



## CLEARING PERMIT

*Granted under section 51E of the Environmental Protection Act 1986*

<b>Purpose Permit number:</b>	CPS 7016/1
<b>Permit Holder:</b>	Commissioner of Main Roads Western Australia
<b>Duration of Permit:</b>	17 September 2016 to 17 September 2021

### ADVICE NOTE

The funds referred to in condition 8 of this permit are intended for contributing towards the purchase of 20.35 hectares of native vegetation with similar environmental values containing black cockatoo and western ringtail possum habitat within the local area.

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 reconstruction.

**2. Land on which clearing is to be done**

LOT 7 ON DIAGRAM 26769, CAPEL  
LOT 74 ON PLAN 63783, CAPEL  
LOT 660 ON PLAN 250387, CAPEL  
LOT 5881 ON PLAN 18616, CAPEL  
LOT 5880 ON PLAN 18616, CAPEL  
LOT 55 ON PLAN 18907, CAPEL  
LOT 54 ON PLAN 18907, CAPEL  
LOT 53 ON PLAN 18907, CAPEL  
LOT 52 ON PLAN 18907, CAPEL  
LOT 51 ON PLAN 18907, CAPEL  
LOT 305 ON PLAN 18907, LUDLOW  
LOT 304 ON PLAN 18908, LUDLOW  
LOT 20 ON PLAN 23348, CAPEL  
LOT 2039 ON PLAN 140224, CAPEL  
ROAD RESERVE (PIN 1142492), CAPEL  
ROAD RESERVE (PIN 11609964), CAPEL  
ROAD RESERVE (PIN 11510779), CAPEL  
ROAD RESERVE (PIN 11609965), CAPEL  
ROAD RESERVE (PIN 11510781), CAPEL

**3. Area of Clearing**

The Permit Holder must not clear more than 5.53 hectares of native vegetation within the combined areas shaded yellow on attached Plan 7016/1a, Plan 7016/1b and Plan 7016/1c.

**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 project 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 project activities under the *Main Roads Act 1930* or any other written law.

**PART II – MANAGEMENT CONDITIONS**

**6. Avoid, minimise etc 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;
- (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared;
- (d) only move soils in *dry conditions*; and
- (e) where *dieback* or *weed*-affected soil, *mulch*, *fill* or other material is to be removed from the area to be cleared, ensure it is transferred to areas of comparable *soil disease status*.

**8. Monetary contributions to a fund maintained for the purpose of establishing or maintaining vegetation (offset)**

Prior to undertaking any clearing authorised under this Permit and no later than 30 November 2016, the Permit Holder shall provide documentary evidence to the CEO that funding of \$305,250 has been transferred to the Department of Environment Regulation for the purpose of establishing or maintaining native vegetation.

**9. Western Ringtail Possum Management Plan**

- (a) The Permit Holder must prepare a Western Ringtail Possum Management Plan.
- (b) The Western Ringtail Possum Management Plan must be submitted to the CEO at least 30 days prior to commencing works, for the CEO's approval.
- (c) Prior to clearing the Permit Holder must implement and adhere to the approved Western Ringtail Possum Management Plan.

**10. Flora management**

Prior to undertaking any clearing authorised under this Permit, the Permit Holder must demarcate any *Verticordia attenuata* recorded within ten metres of the area authorised to be cleared.

**11. Fauna management**

- (a) Prior to clearing *black cockatoo habitat tree(s)* identified in the fauna assessment (Fauna Assessment, Bussell Highway, Capel to Hutton Road Upgrade, Harewood 2012), as containing suitable hollows for Carnaby's cockatoo (*Calyptorhynchus latirostis*), Baudin's cockatoo (*Calyptorhynchus baudinii*) and forest red-tailed black cockatoo (*Calyptorhynchus banksii* subsp. *naso*) the Permit Holder shall engage a *fauna specialist* to check hollows fauna.
- (b) Where fauna are identified under condition 11(a) of this Permit, the Permit Holder shall ensure that:
  - (i) no clearing of the *black cockatoo habitat tree(s)* occurs, unless first approved by the CEO; and
  - (ii) no taking of identified fauna occurs, unless first approved by the CEO.

### PART III - RECORD KEEPING AND REPORTING

#### **12. Records must be kept**

The Permit Holder must maintain the following records for activities done pursuant to this Permit:

- (a) In relation to the clearing of native vegetation authorised under this Permit:
  - (i) 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;
  - (ii) the date that the area was cleared; and
  - (iii) the size of the area cleared (in hectares).
- (b) In relation to condition 9 of this Permit the Permit Holder must maintain records of activities undertaken in accordance with the approved Western Ringtail Possum Management Plan.

#### **13. Reporting**

- (a) The Permit Holder must provide to the CEO on or before 30 June of each year, a written report:
  - (i) of records required under condition 12 of this Permit; and
  - (ii) concerning activities done by the Permit Holder under this Permit between 1 January to 31 December of the preceding calendar year.
- (b) If no clearing authorised under this Permit was undertaken between 1 January to 31 December of the preceding calendar, a written report confirming that no clearing under this permit has been carried out, must be provided to the CEO on or before 30 June of each year.
- (c) Prior to 30 August 2021, the Permit Holder must provide to the CEO a written report of records required under condition 12 of this Permit where these records have not already been provided under condition 13(a) of this Permit.

