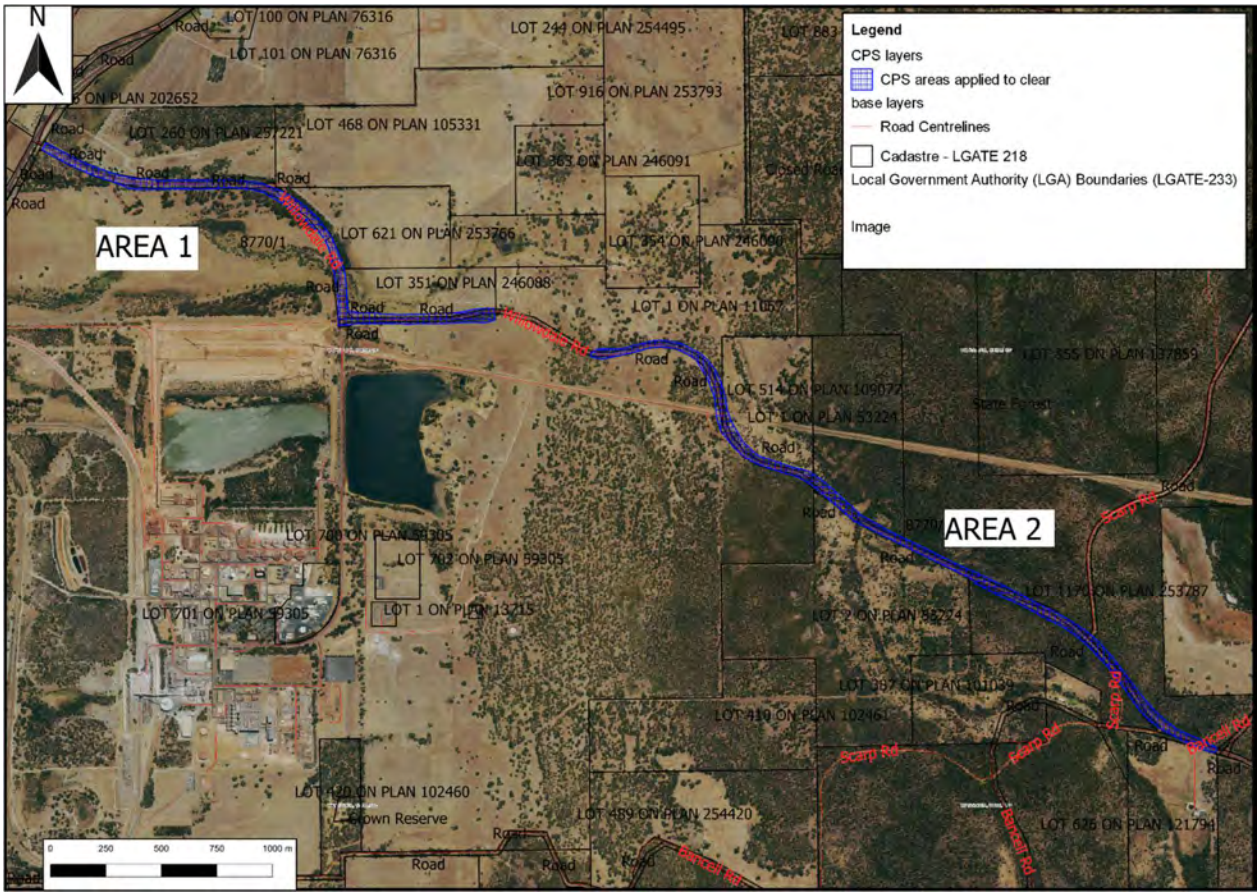


Figure 1: Application Area

Figure 2: Photograph of vegetation proposed to be cleared within Area 1 (Shire of Waroona, 2020a).

