



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 7277/1
Permit Holder:	Shire of Capel
Duration of Permit:	31 December 2016 to 31 December 2021

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

PART I – CLEARING AUTHORISED

1. Purpose for which clearing may be done

Clearing for the purpose of road upgrades.

2. Land on which clearing is to be done

Capel Tutunup Road reserve (PIN 11609963), Ludlow

3. Area of Clearing

The Permit Holder must not clear more than 0.35 hectares of native vegetation within the combined areas hatched yellow on attached Plan 7277/1a and Plan 7277/1b.

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 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:

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

7. Dieback and weed control

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

- (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.

DEFINITIONS

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

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

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

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

weed/s means any plant -

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

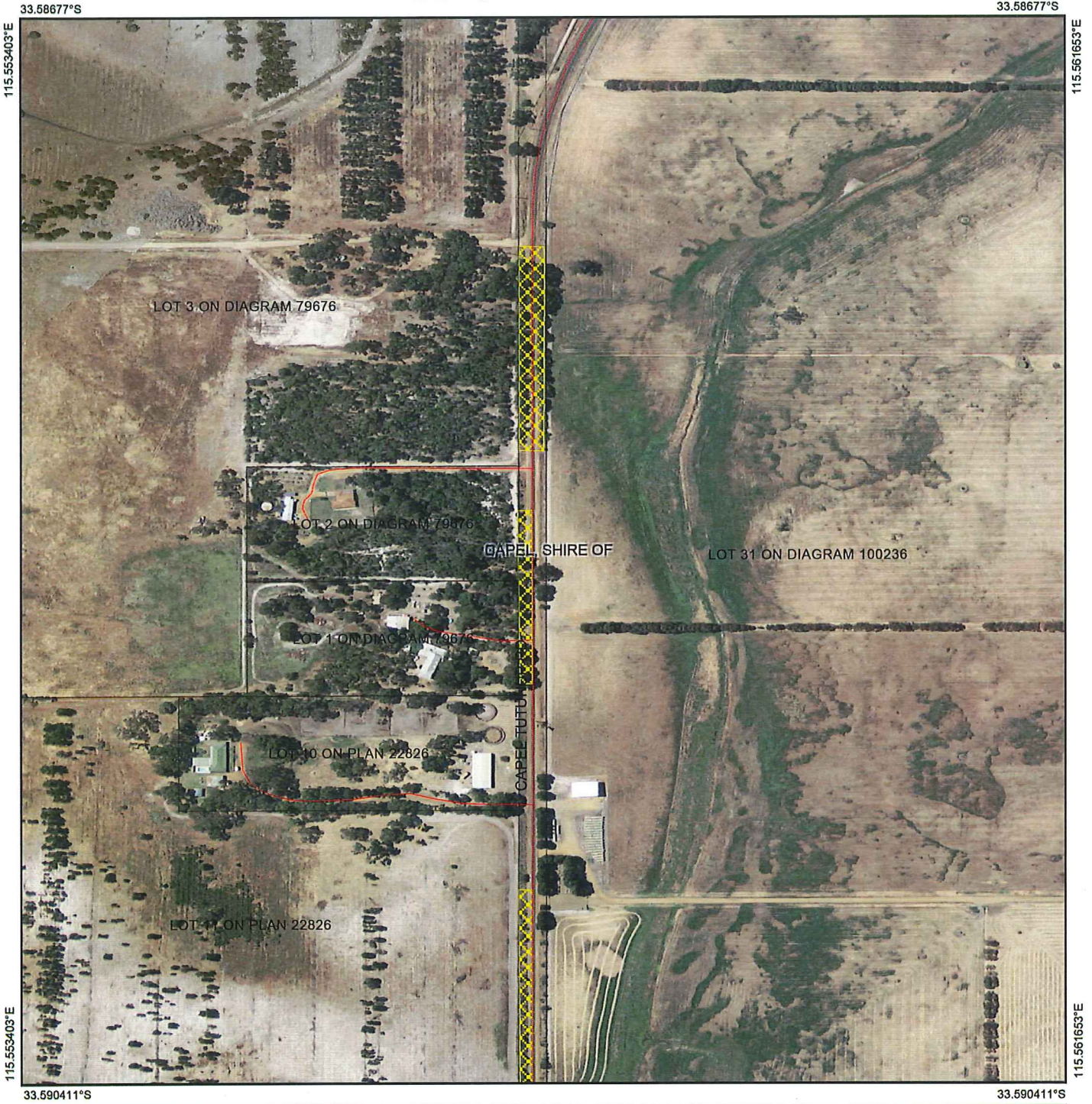


Dr Anne Mathews
SENIOR MANAGER
CLEARING REGULATION

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

1 December 2016

CPS 7277/1a



Legend

-  Roads
-  Imagery
-  Clearing Instruments Activities
-  Local Government Authority