### **DEFINITIONS**

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

*black cockatoo habitat tree/s:* means trees that have a diameter, measured at 1.5 metres from the base of the tree, of 50 centimetres or greater;

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

*dry conditions* means when soils (not dust) do not freely adhere to rubber tyres, tracks, vehicle chassis or wheel arches;

*fauna specialist:* means a person who holds a tertiary qualification specializing in environmental science or equivalent, and has a minimum of 2 years work experience in fauna identification and surveys of fauna native to the region being inspected or surveyed, or who is approved by the CEO as a suitable fauna specialist for the bioregion, and who holds a valid fauna licence issued under the *Wildlife Conservation Act 1950*;

*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;

*soil disease status* means soil types either infested, not infested, uninterpretable or not interpreted with a pathogen; and

*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 Parks and Wildlife Regional Weed Rankings Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



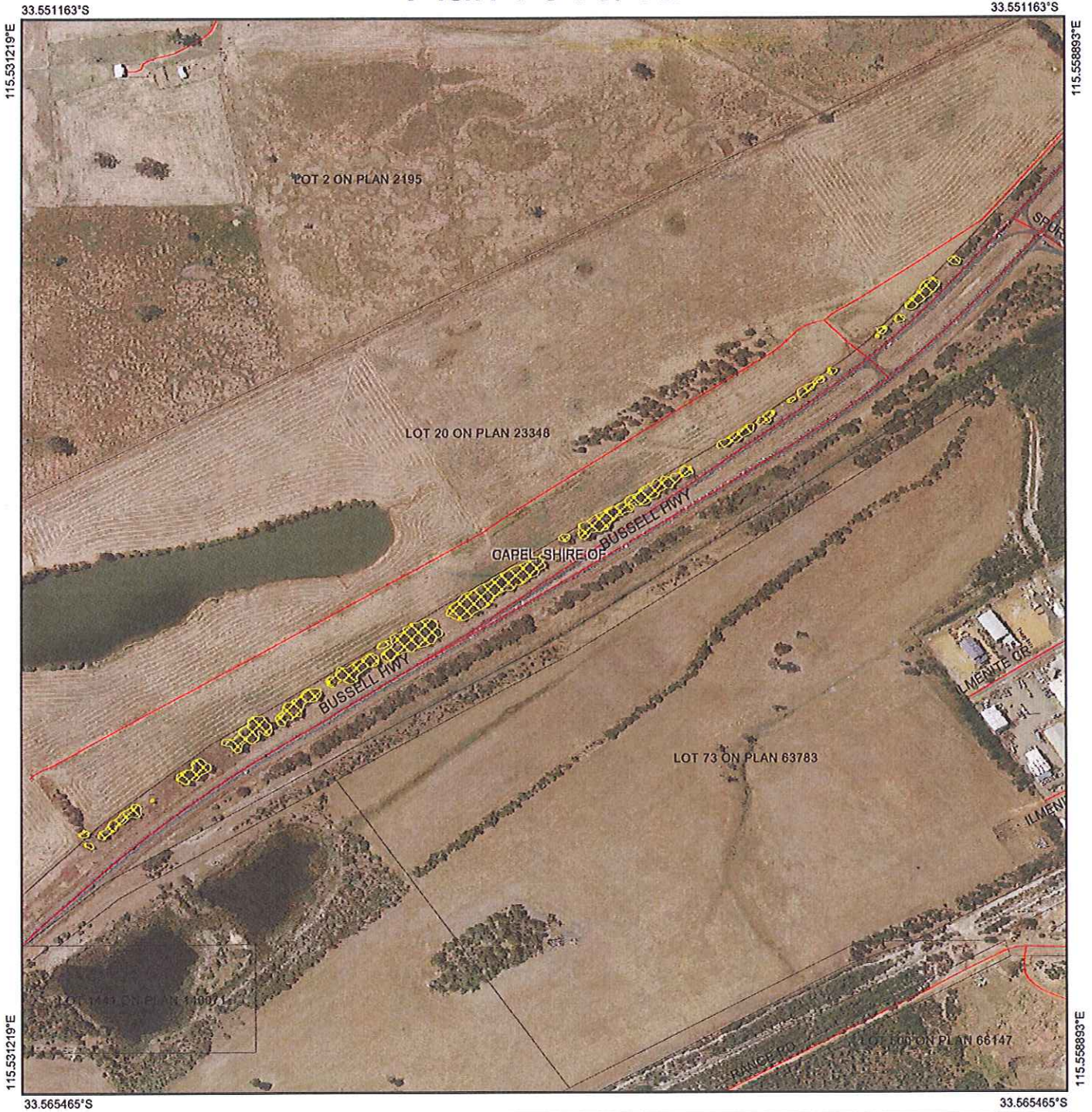
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James Widenbar  
MANAGER  
CLEARING REGULATION

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

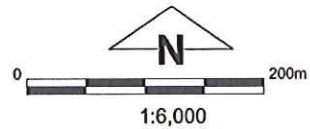
18 August 2016

# Plan 7016/1a



## Legend

-  Cadastre
-  Cadastre (Search)
-  Imagery
-  Clearing Instruments Activities
-  Roads
-  Local Government Authority



(Approximate when reproduced at A4)  
GDA 94 (Lat/Long)  
Geocentric Datum of Australia 1994

*James Widenor* Date *18/8/16*

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




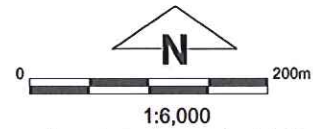
GOVERNMENT OF  
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# Plan 7016/1b



## Legend

-  Cadastre
-  Cadastre (Search)
-  Imagery
-  Clearing Instruments Activities
-  Roads
-  Local Government Authority



(Approximate when reproduced at A4)  
GDA 94 (Lat/Long)  
Geocentric Datum of Australia 1994