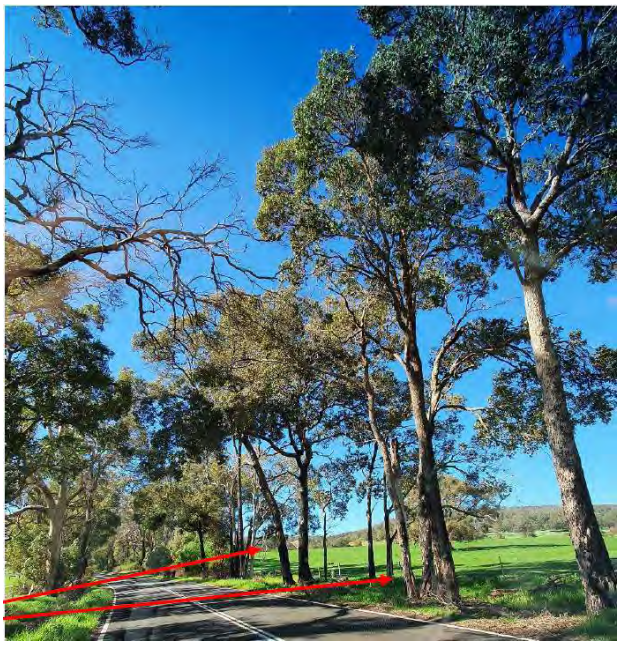


Figure 3: Photograph of vegetation proposed to be cleared within Area 1 (Shire of Waroona, 2020a).

Figure 4: Photograph of vegetation proposed to be cleared within Area 1 (Shire of Waroona, 2020a).

Figure 5: Photograph of vegetation proposed to be cleared within Area 1 (Shire of Waroona, 2020a).

3. Minimisation and mitigation measures

The applicant has reduced the proposed clearing area from 15 hectares of native vegetation to 0.4 hectares of native vegetation and 122 native trees. The applicant reduced the width of clearing from 3 – 5 metres either side of the road, to clearing to a maximum of 2.2 metres from the road seal. Clearing may be required up to a 5 metre width from the edge of the road seal on the bend near Bancell Road on the east bound lane only.

The applicant has advised that no clearing within 10 metres of watercourses will occur.

As referred to under Section 5 the applicant provided additional information including additional photographs of the application area and information regarding the method of clearing.

The clearing proposed within Area 2 will be undertaken by using a mulching machine 2.2 metres wide. The clearing within Area 2 will involve removing regrowth vegetation.

The clearing proposed within Area 1 proposes to remove dead or dying trees that were impacted by the Yarloop fires. An assessment was undertaken by WA Horticultural Services to determine the trees that are likely to cause future hazards (WA Horticultural Services, 2019).

Section 5 below outlines the submissions and amendments made by the applicant during the assessment in more detail.

4. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biodiversity.

Proposed clearing is not likely to be at variance with this Principle

The following assessment includes the preliminary assessment of the original 15 hectare application area and the consideration of the variances made in response to the amended application area.

Original Assessment

According to available databases, 29 priority flora species have been recorded within the application area. Of these, suitable habitat for 12 priority flora species may be present within the application area.

Actinotus repens (Priority 3) has been recorded growing in association with drainage lines and watercourse and has been found on the edge of tracks and side of road (Western Australian Herbarium 1998-). Given the soil types identified in Area 2, suitable habitat for this species may be located within the application area.

Amanita fibrillopes (Priority 3) has been recorded growing in jarrah marri woodland on sandy loam soil (Western Australian Herbarium 1998-). Given the vegetation and soil types identified in Area 2 suitable habitat for this species maybe located within the application area.

Acacia semitrullata grows on white/grey sand, sometimes over laterite, clay on sandplains and swampy areas (Western Australian Herbarium 1998-). Given the soil types identified in Area 2 suitable habitat for this species maybe located within the application area.

Caladenia speciosa (Priority 4) grows in white, grey and black sand and has been found growing amongst Jarrah and Marri woodland (Western Australian Herbarium 1998-). Suitable habitat for this species may be located within the application area.

Area 1 is in a completely degraded (Keighery, 1994) condition and is not likely to provide significant habitat for the above mentioned Priority 3 and Priority 4 flora species. Area 2 includes areas of intact vegetation that may provide suitable habitat for the abovementioned Priority 3 and Priority 4 flora species. Further information regarding the extent of clearing within Area 2, vegetation type and condition of vegetation is required to determine if the proposed clearing will have a significant impact on habitat or the conservation status of the abovementioned priority flora species.

