



1. Application details

1.1. Permit application details

Permit application No.: 1922/1
 Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Shire of Harvey

1.3. Property details

Property: ROAD RESERVE (BRUNSWICK 6224)
 Local Government Area: Shire Of Harvey
 Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
0.9		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
There are 10 Beard associations across 2 IBRA regions represented within the area under application:	The composition of vegetation within the road reserves varies from site to site, dependant on the condition of the surrounding vegetation and the type of soil/ position in the landscape. All road reserves appear to exhibit degrees of disturbance.	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	The condition of the vegetation in the road reserves forming the area under application is given as an average of 'good', although some areas would be considered 'degraded'. The majority of road reserves show signs of disturbance (weeds, clearing etc) but do retain their basic structure. Vegetation condition determined using orthomosaic mapping (Bunbury 1m 2003 and Swan coastal plain south 40cm 2005).
3: Medium forest; jarrah-marri.			
6: Medium woodland; tuart & jarrah.			
48: Shrublands; scrub-heath.			
125: Bare areas; salt lakes.			
968: Medium woodland; jarrah, marri & wandoo.			
998: Medium woodland; tuart			
999: Medium woodland; marri			
1000: Mosaic: Medium forest; jarrah-marri / Low woodland; banksia / Low forest; teatree (Melaleuca spp.)			
1182: Medium woodland; Eucalyptus rudis & Melaleuca raphiophylla			
1184: Medium woodland-fringing; jarrah, marri,			

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 at variance to this Principle**

The proposed clearing involves the removal of native vegetation along 16 road reserves in order to undertake road construction. There are 10 Beard vegetation associations represented within the area under application.

The Roadside Conservation Committee report (1999) and accompanying Roadside Conservation Value map (1999) for roadsides within the Shire of Harvey indicates that of the 16 reserves, 4 are considered to have high conservation value. These are Lake Preston Road, Crampton Road, Wellard Road and Riverdale Road. Aerial photography indicates that of these Wellard Road has particular significance as it lies within an area that has been extensively cleared.

Given the diverse range of vegetation associations present within the area under application and the high conservation values highlighted by the RCC report this proposal is considered to be at variance to this principle.

To mitigate the loss of biodiversity within the road reserves, a condition is recommended to offset the values of the areas to be cleared.

Methodology Shepherd et al. (2001)
Roadside Conservation Committee (1999)
GIS Database:
- Interim Biogeographic Regionalisation of Australia - EA 18/10/00
- Pre-European Vegetation - DA 01/01

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

The area under application is predominantly in good condition including four high quality road reserves. Given the extent of clearing within the landscape it is likely that most of the road reserves provide an ecological function in providing corridors for the movement of animals through the landscape between areas of remnant vegetation.

There are over 50 recorded occurrences of Threatened and Priority fauna within a 30km radius of the area under application. Of these 28 are Threatened species. The nearest recorded occurrences of Threatened and Priority fauna to the area under application are for Western Spiny-Tailed Skink, Quokka, Chuditch and Western Ringtail Possum, all of which are threatened and occur within 2km of the area under application. The Western Spiny-Tailed Skink was recorded within 250 metres of Clifton Road. All records appear to be from adjacent or nearby conservation reserves or lands but not from the area under application.

Given that most of the road reserves show signs of disturbance and considering the small size of the proposed clearing it is not expected that fauna would depend entirely on these road reserves as their primary habitat and as such it is unlikely that this vegetation comprises significant habitat for fauna.

This proposal is not likely to be at variance to this principle.

Methodology GIS Database
- SAC Bio datasets 17/08/2007

(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**

There are over 80 recorded occurrences of Declared Rare and Priority Flora within a 30 kilometre radius of the

area under application of which 15 are Declared Rare Flora. Many of these records occur within the same vegetation associations and on similar soil / geomorphology types as those found within the area under application.

The nearest occurrence of Declared Rare Flora is *Drakaea elastica*, located within 200 metres of Riverdale Road. The priority 3 species *Acacia horridula* also occurs within 200 metres and these species occur on similar soil / geomorphology types as those found within the area under application. Given the Roadside Conservation Committee's classification of this stretch of road to high conservation value (RCC, 1999) there is a possibility that these species may extend into the area under application.

Records of *Haloragis tenuifolia* (Priority 3) and *Myriophyllum echinatum* (Priority 3) occur within 10 metres and 70 metres respectively of Wellard Road Reserve which forms part of the area under application. These species occur on similar soil / geomorphology types as those found within the area under application. Given their proximity there is a possibility that these extend into the area under application particularly where road reserves contain vegetation that is of good quality.

Given, however, that the majority of the road reserves within the area under application are narrow and show signs of disturbance and that this clearing is for only 0.9 hectares over approximately 46km of road reserve, it is unlikely that this vegetation comprises significant habitat for rare flora. This proposal is not likely to be at variance to this principle.

