



1. Application details

1.1. Permit application details

Permit application No.: 462/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Cazaly Resources Limited

1.3. Property details

Property:
L16/15
G16/10
L16/16
L16/20
L16/21
L16/46
M16/15
M16/17
M16/24
M16/36
M16/40
M16/52
M16/99
M16/139
M16/140
M16/152
M16/178
M16/189
M16/195
M16/198
M16/200
M16/306
M16/335
M16/451
M16/224
M16/225
M16/235
M16/247
M16/248
M16/217
Local Government Area: Shire Of Coolgardie
Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
600		Mechanical Removal	Mining

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 following Beard vegetation associations are present in the area: 468 Medium woodland; salmon gum & goldfields blackbutt 520 Shrublands; Acacia	Aerial photos suggest the vegetation is disturbed by previous mining and exploration activities and is covered with vehicle tracks. (Jims, Seeds, Weeds and Trees 2004, Kalgoorlie 1.4m Orthomosaic	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	A site visit was conducted on 08/06/05 Vegetation associations identified in the Flora Survey for the area (Jims Seeds, Weeds and Trees 2004) are: Granite Sand Flats; Basalt Hills; Ironstone Sand Flats; Salmon Gum Broad Valleys and Granite

quadrimarginea thicket - DLI 02) Outcrops.

555 Hummock grasslands, mallee steppe; red mallee over spinifex, *Triodia scariosa* (Hopkins et al. 2001 and Shepherd et al. 2001)

On a site visit (08/06/2005) the vegetation was highly disturbed but showed strong regrowth in patches of low disturbance and strong regrowth in some patches of high disturbance.

There was a large number of mature trees, several with hollows providing good habitat for native fauna. The presence of native fauna in these hollows was not investigated at the time of the visit.

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**

Previous mining and exploration activities have disturbed large tracts of vegetation, and vehicle tracks extend throughout the area. It is likely that the biodiversity in adjacent, less disturbed areas, is higher than in the disturbed areas under application.

Furthermore, the vegetation associations within the area under application are all of 'least concern' in terms of biodiversity conservation (Shepherd et al 2001, Hopkins et al 2001, Department of Natural Resources and Environment 2002). The proponent has also advised that while the application is for 600ha, 'it is unlikely that it will have to clear more than 100ha. There is probably only about 10% chance that more than 200ha will ever need to be cleared and probably less that a 1% chance that more than 400ha will ever need to be cleared' (TRIM ED520).

Methodology Site visit - 08/06/2005
Shepherd et al. (2001)
Hopkins et al. (2001)

GIS databases:-
Kalgoorlie 1.4m Orthomosaic - DLI 02

(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 land in the area under application is situated in a region that has been subject to intensive mining and exploration activities for an extended period. This has resulted in overall biodiversity values, and thus fauna habitat values of the area being modified and impacted to varying degrees (CALM 2005). The vegetation of the area under application is typical of the habitats within the broader region.

During a site visit (08/06/2005) it was noted that there were several large trees with hollows, with some understorey providing potential shelter for fauna.

While the application is for 600ha, the proponent has indicated that 'it is unlikely that it will have to clear more than 100ha. There is probably only about 10% chance that more than 200ha will ever need to be cleared and probably less that a 1% chance that more than 400ha will ever need to be cleared' (TRIM ED520).

Given the above, it is unlikely that the clearing as proposed will compromise significant habitat for indigenous fauna.

Methodology CALM - (2005) Land Clearing Proposal Advice (DoE Trim No. IN22256)
Site visit - 08/06/2005
Supporting documentation from proponent (TRIM ED520)

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

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

No Declared Rare or Priority Flora have been mapped within 20km of the area under application. Some Priority species have been identified within 50km and include: Priority 1 species - *Acacia websteri*, *Eremophila praecox* and *Phebalium appressum*; Priority 2 species - *Hakea rigida*; Priority 3 species - *Gomphobium asperulum*; Priority 4 species - *Myriophyllum petraeum*.

No Declared Rare or Priority Flora were identified during a flora survey (Jims Seeds, Weeds and Trees 2004). It is acknowledged that this survey was conducted in summer rather than the optimum time of spring. However,

CALM (2005) advises that as the Priority flora that could have potentially been present are perennials and they could still have been able to be identified if they were indeed present.

It is also noted that while the application is for 600ha, the proponent has indicated that 'it is unlikely that it will have to clear more than 100ha. There is probably only about 10% chance that more than 200ha will ever need to be cleared and probably less than a 1% chance that more than 400ha will ever need to be cleared' (TRIM ED520).

Methodology CALM - (2005) Land Clearing Proposal Advice (DoE Trim No. IN22256)
Jims Seeds, Weeds and Trees (2004)
Supporting documentation from proponent (TRIM ED520)

GIS databases:-
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 significant ecological community.

Comments **Proposal is not likely to be at variance to this Principle**
There are no known Threatened Ecological Communities within 50km of the proposed area of clearing.