Tetraria sp. Nannup (P.A. Jurjevich 1133) (Priority 1), *Cardamine paucijuga* (Priority 2), *Melaleuca viminalis* (Priority 2), *Schizaea rupestris* (Priority 2), *Cyathochaeta teretifolia* (Priority 3), *Grevillea prominens* (Priority 3), *Hemigenia microphylla* (Priority 3), *Stylidium ireneae* (Priority 4) have been recorded growing in association with creeklines and/or watercourses (Western Australian Herbarium 1998-). Suitable habitat for these species may be present within the application area in Area 1 and Area 2 where 'Yalup Brook' intersects the application areas. Further information including the condition of vegetation, vegetation type present and the extent of clearing occurring associated with this watercourse is required to determine the impacts of clearing on the abovementioned priority flora species.

As discussed under Principle (c), the application area may provide habitat for three threatened flora species. Further information regarding the extent of clearing, vegetation type present within Area 2 and if clearing is likely to occur within 'Yalup Brook' is required.

As discussed under Principle (b), the application area may provide significant foraging habitat for the forest red-tailed black cockatoo (*Calyptorhynchus banksii* subsp. *naso*), Baudin's cockatoo (*Calyptorhynchus baudinii*) and Carnaby's cockatoo (*Calyptorhynchus latirostris*). Further information including the extent of the proposed clearing that will remove suitable foraging habitat is required to determine the impact of the proposed clearing on black cockatoos.

As discussed under Principle (d), the application area is not likely to comprise or be necessary for the maintenance of a state listed threatened ecological community (TEC).

A portion of Area 1 is mapped as the '*Banksia* Woodlands of the Swan Coastal Plain ecological community', listed as Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and listed as Priority 3(iii) Priority Ecological Community by Department of Biodiversity Conservation and Attractions. DotEE's mapping provides an indicative distribution of the ecological community, defining areas mapped as 'likely to occur' and 'may occur'. The approved conservation advice for this community states that "Ground-truthing (e.g. an on-ground survey) is required to verify if a particular site meets the required key diagnostic characteristics and minimum condition thresholds to be the described ecological community" (Threatened Species Scientific Committee, 2016).

Area 1 is in a completely degraded (Keighery, 1994) condition comprising of predominantly large *Eucalyptus* sp. over a understorey comprising of grasses and weeds. The vegetation within Area 1 is not considered to be representative of this ecological community.

Given the above, the application area may provide significant habitat for priority flora, threatened flora and the conservation significant black cockatoo species and therefore may be considered to comprise a high biodiversity.

Amended Area assessment

Given the reduction of the application area and the additional information provided regarding the vegetation proposed to be cleared it has been determined that no priority or rare flora will be impacted by the proposed clearing.

The applicant has committed to not clearing within 10 metres of the watercourses that intersect the application area and therefore the proposed clearing is not likely impact upon threatened flora species *Eleocharis keigheryi* and priority flora species '*Tetraria* sp. Nannup (P.A. Jurjevich 1133) (Priority 1), *Cardamine paucijuga* (Priority 2), *Melaleuca viminalis* (Priority 2), *Schizaea rupestris* (Priority 2), *Cyathochaeta teretifolia* (Priority 3), *Grevillea prominens* (Priority 3), *Hemigenia microphylla* (Priority 3), *Stylidium ireneae* (Priority 4), that have been recorded within the local area.

The proposed clearing is not likely to impact upon understorey within Area 1 (122 native trees) and the vegetation proposed to be cleared within Area 2 (0.4 hectares) consists predominantly of regrowth including *Acacia Pycnatha*, *Acacia Myrtifolia*, *Acacia Merinthophora* and juvenile *Eucalypt* sp. Given this, the application area is not likely to comprise suitable habitat for threatened flora *Drakaea micrantha* and *Caladenia huegelii* and priority flora species *Amanita fibrillopes* (Priority 3), *Acacia semitrullata* (Priority 4) and *Caladenia speciosa* (Priority 4) species which have been recorded within the local area.

