



1. Application details

1.1. Permit application details

Permit application No.: 900/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: Commissioner of Main Roads WA

1.3. Property details

Property:
 LOT 13291 ON DIAGRAM 95873
 LOT 114 ON PLAN 14449
 LOT 503 ON PLAN 19179
 LOT 500 ON DIAGRAM 78895
 LOT 13227 ON DIAGRAM 94671
 LOT 954 ON PLAN 246301
 LOT 11689 ON PLAN 240358
 LOT 1 ON DIAGRAM 9344
 LOT 27 ON DIAGRAM 2750
 LOT 12714 ON PLAN 240358
 LOT 75 ON PLAN 1705
 Local Government Area: Shire Of Chittering
 Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
5.7		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
Beard vegetation association 4 - medium woodland; marri and wandoo.	The area under application is a long, narrow, linear shape that incorporates the Great Northern Highway. The proposed clearing is for an upgrade of the Highway between Apple Street and just south of the Bindoon townsite.	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	The vegetation condition of 'good' was used in this assessment, as vegetation condition varies from very good to degraded (Goble-Garrat 2005).
Beard vegetation association 973 - low forest; paperbark (<i>Melaleuca raphiophylla</i>) (Shepherd et al 2001, Hopkins et al 2001).			
Mattiske vegetation complex Bi - woodlands of <i>Eucalyptus loxophleba</i> on the slopes, flanked by woodlands of <i>E. wandoo</i> , <i>E. accedens</i> on breakaways and upper slopes in the pre-arid zone.	A flora and vegetation survey of the area under application identified 90 taxa, with 49 native taxa and 41 introduced taxa (Goble-Garrat 2005). Of the native taxa, the families of Myrtaceae and Papilionaceae were dominant and grass species were dominant for introduced taxa. Low lying areas have been badly affected by highly invasive weed species such as <i>Watsonia</i> , Veldt grass and African Lovegrass (Goble-Garrat 2005). Some vegetation units were determined based on dominant canopy species and include Wandoo, Marri, Wandoo/Marri, Sheoak, Freshwater Paperbark, Flooded Gum and Marri/Flooded Gum.		
Mattiske vegetation complex Ck - woodland of <i>E. wandoo</i> with admixtures of <i>E. patens</i> , <i>E. marginata</i> subsp <i>thalassica</i> and <i>Corymbia calophylla</i> on valley slopes in the arid and pre-arid zones.			
Mattiske vegetation complex My2 - open forest of <i>E. marginata</i> subsp. <i>thalassica</i> , <i>C. calophylla</i> , <i>E. patens</i> and woodland of <i>E. wandoo</i> with some <i>E. accedens</i> on valley slopes to woodland of <i>E. rudis</i> , <i>Melaleuca raphiophylla</i> on	The differences in vegetation type		

valley floors in the arid to semi-arid zone.

Mattiske vegetation complex No - mosaic of low open forest of *Casuarina obesa* and open scrub of *C. obesa*, *Acacia* spp, *Melaleuca* spp and woodland of *E. rudis*, *M raphiophylla* on major valley systems in the pre-arid zone.

(Mattiske Consulting 1998).

No description available for Heddle vegetation complexes of Bindoon Complex, Murray and Bindoon Complex in low to medium rainfall, and Nooning complex.

correlate well with topography with the area close to the valley floor dominated by flooded gum (*Eucalyptus rudis*), with marri (*Corymbia calophylla*) on lower slopes and wandoo (*E. wandoo*) in higher areas (Goble-Garratt 2005). The majority of the project area is devoid of native vegetation with the vegetation varying from degraded within the narrow strip along road reserve to very good to excellent on higher ground (larger remnants) (Goble-Garratt 2005).

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**

The area under application consists of a long, narrow area that incorporates the Great Northern Highway. A large section of the area under application is therefore devoid of native vegetation. Of the vegetated area approximately 45% of the taxa identified are introduced species including Veldt grass, *Watsonia* and African Lovegrass (Goble-Garratt 2005). Habitat elements such as large logs, dense groundcover and understorey species are largely absent (Kellogg et al 2005). Although two Priority 3 species occur within the area under application (Goble-Garratt 2005), it is unlikely that the clearing as proposed would be of higher biodiversity than the six nature reserves located within a 12km radius of the proposed clearing.