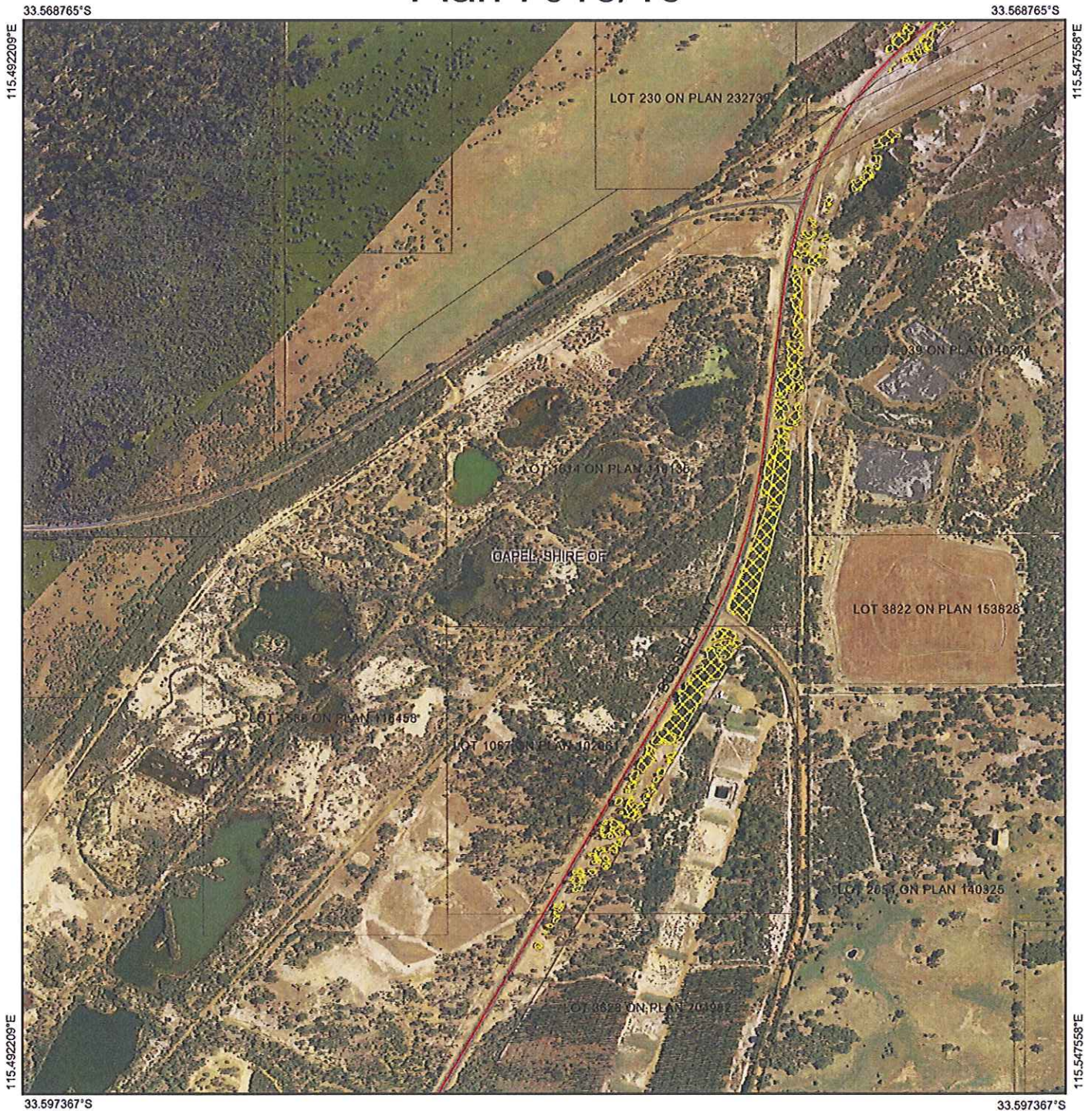
*James Wroembar* Date *1.8.18.1.16*

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



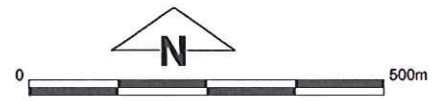
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# Plan 7016/1c



## Legend

-  Cadastre
-  Cadastre (Search)
-  Imagery
-  Clearing Instruments Activities
-  Roads
-  Local Government Authority



1:10,000  
 (Approximate when reproduced at A4)  
 GDA 94 (Lat/Long)  
 Geocentric Datum of Australia 1994

*J. W. Tolson*  
 JAMES W. TOLSON Date 18/11/16

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



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## 1. Application details

### 1.1. Permit application details

Permit application No.: 7016/1  
Permit type: Purpose Permit

### 1.2. Applicant details

Applicant's name: Commissioner of Main Roads Western Australia

### 1.3. Property details

Property: LOT 7 ON DIAGRAM 26769, CAPEL  
LOT 74 ON PLAN 63783, CAPEL  
LOT 660 ON PLAN 250387, CAPEL  
LOT 5881 ON PLAN 18616, CAPEL  
LOT 5880 ON PLAN 18616, CAPEL  
LOT 55 ON PLAN 18907, CAPEL  
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ROAD RESERVE - 1142492, CAPEL  
ROAD RESERVE - 11609964, CAPEL  
ROAD RESERVE - 11510779, CAPEL  
ROAD RESERVE - 11609965, CAPEL  
ROAD RESERVE - 11510781, CAPEL

Colloquial name: BUSSELL HIGHWAY  
Local Government Authority: CAPEL, SHIRE OF  
DER Region: Greater Swan  
DPaW District: BLACKWOOD  
Localities: CAPEL and LUDLOW

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
5.53		Mechanical Removal	Road construction or upgrades

### 1.5. Decision on application

Decision on Permit Application: Grant  
Decision Date: 18 August 2016  
Reasons for Decision: The clearing application has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the Environmental Protection Act 1986 (EP Act), and it has been concluded that the proposed clearing is at variance to clearing principles (a), (b), (e) and (f), may be at variance to principle (h) and is not likely to be at variance to the remaining clearing principles.

An assessment determined that the proposed clearing of 5.53 hectares of native vegetation includes:

- 5.53 hectares of foraging habitat and 42 potential nesting trees for Carnaby's cockatoo (*Calyptrorhynchus latirostris*), Baudin's cockatoo (*Calyptrorhynchus baudinii*) and the forest red-tailed black cockatoo (*Calyptrorhynchus banksii naso*);
- 5.53 hectares of good quality habitat for western ringtail possum, including six dreys; and
- 5.53 hectares of native vegetation considered to be a significant remnant in an area that has been extensively cleared.

