



1. Application details

1.1. Permit application details

Permit application No.: 181/3
 Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Shire of Dardanup

1.3. Property details

Property: COLLIE RIVER ROAD RESERVE
 HENTY ROAD RESERVE
 RICHARDS ROAD RESERVE
 WARBURTON ROAD RESERVE
 CROOKED BROOK ROAD RESERVE
 LENNARD ROAD RESERVE
 Local Government Area: Shire Of Capel & Shire Of Dardanup & Shire Of Harvey
 Colloquial name:

1.4. Application

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

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 purpose of clearing is for road reconstruction. The vegetation under application ranges from completely degraded to very good (Keighery 1994) condition.	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	DoE site visit was undertaken on 12th January 2005 by DoE Officers and representatives from the Shire of Dardanup.
	The application is located in the Jarrah Forest and Swan Coastal Plain Bioregion in the Shire of Dardanup. The extent of native vegetation in these areas is 41.8%, 58.3% and 72.0% respectively (Shepherd et al. 2001).	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	
Beard Vegetations: 1182: Medium woodland; Eucalyptus rudis & Melaleuca rhapsiophylla 999: Medium woodland; Eucalyptus rudis & Melaleuca rhapsiophylla 1184: Medium woodland-fringing; jarrah, marri, Eucalyptus rudis & Agonis flexuosa 968: Medium woodland; jarrah, marri & wandoo	The vegetation proposed to be cleared is a component of Beard Vegetation Associations: } Collie River Road - 1182 of which there is 28% of the pre-European extent remaining; 999 of which there is 11.8% of the pre-European extent remaining; 1184 of which there is 51.7% of the pre-European extent remaining. } Henty Road - 968 of which there is 38.9% of the pre-European extent remaining; 999 of which there is 11.8% of the pre-European extent remaining. } Crooked Brook Road - 1182 of which there is 28% of the pre-European extent remaining; 999 of which there is 11.8% of the pre-European extent remaining; 1184 of which there is 51.7% of the pre-European extent remaining; 968 of which there is 38.9% of the pre-European extent remaining; 27 of which there is 66.1% of the pre-European extent remaining.	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	
1017: Medium open woodland; jarrah & marri, with low woodland; banksia	The vegetation proposed to be cleared is a component of Beard Vegetation Associations: } Joshua Creek Road - 1182 of which there is 28% of the pre-European extent remaining;	Degraded: Structure severely disturbed; regeneration to good condition requires	

1185: Medium woodland; jarrah, marri & blackbutt

1017 of which there is 65.4% of the pre-European extent remaining; 1185 of which there is 93.8% of the pre-European extent remaining.

} Warburton Road - 999 of which there is 11.8% of the pre-European extent remaining; 1184 of which there is 51.7% of the pre-European extent remaining.

} Lennard Road - 968 of which there is 38.9% of the pre-European extent remaining and 999 of which there is 11.8% of the pre-European extent remaining.

} Richards Road - 999 of which there is 11.8% of the pre-European extent remaining; 1184 of which there is 51.7% of the pre-European extent remaining.

The vegetation proposed to be cleared are components of Heddle Complexes:

} Collie River Road - Swan of which there is 15.6% of the pre-European extent remaining; Darling Scarp of which there is 36.9% of the pre-European extent remaining .

} Henty Road - Darling Scarp of which there is 36.9% of the pre-European extent remaining.

} Crooked Brook Road - Guildford of which there is 5% of the pre-European extent remaining.

} Richards Road - Darling Scarp of which there is 36.9% of the pre-European extent remaining.

} Lennard Road - Guildford of which there is 5% of the pre-European extent remaining.

intensive management (Keighery 1994)

Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)

The vegetation proposed to be cleared is a component of Mattiske Complexes:

} Collie River Road - Swan of which there is 0% of the pre-European extent remaining; Lowden of which there is 50.7% of the pre-European extent remaining.

} Henty Road - Whicher Scarp of which there is 70.8% of the pre-European extent remaining; Kingia of which there is 97.3% of the pre-European extent remaining ; Preston of which there is 58.4% of the pre-European extent remaining; Darling Scarp of which there is 35% of the pre-European extent remaining.

} Richards Road - Darling Scarp of which there is 35% of the pre-European extent remaining; Lowden of which there is 50.7% of the pre-European extent remaining.

Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)

The vegetation proposed to be cleared is a component of Mattiske Complexes:

} Lennard Road - Lowden of which there is 50.7% of the pre-European extent remaining; Preston of which there is 58.4% of the pre-European extent remaining; Darling Scarp of which there is 35% of the pre-European extent remaining and Hester of which there is 82.3% of the pre-European extent remaining.

} Joshua Creek Road - Rosa of which there is 79% of the pre-European extent remaining and Preston of which there is 58.4% of the pre-European extent remaining.