Methodology Goble-Garratt (2005) (DoE Trim Ref EI4493)
Kellogg et al (2005) (DoE Trim Ref EI4493)
GIS Databases:
- CALM Managed Lands and Waters - CALM 01/08/04

(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**

The following fauna species of conservation significance are known to occur within a 10km radius of the proposed clearing:

Chuditch (*Dasyurus geoffroii*);
Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*); and
White-tailed Black Cockatoo (*Calyptorhynchus* sp.)
(CALM 2006).

Although habitat elements such as large logs, dense groundcover and understorey species are largely absent (Kellogg et al 2005), there is some good habitat within the area under application that is still available including large mature trees (CALM 2006). The proponent has indicated that they intend to install five artificial hollows within close proximity to the area under application.

Given the long, linear nature of the intended clearing on either side of the established transport corridor and the degraded condition of the majority of the vegetation, it is unlikely that the proposed clearing would have a significant impact on the survival of Threatened or Priority species.

Methodology CALM (2006) (DoE Trim Ref IN26039)
Kellogg et al (2005) (DoE Trim Ref EI4493)

(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**

Twenty-nine Priority flora species as well as the following Declared Rare Flora (DRF) species are known to occur within a 10km radius of the proposed clearing:

Chamelaucium sp. Gingin (Gingin Wax);
Thelymitra stellata; and
Asterolasia nivea.
(CALM 2006).

From the flora survey of the area under application (Goble-Garratt 2005), no DRF species were identified.

However two Priority 3 species, *Acacia drummondii* subsp *affinis* and *Adenanthos cygnorum* subsp *chamaephyton*, were identified within the area under application (Goble-Garratt 2005). Not all of the specimens from the populations of these specimens will be removed in the proposed clearing and residual components of many populations will be retained (Goble-Garratt 2005).

Methodology CALM (2006) (DoE Trim Ref IN26039)
Goble-Garratt (2005) (DoE Trim Ref EI4493)

(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

No Threatened Ecological Communities were identified within the area under application (Goble-Garratt 2005). One significant ecological community, SCP20a 'Banksia attenuata woodland over species rich dense shrublands', is known to occur within a 10km radius of the area under application (CALM 2006). Given that this significant ecological community is 9.9km from the area under application, and the degraded condition of the vegetation proposed to be cleared, it is considered that the clearing as proposed is not likely to be at variance to this Principle (CALM 2006).

Methodology Goble-Garratt (2005) (DoE Trim Ref EI4493)
CALM (2006) (DoE Trim Ref IN26039)

(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 not likely to be at variance to this Principle

The State Government is committed to the National Objectives and Targets for Biodiversity Conservation 2001-2005 which includes a target that prevents clearance of ecological communities with an extent below 30% of that present pre-European settlement (Department of Natural Resources and Environment 2001, EPA 2000).

The vegetation under application consists of Heddle vegetation complexes Bindoon, Murray and Bindoon in low to medium rainfall and Nooning complex. No information was available to the Department in relation to the current extent of these complexes.

The vegetation under application also consists of Beard vegetation associations 4 and 973 of which there is 23.5% (292,993ha) and 30.9% (1,884ha) remaining respectively (Shepherd et al 2001, Hopkins et al 2001). In addition, the vegetation under application has also been mapped as Mattiske vegetation complexes Bi, Ck, My2 and No (Mattiske Consulting 1998). The current extent of these Mattiske complexes are:

Bi - 29.6%, 78,976ha
Ck - 42.9%, 573, 908ha
My2 - 74.2%, 440,381ha
No - 19.9%, 8,289ha
(Mattiske Consulting 1998).

A number of these complexes have an extent below 30%. However given the degraded nature of the vegetation under application (Goble-Garratt 2005), these figures may not be an accurate representation of these complexes. In addition, the area under application represents less than 1% of the current extent of these vegetation complexes, which is unlikely to have a significant impact on their conservation status.

