



1. Application details

1.1. Permit application details

Permit application No.: 1680/1

Permit type: Area Permit

1.2. Proponent details

Proponent's name: J & L Lindeboom

1.3. Property details

Property: LOT 2038 ON PLAN 114423 (House No. 2893 BINDOON-MOORA MINDARRA 6503)

Local Government Area: Shire Of Gingin

Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
5.6	120	Mechanical Removal	Plantation

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
Hedde Vegetation Complex:	The proposal includes the selective removal of 120 mature <i>Banksia spp.</i> trees and incidental clearing of up to 5.6ha of understorey for the establishment of a commercial <i>Banksia</i> Plantation.	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	The vegetation description is based on site visit conducted by DEC officers on 12 March 2007. The majority of the area to be cleared is in a degraded condition, with regrowth after a fire two years previously restricted to <i>Eucalyptus</i> and <i>Banksia</i> overstorey species. Areas in good condition were confined to the southeast portion of the southern area under application and wetland dependent vegetation in the northern applied area.
Cullula Complex - low open forest, Dandaragan Plateau - Mixture of low open forest of <i>Banksia spp.</i> <i>E. todtiana</i> and open woodland of <i>E. calophylla</i> with second storey of <i>E. todtiana</i> - <i>B. attenuata</i> - <i>B. Menziesii</i> - <i>B. ilicifolia</i> .	The vegetation under application in the northern portion comprises an open woodland of <i>Eucalyptus spp.</i> and <i>Banksia spp.</i> and a small area (approximately 0.1ha) of wetland vegetation comprising <i>Melaleuca spp.</i> located adjacent to a firebreak in the northern portion of the applied area.		
Wannamal Complex - low shrubland, Dandaragan Plateau - Mixture of low shrubland of <i>Melaleuca spp.</i> and open woodland of <i>E. Wandoo-E. loxophleba</i>			
Beard Vegetation Association:			
37: Shrublands; tea-tree thicket	The vegetation in the southern area under application has a transitional change to low shrubland of <i>Melaleuca spp.</i> and open forest of <i>Eucalyptus todtiana</i> , <i>Eucalyptus calophylla</i> and <i>Banksia spp.</i> In addition the southern portion of the applied area encroaches into the buffer zone of a ANCA		
Hedde et al. (1980)			
Shepherd et al. (2001)			

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 vegetation under application comprises *Banksia* and *Eucalyptus* woodland with understorey limited to *Melaleuca spp.* in a degraded condition, with some areas of good condition which were confined to the

southeast portion of the southern area under application

Regrowth after a fire two years ago is restricted to *Eucalyptus* and *Banksia* species, with extensive areas of bare soil and little understorey in the northern area under application. Vegetation in the southern neighbouring property was observed to be in better condition and is not in the same degraded condition as that under application.

Given that the vegetation under application is in a degraded condition with low species diversity, it is not likely to be representative of an area of higher biological diversity.

Methodology DEC site visit 12/03/07

(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 vegetation under application comprises woodland of *Eucalyptus spp.* and *Banksia spp.* a small area (approximately 0.1ha) of wetland vegetation comprising *Melaleuca spp.* located adjacent to a firebreak in the northern portion of the applied area.

The applied area is situated within a landscape that has historically been cleared for agricultural pursuits. Regrowth from a recent fire is confined to *Eucalyptus spp.* and *Banksia spp.* with limited understorey that would provide habitat for ground dwelling fauna. No hollows were seen during the site visit that could potentially be utilized for habitat and the trees are not considered to be of hollow-bearing age.

The area under application is located within the distribution range of the Carnaby's Black-Cockatoo *Calyptorhynchus Latirostris* (threatened). These birds inhabit uncleared or remnant *Eucalyptus* and *Banksia* woodlands, foraging on the seeds and nectar from the flowers of *Banksia* and *Eucalyptus species* (DEC 2006). The vegetation under application includes these species that may be utilized by foraging Carnaby's Black-Cockatoo, however it is not likely to be significant given the proximity of adjacent vegetation and conservation reserves in the local area.

Although the vegetation under application may provide some foraging habitat for the Carnaby's Black-Cockatoo, it is not considered likely to be significant. Given the lack of hollows and generally degraded understorey, it is not considered likely that the vegetation under application comprises significant habitat for indigenous fauna.

Methodology DEC site visit - 12 March 2007
DEC (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**

Within the local area (10km of application) there are twelve known populations of three species of Declared Rare Flora (DRF) (*Darwinia acerosa*, *Eleocharis keigheryi* and *Dryandra mimica*), the closest of which *Darwinia acerosa* is located approximately 1km to the east of the northern area under application. There are also twenty eight known occurrences of Priority species within a 10km radius, of which (*Anigozanthos humilis subsp*) (P4) is located approximately 1.4km southeast of the southern area under application.