} Warburton Road - Rosa of which there is 79% of the pre-European extent remaining and Preston of which there is 58.4% of the pre-European extent remaining.

Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)

Site visit report - Representatives from the Shire of Dardanup accompanied the officers. The

Degraded: Structure severely disturbed;

vegetation condition for each road was determined individually. The proponents stated that only selected vegetation would be removed to increase road widths to approximately 12m and to re-align some dangerous sections of road.

regeneration to good condition requires intensive management (Keighery 1994)

} Crooked Brook Road (north) - Some of the vegetation within this road reserve was intentionally sown non-endemic species. Other vegetation within this road verge consists of Marri (*Corymbia calophylla*), Jarrah (*Eucalyptus marginata*), a few grass trees (*Xanthorrhoea preissii*) and pasture weeds and grasses including dock (*Rumex* spp.). This vegetation was considered to be Degraded (Keighery 1994).

} Joshua Creek Road - This road is within Boyanup State Forest and is considered to be in Very Good (Keighery 1994) condition. Species include small Jarrah (*Eucalyptus marginata* - evidence of logging in the past due to the size), Marri (*Corymbia calophylla*), Bracken Fern (*Pteridium esculentum*), Waterbush (*Bossiaea aquifolium*) and Bull Banksia (*Banksia grandis*).

} Lennard Road - This photograph was taken of the most densely vegetated stretch of road near Wellington National Park. The vegetation consisted of mostly Marri (*Corymbia calophylla*) with some Jarrah (*Eucalyptus marginata*), Peppermints (*Agonis flexuosa*), Snottygobble (*Persoonia longifolia*), Bracken Fern (*Pteridium esculentum*), grass trees (*Xanthorrhoea preissii*), zamia palm (*Macrozamia riedlei*) and exotic grasses and weeds. Most of the road verge (away from this end) was considered to be in a Degraded (Keighery 1994) condition.

Site visit report - Representatives from the Shire of Dardanup accompanied the officers. The vegetation condition for each road was determined individually. The proponents stated that only selected vegetation would be removed to increase road widths to approximately 12m and to re-align some dangerous sections of road.

Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)

} Richards Road - Most of the vegetation within this road verge consisted of exotic weeds and garden escapees. Few Jarrah (*Eucalyptus marginata*) and Marri (*Corymbia calophylla*) trees were present. This vegetation is considered to be in a Completely Degraded (Keighery 1994) condition.

} Henty Road - The vegetation within this road verge consisted of intentionally sown species. Two species were chosen and planted alternately. There are a few large Marri trees (*Corymbia calophylla*) and grass trees (*Xanthorrhoea preissii*) to the north, however, the groundcover was dominated by exotic grasses and weeds.

} Warburton Road } This road runs on from the end of Crooked Brook Road Sth and consists of Small jarrah (*Eucalyptus marginata*), evidence of logging in the past due to size of trees, Marri (*Corymbia calophylla*), Braken Fern (*Pteridium esculentum*) and bull Banksia (*Banksia grandis*). The vegetation was considered to be in Very Good Condition (Keighery 1994).

} Collie River Road The vegetation within this road verge consisted of intentionally sown species (Blue Gums). There are a few large Marri trees (*Corymbia calophylla*) and grass trees (*Xanthorrhoea preissii*) along the reserve, however, the groundcover was dominated by exotic grasses and weeds. The vegetation was considered to be in Degraded Condition (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 **Proposal is not likely to be at variance to this Principle**

Listed under principle (e) assessment are the roads, widths and areas under application, totalling 26.4ha. Widths of clearing into road reserve vary from 1.5 to 5 meters.

Based on DoE Site Visit and areas of vegetation under application lacking in vegetation structure (consisting of mature trees with no middle or lower storey) the areas proposed to be cleared are considered to have a low level of biological diversity within the local area and are unlikely to effect Conservation, Flora and Fauna values or exacerbate land degradation and water quality issue in the area.

To mitigate loss of surrounding biodiversity the proposed clearing will be carried out in accordance with fauna management conditions and dieback and weed control conditions. The applicant has also agreed to conditions that ensure an equivalent area to that cleared is replanted and maintained within the Shire boundary.

Methodology DoE Site Visit (2004)

(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 **Proposal may be at variance to this Principle**

Six Threatened fauna taxa (4 listed under the EPBC Act), 1 Schedule 4 fauna taxon and 8 Priority fauna taxa have been recorded within the local area (CALM advice, 2006).

Sixteen records of the threatened fauna species *Pseudocheirus occidentalis* (western ringtail possum) were recorded in the local area, the closest being approximately 700m from some of the proposed clearing. Other Threatened fauna within the local area are: *Calyptorhynchus banksii naso* (forest Red-tailed Black-Cockatoo), 1 record; *Calyptorhynchus baudinii* (Baudin's Black-Cockatoo), 2 records; *Dasyurus geoffroii* (Chuditch), 11 records; *Psophodes nigrogularis nigrogularis* (Western Whipbird, western heath subsp.), 1 record; and *Setonix brachyurus* (Quokka), 15 records.