Actinotus repens (Priority 3) has been found on the edge of tracks and side of a road and therefore suitable habitat for this species may be present within the application area (Western Australian Herbarium 1998-). However, no understorey is proposed to be impacted within Area 1 and the clearing of 0.4 hectares of native vegetation within Area 2 (approximatley1.7km long) of

vegetation that has been previously cleared and is predominantly regrowth is not likely to have a significant impact on the conservation status of this species, if present.

As discussed under Principle (b), the amended application area is not likely to comprise significant habitat for the conservation significant black cockatoo species.

Given the above the amended application area is not likely to comprise a high biodiversity. The proposed clearing is not likely to be at variance with this 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.

Proposed clearing is not likely to be at variance with this Principle

Original Assessment
According to available databases there are eight fauna species listed as threatened under the *Biodiversity Conservation Act 2016* (BC Act) within the local area, including: noisy scrub-bird (*Atrichornis clamosus*), forest red-tailed black cockatoo (*Calyptorhynchus banksii* subsp. *naso*), Baudin's cockatoo (*Calyptorhynchus baudinii*), Carnaby's cockatoo (*Calyptorhynchus latirostris*), chuditch (*Dasyurus geoffroii*), numbat (*Myrmecobius fasciatus*), quokka (*Setonix brachyurus*) and Carter's freshwater mussel (*Westralunio carteri)*. Furthermore, six priority fauna and one other specially protected fauna have been recorded within the local area (DBCA, 2007-).

The noisy scrub-bird inhabits ecological communities that support a dense understorey or lower stratum of sedges and shrubs, a dense accumulation of leaf litter and an abundant population of litter-dwelling invertebrates. It mainly occurs in low closed forests 5–15 meters in height that are dominated by *Eucalyptus* or *Agonis* and *Banksia littoralis* and occur in the steep and wetter gullies, and drainage lines of hills and granite mountains (*Eucalyptus*), and on the margins of freshwater lakes (*Agonis* and *B. littoralis)* (Department of the Environment 2020). Suitable habitat for this species is not likely to be present within the application area.

Carnaby's cockatoo is listed as endangered and forest-tailed cockatoo and Baudin's Cockatoo is listed as vulnerable under the EPBC Act and BC Act. Black cockatoos breed in large hollow-bearing trees, generally within woodlands or forests or in isolated trees (Commonwealth of Australia, 2012). These species nest in hollows in live or dead trees of karri, marri, wandoo, tuart, salmon gum, jarrah, flooded gum, York gum, powder bark, bullich and blackbutt (Commonwealth of Australia, 2012). Photographs of the large trees proposed to be cleared have been previously burnt, predominantly dead and do not appear to be of a size to provide hollows suitable for breeding by black cockatoos.

Black cockatoos have a preference for foraging habitat that includes jarrah and marri woodlands and forest heathland and woodland dominated by proteaceous plant species such as *Banksia* sp., *Hakea* sp. and *Grevillea* sp. (Commonwealth of Australia, 2012). Suitable foraging habitat may be present within Area 1 and Area 2 if jarrah and marri species are proposed to be cleared. The clearing of 15 hectares of foraging habitat may have a significant impact on the conservation significant black cockatoos. Further information including the extent the proposed clearing will remove suitable foraging habitat is required to determine the impact of the proposed clearing on black cockatoos.

Chuditch are present in approximately five per cent of their former range, with most chuditch now found in varying densities in jarrah forests and woodlands in the south west corner of Western Australia, in woodlands, mallee shrublands and heaths along the south coast, east to the Ravensthorpe area, and at lower densities in drier woodland and mallee shrubland in the Wheatbelt and Goldfield regions (Department of Environment and Conservation, 2012). Significant habitat for this species is not likely to be impacted by the proposed clearing.