Methodology Roadside Conservation Committee (1999)
GIS Database
- Soils, Statewide - DA 11/99
- Pre-European Vegetation - DA 01/01
- SAC Bio datasets 17/08/2007

(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 may be at variance to this Principle

There are six known occurrences of threatened ecological communities within a 30km radius of the area under application. Of these only two are within 2km of the area under application. These lie 50 metres south of Wellard Road which forms part of the area under application. These examples of dense shrublands on clay flats form part of the Wellard Nature Reserve and are not part of the area proposed to be impacted. The proposed clearing however does lie within the TEC buffer.

Advice received from Species and Communities Branch suggests that the relatively small area of clearing is unlikely to have a significant negative impact on the actual occurrence of SCP TEC type 09. However, there is a high risk to claypan communities from changed hydrology such as excess surface water runoff that can lead to weed invasion, nutrient enrichment and the spread of dieback disease and for this reason the proposal may be at variance to this principle.

Species and Communities Branch advises that consideration to minimal disturbance of vegetation and appropriate hygiene measures are required. Conditions to avoid and minimise clearing and weed and dieback control measures are recommended if this permit is to be granted to ensure there are no negative environmental impacts on the TECs.

Methodology Species and Communities Branch (2007)
GIS Database:
- SAC Bio datasets 17/08/2007
- CALM Managed Lands and Waters - CALM 1/06/04

(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 is at variance to this Principle

There are 10 Beard vegetation associations represented within the area under application. Of these 5 have less than 30% of their pre-european extent remaining, 3 have between 30-50% and 2 over 50%. Of these 6 have less than 20% of their original extent protected in DEC managed reserves. There are 9 Heddl vegetation complexes present of which 4 have less than 30% of their pre-european extent remaining.

Pre-European Current extent Remaining Conservation** % In reserves

	(ha)	(ha)	(%)	status	DEC Managed Land
IBRA Bioregions****					
Jarrah F	4506674	2426079	53.8	Least Concern	N/A
Sw Cstl Plain	1501456	571758	38.1	Depleted	N/A
Shire*					
Harvey	168294	101085	60	Least Concern	N/A
Beard Vegetation Complex****					
125	3491834	3287864	94	Least Concern	5
48	30815	8776	28	Vulnerable	5
998	51018	21178	42	Depleted	27
6	56346	15014	27	Vulnerable	11
1000	99841	25684	26	Vulnerable	8
968	296889	97181	33	Depleted	34
1182	23438	6446	28	Vulnerable	0
999	115712	15161	13	Vulnerable	6
1184	63565	28717	45	depleted	15
3	2661515	1863983	70	Least Concern	26

* (Shepherd et al. 2006)

** (Department of Natural Resources and Environment 2002)

**** (Shepherd et al. 2001)

^ Area within Intensive Land Use Zone

The Roadside Conservation Committee report (1999) and accompanying Roadside Conservation Values map of roadsides in the Shire of Harvey indicates that Crampton Road, Wellard Road, Riverdale Road and Lake Preston Road are considered to have high conservation value, therefore providing high quality representation of extensively cleared vegetation associations.

Given the above, this proposal is at variance to this principle.

To mitigate any potential impacts of the clearing on remnant vegetation, while acknowledging the need to maintain and upgrade roads, the proposed clearing will be carried out in accordance with a condition imposed on the permit requiring that clearing of vegetation be avoided, and where this is not possible, minimised. In addition, a condition has been imposed to offset the values of the area to be cleared to address the loss of vegetation within a highly cleared landscape.

Methodology Shepherd et al. (2001)
 Department of Natural Resources and Environment (2002)
 RCC (1999)
 GIS Database:
 - Pre-European Vegetation - DA 01/01
 - Mattiske Vegetation - CALM 24/03/98
 - Heddle Vegetation Complexes - DEP 21/06/95
 - Interim Biogeographic Regionalisation of Australia - EA 18/10/00

(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 at variance to this Principle

The proposed clearing involves 16 road reserves, some of which cross minor watercourses and tributaries to the Harvey and Collie Rivers. Of these road reserves 13 lie on the Swan Coastal Plain and cross drainage channels and are in close proximity to areas subject to inundation. One site, Forestry Road, crosses through an area subject to inundation.

There are over 50 wetland areas recorded in the local area. Of the 16 road reserves which form the area under application 14 pass through multi use wetland areas. One, Bengar Swamp, a conservation category ANCA wetland lies within 2km of Partridge road and Lake Preston Road runs alongside Lake Preston part of the Yalgorup Lakes System a conservation category RAMSAR and ANCA listed wetland.

Although all of these road reserves appear to have been previously cleared and (where necessary) drains and culverts installed to manage the flow of water, the proposed clearing is at variance to this principle.

To mitigate the loss of vegetation growing in association with wetlands and watercourses, a condition has been

imposed on the permit to offset the values of the areas to be cleared.