On 19 February 2016, the Commonwealth Department of the Environment (DoE) determined that the proposed clearing is a controlled action under Part 3 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (matters of national environmental significance) as it is likely to have a significant impact on western ringtail possum (*Pseudocheirus occidentalis*) habitat. Consistent with the WA Environmental Offset Policy (2011) and WA Environmental



Offsets Guidelines (2014), and pursuant to section 51(2)(b) of the EP Act, in order to mitigate the significant environment impacts described above the Permit Holder is required to provide an offset that comprises of documented evidence that a monetary contribution towards the purchase of 20.35 hectares of remnant vegetation that includes 20.35 hectares of habitat for black cockatoos; 17.86 hectares of habitat for western ringtail possum and 17.38 hectares of native vegetation that is considered to be a significant remnant in an area that has been extensively cleared, has been transferred to the Department of Environment Regulation.

The proposed offset described above is consistent with the EPBC Act Environmental Offsets Policy (October 2012) and Offsets Assessment Guide.

## 2. Site Information

### 2.1. Existing environment and information

#### 2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
Beard vegetation association 1000 is described as 'Mosaic: Medium forest; jarrah-marri / Low woodland; banksia / Low forest; teatree ( <i>Melaleuca spp.</i> )' (Shepherd et al. 2001).	The proposed clearing of 5.53 hectares is for the purpose of widening Bussell Highway within Capel and Ludlow.	Completely Degraded: No longer intact; completely/almost completely without native species (Keighery 1994)	The vegetation description and condition was determined from a Vegetation and Flora Assessment by GHD in October 2012 and February 2015 (GHD 2015a).  The flora and vegetation surveys identified six vegetation types within the survey area, as well as areas considered highly modified/cleared. Mixed <i>Eucalyptus gomphocephala</i> woodland occurs in upland areas, mixed <i>E. rudis</i> subsp. <i>rudis</i> woodland and <i>Melaleuca</i> and <i>Astartea</i> woodland in depressions and lower lying areas, and <i>M. raphiophylla</i> in artificial drainage lines (GHD 2015a).
Hedde vegetation Southern River complex is described as 'Open woodland of <i>Corymbia calophylla</i> (Marri) - <i>Eucalyptus marginata</i> (Jarrah) - Banksia species with fringing woodland of <i>Eucalyptus rudis</i> (Flooded Gum) - <i>Melaleuca raphiophylla</i> (Swamp Paperbark) along creek beds' (Hedde et al. 1980).		to  Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994).	

## 3. Assessment of application against clearing principles

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

#### Comments

#### Proposed clearing is at variance to this Principle

The application is for the proposed clearing of 5.53 hectares for the purpose of upgrading and widening Bussell Highway, within Capel and Ludlow.

GHD (2015a) undertook a Level 1 vegetation and flora field survey on 17 October 2012, with a supplementary survey undertaken on 17 February 2016. A total of 68 native flora taxa were recorded in the study area. These surveys identified the presence of one conservation significant flora species being Priority 4 species, *Acacia semitrullata*. This species has previously been recorded less than one kilometre from the application area. The Department of Parks and Wildlife (Parks and Wildlife) officer level advice states that the impacts to *Acacia semitrullata* would not be considered significant (Parks and Wildlife 2016).

Priority 3 species, *Verticordia attenuata* (P3) is also known to occur in the local area (10 kilometres) and may be located within the application area. Officer Level Parks and Wildlife advice states that the flora survey undertaken in October was not a suitable time to identify this species (Parks and wildlife 2016). It was also noted that trees of *Eucalyptus rudis* proposed for clearing were not identified to the subspecies level and it is likely the trees will be the Priority 4 species *E. rudis* ssp. *cratyantha*. If these two species were found within the application area it is unlikely that the proposed clearing would adversely affect their conservation status (Parks and Wildlife 2016).

Priority 3 species *Jacksonia gracillima* is also known to occur in the local area (10 kilometres) and Officer level Parks and Wildlife advice states that is likely to occur in the eastern Bussell Highway road reserve south of Capel (Parks and Wildlife 2016). Management practices such as demarcating known locations in proximity to the application area will be required for avoidance as indirect impacts to this taxon also has the potential to be significant to its conservation status (Parks and Wildlife 2016).

The application area is considered to provide habitat for fauna to move through the local extensively cleared landscape by facilitating landscape connectivity and contributing to fauna dispersal between larger isolated bushland fragments in an extensively cleared landscape. The proposed clearing may cause degradation of local ecological linkages however it is unlikely to sever the linkage.

A search of NatureMap recorded nine fauna listed as rare or likely to become extinct under the *Wildlife Conservation Act 1950 (WC Act)* within the local area (10 kilometre radius) including western ringtail possum (WRP) (*Pseudocheirus occidentalis*), Carnaby's cockatoo (*Calyptorhynchus latirostris*), forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*), Baudin's cockatoo (*Calyptorhynchus baudinii*), chuditch (*Dasyurus geoffroii*), Australasian Bittern (*Botaurus poiciloptilus*), and southern brush-tailed phascogale (*Phascogale tapoatafa tapoatafa*).

Targeted black cockatoos habitat assessments of the application area, conducted by Harewood (2012) and GHD (2015b), reported the vegetation under application contains:

- 5.53 hectares of moderate quality foraging habitat for Carnaby's cockatoo, Baudin's cockatoo and forest red-tailed black cockatoo; and
- 42 potential black cockatoo breeding trees (greater than 50 centimetres in diameter at breast height), including three trees with hollows.