Of the identified DRF species, *Eleocharis keigheryi* is located in the same vegetation type and soil type as the area under application. This species is a wetland dependant sedge found in freshwater creeks and clay pans (Western Australian Herbarium, 1994). The vegetation under application is limited to *Banksia spp* and associated understorey located on a sandy rise and is unlikely to include habitat suitable for this species. Therefore, it is not considered likely that the vegetation under application includes, or is necessary for the continued existence of, rare flora.

Methodology GIS Databases:
Declared Rare and Priority Flora List - CALM 01/07/05
Department of Agriculture, Date accessed 01/05/04.
Hedde Vegetation Complexes - DEP 21/06/95
Pre-European Vegetation - DA 01/01
Western Australia Department of Agriculture, 2004, Soil-landscape mapping, Western Australia
Western Australian Herbarium (1994)

(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**

There are no known occurrences of Threatened Ecological Communities (TEC) within the local area (10km), the closest is located 28km southwest of the area under application. Given that the applied area is located on the

Dandaragan Plateau and the nearest TEC is found on the Swan Coastal Plain, it is not considered likely that the vegetation under application would comprise, or be necessary for the maintenance of a TEC.

Methodology GIS Database:
Soils, Statewide - DA 11/99
Threatened Ecological Communities - CALM 12/4/05

(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

Heddle et al (1980) defines the northern portion of the area under application as Wannamal Complex, of which there is 33% of pre-European extent remaining and which is described as being of a 'depleted' status for biodiversity conservation (Department of Natural Resources and Environment 2002). Heddle et al.(1980) defines the southern portion of the area under application as having a transitional change to the Cullula Complex, of which there is 47% of pre-European extent remaining and which is also described as 'depleted' (Department of Natural Resources and Environment 2002).

The vegetation under application is part of the Beard vegetation association 2003 (Hopkins et al. 2001) of which there is 55.9% remaining (Shepherd et al. 2001). This vegetation association is also considered to be of 'least concern' for biodiversity conservation (Department of Natural Resources and Environment 2002). In addition the vegetation of the applied area is also within the Gingin Shire of which there is 56.3% of pre-European extent remaining which is considered to be of 'least concern' for biodiversity conservation (Department of Natural Resources and Environment, 2002).

The Wannamal Complex and Cullula Complex currently have 1.6% and 3.4% vegetation respectively (Heddle et al. 1980) in secure tenure and Beard has 6.1% of associated vegetation in secure tenure.

These vegetation types have representations above the recommended minimum level of 30%, as recognised by both the EPA and the State Government (EPA, 2003; Department of Natural Resources and Environment, 2002) and the proposal is therefore not considered likely to be at variance with this principle.

	Pre-European (ha)	Current (ha)	Remaining %	Conservation status	% in reserves
Jarrah Forest	4,544,335	2,665,480	58.7	Least Concern	58.3
Swan Coastal Plain	1,529,235	657,450	43.0	Depleted	41.8
Shire of Gingin	315,560	177,688	56.3	Least Concern	
Local Area (~10km radius)					
Mattiske vegetation complex:					
Cullula Complex	25,194	11,931	47	Depleted	3.4
Wannamal Complex	2,275	742	33	Depleted	1.6
Beard vegetation associations					
	44,215	24,725	55.9	Least Concern	6.1

* (Shepherd et al. 2001)

** (EPA, 2003)

*** (Department of Natural Resources and Environment 2002)

Department of Natural Resources and Environment (2002)

Mattiske Consulting (2006)

Shepherd et al (2001)

Methodology Department of Natural Resources and Environment (2002)
Mattiske Consulting (2006)
Shepherd et al (2001)

(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 southern area under application is located 80m to the east of a Conservation Category Wetland (CCW), with a Resource Enhancement Wetland located 55m to the north of the southern applied area. The Brockman River is also situated 296m to the east. In addition, approximately 0.2ha of the southern applied area is located within the buffer zone of an ANCA Wetland, however a site visit by DEC officers on the 12 March 2007 identified that the vegetation within this buffer zone did not comprise wetland dependent species.

The closest Resource Enhancement Wetland to the northern area is located 148m to the east and the Brockman River is situated 280m to the east. In addition, a small area approximately (0.07ha) of wetland dependent vegetation comprising *Melaleuca raphiophylla* was found adjacent to the firebreak in the northern portion of the applied area. The applicant intends to retain this vegetation due to the incompatibility of these soils with the growing requirements of the proposed *Banksia* plantation.