- Methodology** GIS Database:
- Topography Contours, Statewide - DOLA 12/09/02
 - Hydrography, linear - DOE 01/02/04
 - EPP, Areas - DEP 06/95
 - EPP, Lakes - DEP 28/07/03
 - EPP, Wetlands - DEP 21/07/04
 - Anca Wetlands - CALM 08/01
 - Geomorphic Wetlands - Swan Coastal Plain

(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**

The area under application lies within the catchments for the Harvey and Collie Rivers and the Leschenault Estuary. Of the 16 road reserves which form the basis of this application, 15 are in areas with a high to moderate risk of acid sulphate soils and 12 of 16 cross areas of high risk salinity. Groundwater salinity is between 500-1000mg for 6 road reserves and 3000-7000mg for the remaining 10.

The topography for the reserves ranges from 310m down to sea level. The majority of the reserves (13) have low relief and are found on the Swan Coastal Plain where topography ranges from 0-30 metres. A wide range of soil types are represented and in terms of hydrogeology the low lying areas are predominantly sand, gravel and limestone surficial sediments with shallow aquifers. In the hilly areas fractured and weathered metamorphic and granitoid rocks of low permeability are found.

Most of these road reserves have been previously cleared and (where necessary) drains and culverts installed to manage the flow of water. Given the size of the actual clearing (only 0.9ha over 46km of road reserve) it is not likely to be at variance to this principle.

- Methodology** GIS Database:
- Hydrography, linear - DOE 01/02/04
 - Public Drinking Water Source Areas (PDWSAs) - DOW
 - Hydrographic Catchments - Subcatchments - DOW
 - Evaporation Isoleths - BOM 09/98
 - Mean Annual Rainfall Isohyets (1975-2003) - DOW
 - Topography Contours, Statewide - DOLA 12/09/02
 - Acid Sulfate Soil Risk Map, Swan Coastal Plain - DEC
 - Groundwater Salinity, Statewide - DOW
 - Hydrogeology, Statewide - DOW
 - Soils, Statewide - DA 11/99

(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**

There are more than 30 DEC managed areas within a 30km radius of the area under application. Of these the closest is Yalgorup National Park. Lake Preston road runs through this park. Forestry Road runs through Myalup State forest and Harvey Quindanning Road runs through the Harris River State Forest and Falls Brook Nature Reserve. Wellard road runs within 5 metres of Wellard Road Nature Reserve which contains two TECs of which the issues associated with this clearing were discussed under principle (d).

The proposed clearing is unlikely to significantly impact upon the environmental values of the nearby reserves due to its small size (0.9ha) and is therefore not likely to be at variance to this principle.

- Methodology** GIS Database:
- System 6 Conservation Reserves - DEP 06/95
 - CALM Managed Lands and Waters - CALM 1/06/04

(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**

The proposed clearing is in the Harvey and Collie River catchments. The area under application consists of 16 road reserves of which 13 are in areas with low relief. This proposal will involve clearing only small amounts of vegetation (0.9ha) along 46km of road reserve.

The re-sheeting of road surfaces may increase the amount of surface water and short term sedimentation may be caused during construction. However these issues will be minimal due to the existing roadside drainage

infrastructure.

This proposal is not likely to be at variance to this principle.

- Methodology** GIS Database:
- Topography Contours, Statewide - DOLA 12/09/02
 - Groundwater Salinity, Statewide - DOW
 - Hydrography, linear - DOE 01/02/04

(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 at variance to this Principle**

The area under application is subject to medium levels of rainfall (850-950mm) and higher levels of evapotranspiration (1400mm). The majority of road reserves lie in areas of sandy, gravel and limestone surficial sediments with shallow aquifers and it is therefore unlikely that the removal of 0.9ha of vegetation will cause or exacerbate the incidence or intensity of flooding.

The proposal is not at variance to this principle.

- Methodology** GIS Database:
- Hydrogeology, Statewide - DOW
 - Mean Annual Rainfall Isohyets (1975-2003)- DOW
 - Evaporation Isoleths - BOM 09/98

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

Comments

The proposed clearing and end use do not require further regulation.

There is one Native Title Claim over the area under application. The Department of Environment and Conservation's advertising of the application in the West Australian newspaper constitutes legal notification of the native title representative body for the purpose of the future act procedures under the Native Title Act 1993. No response was received from the representative body.

Five Aboriginal Sites of Significance are listed within the area under application. It is the responsibility of the proponent to ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

- Methodology** The proposed area is within a RIWI Groundwater and Irrigation area however a RIWI license is not required.
- GIS Database:
- Native Title Claims - DLI 7/11/05
 - Aboriginal Sites of Significance - DIA
 - RIWI Act, Surface Water Areas - DOW
 - RIWI Act, Rivers - DOW
 - RIWI Act, Irrigation Districts - DOW
 - RIWI Act, Groundwater Areas - DOW
 - RIWI Act, Areas - DOW

4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comment
Road construction or maintenance	Mechanical Removal	0.9	

5. References

at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Mattiske Consulting (1998) Mapping of vegetation complexes in the South West forest region of Western Australia, CALM. Roadside Conservation Committee (1999) Roadside Vegetation and Conservation Values in the Shire of Harvey.

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.

Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001a) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia (updated 2005).

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)