The quokka's current distribution on the mainland on Western Australia is within high rainfall areas. In the jarrah, marri and karri forests, they occupy a range of forest, woodland and wetland habitats that generally have thick understorey, are nearby swamps and are close to more open, recently burnt vegetation (DBCA, 2017). Suitable habitat for this species is not likely to be present within the application area.

The carter freshwater mussel occurs in watercourses. Given the small area surrounding the watercourse proposed to be cleared, significant habitat for this species is not likely to be impacted by the proposed clearing.

Of the six priority fauna and one other specially protected fauna species that have been recorded within the local area, only one species may be found within the application area due to the habitat recorded, being the *Phascogale tapoatafa* subsp. *wambenger* (South-western Brush-tailed Phascogale) if larger trees with hollows are proposed to be impacted. Pre-clearance surveys and directional clearing will assist in mitigating impacts to this species.

Given the above the application area may provide significant foraging habitat for the conservation significant black cockatoos.

Amended area assessment

Taking into consideration the amended application area, the marri species proposed to be cleared within Area 1 will provide foraging habitat for the Baudin's cockatoo and Forest red-tailed cockatoo. However, the clearing proposed within Area 1 proposes to clear dead trees or trees significantly impacted by previous fires and vegetation will remain within the road reserve. No loss of significant habitat for black cockatoos is expected. Area 2 does not comprise significant foraging habitat for any of the black cockatoo species. As discussed under the original assessment above and taking into consideration additional photographs

provided by the applicant it has been determined that the trees proposed to be cleared are not of suitable size to provide breeding habitat for the black cockatoo species or provide habitat for the south-western brush-tailed phascogale.

Therefore, the proposed clearing is not likely to be at variance with this Principle.

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.

Proposed clearing is not likely to be at variance with this Principle

Original Assessment
According to available databases, eight threatened flora species have been recorded within the local area being: *Caladenia huegelii, Diuris drummondii, Drakaea elastica, Drakaea micrantha, Eleocharis keigheryi, Synaphea* sp. Serpentine (G.R. Brand 103)*, Synaphea stenoloba* and *Tetraria australiensis*.

Diuris drummondii, Drakaea elastica, Synaphea stenoloba and *Tetraria australiensis* are known to occur within and adjacent to low-lying depressions, swamps, areas of inundation and winter wet wetlands (Western Australian Herbarium 1998- and Department of the Environment, Water, Heritage and the Arts, 2008a). Given the absence of wetlands, areas of inundation and/or swamps within the application area, suitable habitat for these species is not likely to be present within the application area.

Eleocharis keigheryi grows in small clumps in a substrate of clay or sandy loam. This species is emergent in freshwater creeks and claypans. Associated species include includes *Melaleuca lateritia* and herbs such as *Wurmbea*, *Tribonanthes* and *Leptocarpus* spp. (Department of the Environment, Water, Heritage and the Arts, 2008b). Suitable habitat for this species may be located within the two areas that are intersected by 'Yalup Brook'.

Drakaea micrantha is usually found in cleared fire breaks or open sandy patches that have been disturbed, and where competition from other plants has been removed. This species occurs in infertile grey sands, in banksia, jarrah (*Eucalyptus marginata*) and Common Sheoak (*Allocasuarina fraseriana*) woodland or forest. It is often found under thickets of Spearwood (*Kunzea ericifolia*) with flying duck orchid (*Paracaleana nigrita*) and other Drakaea species (Department of the Environment, Water, Heritage and the Arts 2008c). Given the vegetation and soil types described in Area 2, suitable habitat for this species maybe present within the application area.

Synaphea sp. Serpentine (G.R. Brand 103) occurs predominantly on flat terrain on grey-brown sandy loams to clay in seasonally wet areas (Threatened Species Scientific Committee, 2018). Suitable habitat is not likely to be present within the application area.