Given that a portion of the vegetation within the northern area under application is growing in, or in association with, an environment associated with a watercourse or wetland, it is therefore considered that the proposal is at variance to this Principle.

The assessing officer recommends that the area (0.07ha) of wetland vegetation identified in the northern portion of the applied area be excluded from the clearing permit.

Methodology DEC site visit y 12/03/07

GIS Databases:

ANCA, Wetlands - CALM 08/01

Clearing Regulations - Environmentally Sensitive Areas - DOE 30/5/05

EPP, Lakes - DEP 1/12/92

EPP, Wetlands 2004 (DRAFT) - DOE 21/7/04

Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain - DEC

Hydrography, linear (hierarchy) - DOW

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

Comments Proposal may be at variance to this Principle

Soils within the area under application are Bassendean sands which are generally associated with a low to nil risk of salinity (State of Western Australia 2005).

Although generally there is a low salinity risk associated with these soils (State of Western Australia 2005), salinity risk mapping has identified two areas within the applied area as having a high salinity risk due to their position lower in the landscape. It is noted that the major contributing factor to increases in salinity is the removal of deep rooted perennial vegetation and associated rise in groundwater.

The clearing is limited to 120 individual *Banksia*'s on the sandy rises and the incidental clearing of some understorey during the establishment of the 5.6 ha *Banksia* plantation. The majority of deep rooted perennials within the area under application will be retained (i.e. the majority of the *Banksia*'s and all the *Eucalyptus spp*) and therefore it is not considered to impact salinity in the local or regional context.

The main land degradation risk associated with the Bassendean soil type is considered to be phosphorous export and wind erosion (State of Western Australia 2005). The clearing of native vegetation is unlikely to impact on the export of phosphorous.

The high wind erosion potential is due to the sandy nature of the soil and without appropriate vegetation cover, windbreaks or adequate dust suppression on exposed surfaces, the proposal may result in appreciable land degradation and may be at variance to this Principle. The assessing officer considers however that given the majority of understorey has been removed previously and that all the *Eucalypts* and majority of *Banksia*'s are being retained the actual risk of wind erosion resulting from the clearing would be low.

Additionally it has been advised by the proponent that up to 7000 *Banksia*'s will be planted as part of the plantation and this will likely result in an overall decrease in the risk of wind erosion from the property as these plants become established and is unlikely to require any fertilizer application therefore reducing the risk of phosphorous export.

Methodology State of Western Australia (2005)

GIS Databases:

Acid Sulfate Soil Risk Map, SCP - DOE 04/11/04

Salinity Risk LM 25m - DOLA 00

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 two areas reserved for conservation purposes within a 5km radius of the applied area, which are the Lake Wannamal Nature Reserve located 700m northeast of the northern area under application and the Betts Nature Reserve located 1.4km southeast of the southern applied area. Given the distance to these reserves

and the selective nature of the vegetation removal the proposed clearing is not considered likely to have a direct or indirect impact on the environmental values of these nearby conservation reserves.

The proposal is therefore not considered likely to be at variance to this Principle as it is unlikely to have an impact on the environmental values of the nearby conservation areas.

Methodology GIS Databases:
ANCA, Wetlands - CALM 08/01
CALM Managed Lands and Waters - CALM 1/07/05
Clearing Regulations - Environmentally Sensitive Areas - DOE 30/5/05
EPP, Lakes - DEP 1/12/92
EPP, Wetlands 2004 (DRAFT) - DOE 21/7/04
Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain - DEC
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

The area under application does not include any Public Drinking Water Source Areas and the nearest watercourse is the Brockman River which is located 280m to the east of the northern applied area. The property does contain a Conservation Category Wetland (CCW) situated approximately 80m to the east of the southern portion of the applied area and two Resource Enhancement Wetlands, the closest which is situated approximately 55m north of the southern area under application. In addition approximately 0.2ha of the southeast portion of the southern area under application is located within an ANCA Wetland buffer zone.

Although generally there is a low salinity risk associated with these soils (State of Western Australia 2005), salinity risk mapping has identified two areas within the applied area as having a high salinity risk due to their position lower in the landscape. It is noted that the major contributing factor to increases in salinity is the removal of deep rooted perennial vegetation and associated rise in groundwater.

The clearing is limited to 120 individual *Banksia*'s on the sandy rises and the incidental clearing of some understorey during the establishment of the *Banksia* plantation. The majority of deep rooted perennials within the area under application will be retained (i.e. the majority of the *Banksia*'s and all the *Eucalyptus spp*) and therefore it is not considered to impact salinity and therefore groundwater quality.