Methodology CALM - (2005) Land Clearing Proposal Advice (DoE Trim No. IN22256)

GIS databases:-
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 at variance to this Principle**
The State Government is committed to the National Objectives Targets for Biodiversity Conservation 2001-2005 (AGPS 2001) which includes a target that prevent clearance of ecological communities with an extent below 30% of that present pre-European (Department of Natural Resources and Environment 2002; EPA 2000).

The vegetation within the area under application are components of Beard Vegetation Associations - 468, 520, 555 of which there is approximately 100%, 91.9% and 94.6% of the pre-European extent remaining respectively (Shepherd et al. 2001, Hopkins et al 2001). These vegetation associations are, therefore, of least concern for biodiversity conservation (Department of Natural Resources and Environment 2002).

	Pre-European area (ha)	Current extent (ha)	Remaining %*	Conservation Status**	% in reserves/CALM-managed land
IBRA Bioregion - Coolgardie Shire - Coolgardie Beard vegetation associations	12,917,718	12,719,084	98.5	Least concern	
468	476,124	476,120	~100	Least concern	0.0
520	39,236	36,048	91.9	Least concern	0.0
555	64,316	60,849	94.6	Least concern	0.0

* Shepherd et al. (2001)

** Department of Natural Resources and Environment (2002)

Methodology EPA (2000)
Shepherd et al. (2001)
Hopkins et al. (2001)

GIS databases:
- Pre-European Vegetation - DA 01/01
- 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 not likely to be at variance to this Principle**
The area under application has minor drainage lines within it and the nearest lake is White Flag Lake approximately 14km away. Some salt pans and flood plains are approximately 4km away. The vegetation under application is not typical of that associated with watercourses or wetlands in the bioregion.

Methodology GIS databases: -

(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 Department of Agriculture of Western Australia (DAWA 2005) advises that the clearing is at variance to this principle given the large area under application, in addition to which the ironstone flats and broad salmon gum valley units are slightly prone to erosion if the vegetation or drainage are disturbed.

A desktop study indicates that there are 6 minor drainage channels mapped within the entire area under application. Erosion from disturbance of these channels is likely to be minimised by the low rainfall (250mm) and the high evaporation (2800mm). It is also noted that while the application is for 600ha, the proponent has indicated that 'it is unlikely that it will have to clear more than 100ha. There is probably only about 10% chance that more than 200ha will ever need to be cleared and probably less than a 1% chance that more than 400ha will ever need to be cleared' (TRIM ED520).

Furthermore, the proponent has supplied information on the management strategies that will minimise erosion risk, particularly in areas consisting of the ironstone flats and broad salmon gum valley units (TRIM ED519). These include:

1. Clearing in these environmentally sensitive areas will be kept to a minimum.
2. Consideration will be given to potential flow patterns in these areas
3. Roadworks will avoid these areas where practicable
4. Where roadworks are unavoidable the following methods will be adopted:
 - i) the deepest parts of floodways will be avoided where practicable
 - ii) low-lying sections will be elevated using waste rock and culverts and fords used in these areas
 - iii) hard rock armouring will be used on road surfaces and sides of elevated roads.
5. Waste dumps, infrastructure and other frequently used accessed areas will be situated to avoid having to access or travel over these areas
6. Where operations cannot avoid interfering with significant drainage patterns the drainage will be diverted with
 - i) bunding which will be rock armoured where required to reduce erosion; or ii) channels designed to prevent scouring as much as practicable by suitable alignment and rock armouring at potentially high erosion points.
7. Where open pits or other major surface excavations need to occur, abandonment bunds, required by the Department of Industry and Resources, will be designed to be both impervious and long lasting under flood conditions. This requirement is necessary for the safety of personnel and profitability as well as the environment. Abandonment bunds are required to be situated outside the likely potential failure zone of any pit wall. Where the bunds are situated in flow channels they will be designed to change the water flow direction in a gradual fashion to reduce erosional effects. Areas of potentially high erosion will be rock armoured.

Methodology DAWA (2005) DoE Trim No. IN22208

GIS databases: -
Isohyets - BOM 09/98_1
Evaporation Isoleths - BOM 09/98_1
Kalgoorlie 1.4m Orthomosaic - DLI 02

(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**
CALM (2005) advises that 'Clear and Muddy Lakes Nature Reserve, Kurrawang Nature Reserve, Kangaroo Hills Timber Reserve, Kangaroo Hills Timber Reserve and Karamindie State Forest are located within 50km of the proposed clearing.' The nearest, Rowles Lagoon Conservation and Nature Reserve, is approximately 25km from the area under application.

It is considered that the identified conservation areas are sufficiently distanced from the proposed clearing so that the clearing is not likely to have an impact on their environmental values.

Methodology CALM - (2005) Land Clearing Proposal Advice (DoE Trim No. IN22256)

GIS databases:-
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 area under application is not within a Public Drinking Water Source Area and the surface runoff in a normal rainfall season would be minimal as the annual average rainfall is 250mm and the average annual

evaporation is 2600mm.