Caladenia huegelii occurs in areas of mixed woodland of jarrah (*Eucalyptus marginata*), candlestick banksia (*Banksia attenuata*), holly banksia (*B. ilicifolia*) and firewood banksia (*B. menziesii*) with scattered sheoak (*Allocasuarina fraseriana*) and marri (*Corymbia calophylla*) over dense shrubs of blueboy (*Stirlingia latifolia*), Swan River myrtle (*Hypocalymma robustum*), yellow buttercups (*Hibbertia hypericoides*), buttercups (*H. subvaginata*), balga (*Xanthorrhoea preissii*), coastal jugflower (*Adenanthos cuneatus*) and *Conostylis* species, from just north of Perth to the Busselton area, usually within 20 km of the coast. This species tends to favour areas of dense undergrowth. Soil is usually deep grey-white sand usually associated with the Bassendean sand-dune system (Department of Environment and Conservation 2009). Given the vegetation and soil types mapped within the application area and described in Area 2, suitable habitat for this species may be located within the application area.

Given the above, the application area may provide suitable habitat for threatened flora species. Further information regarding the extent of clearing, vegetation type present within Area 2 and if clearing is likely to occur within 'Yalup Brook' is required.

Amended Area Assessment

The applicant has committed to not clearing within 10 metres of the watercourses that intersect the application area and therefore the proposed clearing is not likely impact upon threatened flora species *Eleocharis keigheryi.*

The proposed clearing is not likely to impact upon understorey within Area 1 (122 native trees) and the vegetation proposed to be cleared within Area 2 (0.4 hectares) consists predominantly of regrowth including *Acacia Pycnatha*, *Acacia Myrtifolia*, *Acacia Merinthophora* and juvenile *Eucalypt* sp. Given this, the application area is not likely to comprise suitable habitat for threatened flora *Drakaea micrantha* and *Caladenia huegelii*.

Given the above, the application area is not likely to include or be necessary for the continued existence of threatened flora. The proposed clearing is not likely to be at variance with this 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.

Proposed clearing is not likely to be at variance with this Principle
According to available databases, six state listed TEC's have been recorded within the local area being:

- Herb rich shrublands in clay pans;
- Dense shrublands on clay flats;
- Shrublands on dry clay flats;
- *Banksia attenuata* and/or *Eucalyptus marginata* woodlands of the eastern side of the Swan Coastal Plain;

- *Corymbia calophylla - Kingia australis* woodlands on heavy soils, Swan Coastal Plain; and
- *Corymbia calophylla - Xanthorrhoea preissii* woodlands and shrublands, Swan Coastal Plain.

The closest TEC is '*Banksia attenuata* and/or *Eucalyptus marginata* woodlands of the eastern side of the Swan Coastal Plain' which is located approximately 1.8 kilometres south of the application area.

The vegetation present within Area 1 and Area 2 is not representative of any state listed TECs.

Given the above, the application area is not likely to comprise or be necessary for the maintenance of a TEC.

The proposed clearing is not likely to be at variance with this 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.

Proposed clearing is not likely to be at variance with this Principle

Original 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 (i.e. pre-European settlement) (Commonwealth of Australia 2001). This is the threshold level below which species loss appears to accelerate exponentially at an ecosystem level.

As indicated in Table 1, the Jarrah Forest (Area 2) and Swan Coastal Plain (Area 1) IBRA region retains approximately 53 and 39 per cent of their pre-European native vegetation extent respectively (Government of Western Australia 2019a).

The mapped vegetation complex's within Area 1 'Guildford Complex' and 'Forrestfield Complex' currently retain approximately 5.09 and 12.29 per cent of their pre-European native vegetation extents, respectively (Government of Western Australia 2018). The mapped vegetation complex's within Area 2 'My1, He1, Ds2 and D1 currently retain above 40 cent of their pre-European native vegetation extents, respectively (Government of Western Australia 2019b).

A review of available databases determined the local area retains approximately 35 per cent of its pre-European native vegetation extent.

Although the vegetation complexes retain less than the recommend threshold within Area 1, Area 1 is in a completely degraded condition and is not representative of the mapped vegetation complexes. However, the overstorey species present within the application area may provide foraging habitat for the conservation significant black cockatoos and therefore may be considered a significant remnant of native vegetation.

The application area within Area 2 may comprise priority flora species and significant habitat for fauna. However, given the vegetation present within local area and vegetation representations described within Area 2, it is not considered to be located within an extensively cleared landscape.