The assessments undertaken by Harewood and GHD identified almost all areas of remnant vegetation to represent black cockatoo foraging habitat (Harewood 2012; GHD 2015b). These assessments identified evidence of foraging by black cockatoos in the form of chewed banksia and jarrah fruits within the application area (Harewood 2012; GHD 2015b). The habitat assessment also identified that three of the potential breeding trees have hollows, however only one is suitable for nesting black cockatoos (GHD 2015b).

A WRP habitat surveys of the application area identified (Harewood 2012; GHD 2015b):

- 5.53 hectares of good quality habitat for western ringtail possum (WRP); and
- six WRP dreys and one individual WRP.

Officer Level Parks and Wildlife advise states that WRP habitat on the west side of Bussell Highway is of most concern as the vegetation in the application area is not contiguous with other vegetation outside the application area (Parks and Wildlife 2016). Major roads separate WRP habitat in this area and it's unlikely individuals present in the application area will be able to disperse without a very high risk of mortality. A WRP management plan demonstrating how MRWA intend to mitigate and manage impacts identified will assist in mitigating the impact.

The application area is mapped as Beard vegetation association 1000, and also contains Heddle vegetation complex's Southern River Complex which retain approximately 25 and 18 per cent of their pre-European extent respectively (Parks and Wildlife 2015). These vegetation complexes are less than the threshold of 30 per cent, therefore it is considered that the vegetation under application is located within an extensively cleared area.

The area under application contains priority flora, significant habitat for WRP and black cockatoo's, and occurs within an area that has been extensively cleared. Therefore, the application area contains a high level of biodiversity and the proposed clearing is at variance to this principle.

To counterbalance the significant residual impacts the proposed clearing will have on black cockatoos and WRP an offset which consists of providing a monetary contribution towards the purchase of 20.35 hectares of land within the Shire of Capel. A suitable offset site will include vegetation in a good to very good (Keighery 1994) condition and underrepresented vegetation types (MRWA 2016b).

#### Methodology

#### References:

GHD (2015a)  
GHD (2015b)  
Harewood (2012)  
MRWA (2016b)  
Parks and Wildlife (2007-)  
Parks and Wildlife (2015)  
Parks and Wildlife (2016)

#### GIS Databases:

- SAC Biodatasets - accessed 10 June 2016

### **(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 indigenous to Western Australia.**

#### Comments

#### **Proposed clearing is at variance to this Principle**

A search of NatureMap recorded nine fauna listed as rare or likely to become extinct under the WC Act within the local area (ten kilometre radius) including western ringtail possum (*Pseudocheirus occidentalis*), Carnaby's cockatoo (*Calyptorhynchus latirostris*), forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*), Baudin's cockatoo (*Calyptorhynchus baudinii*), chuditch (*Dasyurus geoffroii*), Australasian Bittern (*Botaurus poiciloptilus*), and southern brush-tailed phascogale (*Phascogale tapoatafa tapoatafa*) (Parks and Wildlife 2007-).

Five broad fauna habitats were recorded in the fauna assessment (GHD 2015b), including:

- Cleared/grassland;
- *Melaleuca raphiophylla* in artificial drainage lines;
- *Eucalyptus rudis* (flooded gum) mixed woodland;
- *Eucalyptus gomphocephala* (tuart) mixed woodland; and
- *Melaleuca* and *astarte* woodland.

Of the five fauna habitat types, GHD (2015b) considers the tuart mixed woodland; and the *melaleuca* and *astarte* woodland to provide moderate or moderate to high habitat value with the remaining three considered to provide low or low to moderate habitat value.

The fauna surveys identified the presence of Carnaby's cockatoo, western ringtail possum (WRP) and the quenda, listed as Priority 5 by Parks and Wildlife within the application area (Harewood 2012; GHD 2015b). These species were either sighted or evidence such as scats, dreys and diggings were recorded.

According to the EPBC Act referral guidelines for Western Australia's three threatened black cockatoo species (referral guidelines) the application area is located within the distribution range of Carnaby's Cockatoo, Baudin's cockatoo and forest red-tailed cockatoo. Black cockatoos have a preference for feeding 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.* (DSEWPC 2012). Basic ecological theory, expert opinion and recent evidence, suggests that the remaining native and pine plantation feeding habitat on the Swan Coastal Plain is just sufficient to support the current population of Carnaby's cockatoo. Therefore, it is considered that any reduction in feeding habitat will result in a reduction in the carrying capacity of the region and therefore a decline in the population of Carnaby's cockatoo. A recent study involving population analysis modelling suggests that if clearing continues to occur at its current rate without effective habitat restoration, the species is likely to decline to extinction in less than 20 years (Cockerill et al. 2013).

Carnaby's cockatoo feed on seeds, nuts and flowers of a large variety of plants including proteaceous species (e.g. banksia, dyandra and grevillea species), marri (*Corymbia calophylla*) nuts, and a range of introduced species, notably seeds from cones of *Pinus* spp.

Targeted black cockatoos habitat assessments of the application area, conducted by Harewood and GHD, reported the vegetation under application contains (Harewood 2012; GHD 2015b):

- 5.53 hectares of moderate quality foraging habitat for Carnaby's cockatoo, Baudin's cockatoo and forest red-tailed black cockatoo; and
- 42 potential black cockatoo breeding trees (greater than 50 centimetres in diameter at breast height), including three trees with hollows.

The Harewood and GHD assessment identified almost all areas of remnant vegetation are considered to represent black cockatoo foraging habitat. These assessments identified evidence of foraging by black cockatoos in the form of chewed banksia and jarrah fruits within the application area (Harewood 2012; GHD 2015b). The habitat assessment also identified that three of the potential breeding trees have hollows, however only one is suitable for nesting black cockatoo (GHD 2015b). The requirement to check this hollow prior to clearing will ensure that no cockatoos are harmed during the clearing process.