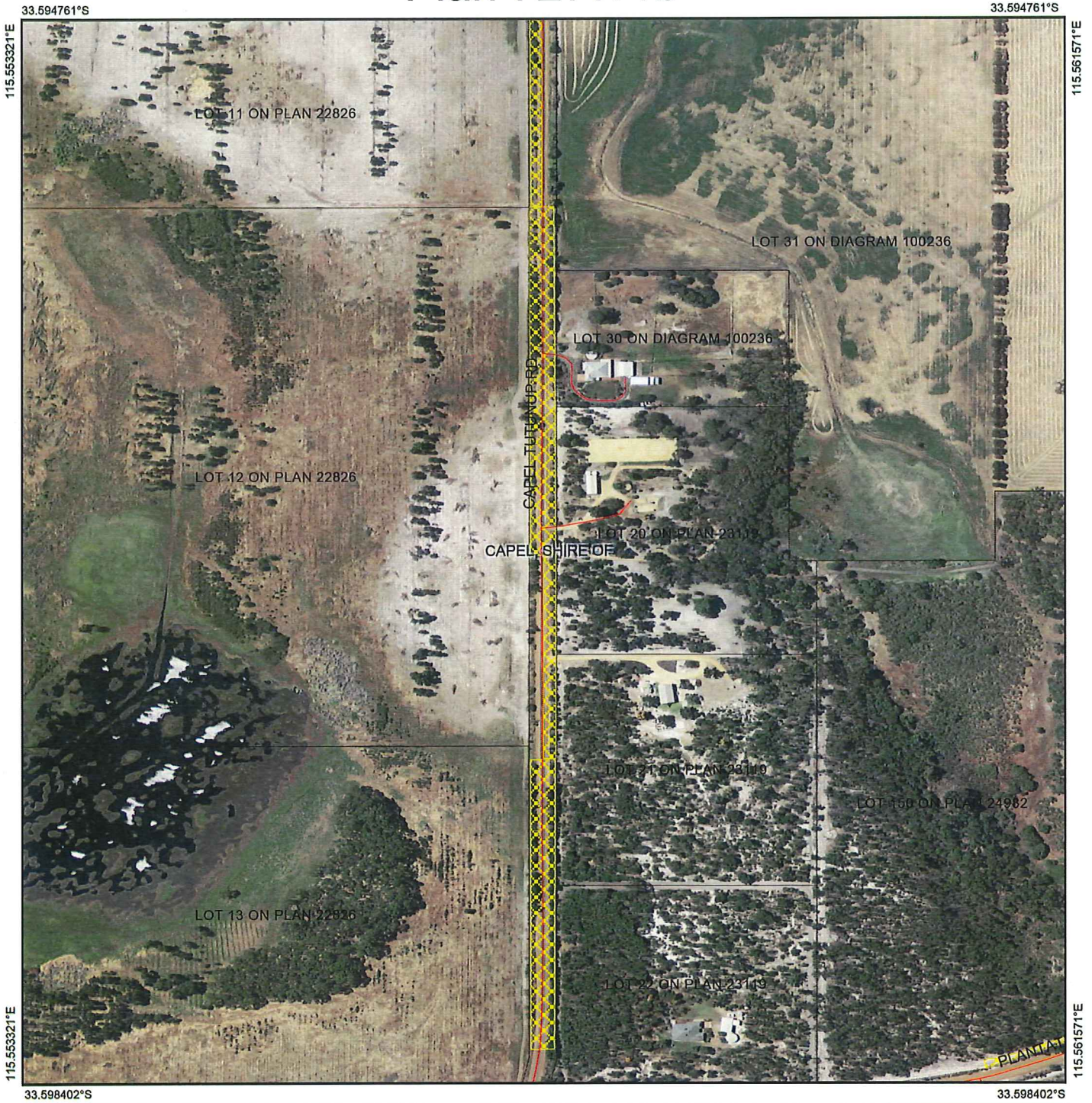


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 GDA 94 (Lat/Long)
 Geocentric Datum of Australia 1994

Anne Matthews Date *1/12/2016*

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

Plan 7277/1b



Legend

-  Roads
-  Imagery
-  Clearing Instruments Activities
-  Local Government Authority



1:4,057
 (Approximate when reproduced at A4)
 GDA 94 (Lat/Long)
 Geocentric Datum of Australia 1994

Anne Matthews Date *1/12/2016*

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



1. Application details

1.1. Permit application details

Permit application No.: 7277/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: Shire of Capel

1.3. Property details

Property: ROAD RESERVE - 11609963, LUDLOW
Colloquial name: Capel Tutunup Road
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:
0.35		Mechanical Removal	Road construction or upgrades

1.5. Decision on application

Decision on Permit Application: Granted

Decision Date: 1 December 2016

Reasons for Decision: The clearing permit application was received on 16 September 2016, and has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986*. It has been concluded that the proposed clearing is at variance to principle (f) and is not likely to be at variance to any of the remaining clearing principles.

The Delegated Officer determined that the clearing is unlikely to have any significant environmental impacts. Given the disturbance caused by the proposed clearing will increase the risk of weeds and dieback spreading into adjacent areas of remnant vegetation. Weed and dieback management will assist in mitigating this risk.

State policies and other relevant policies have been taken into consideration in the decision to grant a clearing permit.

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
The application area has been mapped as the following vegetation types:	The Shire of Capel proposes to clear 0.35 hectares of native vegetation within Capel Tutunup Road reserve, Ludlow for the purpose of road widening.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).	The condition and description of the application area was determined via a site inspection conducted by Department of Environment Regulation officers on 17 November 2016 (DER, 2016).
