



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 6367/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: HBJ Minerals Pty Ltd

1.3. Property details

Property: Mining Lease 25/104
Local Government Area: City of Kalgoorlie-Boulder
Colloquial name: South Kalgoorlie Operations

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
250		Mechanical removal	Mineral exploration, mineral production and associated infrastructure

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 18 December 2014

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
<p>The clearing permit application area has been broadly mapped as Beard vegetation association: 506: Succulent steppe with woodland; salmon gum and bluebush.</p> <p>A flora and vegetation survey conducted by GHD (GHD, 2014) over the application area identified the following four vegetation types:</p> <p>Casuarina pauper woodland (CpW)</p> <p><i>Casuarina pauper</i> low woodland with isolated trees <i>Eucalyptus griffithsii</i> over <i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>, <i>Santalum spicatum</i> tall sparse shrubland over <i>Maireana sedifolia</i>, <i>Dodonaea lobulata</i> mid shrubland over <i>Atriplex holocarpa</i>, <i>Ptilotus obovatus</i>, <i>Olearia muelleri</i> low open shrubland over <i>Enneapogon avenaceus</i>, <i>Austrostipa nitida</i>, <i>Eragrostis sedifolia</i> isolated grasses over <i>Zygophyllum aurantiacum</i> sparse herbland.</p> <p>Maireana sedifolia shrubland (MsS)</p> <p><i>Eucalyptus salmonophloia</i> mid isolated trees over <i>Casuarina pauper</i> low isolated trees over <i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i>, <i>Acacia acuminata</i> tall isolated shrubs over <i>Maireana sedifolia</i>, <i>Lycium australe</i>, <i>Ptilotus obovatus</i> low shrubland over <i>Monachather paradoxus</i>, <i>Austrostipa nitida</i>, <i>Eragrostis</i> sp. isolated grasses.</p> <p>Acacia acuminata shrubland (AaS2)</p> <p><i>Acacia acuminata</i>, <i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i> tall to mid shrubland over <i>Acacia acuminata</i>, <i>Ptilotus obovatus</i>, <i>Dodonaea lobulata</i> low open shrubland over <i>Aristida</i> sp. open grassland.</p>	<p>South Kalgoorlie Operations. HBJ Minerals Pty Ltd proposes to clear up to 250 hectares of native vegetation within a total boundary of approximately 875 hectares, for the purpose of mineral exploration, mineral production and associated infrastructure. The project is located approximately 56 kilometres east-southeast of Kalgoorlie, in the city of Kalgoorlie-Boulder.</p>	<p>Completely Degraded: No longer intact; completely/almost completely without native species (Keighery, 1994).</p> <p>to</p> <p>Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).</p>	<p>Vegetation condition derived from a flora and vegetation survey conducted by GHD (2014).</p>

***Eucalyptus oleosa* subsp. *oleosa*, *E. Griffithsii* woodland (EoEgW)**

Eucalyptus oleosa subsp. *oleosa*, *E. griffithsii* mid woodland over *Santalum spicatum*, *Pittosporum angustifolium* low isolated trees over *Acacia acuminata*, *Eremophila oldfieldii* subsp. *angustifolia* tall isolated shrubs over *Maireana sedifolia*, *M. triptera*, *Atriplex nummularia* subsp. *spathulata* low shrubland over *Enneapogon avenaceus* isolated grasses over *Zygophyllum aurantiacum*, *Ptilotus nobilis* sparse hermland.

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 application area is located within the Eastern Goldfields sub-region of the Coolgardie Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). The Eastern Goldfields subregion is dominated by Mallees, *Acacia* thickets and shrubheaths on sandplains. Diverse *Eucalyptus* woodlands occur around salt lakes, on ranges, and in valleys and dwarf shrublands of samphire are common in salt areas (Kendrick and Stanley, 2003).

A flora and vegetation survey was conducted by GHD over the application area in September 2014 (GHD, 2014). A total of 81 flora taxa (including subspecies and varieties) representing 26 families and 54 genera were recorded from the application area during the flora and vegetation survey (GHD, 2014).