The Carnaby's cockatoo recovery plan summarises habitat critical to the survival of Carnaby's cockatoos as (DEC 2012):

- The eucalypt woodlands that provides nest hollows used for breeding, together with nearby vegetation that provides feeding, roosting and watering habitat that supports successful breeding;
- Woodland sites known to have supported breeding in the past and which could be used in the future, provided adequate nearby food and/or water resources are available or are re-established; and
- In the non-breeding season the vegetation that provides food resources as well as the sites for nearby watering and night roosting that enable the cockatoos to effectively utilise the available food resources.

The Recovery Plan for the forest red-tailed black cockatoo and the Baudin's cockatoo states that critical habitat for the survival of important populations of these species comprises all marri, karri and jarrah forests, woodlands and remnants in the south-west of Western Australia receiving more than 600 millimetres of annual average rainfall (DEC 2008). The Recovery Plan also states that two of the main threats is habitat loss through land clearing and nest hollow shortage (DEC 2008).

Given the application area contains foraging habitat, potential breeding trees and suitable nest hollows for breeding, it is considered that the application area is likely to include critical habitat for the three black cockatoos.

The WRP is an arboreal marsupial endemic to South-western Australia (Parks and Wildlife 2014b). This species spends most of its time foraging on peppermint (*Agonis flexuosa*) leaves and resting high in the forest canopy. Since colonial settlement, there has been a significant decline in the species abundance and habitat range, where up to 90 per cent have disappeared from their predicted original range (Parks and Wildlife 2014b). There has been such a significant decline in population size, that the species is now listed as rare or likely to become extinct under the WC Act and vulnerable under the EPBC Act. This decline has resulted from a number of threats including habitat loss due to land clearing and logging (DSEWPC 2011). Habitat loss has resulted from remaining native vegetation becoming fragmented as well as a lack of old trees with suitable habitat hollows (DSEWPC 2011).

A WRP habitat surveys of the application area identified (Harewood 2012; GHD 2015b):

- 5.53 hectares of good quality habitat for western ringtail possum (WRP); and
- six WRP dreys and one individual WRP.

The GHD WRP habitat survey was consistent with the Harewood survey, with the presence of WRP evident, through scats and dreys and the presence of individuals recorded in the application area (GHD 2015b). WRP were identified to utilise vegetation throughout the application area, primarily in the areas with dense mid-storey vegetation.

Officer level Parks and Wildlife advice states that WRP habitat on the west side of Bussell highway is of most concern as the vegetation in the application area is not contiguous with other vegetation outside the application area (Parks and Wildlife 2016). Major roads separate WRP habitat in this area and its unlikely individuals present in the application area will be able to disperse without a very high risk of mortality. A WRP management plan demonstrating how MRWA intend to mitigate and manage impacts identified will assist in mitigating the impact.

The Recovery Plan for the WRP states that critical habitat for survival ideally comprises of long unburnt mature remnants of peppermint woodlands with high canopy continuity and high foliage nutrients (high in nitrogen and low toxin levels) (Parks and Wildlife 2014b). The Recovery Plan also states that habitat loss and fragmentation from urban development and mining are considered the most important and immediate threatening processes in coastal and nearcoastal populations (Parks and Wildlife 2014b).

According to the significant impact guidelines for the WRP, one of the goals in the recovery of the WRP is to maintain and create habitat connections to allow movement of individuals and facilitate genetic exchange between local populations (DEWHA 2009). The significant impact guidelines document maps the vegetation under application as 'Area 3 - Supporting habitat' which is necessary for the persistence and recovery of the WRP within the southern Swan Coastal Plain (DEWHA 2009). 'Area 3 - Supporting habitat' improves habitat quality and connectivity on the plains and to the hinterland, thus increasing opportunities for foraging, breeding and dispersal (DEWHA 2009).

Given the above, it is considered that the application area contains supporting habitat for WRP and is necessary for the maintenance of, and part of significant habitat for WRP.

The application area is considered to provide habitat for fauna to move through the local extensively cleared landscape by facilitating landscape connectivity and contributing to fauna dispersal between larger isolated bushland fragments in an extensively cleared landscape. The proposed clearing may cause degradation of local ecological linkages however it is unlikely to sever the linkage.

On the basis of the above the application area contains significant foraging habitat for the three species of black cockatoo, supporting habitat for WRP and contributes to the function and value of two local ecological linkages.

Given the above, the proposed clearing is at variance to this Principle.

To counterbalance the significant residual impacts the proposed clearing will have on black cockatoos and WRP an offset which consists of providing a monetary contribution towards the purchase of 20.35 hectares of land within the Shire of Capel. A suitable offset site will include vegetation in a good to very good (Keighery 1994) condition and underrepresented vegetation types (MRWA 2016b).

#### Methodology

#### References:

Cockerill et al. (2013)  
DEC (2008)  
DEC (2012)  
DEWHA (2009)  
DSEWPC (2011)  
DSEWPC (2012)  
GHD (2015b)  
Harewood (2012)  
MRWA (2016b)  
Parks and Wildlife (2007-)  
Parks and Wildlife (2014)  
Parks and Wildlife (2016)

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

**Comments**      **Proposed clearing is not likely to be at variance to this Principle**  
According to available databases, 20 rare flora species have been recorded within a 10 kilometre radius of the application area.

A level 1 flora and vegetation survey of the application area included a search for rare and priority flora, which was conducted on 17 October 2012 with a supplementary survey on 17 February 2015. The surveys did not identify rare flora within the application area (GHD 2015a; 2015b).

Given the above, the proposed clearing is not likely to be at variance to this Principle.

**Methodology**      References:  
GHD 2015a  
GHD 2015b

GIS Databases:  
- SAC Biodatasets - accessed 10 June 2016

**(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.**

**Comments**      **Proposed clearing is not likely to be at variance to this Principle**

According to available databases, the nearest threatened ecological community (TEC) to the application area is floristic community type (FCT) 1b, which is listed as 'vulnerable' under WA criteria and described as '*Eucalyptus calophylla* woodlands on heavy soils of the Swan Coastal Plain'. The TEC is located approximately two kilometres east of the application area.