Given the above, the proposed clearing maybe at variance to this principle. To mitigate any loss of habitat within the areas proposed to be cleared conditions will be placed on the permit to ensure surveys are undertaken by a fauna specialist to identify trees that may be suitable as habitat for specially protected fauna under the Wildlife Conservation Act and where applicable translocation of fauna is undertaken.

Methodology CALM Advice (2006)

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

Comments **Proposal is not likely to be at variance to this Principle**

A total of 3 Declared Rare flora taxa (all listed under the EPBC Act) and 37 Priority flora taxa have been recorded within the local area (CALM Advice, 2006).

A total of 5 records have been recorded of Declared Rare Flora within the local area. The nearest records of are approximately 1.2km from the areas under application being *Drakaea elastica* (Glossy-leaved Warty Hammer Orchid) and *Eleocharis keigheryi* (Keighery's Eleocharis). The closest priority flora is 200m from the areas under application.

Due to the vegetation under application ranging from Completely Degraded to Very Good (Keighery, 1994). (Some of the areas under application contain large mature trees but do not contain an intact middle storey or lower storey structure) and the distance between the areas under application and declared rare flora and priority flora the proposed is unlikely to contain declared rare flora.

Methodology CALM Advice (2006)

Keighery 1994

GIS database:

- Declared Rare and Priority Flora List - CALM 13/08/03

(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 **Proposal is not likely to be at variance to this Principle**

CALM have advised that there are several occurrences representing 6 types of Threatened Ecological Communities occurring within the local area (CALM advice, 2006).

The nearest occurrence of a TEC is approximately 4.3 kilometres from the areas under application.

Based on the distance between known occurrences of TECs and the areas under application, and the condition and structure of the proposed clearing it is unlikely that there will be a significant impact on the threatened ecological communities within the local area.

Methodology CALM Advice (2006)
GIS databases:
- Threatened Ecological Communities - CALM 15/7/03
- Threatened Plant Communities - DEP 06/95.

(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 Proposal may be at variance to this Principle

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Joshua Creek Road - 1182 of which there is 28% of the pre-European extent remaining; 1017 of which there is 65.4% of the pre-European extent remaining; 1185 of which there is 93.8% of the pre-European extent remaining.

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Following is a breakdown of the roads under application and the areas proposed to be cleared on each.

Road Name	Length (km)	Width (m)	Area (ha)
Lennard	4.27	5 - 10	3.1
Richards	4.16	7 - 9	3.6
Henty	2.32	7	1.6
Collie River	7.2	6.5 - 7	5
Joshua Creek	10.75	3.5 - 10	6.8
Warburton	2.01	8 - 9	1.7
Crooked Brook	5.77	6 - 8	4.5
TOTAL	36.48	-	28.4

Width in the table above account for both sides of the given road and should be halved to estimate width on one side of road.

Mapped vegetation complexes with 10-30% remaining occur within Lennard Road, Joshua Creek Road, Crooked Brook Road, Warburton Road and Collie River Road.

A mapped vegetation complex with 0% remaining occurs within Collie River Road. The proposed area to be cleared for this complex is 1.6ha. The vegetation consists of large mature trees with little to no understorey and does not represent the complex.

Given the above the application maybe at variance to this principle. However, to mitigate any long term loss of remnant vegetation within the road reserves the applicant has agreed to replant, and maintain an equivalent area to that cleared across 5 sites within the Shire boundary for conservation purposes.

Methodology DoE site visit 2004
 Havel (2002)
 Hopkins et al. (2001)
 Applicant Correspondance (SWD43896)
 Keighery 1994
 Shepherd et al. (2001).
 GIS databases:
 - Mattiske Vegetation - CALM 24/3/98
 - Heddle Vegetation Complexes - DEP 21/06/95
 - Interim Biogeographic Regionalisation of Australia - EM 18/10/00
 - Pre European Vegetation - DA 01/01.

(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 Proposal is not likely to be at variance to this Principle

All of the areas under application are within road reserves of roads that already exist. All watercourses have previously been diverted through culverts or under bridges (in some cases upgrades of these diversions are planned as part of the road widening). Discussions with proponents during DoE site visit (2004) confirmed that water movement in dieback (*Phytophthora cinnamomi*) areas will be diverted away from healthy vegetation and has resulted in dieback management conditions for the proposed clearing.

Some of the rivers that cross the roads under application or are in close proximity are: Crooked Brook, Joshua Creek, Hough Brook, Collie River and Henty Brook.