Further information regarding the extent of clearing proposed within the application area was required.

Amended Area Assessment

Given the amendments outlined in Section 3, the application area does not comprise a high biological diversity, is not likely to impact upon significant habitat for fauna indigenous to Western Australia, priority or threatened flora and is not likely to comprise a PEC or TEC and therefore the application area is not considered to be a significant remnant within an extensively cleared landscape.

The proposed clearing is not likely to be with this variance to this Principle.

Table 1: Vegetation extents

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Current Extent in DBCA Managed Lands (ha)	(%)
IBRA Bioregion*					
Jarrah Forest	4,506,660.25	2,399,838.15	53.25	69.74	37.14
Swan Coastal Plain	1,501,221.93	579,813.47	38.62	222,916.97	38.45
Swan Coastal Plain vegetation complex (Area 1)**					
Guildford Complex	90,513.13	4,607.91	5.09	287.49	0.32
Forrestfield Complex	22,812.92	2,803.36	12.29	381.57	1.67
South West vegetation complex (Area 2)**					
My1	68,695.18	52,296.01	76.13	44,444.95	64.70
He1	15,889.99	12,010.31	75.58	6,861.70	43.18
DS2	32,448.29	13,586.40	41.87	3,287.66	10.13
D1	208,490.90	181,038.81	86.83	171,561.01	82.29

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Proposed clearing may be at variance with this Principle

Original Assessment
According to available databases, one minor watercourse 'Yalup Brook' intersects the application area at two different sections, one in Area 1 and within Area 2.

Given the presence of a watercourse within the application area, the proposed clearing is at variance with this principle.

However, given the application area is long and linear and the area within Area 1 is in a completely degraded condition the proposed clearing is not likely to have a significant impact on the environmental values of this watercourse.

Amended Area Assessment
In regards to principle (f), the applicant has advised that no clearing will occur within 10 metres of any watercourses. Vegetation management conditions will ensure no clearing occurs within 10 meters of known watercourses.

The proposed clearing may be at variance with this Principle.

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Proposed clearing is not likely to be at variance with this Principle

Original Assessment
As described in Section 2: the application area has been mapped as the following land subsystems:

Area 1
- Forrestfield F2c Phase
- Pinjarra P1d Phase
- Forrestfield F4 Phase
- Forrestfield F1b Phase.

Area 2
- Murray Valleys DR1 Phase
- Murray Subsystem
- Hester Subsystem.

The sandy soils present within the application area can be prone to wind erosion. However, given the narrow nature of the proposed clearing in which Area 1 is predominantly in a completely degraded condition. The proposed clearing is not likely to cause appreciable land degradation in the form of wind erosion.

The soils located within the application area adjacent to Yalup Brook maybe prone to water erosion. Additional information regarding soil types present and management practices proposed is required.

Amended Area Assessment
The applicant has advised that no clearing will occur within 10 metres of watercourses and therefore the proposed clearing is not likely to lead to appreciable land degradation in the form of water erosion. Given the small area under application the proposed clearing is not likely to cause appreciable land degradation.

The proposed clearing is not likely to be at variance with this 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.

Proposed clearing may be at variance with this Principle
Dwellingup State Forest is located adjacent to the application area within Area 2.

The proposed clearing may indirectly impact this conservation area through the spread of weeds and dieback. Weed and dieback management actions will help mitigate this risk.

The application area may act as a corridor for fauna movement across the landscape between conservation areas and remnant vegetation. However, the applicant is proposing to clear only up to 5 metres either side of the road, with vegetation remaining within the road reserve which will allow fauna movement across the landscape. No ecological linkages will be severed by the proposed clearing.

Given the above, the proposed clearing may be at variance with this 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.

Proposed clearing is not likely to be at variance with this Principle

According to available databases, one minor watercourse 'Yalup Brook' intersects the application area at two different sections, one in Area 1 and the second within Area 2.