Beard vegetation association 1136: Medium woodland; marri with some jarrah, wandoo, river gum and casuarina (Shepherd et al., 2001).		To	The southern half of the application area is low open forest predominately consisting of <i>Melaleuca</i> sp. and <i>Kunzea</i> sp. (DER, 2016).
Beard vegetation association 1000: Mosaic: Medium forest; jarrah-marri / Low woodland; banksia / Low forest; teatree (<i>Melaleuca</i> spp.) (Shepherd et al., 2001).		Completely Degraded: No longer intact, completely/almost completely without native species (Keighery, 1994).	The vegetation on the east side of the road within the southern section of the application area is in a very good (Keighery, 1994) condition. The west side of the road is in a degraded to
Hedde Abba complex: Open			

forest and woodland (Heddle et al., 1980).

Heddle Southern River complex: Open woodland (Heddle et al., 1980).

completely degraded (Keighery, 1994) condition consisting predominately of *Kunzea* sp. over weeds (DER, 2016).

The northern application area is an open woodland consisting predominately of *Corymbia callophylla* (marri) over an understory of weeds. This area is in a degraded (Keighery, 1994) condition (DER, 2016).

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 not likely to be at variance to this Principle**

The Shire of Capel proposes to clear 0.35 hectares of native vegetation within Capel Tutunup Road reserve, Ludlow for the purpose of road widening.

The Shire of Capel has obtained black spot funding to upgrade this portion of road. This section of Capel Tutunup Road has a narrow seal width of 3.5 metres to 3.8 metres with gravel shoulders giving a total gravel width of approximately 6.5 to 7 metres. It is proposed to reconstruct the road to give a 6.2 to 7.4 metre seal width with an eight metre gravel formation (Shire of Capel, 2016).