Methodology GIS database: -
PDWSA Protection Zones - DOE 7/1/04
Isohyets - BOM 09/98
Evaporation Isoleths - BOM 09/98

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

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

While the application is for 600ha, the proponent has indicated that 'it is unlikely that it will have to clear more than 100ha. There is probably only about 10% chance that more than 200ha will ever need to be cleared and probably less that a 1% chance that more than 400ha will ever need to be cleared' (TRIM ED520).

Given the above, the clearing of native vegetation as proposed is unlikely to increase peak flood height or duration as the area drains toward the north east, south west and south east into broad areas of plains and salt pans which then drain towards White Flag Lake. This provides a very large drainage area for relatively small amount of runoff.

Methodology GIS databases: -
Evaporation Isoleths - BOM 09/98

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

Comments

Three Native Claims extend over 5 tenements that were in the original application and are still pending. These tenements have been withdrawn from the application and prospecting licences granted over some of these areas. The permit will only allow prospecting in these areas.

Information received from proponent (TRIM EI2175) listing live mining tenements and current prospecting licences now subject to application L16/15, G16/10, L16/16, L16/20, L16/21, L16/46, M16/15, M16/17, M16/24, M16/36, M16/40, M16/52, M16/99, M16/139, M16/140, M16/152, M16/178, M16/189, M16/195, M16/198, M16/200, M16/306, M16/335, M16/451, M16/217, P16/1255, P16/1254, P16/1327, P16/1367, P16/1397, P16/2255, P16/2259, P16/2262, P16/2263. All areas are within the area applied for in the original application. The number of hectares under the application is still 600ha from within a total area of 1253ha.

Methodology

4. Assessor's recommendations

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
Mining	Mechanical Removal	600	Grant	<p>All assessable criteria have been addressed and the clearing as proposed is not and not likely to be at variance to all Principles.</p> <p>This application is for almost 50% on the tenement area of 1253ha. However, the proponent has indicated that of the 600ha applied for, 'it is unlikely that it will have to clear more than 100ha. There is probably only about 10% chance that more than 200ha will ever need to be cleared and probably less that a 1% chance that more than 400ha will ever need to be cleared' (TRIM ED520).</p> <p>The proponent has also provided management strategies that address the possibility of erosion in particular environments (see Principle g).</p> <p>Given the above the assessing officer recommends that a permit be granted subject to conditions and advice.</p> <p>The permit shall be granted for mining within the following tenements: L16/15, G16/10, L16/16, L16/20, L16/21, L16/46, M16/15, M16/17, M16/24, M16/36, M16/40, M16/52, M16/99, M16/139, M16/140, M16/152, M16/178, M16/189, M16/195, M16/198, M16/200, M16/306, M16/335, M16/451, M16/217 And for prospecting only within the following tenements P16/1255, P16/1254, P16/1327, P16/1367, P16/1397, P16/2255, P16/2259, P16/2262, P16/2263.</p> <p>Conditions:</p> <ol style="list-style-type: none">The Permit Holder shall record the following for each instance of clearing:<ol style="list-style-type: none">location where clearing occurred;purpose;area cleared in hectares; andarea rehabilitated in hectares.The Permit Holder shall provide a report to the CEO by 1 February each year setting out the records required under condition 1 of this permit in relation to clearing

carried out between 1 January and 31 December of the previous year.

Advice:

1. The proponent shall avoid disturbing mature trees with hollows and related understorey wherever possible. Where removal of these trees is unavoidable, these trees should be used in rehabilitated areas as potential fauna habitat.
2. Management strategies as outlined against Principle g are adhered to. In particular:
 - a) ironstone flats and broad salmon gum valley units are avoided where practicable
 - b) for roadworks that are unavoidable in areas of potential erosion, waste rock shall be used to elevated low-lying road sections, culverts and/or fords shall be used to prevent damming, and hard rock armouring shall be used on road surfaces and sides of any elevated roads to reduce the potential of scouring and channelling.
3. In areas where operations impinge on drainage patterns, drainage will be diverted by
 - a) Installing rock-armoured bunding where required
 - b) Installing rock-armoured suitably-aligned channels at potentially high erosion points.

5. References

- CALM (2005) Land clearing proposal advice. Advice to A/Director General, Department of Environment (DoE). Department of Conservation and Land Management, Western Australia. DoE TRIM ref IN22256.
- DAWA (2005) Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture Western Australia. DoE TRIM ref IN22208
- 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.
- 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.
- Jims Seeds, Weeds and Trees (2004) Flora Survey for Cazaly Resources of the Kunanalling Project. TRIM Ref. IN20036
- Keighery, BJ (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Keith Lindbeck and Associates (2004) Documentation accompanying application for clearing permit (purpose permit), TRIM Ref. IN20036
- 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)