A multiple use wetland is mapped across most of Crooked Brook Road and also the town site of Dardanup. The closest wetland besides the multiple use wetland is an EPP Lake at 1.1km.

Due to the vegetation under application being contained in road reserves where existing roads exist and the distance between EPP Lakes, Conservation Category and Resource Enhancement wetlands this proposal is not likely to be at variance to this principle.

Methodology DoE site visit (2004)
 GIS databases:
 - EPP Lakes - DEP 28/07/03

- Geomorphic Wetlands (Mgt Categories) Swan Coastal Plain - DoE 15/9/04
- Hydrography Linear - DoE 1/2/04

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

Comments Proposal is not likely to be at variance to this Principle

DAWA advise that the major degradation hazard of clearing for road widening and maintenance in these areas would be the increased risk of water erosion. Indicating that the applicant generally has a good track record in managing degradation risks associated with road construction and maintenance.

The proposal to widen existing roads may cause some short term land degradation issues in terms of flooding and soil erosion during works. However these issues should be minimal as the existing roads already have road side infrastructure in place to prevent land degradation associated with roads ie. Table drains and culverts. Therefore the proposed clearing is unlikely to cause appreciable land degradation.

Methodology DAWA (2004).

(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 Proposal is not likely to be at variance to this Principle

Sections of the following roads neighbour CALM managed lands: Joshua Creek Road (4.4km), Warburton Road (2km) and Crooked Brook Road (1km). A section of Crooked Brook Road also neighbours a system 6 reserve.

The proposed clearing is unlikely to significantly impact these conservation areas as the majority of clearing will be selected trees and some understorey, 1.5 to 5 meters either side of the existing roads.

Methodology CALM Advice (2006)
GIS databases:
- CALM Managed Lands and Waters - CALM 1/06/04
- System 6 Conservation Reserves - DEP 06/95.

(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 Proposal is not likely to be at variance to this Principle

Hydrogeological advice indicates that the Shire of Dardanup is partly within a high rainfall and well drained area, being the portion within the Darling Scarp and that high salinity risk is associated with low lying, swampy, clayey areas within the Swan Coastal Plain. The road side vegetation within the areas under application are not considered to be in areas associated with high salinity risk.

Crooked Brook Road and Joshua Creek Road are within the Bunbury RIWI groundwater area and the Busselton-Capel RIWI groundwater area respectively, however clearing of the small areas within these road reserves is unlikely to impact on Surface Water or Groundwater quality.

As the areas under application are not significantly large area, with respect to the Shire as a whole (less than 1%), the proposed clearing is not likely to adversely effect Surface Water and Groundwater quality.

Methodology Hydrogeological advice (Supervising Hydrogeologist, DoE, pers. comm. 2004)
GIS databases:
- CAWSA Part2A clearing control catchment - DoE 17/11/05
- Public Drinking Water Source Areas (PDWSAs) - DoE 1/6/04
- RIWI Act Groundwater Areas WRC 13/06/00

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

Comments Proposal is not likely to be at variance to this Principle

Due to the scale of the proposed clearing, flooding impacts are unlikely to occur.

Methodology Hydrogeological advice (Supervising Hydrogeologist, DoE, pers. comm. 2004)

Planning instrument, Native Title, Previous EPA decision or other matter.

Comments

The areas under application are road reserves.

Methodology

State of Construction Map, Shire of Dardanup

GIS database:

- Town Planning Scheme Zones - MFP 8/98.

4. Assessor's comments

Comment

The application has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the Environmental Protection Act 1986, and the proposed clearing may be at variance to Principle (b) and (e) and is not likely to be at variance to the remaining clearing Principles.

5. References

- CALM Land clearing proposal advice. Advice to A/Director General, Department of Environment (DoE). Department of Conservation and Land Management, Western Australia. DoE TRIM ref SWD46174.
- DAWA (2004) Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture Western Australia. DoE TRIM ref SWO23181
- Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.
- Havel, J.J. and Mattiske Consulting Pty Ltd (2002) Review of management options for poorly represented vegetation complexes, Conservation Commission.
- Hopkins, A.J.M., Beeston, G.R. and Harvey J.M. (2001) A database on the vegetation of Western Australia. Stage 1. CALMScience after J. S. Beard, late 1960's to early 1980's Vegetation Survey of Western Australia, UWA Press.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, 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.

6. Glossary

Term	Meaning
BCS	Biodiversity Coordination Section of DEC
CALM	Department of Conservation and Land Management (now BCS)
DAFWA	Department of Agriculture and Food
DEC	Department of Environment and Conservation
DEP	Department of Environmental Protection (now DEC)
DoE	Department of Environment
DoIR	Department of Industry and Resources
DRF	Declared Rare Flora
EPP	Environmental Protection Policy
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
TEC	Threatened Ecological Community
WRC	Water and Rivers Commission (now DEC)