Fifty six priority flora species have been recorded within the local area (10 kilometre radius). Of these, one (*Boronia anceps*, P3) has been recorded within the application area and an additional six (*Leucopogon* sp. Busselton (P2), *Boronia tetragona* (P3), *Synaphea hians* (P3), *Chordifex gracilior* (P3), *Acacia semitrullata* (P4) and *Adelphacme minima* (P3) have been recorded within one kilometre of the application area.

It is unlikely that *Leucopogon* sp. Busselton (P2) would be present in the application area. The road reserve, where in good condition, is all upland vegetation whilst this species is known from dampland vegetation. It is also unlikely that *Chordifex gracilior* (P3) would be present in the application area as this species is known to occur in peat and swampy areas (Parks and Wildlife, 2016).

The record of *Boronia anceps* (P3) mapped within the application area was recorded in 1996 with a frequency of locally common. From the information available it is not able to be determined whether this population is actually located within the application area or adjacent to it (Parks and Wildlife, 2016).

If present within the application area, the impact from the proposed clearing would not be likely to have a significant impact on the following species: *Boronia anceps* (P3), *Acacia semitrullata* (P4), *Boronia tetragona* (P3), *Synaphea hians* (P3) and *Adelphacme minima* (P3) (Parks and Wildlife, 2016).

The eastern side of the road reserve shown in Plan 7277/1b supports *Eremaea pauciflora* var. *pauciflora*, this is the only record of this species on the Swan Coastal Plain south of Mandurah (Parks and Wildlife, 2016).

A site inspection undertaken by DER officers observed *Eremaea pauciflora* var. *pauciflora* over a stretch of approximately 150 metres. The majority of plants were observed on the eastern side of the road. Approximately six plants were observed within the adjacent private property (DER, 2016). While on site the Shire's Engineering Technical Officer was advised of the importance of this population. The proposed clearing will not remove the whole population identified within and adjacent to the application area.

Seven priority ecological communities (PEC) have been recorded within the local area. The closest PEC is 'Wooded wetlands which support colonial waterbird nesting areas' which is located approximately six kilometres west of the application area. Given the distance to this PEC the application area is not likely to include or be necessary for the maintenance of this PEC.

Six fauna species listed as rare or likely to become extinct under the *Wildlife Conservation Act 1950* have been recorded within the local area, being; forest red tailed black cockatoo (*Calyptorhynchus banksii* subsp. *Naso*), Baudin's cockatoo (*Calyptorhynchus baudinii*), Carnaby's cockatoo (*Calyptorhynchus latirostris*), southern brush-tailed phascogale (*Phascogale tapoatafa* subsp. *Tapoatafa*), western ringtail possum (*Pseudocheirus occidentalis*) and chuditch (*Dasyurus geoffroyi*) (Parks and Wildlife, 2007-).

The majority of the application area consists of low open forest predominately consisting of *Melaleuca* sp. and *Kunzea* sp. (DER, 2016). This vegetation type is not significant habitat for any of the above mentioned fauna. The northern end of the application area consists of marri over a weedy understory.

The disturbance caused by the proposed clearing will increase the risk of weeds and dieback spreading into adjacent areas of remnant vegetation. Weed and dieback management will assist in mitigating this risk.

The area under application contains a significant species, *Eremaea pauciflora* var. *pauciflora*, however it is not likely to contain a high level of biodiversity.

Methodology Given the above, the proposed clearing is not likely to be at variance to this principle.
References:
DER (2016)
Parks and Wildlife (2007-)
Parks and Wildlife (2016)
Shire of Capel (2016)

GIS Database:
SAC Bio datasets – Accessed November 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 not likely to be at variance to this Principle**

Six fauna species listed as rare or likely to become extinct under the *Wildlife Conservation Act 1950* have been recorded within the local area, being; forest red tailed black cockatoo (*Calyptorhynchus banksii* subsp. *Naso*), Baudin's cockatoo (*Calyptorhynchus baudinii*), Carnaby's cockatoo (*Calyptorhynchus latirostris*), southern brush-tailed phascogale (*Phascogale tapoatafa* subsp. *Tapoatafa*), western ringtail possum (*Pseudocheirus occidentalis*) and chuditch (*Dasyurus geoffroi*) (Parks and Wildlife, 2007-).