No Threatened Ecological Communities, Priority Ecological Communities, Threatened flora species, Priority flora or vegetation associations of restricted distribution were recorded within the application area during the flora and vegetation field survey (GHD, 2014).

Eight introduced flora taxa were recorded within the application area during the flora and vegetation field survey (GHD, 2014). These taxa were largely recorded in the vicinity of the old dam in the central part of the application area (GHD, 2014). All taxa were considered environmental weeds, with the exception of *Echium plantagineum* (Paterson's Curse) which is listed as a Declared pest under the *Biosecurity and Management Act 2007* (GHD, 2014). However, potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

A fauna habitat assessment and field survey were conducted by GHD over the application area in September 2014. A total of 30 fauna species were recorded within the application area during the field survey. This total consisted of 20 birds, 3 reptiles and 7 mammals (GHD, 2014). No conservation significant fauna species were recorded within the application area during the fauna field survey (GHD, 2014).

The vegetation associations and fauna habitats identified during the survey are likely to extend outside the application area and are well represented within the region (GHD, 2014; GIS Database).

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

GHD (2014)
Kendrick and Stanley (2003)
GIS Database:
- IBRA WA (Regions - Sub Regions)
- Pre-European Vegetation
- Threatened and Priority Flora
- Threatened Ecological Sites Buffered

(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

A fauna habitat assessment and field survey were conducted by GHD over the application area in September 2014. A total of four native fauna habitat types and one modified habitat type were recorded within the application area during the field survey. The habitat types include:

- *Eucalyptus* woodland on plains, gentle rises and low hills
- *Casuarina* woodland
- *Acacia* shrubland
- Chenopod shrubland
- Highly modified areas.

None of these broad fauna habitats are considered to be restricted to the application area (GHD, 2014; GIS Database).

No conservation significant fauna species were recorded from the application area during the fauna field survey (GHD, 2014). Two conservation significant fauna (Malleefowl – *Leipoa ocellata* and the Rainbow Bee-eater – *Merops ornatus*) species were considered to have the potential to occur in the application area (GHD, 2014).

The Malleefowl typically prefers denser mallee habitat, and it is likely that nesting habitat would be limited to these areas, where the shrub layers are denser and provide shelter and refuge habitat for the species (GHD, 2014). It is considered unlikely that the habitats within the application area would support the Malleefowl, given that the Acacia shrubland habitat present is relatively sparse and adjacent to historical mining activity (GHD, 2014).

It is likely that the Rainbow Bee-eater is an occasional seasonal migrant to the application area (GHD, 2014). The Eucalyptus woodlands within the application area would provide the most suitable habitat for the Rainbow Bee-eater, however, given its wide-ranging nature, the species could utilise all of the natural habitat types present (GHD, 2014). It is unlikely however that any individual or population of Rainbow Bee-eaters would exclusively rely on the application area for all habitat resource requirements (GHD, 2014).

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology GHD (2014)
GIS Database:
- Pre-European Vegetation
- Threatened and Priority Fauna
- Threatened Ecological Sites Buffered

(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 no records of Threatened Flora within the application area (GIS Database).

The flora and vegetation survey conducted by GHD over the application area did not record any species of Threatened Flora (GHD, 2014).

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology GHD (2014)
GIS Database:
- Threatened and Priority Flora

(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 Threatened Ecological Communities within the application area (GIS Database).

The flora and vegetation survey conducted by GHD over the application area did not record any Threatened Ecological Communities (GHD, 2014).

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology GHD (2014)
GIS Database:
- Threatened Ecological Sites Buffered

(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 application area falls within the Coolgardie Biogeographic Regionalisation of Australia (IBRA) bioregion in which approximately 98% of the Pre-European vegetation remains (see table) (GIS Database, Government of Western Australia, 2013).

The vegetation of the application area has been mapped as the following Beard vegetation association (GIS Database):

506: Succulent steppe with woodland; salmon gum and bluebush.