The vegetation under application consists of mixed *Eucalyptus gomphocephala* woodland in upland areas, mixed *Eucalyptus rudis* subsp. *rudis* woodland and *melaleuca* and *astartea* woodland in depressions and lower lying areas and *Melaleuca raphiophylla* in artificial drainage lines (GHD 2016; GHD 2015a), which is not consistent with the FCT 1b TEC.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

**Methodology**      References:  
GHD (2015a)  
GHD (2016)

GIS Databases:  
- SAC Biodatasets - accessed 10 June 2016

**(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.**

**Comments**      **Proposed clearing is at variance to this Principle**  
The application area is located within the Swan Coastal Plain Interim Biogeographic Regionalisation of Australia (IBRA) bioregion. This IBRA bioregion has approximately 37 per cent of its pre-European vegetation extent remaining (Government of Western Australia 2015).

The application area is mapped as Beard vegetation association 1000, which has approximately 25 per cent of its pre-European extent remaining within the Swan Coastal Plain IBRA bioregion (Government of Western Australia 2014). The application area is also mapped as Heddle vegetation complex's Southern River Complex which retains approximately 18 per cent of its pre-European extent respectively (Parks and Wildlife 2015a).

The Shire of Capel retains approximately 45 per cent of its pre-European extent of native vegetation cover.

Aerial aerial imagery indicates that the local area (10 kilometre radius) retains approximately 30 per cent of its pre-European native vegetation cover.

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). Noting that the remaining extents of the mapped Beard vegetation association and Heddle vegetation complex are less than the threshold of 30 per cent, it is considered that the vegetation under application is located within an extensively cleared area.

The application area is considered to provide habitat for fauna to move through the local extensively cleared landscape by facilitating landscape connectivity and contributing to fauna dispersal between larger isolated bushland fragments in an extensively cleared landscape.

The vegetation under application includes significant habitat for black cockatoos and the WRP. On this basis the vegetation under application is also considered to be significant as a remnant.

Given the above, the proposed clearing is at variance to this Principle.

To counterbalance the significant residual impacts the proposed clearing will have on black cockatoos and WRP an offset which consists of providing a monetary contribution towards the purchase of 20.35 hectares of land within the Shire of Capel. A suitable offset site will include vegetation in a good to very good (Keighery 1994) condition and underrepresented vegetation types (MRWA 2016b).

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in Parks and Wildlife Managed Lands (%)
<b>IBRA Bioregion*</b> Swan Coastal Plain	1,501,222	580,697	39	37
<b>Local government*</b> Shire of Capel	55,945	18,653	33	45
<b>Beard Vegetation Association 1000 in Bioregion*</b>	94,175	23,767	25	19
<b>Hedde Vegetation Complex**</b> Southern River Complex	57,970	10,698	18	2

**Methodology** References:  
Commonwealth of Australia (2001)  
\*Government of Western Australia (2015)  
MRWA (2016b)  
\*\*Parks and Wildlife (2015)

GIS Databases:  
- Hedde vegetation complexes  
- NLWRA, Current Extent of Native Vegetation  
- Pre-European vegetation  
- SAC Biodatasets - accessed 10 June 2016

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

**Comments** **Proposed clearing is at variance to this Principle**  
According to available datasets, approximately one third of the application area is identified in the Geomorphic Wetlands Swan Coastal Plain dataset as a multiple use wetland (MUW). The application area also contains numerous man-made drainage lines.

MUWs have few remaining important attributes and functions. The protection of these wetlands is the lowest priority, however it should be considered in the context of ecologically sustainable development and best management practices through land care (Water and Rivers Commission 2001).

The flora and vegetation survey (GHD 2015a) identified riparian vegetation, including *Eucalyptus rudis* subsp. *rudis* and *Melaleuca raphiophylla* occurring within the application area, approximately 0.65 hectares.

Given the above, the application area contains vegetation growing within, or in association with wetlands and therefore the proposed clearing is at variance to this Principle.

The impacts of the proposed clearing on watercourses are not considered significant.

**Methodology** GHD (2015a)  
Water and Rivers Commission (2001)

GIS Databases:  
- Hydrology, linear  
- Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain

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

**Comments**      **Proposed clearing is not likely to be at variance to this Principle**  
The soils within the application area have been mapped by Northcote et al. (1960-68) as soil types Cb38 and Wd6. These soil types are described as:

- Cb38: Sandy dunes with intervening sandy and clayey swamp flats. Chief soils are leached sands, sometimes with a clay D horizon below 5 ft, on the dunes and sandy swamps. Associated are various soils in the clayey swamps.
- Wd6: Plain: chief soils are sandy acidic yellow mottled soils, some of which contain ironstone gravel, and in some deeper varieties (18 in. of A horizon) soils are now forming. Associated are acid yellow earths.

Land degradation mapping indicates that the application area falls within the category for low wind erosion risk (DAFWA 2016). Given the linear nature of the clearing and the low risk of land degradation, the proposed clearing is unlikely to result in appreciable land degradation in the form of wind erosion or water erosion.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

**Methodology**      **References:**  
DAFWA (2016)  
Northcote et al (1960-68)

**GIS Databases:**  
- Soils, statewide  
- Salinity Risk

**(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.**

**Comments**      **Proposed clearing may be at variance to this Principle**  
The application area is adjacent to Coolilup State Forest. The proposed clearing may impact adjacent conservation areas through the introduction and spread of dieback and weeds.

The application area is considered to provide habitat for fauna to move through the local extensively cleared landscape by facilitating landscape connectivity and contributing to fauna dispersal between larger isolated bushland fragments in an extensively cleared landscape. The proposed clearing may cause degradation of local ecological linkages however it is unlikely to sever the linkage.

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

Weed management measures will assist in mitigating the impacts of the introduction and spread of dieback and weeds.