The majority of the application area consists of low open forest predominately consisting of *Melaleuca* sp. and *Kunzea* sp. (DER, 2016).

Carnaby's cockatoos nest in large hollows of eucalyptus trees and forage on the seeds, nuts and flowers of a large variety of plants including proteaceous species (banksia, hakea, grevillea), as well as allocasuarina and eucalyptus species, *Corymbia calophylla* and a range of introduced species, especially seeds from cones of *pinus* species (Shah, 2006; Valentine and Stock, 2008).

The Recovery Plan for Baudin's cockatoo states that critical habitat for the survival of important populations of this 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).

Potential nesting trees for black cockatoos are defined as "trees of species known to support breeding within the range of the species which either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow. For most tree species, suitable DBH is 500 millimetres". One potential breeding tree was observed adjacent to the application area (DER, 2016). The Shire of Capel has advised that this tree will not be cleared.

The application area does not contain significant foraging habitat for black cockatoos.

The southern brush-tailed phascogale is a small arboreal dasyurid. In south west Western Australia they have been observed in dry sclerophyll forests and open woodlands that contain hollow bearing trees. Habitat clearing, fragmentation, and alteration by logging and mining are the greatest threats to this species (DEC, 2012). Based on the observed vegetation type, the application area is not likely to contain significant habitat for this species.

Suitable foraging and breeding habitat for the western ring-tailed possum is not present within the application area as no *Agonis* sp. were observed.

Chudith inhabit a wide range of habitats ranging from woodlands to riparian vegetation. The proposed clearing of 0.35 hectares over a linear distance of approximately 1.5 kilometres is not likely to impact upon significant habitat for this species.

An ecological linkage, defined by the South West Regional Ecological Linkage (SWREL) Report (Molloy et al., 2009) is mapped approximately 230 metres south of the southern boundary of the application area.

The SWREL report defines an ecological linkage as "A series of (both contiguous and non-contiguous) patches of native vegetation which, by virtue of their proximity to each other, act as stepping stones of habitat which facilitate the maintenance of ecological processes and the movement of organisms within, and across, a landscape" (Molloy et al., 2009).

This particular linkage travels in a south-east/north-west direction. Given the orientation of this linkage the proposed clearing will not impact on this linkage.

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

Methodology References:
DEC (2008)
DEC (2012)
DER (2016)
Molloy et al. (2009)
Parks and Wildlife (2007-)
Shah (2006)

(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**
Nineteen rare flora species have been recorded within the local area (10 kilometre radius).

The closest record of rare flora has been identified approximately 1.5 kilometres from the application area. This species grows in deep sandy soil in banksia woodland, in low-lying areas alongside winter wet swamps (Brown et al., 1998).

The majority of the application area consists of low open forest predominately consisting of *Melaleuca* sp. and *Kunzea* sp. (DER, 2016).

Given the observed vegetation type, the application area is not likely to contain rare flora.

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

Methodology References:
Brown et al. (1998)
DER (2016)

GIS Database:
SAC Bio datasets – Accessed November 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**
Seven threatened ecological communities (TEC) have been recorded within the local area (10 kilometre radius).

The closest TEC is 'Shrublands on dry clay flats' which has been mapped approximately 470 metres east of the application area. The application area is connected to this TEC through continuous vegetation, however given the separation distance the proposed clearing is not likely to impact upon this TEC.

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

Methodology GIS Database:
SAC Bio datasets – Accessed November 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 not likely to be at variance to this Principle**
The area under application is located within the Swan Coastal Plain Biogeographic Regionalisation of Australia (IBRA) bioregion. This IBRA bioregion has approximately 39 per cent of its pre-European vegetation extent remaining (Government of Western Australia, 2015).

The application area is mapped as Beard vegetation associations 1000 and 1136. These vegetation associations have approximately 25 and seven per cent of their pre-European extent remaining in the Swan Coastal Plain bioregion, respectively (Government of Western Australia, 2015).