Methodology Department of Natural Resources and Environment (2001)
EPA (2000)
Shepherd et al (2001)
Hopkins et al (2001)
Mattiske Consulting (1998)
Goble-Garratt (2005) (DoE Trim Ref EI4493)
GIS Databases:
- Heddle Vegetation Complexes - DEP 21/06/95

(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 may be at variance to this Principle

Two small sections of the area under application, approximately 100m and 200m in length, include two Conservation Category Wetlands that consist of freshwater paperbark and flooded gums that fringe lake margins (Goble-Garratt 2005). However both sections are degraded to some extent with the understorey predominantly absent (Goble-Garratt 2005). There is a small section associated with Lake Chittering that is in very good condition (Goble-Garratt 2005). Although wetland dependent vegetation does form some of the area to be cleared, it is in two small sections which have been degraded to some extent. Excluding these two small areas, it is unlikely that the clearing as proposed would have a significant impact on the local wetlands and their

associated vegetation.

Methodology Goble-Garrat (2005) (DoE Trim Ref E14493)
GIS Databases:
- Gemorphic Wetlands (Mgmt Categories), Swan Coastal Plain - DOE 15/09/02

(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 (2006) advice indicates that the clearing as proposed is likely to be at variance to this Principle in the form of soil erosion and water-logging, however, these risks could be minimised with the implementation of appropriate management strategies. Some of the sections of the area under application are already waterlogged and swampy and the proponent has indicated that they intend to install drains and culverts to intercept any overland flow. Given the long, narrow, linear nature of the area under application and that it incorporates the existing Great Northern Highway, it is unlikely that the clearing as proposed would result in appreciable on or off-site land degradation.

Methodology Supporting documentation provided by the proponent (DoE Trim Ref E15535)
DAWA (2006) (DoE Trim Ref CRN218431)

(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 may be at variance to this Principle**

The clearing as proposed would result in two temporary and one permanent impact areas within the Chittering Lakes Nature Reserve. The proponent has discussed this issue with the Conservation Commission of Western Australia and it was agreed that the proponent would purchase land adjacent to the proposed clearing and would set aside these areas for conservation purposes. These negotiations are continuing to more clearly define these areas. The two temporary impacts will be revegetated on the completion of the road construction works. Similarly, these areas have not been clearly identified at this stage of the proposed works but have been addressed through the permit conditions.

While the surface water run-off as a result of the proposed clearing may have an impact on the quality of water flowing into the lakes within the Reserve in the short term, it is considered that this will correct itself over time (CALM 2006).

CALM (2006) have advised that they do not expect the proposed clearing to have significant long-term impacts on the Chittering Lakes Nature Reserve.

Methodology Supporting documentation provided by the proponent (DoE Trim Ref E15535)
CALM (2006) (DoE Trim Ref IN26039)

(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 area under application is not located within a Public Drinking Water Source Area. The groundwater within the area under application is relatively fresh with salinity between 1000-3000mg/L. Given the long linear nature of the area under application, it is considered unlikely that the clearing as proposed would have a significant impact on the quality of groundwater.

In the short term, the surface water run-off from the proposed clearing may have an impact on the quality of the water flowing into the lakes adjacent to the area under application (CALM 2006). This would be through increased sedimentation as a result of the proposed clearing. The proponent has indicated that they intend to manage run-off to avoid direct drainage into the lakes as part of routine road engineering. This includes using table drains and culverts to re-direct sheet flow to swales to allow for settling before discharging.

Methodology Supporting documentation provided by the proponent (DoE Trim Ref E15535)
CALM (2006) (DoE Trim Ref IN26039)
GIS Databases:
- Groundwater salinity, Statewide - 22/02/00
- Public Drinking Water Source Areas (PDWSAs) - DOE 09/08/05

(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**

Surface water run-off may increase as a result of the proposed clearing. However, it is unlikely to be significant due to the long linear nature of the proposed clearing. In addition, the proponent has indicated that they intend

to put into operation a number of measures, such as drains and culverts, as part of routine road engineering, to carry any excess surface water flow. As such, it is considered unlikely that the clearing as proposed would increase or exacerbate the intensity or frequency of flooding.