**Methodology**      **GIS Databases:**  
- Parks and Wildlife Tenure (Statewide)

**(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.**

**Comments**      **Proposed clearing is not likely to be at variance to this Principle**  
According to available datasets, approximately one third of the application area is identified in the Geomorphic Wetlands Swan Coastal Plain dataset as a multiple use wetland (MUW). The application area also contains numerous man-made drainage lines.

The flora and vegetation survey (GHD 2015a) identified riparian vegetation, including *Eucalyptus rudis* subsp. *rudis* and *Melaleuca raphiophylla* occurring within the application area, approximately 0.65 hectares of native vegetation.

Given the condition of the MUW wetland, the proposed clearing is unlikely to impact surface water as there are existing culverts in place and additional clearing of drainage lines is unlikely to be necessary.

The groundwater salinity within the application area is mapped 1000 to 3000 milligrams per litre of total dissolved solids. This level of groundwater salinity is considered to be brackish to moderately saline. The clearing of 5.53 hectares of vegetation in completely degraded to good (Keighery 1994) condition is not likely to cause deterioration in the quality of groundwater.

Given the above, the proposed clearing is not likely to be at variance to this principle.

**Methodology**   References:  
GHD-(2015a)  
Keighery (1994)

GIS Databases:  
- Hydrography, linear  
- Groundwater Salinity  
- Pre-European vegetation

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

**Comments**    **Proposed clearing may be at variance to this Principle**  
The application area is located in a medium rainfall area, where the average rainfall is 800 to 900 millimetres per year.

According to available datasets, approximately one third of the application area is identified in the Geomorphic Wetlands Swan Coastal Plain dataset as a multiple use wetland (MUW). The application area also contains numerous man-made drainage lines.

The flora and vegetation survey (GHD 2015a) identified riparian vegetation, including *Eucalyptus rudis* subsp. *rudis* and *Melaleuca raphiophylla* occurring within the application area, approximately 0.65 hectares of native vegetation. This area is mapped as a moderate to very high waterlogging risk (DAFWA 2016) and may experience seasonal inundation (GHD 2015a).

Based on the medium rainfall, the linear nature of the clearing and that existing culverts are in place, the proposed clearing is unlikely to cause, or exacerbate the incidence or intensity of flooding.

Given the above, the proposed clearing is not likely to be at variance to this principle.

**Methodology**   References:  
GHD (2015a)

GIS Databases:  
- Hydrography, linear  
- Rainfall, Mean Annual



## Planning instruments and other relevant matters.

- Comments** The proposed clearing of 5.53 hectares is for the purpose of widening Bussell Highway SLK 1.95 to SLK 51.
- This clearing permit application was received by the Department of Environment Regulation on 30 March 2016.
- On 19 February 2016, the Commonwealth Department of the Environment (DoE) determined that the proposed clearing is a controlled action under Part 3 of the EPBC Act (matters of national environmental significance) as it is likely to have a significant impact on western ringtail possum (*Pseudocheirus occidentalis*) habitat. During the validation process it was noted that the application area contained 3.59 hectares of revegetation/planted vegetation and therefore did not fit the definition of native vegetation and could not be assessed bilaterally. The project will be assessed by DoE by preliminary documentation.
- The application area is located within the Busselton-Capel Groundwater Area and the Capel River System Surface Water Area which are areas proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act). Any groundwater abstraction or any taking or diversion of surface water in these proclaimed areas is subject to licensing by the Department of Water (DoW), other than supply from the shallow water table (superficial aquifer) for domestic and non-intensive stock watering purposes (DoW 2016).
- The application area intersects three Aboriginal Sites of Significance. It is the applicant's responsibility to ensure that these sites are not disturbed during the clearing process.
- This application was advertised for public comment in *The West Australian* newspaper on 25 April 2016 with a 21 day submission period. No public submissions were received in relation to this project.
- Direct interest emails were sent to the Shire of Capel and Capel Land Conservation District Committee on 28 April 2016. To date, no response has been received.
- The DoW advised that based on the referral maps, it appears that the proposed clearing does not cross the Capel River or any other natural waterways (DoW 2016). However, their GIS showed that the proposed clearing intersects artificial drainage lines that are connected to wetlands that range from multiples use to conservation category wetlands. DoW identified the following risks:
- The proposed clearing has the potential to result in erosion, sediment transport and turbidity in wetlands and major drains. Larger excavated material including rocks may be mobilised into these drains;
  - The mobilisation of hydrocarbons from road traffic (and chemical spillage from accidents) into drains and wetlands is a potential risk associated with the proposed landuse. As wetlands are an expression of groundwater, there is also a risk of groundwater contamination with hydrocarbons from road stormwater if not managed appropriately; and
  - Due to the low lying nature of the land and vicinity to wetlands, parts of the proposed road may be subject to inundation during major storm events.
- To mitigate against the above risks, DoW provided the following advice, consistent with DoW's Water quality protection note (WQPN) No. 44 – 'Roads near sensitive water resources - October 2006' (DoW 2016):-
- The proponent should manage stormwater in accordance with the *Decision process for stormwater management in WA* (DoW 2009) and the *Stormwater Management Manual for Western Australia* (DoW 2004–2007);
  - The drainage of stormwater and run-off directly into surface water resources should be avoided.
  - The use of flush kerbings;
  - A contingency plan to deal with the accidental spillage of hydrocarbons and other chemicals, especially in the vicinity of drains and wetlands;
  - Clearing to take place during the dry period of the year where rain is least likely, and the risk of erosion is lowest;
  - Development of site-specific erosion and sediment controls (e.g. silt fences/sediment traps) to prevent the export of sediments into drains - this should include appropriate controls for larger excavated matter such as rocks; and
  - The proponent should ensure that the proposed road surface is at a suitable level to manage against the risk of inundation during major storm events.

- Methodology** References:  
DoW (2016)
- GIS Databases:  
- Aboriginal Sites of Significance  
- RIWI Areas

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