The application area has also been mapped as Heddle vegetation complexes Abba and Southern River which retain approximately 8 and 18 per cent of their pre-European extent, respectively (Parks and Wildlife, 2015).

Aerial imagery indicates that the local area (10 kilometre radius) retains approximately 20 per cent vegetation.

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

The mapped vegetation types and the local area retain less than the threshold level of 30 per cent, therefore the application area is located within an area which has been extensively cleared.

The application area consists of 0.35 hectares of vegetation over a length of 1.5 kilometres and does not contain significant fauna or flora habitat and therefore the application area is not considered to be a significant remnant.

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

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in Parks and Wildlife Managed Lands (%)
IBRA Bioregion*				
Swan Coastal Plain	1,501,222	579,162	39	37
Shire*				
Shire of Capel	55,945	18,653	33	45
Beard Vegetation Association in Bioregion*				
1000	94,175	23,768	25	19
1136	48,118	3,428	7	4
Heddle Vegetation Complex **				
Abba	16,127	1,251	8	0.5
Southern River	57,970	10,698	18	1.5

Methodology References:
Commonwealth of Australia (2001)
Government of Western Australia (2015)
Parks and Wildlife (2015)

GIS Databases:
Imagery
Pre-European Vegetation

(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

No watercourses intersect the application area. The closest watercourse is Ludlow River which is located approximately 940 metres south of the application area.

A multiple use palusplain wetland has been mapped over three sections of the application area.

Multiple use category wetlands are wetlands with few important ecological attributes and functions remaining. Use, development and management should be considered in the context of ecologically sustainable development and best management practice catchment planning through landcare (Water and Rivers Commission, 2001).

Given that the application area is located within a multiple use wetland and contains *Melaleuca* sp., the proposed clearing is at variance to this principle.

The existing road already intersects this wetland, therefore the proposed road widening is not likely to significantly impact on the remaining values of this wetland.

Methodology References:
Water and Rivers Commission (2001)

GIS Databases:
Geomorphic Wetlands, Swan Coastal Plain
Hydrography, linear
Hydrography, hierachy

(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 application area has been mapped as soil type Cb38, which Northcote et al. (1960-68) describes as sandy dunes with intervening sandy and clayey swamp flats. Chief soils are leached sands. A site inspection of the application area conducted by DER officers confirmed that the chief soils within the application area are grey sands (DER, 2016).

Given the long linear nature of the application area, the proposed clearing is not likely to cause appreciable land degradation in the form of wind or water erosion.

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

Methodology References:
DER (2016)
Northcote et al. (1960-68)

References:
Annual Rainfall, Statewide
Soils, Statewide
Topography

(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 is not likely to be at variance to this Principle**
Capel Nature Reserve is the nearest conservation area to the application area and is located approximately 1.6 kilometres north west of the application area.

Coolilup State Forest is located approximately 3.7 kilometres west and Tuart Forest National Park is approximately 4.8 kilometres north west of the application area. Jarrahwood State Forest and Ludlow State Forest are also located within the local area (10 kilometre radius).

An ecological linkage, defined by the South West Regional Ecological Linkage (SWREL) Report (Molloy et al., 2009) is mapped approximately 230 metres south of the southern boundary of the application area.

The SWREL report defines an ecological linkage as "A series of (both contiguous and non-contiguous) patches of native vegetation which, by virtue of their proximity to each other, act as stepping stones of habitat which facilitate the maintenance of ecological processes and the movement of organisms within, and across, a landscape" (Molloy et al., 2009).

This particular linkage travels in a south-east/north-west direction. Given the orientation of this linkage the proposed clearing will not impact on the movement of fauna between conservation reserves.

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

Methodology References:
Molloy et al. (2009)

GIS Databases:
Parks and Wildlife Tenure

(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**
Groundwater salinity mapped within the application is 500-1000 milligrams per litre (measured as Total Dissolved Solids). This level of groundwater salinity is considered to be marginal. The proposed clearing of 0.35 hectares of native vegetation over a distance of approximately 1.5 kilometres is not likely to increase groundwater salinity.