Approximately 99% of Beard vegetation association 506 remains at both state and bioregional level (Government of Western Australia, 2013). Therefore, the area proposed to be cleared does not represent a significant remnant of native vegetation within an area that has been extensively cleared.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in DPaW Managed Lands
IBRA Bioregion - Coolgardie	12,912,204	12,648,491	~98	Least Concern	16.4
Beard vegetation associations - State					
506	98,187	98,050	~99	Least Concern	13.2
Beard vegetation associations - Bioregion					
506	98,187	98,050	~99	Least Concern	13.2

* Government of Western Australia (2013)

** Department of Natural Resources and Environment (2002)

Based on the above, the proposed clearing is not at variance to this Principle.

Methodology Department of Natural Resources and Environment (2002)
Government of Western Australia (2013)
GIS Database:
- IBRA WA (Regions - Sub Regions)
- Pre-European Vegetation

(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

There are no permanent water bodies or watercourses within or in close proximity to the application area (GIS Database).

No vegetation associated with a watercourse or wetland was recorded within the application area during the flora and vegetation field survey (GHD, 2014).

There are two minor non-perennial drainage lines that run through the application area however these drainage lines are likely to be dry most of the year (GHD, 2014). Therefore, it is not expected the proposed clearing will have a detrimental effect on these drainage lines (GHD, 2014; GIS Database).

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology GHD (2014)
GIS Database
- Hydrography, linear

(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

Land system information available from nearby areas indicates that the broader area has varying susceptibility to erosion, particularly within drainage areas (GIS Database). Any clearing of native vegetation within the application area has the potential to cause soil and wind erosion (GHD, 2014). However, potential land degradation is likely to be minimised and managed through mitigation measures including revegetation of temporarily disturbed areas and the implementation of drains and bunds where necessary (GHD, 2014).

The soil type within the application area is described as extensive sandy plains: chief soils are red earthy sands with extensive areas of red earths and with some hard red soils along creek lines (GIS Database).

The potential impacts from land degradation as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition.

Based on the above, the proposed clearing may be at variance to this Principle.

Methodology GHD, (2014)
GIS Database:
- Pre-European Vegetation
- Rangeland Land System Mapping
- Soils, Statewide

(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

The application area does not lie within any conservation areas (GIS Database). The nearest conservation area is Kambalda Nature Reserve, located approximately 49 kilometres south west of the application area. Given the distance between the application area and the Nature Reserve, the proposed clearing is not likely to impact the environmental values of any conservation area.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology GIS Database:
- DEC Tenure

(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 application area is not located within a Public Drinking Water Source Area (PDWSA) and there are no permanent water bodies or watercourses within the application area (GIS Database)

There are two minor non-perennial drainage lines that run through the application area (GIS Database). The surface flows of these drainage lines are likely to be dry most of the year (GHD, 2014). Therefore, it is not expected the proposed clearing will have a detrimental effect on water quality of these drainage lines (GHD, 2014; GIS Database).

Groundwater salinity within the application area is between 14,000 and 35,000 milligrams/Litre Total Dissolved Solids (TDS) (GIS Database). The proposed clearing is not likely to cause deterioration in the quality of groundwater.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology GHD (2014)
GIS Database:
- Groundwater Salinity, Statewide
- Hydrography, linear
- Public Drinking Water Source Areas (PDWSAs)

(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 climate of the Goldfields region is mostly hot and dry, with highly variable rainfall throughout the year (BoM, 2014). Kalgoorlie has a semi-arid climate with hot summers and mild winters, and an average rainfall of 267 mm relatively evenly distributed throughout the year. Rainfall can however be highly erratic year to year (BoM, 2014).

There are no permanent water bodies or watercourses within or in close proximity to the application area (GIS Database). There are two minor non-perennial drainage lines that run through the application area however these drainage lines are likely to be dry most of the year (GHD, 2014; GIS Database).

The application area is characterised by predominantly flat to gently undulating plains with loamy clay soils and a low rise in the northern part of the application area (GHD, 2014). Localised flooding may occur following significant rainfall events however the proposed clearing within the application area is unlikely to cause or

exacerbate the incidence of flooding or localised waterlogging (GHD, 2014).

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology BoM (2014)
GHD (2014)
GIS Database:
- Hydrography, linear
- Hydrographic, catchments

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

Comments

The clearing permit application was advertised on 24 November 2014 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received in relation to the application.

There are no Native Title Claims over the area under application (GIS Database). However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no registered Aboriginal Sites of Significance within the application area (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal sites of significance are damaged through the clearing process.