The proposed clearing may indirectly impact this watercourse through increased runoff and sedimentation. However given the linear nature of the application area and the small area proposed to be cleared surrounding the watercourse, impacts are likely to be minimal and short term. Furthermore, road construction is likely to include culverts and drainage which will help manage surface flow. Therefore, the proposed clearing is not likely to cause deterioration in the quality of surface water.

Ground water salinity is mapped between 500 – 1000 milligrams total dissolved solids milligrams per litre. This level of groundwater salinity is considered to be marginal. Given the low salinity level and the linear nature of the proposed clearing, of which Area 1 is in a completely degraded (Keighery, 1994) condition, the proposed clearing is not likely to increase groundwater salinity or cause deterioration in the quality of groundwater.

The proposed clearing is not likely to be at variance with this Principle.

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Proposed clearing is not likely to be at variance with this Principle

As discussed under principle (f), the proposed clearing will result in the clearing of small areas of vegetation in the vicinity of mapped ephemeral watercourses. However, when consideration is given to the small extent of the proposed clearing within these areas, it is not anticipated to adversely impact surface water inflows into either the application area or its surrounds.

Given the linear nature of the proposed clearing area, of which a large portion is in a completely degraded (Keighery, 1994) condition, the proposed clearing is not likely to cause or exacerbate the incidence or intensity of flooding.

Planning instruments and other relevant matters.

No Aboriginal sites of significance have been mapped within the application area.

The clearing permit application was advertised on the Department of Water and Environmental Regulation's (DWER) website on 18 December 2019 with a 21 day submission period. No public submissions have been received in relation to this application.

5. Applicant's Submissions

On 7 May 2020 DWER emailed the applicant and requested further information regarding the proposed clearing including: the width of clearing on each side of the road, if clearing was occurring on both sides of the road and additional efforts to avoid and or mitigate the need for clearing.

On 11 May 2020 the applicant provided additional photographs of the vegetation proposed to be cleared and provided additional information regarding the proposed clearing including:

- The 15 hectare clearing zone was worked out by creating a 5 metre clearing zone on either side of the edge of seal. It was noted that it is extremely unlikely that this amount of clearing will actually occur.
- Clearing is proposed on both sides of the road with majority of the clearing being within 3 metres of the edge of the seal which is due to the natural terrain of the area. This 3-5 metre clearing is a basic guide which is based on the general rule that road verges should have a 5 metre clearance from the edge of the seal with a 6 metre height clearance.
- Clearing predominantly involves the clearing of fire damaged trees and clearing of regrowth (Shire of Waroona, 2020a).

On 22 July 2020 a Delegated Officer wrote to applicant and advised that the clearing of 15 hectares of native vegetation may impact upon priority flora, threatened flora and significant habitat for the conservation significant black cockatoos. DWER requested further information on the extent of clearing occurring within Area 1 and Area 2 (Figure 1.), vegetation types present within the application area and condition of the vegetation proposed to be cleared.

On 29 July 2020 the applicant provided further information regarding the proposed clearing including:

- Reducing the proposed clearing area to 2.5 hectares
- Advised that individual trees would only be cleared within Area 1 and provided photographs of the trees proposed to be cleared.
- Area 2 comprises of *Acacia Pycnatha* (60%), *Acacia Myrtifolia* (30%) and *Acacia Merinthophora* (10%).
- Area 2 will be cleared using a mulching machine to a predominantly a 2.2 metre width. Additional clearing up to a 5 metre width maybe required on bends to allow for appropriate sight lines (Shire of Waroona, 2020b).

On 30 July 2020 DWER emailed the applicant and requested further information regarding the proposed clearing including clarification on the impacts on watercourses and requesting additional photographs of the understorey proposed to be impacted within Area 2 particularly of the clearing proposed on bends up to a width of 5 metres.

On 4 August 2020 the applicant provided additional photographs of the vegetation within Area 2 and advised that clearing to a width of 5 metres will only occur on one bend near Bancell Road. The applicant reduced the clearing to 1.5 – 2 hectares.

On 25 August 2020 the applicant amended the proposed clearing area to 0.4 hectares of native vegetation and 122 native trees to better reflect the actual clearing proposed.

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