A multiple use palusplain wetland has been mapped over three sections of the application area. Palusplain wetlands are seasonally waterlogged flats, therefore the areas adjacent to the application area may contain surface water in the wetter months of the year. Any impact to surface water will be short term and minimal during the clearing process.

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

Methodology GIS Databases:
Hydrography, linear
Hydrography, hierachy
Geomorphic Wetlands, Swan Coastal Plain
Groundwater salinity

(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 is not likely to be at variance to this Principle**
The proposed clearing of 0.35 hectares over a linear distance of approximately 1.5 kilometres is not likely to cause, or exacerbate, the incidence or intensity of flooding.

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

Methodology References:
Annual Rainfall, Statewide
Soils, Statewide

Planning instruments and other relevant matters.

Comments The Shire of Capel has obtained black spot funding to upgrade this portion of road to decrease the incidents of accidents. This section of the road contains a crest curve that has limited sight distance for approaching drivers and the adjacent resident's driveway (Shire of Capel, 2016).

The application was advertised in *The West Australian* newspaper on 10 October 2016 by the Department of Environment Regulation inviting submissions from the public within a 21 day period. No submissions were received in relation to this application.

No Aboriginal Sites of Significance have been recorded within the application area.

Methodology References:
Shire of Capel (2016)

GIS Databases:
Aboriginal Sites of Significance

4. References

- Brown A., Thomson-Dans C. and Marchant N.(1998). Western Australia's Threatened Flora, Department of Conservation and Land Management, Western Australia.
- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
- DEC (2008) Forest Black cockatoo (Baudin's cockatoo) (*Calyptorhynchus baudinii*) and forest red-tailed back cockatoo (*Calyptorhynchus banksii naso*) Recovery Plan. Department of Environment and Conservation, Perth, Western Australia.
- DEC (2012) Fauna profiles, Brush-tailed Phascogale, *Phascogale tapoatafa*. Department of Environment and Conservation, Western Australia.
- Department of Environment Regulation (2016) Site Inspection Report for Clearing Permit Application CPS 7277/1. Site inspection undertaken on 17 November 2016. Department of Environment Regulation, Western Australia (DER Ref: A1329146).
- Department of Parks and Wildlife (2007-) NatureMap: Mapping Western Australia's Biodiversity. Department of Parks and Wildlife. URL: <http://naturemap.dpaw.wa.gov.au/>. Accessed November 2016.
- Department of Parks and Wildlife (2015) 2015 South West Forest and Swan Coastal Plain Vegetation Complex Statistics: a report prepared for the Department of Environment Regulation. Current as of March 2015. Department of Parks and Wildlife, Perth, Western Australia.
- Department of Parks and Wildlife (2016) Species and Communities Branch flora advice for clearing permit application CPS 7277/1, received on 10 November 2016 (DER Ref: A1194686).
- Government of Western Australia (2015). 2015 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of June 2015. WA Department of Parks and Wildlife, Perth.
- Hedde, E. M., Loneragan, O. W., and Havel, J. J. (1980) Vegetation Complexes of the Darling System, Western Australia. In Department of Conservation and Environment, Atlas of Natural Resources, Darling System, Western Australia.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Molloy, S., Wood, J., Hall, S., Wallrodt, S. and Whisson, G. (2009) South West Regional Ecological Linkages Technical Report. DEC, WALGA and Planning South West.
- Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68): 'Atlas of Australian Soils, Sheets 1 to 10, with explanatory data'. CSIRO and Melbourne University Press: Melbourne.
- Shah, B. (2006) Conservation of Carnaby's Black-Cockatoo on the Swan Coastal Plain, Western Australia. December 2006. Carnaby's Black-Cockatoo Recovery Project. Birds Australia, Western Australia.
- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.
- Shire of Capel (2016) Supporting information provided with Clearing Permit Application CPS 7277/1 (DER Ref: A1166122).
- Valentine, L.E. and Stock, W. (2008) Food Resources of Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) in the Ngarangara Sustainability Strategy Study Area. Edith Cowan University and Department of Environment and Conservation. December 2008.
- Water and Rivers Commission (2001) Position Statement: Wetlands, Water and Rivers Commission, Perth.