It is the proponent's responsibility to liaise with the Department of Environment Regulation, the Department of Water, and the Department of Parks and Wildlife, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

Methodology GIS Database:
- Aboriginal Sites of Significance
- Native Title Claims - Determined by the Federal Court
- Native Title Claims - Filed at the Federal Court
- Native Title Claims - Registered with the NNTT

4. References

- BoM (2014). Bureau of Meteorology (WWW Document). Retrieved from <http://www.bom.gov.au>
- 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.
- GHD (2014) Metals X Penfolds and M25_104 Tenements Flora and Fauna Assessment. Report prepared by GHD for Metals X Pty Ltd, Western Australia.
- Government of Western Australia (2013) 2012 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of October 2012. WA Department of Environment and Conservation, Perth.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Kendrick, P. and Stanley F. (2003). Pilbara 4 (PIL4 - Roebourne synopsis). A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Department of Conservation and Land Management, Western Australia.
- Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth.

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia (now DPaW and DER)
DER	Department of Environment Regulation, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
DRF	Declared Rare Flora
DotE	Department of the Environment, Australian Government
DoW	Department of Water, Western Australia
DPaW	Department of Parks and Wildlife, Western Australia
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (now DotE)
EPA	Environmental Protection Authority, Western Australia
EP Act	<i>Environmental Protection Act 1986</i> , Western Australia

EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources
PEC	Priority Ecological Community, Western Australia
RIWI Act	<i>Rights in Water and Irrigation Act 1914</i> , Western Australia
s.17	Section 17 of the <i>Environment Protection Act 1986</i> , Western Australia
TEC	Threatened Ecological Community

Definitions:

{DPaW (2013) Conservation Codes for Western Australian Flora and Fauna. Department of Parks and Wildlife, Western Australia}:-

- T** **Threatened species:**
 Specially protected under the *Wildlife Conservation Act 1950*, listed under Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna or the Wildlife Conservation (Rare Flora) Notice for Threatened Flora (which may also be referred to as Declared Rare Flora).
 Threatened Fauna and Flora are further recognised by DPaW according to their level of threat using IUCN Red List criteria. For example Carnaby's Cockatoo *Calyptorhynchus latirostris* is specially protected under the *Wildlife Conservation Act 1950* as a threatened species with a ranking of Endangered.
Rankings:
 CR: Critically Endangered - considered to be facing an extremely high risk of extinction in the wild.
 EN: Endangered - considered to be facing a very high risk of extinction in the wild.
 VU: Vulnerable - considered to be facing a high risk of extinction in the wild.
- X** **Presumed Extinct species:**
 Specially protected under the *Wildlife Conservation Act 1950*, listed under Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice for Presumed Extinct Fauna and Wildlife Conservation (Rare Flora) Notice for Presumed Extinct Flora (which may also be referred to as Declared Rare Flora).
- IA** **Migratory birds protected under an international agreement:**
 Specially protected under the *Wildlife Conservation Act 1950*, listed under Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice.
 Birds that are subject to an agreement between governments of Australia and Japan, China and The Republic of Korea relating to the protection of migratory birds and birds in danger of extinction.
- S** **Other specially protected fauna:**
 Specially protected under the *Wildlife Conservation Act 1950*, listed under Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice.
- P1** **Priority One - Poorly-known species:**
 Species that are known from one or a few collections or sight records (generally less than five), all on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, Shire, rail reserves and Main Roads WA road, gravel and soil reserves, and active mineral leases and under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes.
- P2** **Priority Two - Poorly-known species:**
 Species that are known from one or a few collections or sight records, some of which are on lands not under imminent threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, unallocated Crown land, water reserves, etc. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes.
- P3** **Priority Three - Poorly-known species:**
 Species that are known from collections or sight records from several localities not under imminent threat, or from few but widespread localities with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and known threatening processes exist that could affect them.
- P4** **Priority Four - Rare, Near Threatened and other species in need of monitoring:**
 -Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.
 -Near Threatened. Species that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.
 -Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.
- P5** **Priority Five - Conservation Dependent species:**
 Species that are not threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.