



1. Application details

1.1. Permit application details

Permit application No.: 309/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Troy Resources

1.3. Property details

Property: M57/529
M57/530

Local Government Area: Shire Of Sandstone
Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
1000		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
Beard Vegetation Association 18: Low woodland; mulga (Acacia aneura) and	Acacia aneura woodland is dominant over tall shrubs of Eremophila fraseri, E. margarethe and Ptilotus obovatus with grasses including Aristada contorta,	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	Area has been affected by pastoral practices, goat grazing and mine exploration (pers. comm Jim of Jims Seeds, Weeds & Trees Pty Ltd). No Declared or Priority flora located during a survey of the area under application. (Jims Seeds, Weeds & Trees Pty Ltd September 2004). Five species of weed in the area including Ruby dock (Rumex vesicarius) which can be invasive.
Beard Vegetation Association 2121: Mosaic: Open low woodland; mulga / Succulent steppe; saltbush & bluebush on greenstone (Hopkins et al. 2001, Shepherd et al. 2001)	Eragrostis eriopoda and Monochather paradoxa. Broad valleys of Acacia aneura are interspersed with broad drainage channels (Jims Seeds, Weeds & Trees Pty Ltd September 2004)		

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 may be at variance to this Principle**
The area under application has been affected by pastoral practices, goat grazing and mine exploration (pers. comm Jim of Jims Seeds, Weeds & Trees Pty Ltd). Nevertheless, given the large area under application and land use it is likely that there may be some areas that have higher levels of biodiversity than others.

Methodology GIS database: Western Australia ETM 25m 321 - GA 99
Jims Seeds, Weeds & Trees Pty Ltd (October 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**
Based on CALM's Threatened and Priority Fauna Database, species known to occur in the local area (50 km radius) include Mallee fowl *Leipoa ocellata* (Threatened)

Methodology CALM (2004)

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

Comments Proposal may be at variance to this Principle

Based on CALM's Threatened Flora Data Management System, species known to occur in the local area (50 km radius) include:

- P1 Pityrodia canaliculata A.S.George
- P1 Stenanthemum mediale Rye
- P1 Labichea eremaea C.A.Gardner
- P4 Grevillea inconspicua Diels.

Based on CALM's Herbarium Specimen Collection Database (WAHerb), species known to occur in the local area (50 km radius) include:

- P1 Aluta teres
- P1 Baeckea sp.Sandstone
- P1 Labichea eremaea
- P1 Pityrodia canaliculata
- P1 Stenanthemum mediale
- P3 Euryomyrtus patrickiae Trudgen
- P3 Baeckea sp.London Bridge
- P4 Grevillea inconspicua

A flora survey at the right time would identify species that may be directly affected by the clearing as proposed.

Methodology CALM (2004)

(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 may be at variance to this Principle

3x TEC 'Depot Springs Stygofauna' communities are recorded 55km to the east. These TEC are not listed with the Department of Environment and Heritage. CALM recommends that the proponent implement safeguards to preserve groundwater quality.

Methodology CALM (2004)

(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

	Pre-European area (ha)	Current extent (ha)	Remaining %*	Conservation status**	%in reserves/CALM-managed land
IBRA Bioregion	Murchison	unavailable			
Shire	Sandstone	Unavailable			
Beard vegetation association:					
18	24,675,970	24,659,110	99.9	Least concern	2.8
2121	141,528	141,528	100	Least concern	0.0

* (Shepherd et al. 2001)

** (Department of Natural Resources and Environment 2002)

Methodology Hopkins et al. (2001)
 Shepherd et al. (2001)
 GIS databases:
 - Pre-European Vegetation - DA 01/01.
 - 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 may be at variance to this Principle

Methodology GIS Databases:
 - Hydrography, linear - DOE 01/02/04.
 - Topographic Contours, Statewide - DOLA 12/09/02.
 - Isohyets - BOM 09/989.
 - Evaporation Isopleths - BOM 09/98.

(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

Gradients within the area subject to application range from 0.3% to 2.3%. The north-western part of the proposal has an elevation of 480m AHD with natural drainage towards the south east with an approximate elevation of 450m AHD. The higher gradients in the north-west may be at risk of soil erosion, particularly during large rainfall events, however this can be alleviated with adequate surface water management strategies.

Methodology GIS Database:

- Hydrography, linear - DOE 01/02/04.
- Topographic Contours, Statewide - DOLA 12/09/02.

(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

Ex Stations 'Black Range' and 'Lake Mason' are within 50km of the area under application

Methodology CALM (2004)

(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

With a low annual average rainfall of between 200-250 mm per annum and high evaporation rates of between 3,400-3,600 mm per annum there is likely to be little surface flow during seasonal rain. Significant surface water flows would be expected during major rainfall events. The native vegetation in the area has been extensively grazed and occurs at low density rates as a result of low rainfall and high evaporation rates. Major flows are unlikely to affect surface water quality, particularly if the mine site has adequate surface water controls.

Regional groundwater tables have a salinity of between 1,000 mg/l and 3,000 mg/l which is considered to be brackish. Clearing native vegetation is unlikely to have an adverse effect on the quality of groundwater in this area due to the magnitude of the regional groundwater basin and the extent of the bioregion that is vegetated (approx 100%). Recharge to the groundwater table would be minimal with the exception of major rainfall events because of low seasonal rainfall and high evaporation rates.

Methodology GIS Database:

- Isohyets - BOM 09/98.
- Evaporation Isopleths - BOM 09/98.
- Groundwater Salinity, Statewide - 22/02/00.
- Interim Biogeographic Regionalisation of Australia - EA 18/10/00.
- 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 of flooding.

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

Due to high evaporation rates and low annual rainfall it is unlikely that flooding would occur in this area as a result of seasonal rain. The broad valleys floors and lakes of the area have the capability to hold significant volumes of surface water. Clearing of the subject land is unlikely to impact upon the magnitude of flooding in this area during a major flooding event.

Methodology GIS Database:

- Isohyets - BOM 09/98.
- Evaporation Isopleths - BOM 09/98.
- Topographic Contours, Statewide - DOLA 12/09/02.
- Hydrography, linear - DOE 01/02/04.

Planning instrument or other matter.

Comments No comment

Methodology

4. Assessor's recommendations

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
Mining	Mechanical Removal	1000	Grant	Troy Resources originally applied for 1000ha to be cleared. Following consultation, they revised the application to 470 ha. Assessable criteria have been addressed and the assessing officer recommends that the permit to clear 470 ha should be granted. Given the large area, and based on the

limited knowledge of the area, the clearing may be at variance with Principles a, b, c, d, f and g.

In granting the permit, the Department provides the following advice:

- 1) all sites affected by mining should be returned to a stable, non-erodible, and safe condition.
- 2) all sites should be restored to biologically sustainable ecosystems requiring minimum long term management.
- 3) rehabilitation should commence as soon as possible.
- 4) all topsoil of insignificant auriferous grade should be removed from the areas affected by mining and stored on temporary dumps.
- 5) stockpiled topsoil should be re-spread over disturbed areas at the completion of mining.
- 6) the area should then be contoured, ripped and revegetated with species native to the area or appropriate to the prevailing conditions.
- 7) rehabilitation progress should be monitored annually to determine revegetation success and remedial work undertaken as required.

5. References

- CALM (2004) Land clearing proposal advice. Advice to A/Director General, Department of Environment (DoE). Department of Conservation and Land Management, Western Australia. DoE TRIM ref HD19207.
- 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.
- 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.