Although there is only a buffer of 80m to the CCW the proposed clearing is not considered likely to impact this wetland or be inconsistent with the Swan Coastal Plains wetland policy, that considers 50m to be a minimum buffer. Given the proposal is considered unlikely to increase nutrient loss or salinity it is not considered likely to be at variance to this Principle as the clearing of vegetation is unlikely to cause deterioration in the quality of surface or underground water.

Additionally given that the applied area is to be planted with native *Banksia* species which will not require any fertilizer application, the risk of phosphorous export is considered to be low to nil.

Methodology DEC site visit - 12/03/07

GIS Databases:
Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain - DEC
Public Drinking Water Source Areas (PDWSAs) - DOW
Salinity Risk LM 25m - DOLA 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

The area under application is at an elevation of 165 metres. The soils identified within the applied area are described as sandy Bassendean soils which are associated with a low to nil risk of water logging due to their poor water holding capacity (State of Western Australia 2005).

Within the property (Lot 2038) there is one Conservation Category Wetland, one ANCA Wetland and two Resource Enhancement Wetlands and the Brockman River.

Given the high infiltration rates of the sandy soils on site and the location on a sandy rise, the proposed clearing of vegetation is not likely to cause or exacerbate the incidence or intensity of flooding.

Methodology DEC site visit - 12/03/07

GIS Databases:

EPP, Lakes - DEP 1/12/92 GIS Databases:
 Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain - DEC
 Hydrography, linear (hierarchy) - DOW
 Topographic Contours, Statewide - DOLA 12/09/02

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

Comments

The lot under application is part of a Native Title Claim however, since it is privately owned Native Title is extinguished under the Native Title Act. Therefore the clearing as proposed should not fall under the future acts process of the Native Title Act 1993.

In a submission the Shire of Gingin (2007) advise that if the proponent will be irrigating the plantation then they would need to submit a development application. Discussions with the proponent have determined that they will not be irrigating the plantation as they are native species.

In a submission the Gingin Land Conservation District Committee (2007) advise that they have no objection to the proposed clearing given the degraded condition of the vegetation and that they will be replaced with native species, and given that the land use would be better than the previous pasture production.

The proponent has advised that up to 7000 *Banksia spp.* will be planted as part of the plantation that are local species. It is therefore considered that this will not result in an artificially high drawn down of groundwater with the final plantation more closely representing the adjacent remnant vegetation rather than an area previously cleared for agricultural pursuits. An additional benefit of the plantation will be the likely overall decrease in the risk of wind erosion from the property as these plants become established.

Methodology

Gingin Land Conservation District Committee (2007)
 Shire of Gingin (2007)
 GIS Database:
 Native Title Claims - DL1 7/11/05

4. Assessor's recommendations

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
Plantation	Mechanical Removal	5.6 120	Grant	<p>The assessable criteria have been addressed, and the proposed clearing is at variance to Principle f, and may be at variance to Principle g.</p> <p>Principle (f): A portion of the vegetation (0.07ha) within the northern area under application was identified as wetland dependent vegetation. As such this portion of vegetation under application is considered to be growing in association with a wetland.</p> <p>Principle (g): Although the sandy substrate has the potential to result in wind erosion, removal of 120 trees will be replaced with 7000 <i>Banksia spp.</i> and leaving understorey vegetation over 1m in height should minimise this impact.</p> <p>The assessing officer therefore recommends that the permit be granted with the conditions relating the retention of wetland vegetation in the northern area under application and the retention of understorey vegetation over 1m in height</p>

5. References

DEC (2006) Naturebase Fauna Species Profile, Carnaby's Black-Cockatoo, [http:// www.naturebase.net/plants_animals/bird_cockatoo.html](http://www.naturebase.net/plants_animals/bird_cockatoo.html). accessed on 13/04/2007

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 (2003) Guidance for the Assessment of Environmental Factors -level of assessment of proposals affecting natural areas within the System 6 region and Swan Coastal Plain portion of the System 1 Region. Report by the EPA under the Environmental Protection Act 1986. No 10 WA.

Gingin Land Conservation District Committee (2007) Direct interest submission. TRIM ref. DOC16290.

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.

Shire of Gingin (2007) Direct interest submission. TRIM ref. DOC17628.

Site Visit 12/3/07, Department of Environment and Conservation (DEC), Western Australia. TRIM ref DOC20106.

State of Western Australia (2005) Agmaps Land Manager CD Rom.

Western Australia Department of Agriculture (2004) Soil-landscape mapping, Western Australia

Western Australian Herbarium (1997), Department of Environment and Conservation. Text used with permission (<http://florabase.calm.wa.gov.au/help/copyright>). Accessed on Tuesday, 17 April 2007.

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)