Methodology Supporting documentation provided by the proponent (DoE Trim EI5535)

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

Comments

The proposal was referred to the Environmental Protection Authority. A level of assessment was set at "Not Assessed - Public Advice Given" and advertised on Monday 27 March 2006.

There is no other RIWI Act Licence, Works Approval or EP Act Licence that will affect the area that has been applied to clear.

Methodology Environmental Protection Authority - Monday Advertisements - 27 March 2006 (Accessed www.epa.wa.gov.au)

4. Assessor's recommendations

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
Road construction or maintenance	Mechanical Removal	5.7	Grant	<p>The proposal has been assessed and the proposed clearing may be at variance to Principles b, f and h. In relation to Principle b, some mature trees with hollows are within the area under application, however the proponent has indicated that they intend to install five artificial hollows within close proximity. The location of these nest boxes will be finalised post-clearing to ensure optimal locations. In relation to Principle f, two small sections of the area under application are located within Conservation Category Wetlands. However, a condition has been placed on the permit that the Permit Holder shall revegetate those areas not required for the road surface upon completion of the road works and will include species such as paperbark and flooded gum. Finally in relation to Principle h, two temporary and one permanent impact areas will result from the proposed clearing. In addition to revegetating the two temporary areas, the proponent is currently in negotiations with adjacent land owners to revegetate small sections of their properties and obtaining conservation covenants over these areas. The proponent has in-principle support for these actions from the Conservation Commission.</p> <p>Based on the above, the assessing officer recommends that the permit be granted based on the following conditions:</p> <ol style="list-style-type: none"> 1. Prior to the commencement, the Permit Holder shall collectively remove or kill all plant species that are not native vegetation within the area cross-hatched yellow on attached Plan 900/1. 2. The Permit Holder shall revegetate areas for temporary works within the Great Northern Highway Road Reserve between SLK 54.6 to 59.2 with a species mix that shall include the species outlined in Schedule 1 attached to this Permit. 3. The Permit Holder shall complete the revegetation works required under condition 2 by 31 December 2010. 4. The Permit Holder shall collect seed and other propagation material from the Priority 3 species <i>Adenanthos cygnorum</i> subsp <i>chamaephyton</i> and <i>Acacia drummondii</i> subsp <i>affinis</i> for use in revegetation works outlined under condition 2. 5. In this Permit, temporary works means access tracks, spoil areas, side tracks, site offices, storage areas, laydown areas and similar works associated with the clearing activity that are temporary in nature. <p>In order to ensure that the revegetation work is completed and to allow for the proponent's 3-year monitoring program, the assessing officer recommends that this permit be granted for 5-years.</p>

5. References

- CALM (2006) Land clearing proposal advice. Advice to A/Director General, Department of Environment (DoE). Department of Conservation and Land Management, Western Australia. DoE TRIM ref IN26039.
- DAWA (2006) Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture Western Australia. DoE TRIM ref CRN218431.
- 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.
- EPA (2000) Environmental protection of native vegetation in Western Australia. Clearing of native vegetation, with particular reference to the agricultural area. Position Statement No. 2. December 2000. Environmental Protection Authority.
- Goble-Garrat, E.M. (2005) Great Northern Highway Upgrade - Bindoon South Section (Hart Drive to Bindoon Townsite SLK 54.6 to 62.0) Flora and Vegetation Survey. Undertaken for Kellogg Brown & Root Pty Ltd on behalf of Main Roads Western Australia (DoE Trim Ref EI4493)

- Harewood, G. (2005) Fauna Assessment Great Northern Highway Bindoon South (SLK 54.8 to 62.1). Prepared on behalf of Kellogg Brown & Root Pty Ltd for Main Roads WA. (DoE Trim Ref E14493)
- 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.
- 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.
- Mattiske Consulting (1998) Mapping of vegetation complexes in the South West forest region of Western Australia, CALM.
- 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
CALM	Department of Conservation and Land Management
DAWA	Department of Agriculture
DEP	Department of Environmental Protection (now DoE)
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 DoE)