



# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 6589/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Kalamazoo Resources Pty Ltd

### 1.3. Property details

Property: Mining Lease 08/507  
Miscellaneous Licence 08/144  
Local Government Area: Shire of Ashburton  
Colloquial name: Mt Minnie Sand Project

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
38.1		Mechanical Removal	Sand Quarry, Haul Road & Associated Infrastructure

### 1.5. Decision on application

Decision on Permit Application: Grant  
Decision Date: 2 July 2015

## 2. Site Information

### 2.1. Existing environment and information

#### 2.1.1. Description of the native vegetation under application

##### Vegetation Description

The clearing permit application area has been broadly mapped as Beard vegetation associations:

**605:** Hummock grasslands, shrub steppe; *Acacia pachycarpa* & waterwood over soft spinifex

**606:** Hummock grasslands, shrub steppe; *Acacia victoriae* & snakewood over soft spinifex

**641:** Medium woodland; coolabah & river gum

A flora and vegetation survey conducted by MMWC Environmental (MMWC, 2014) over the application area identified the following five vegetation types:

**EcrMgAtTe:** Low open woodland of *Eucalyptus camaldulensis* subsp. *refulgens* over high open shrubland of *Melaleuca glomerata* and *Acacia trachycarpa* over very open hummock grassland of *Triodia epactia*.

**ChAtTe:** Scattered low trees of *Corymbia hamersleyana* over open shrubland of *Acacia trachycarpa* over very open hummock grassland of *Triodia epactia*.

**EvChAtTe:** Low open woodland of *Eucalyptus victrix* and *Corymbia hamersleyana* over scattered shrubs of *Acacia trachycarpa* over open hummock grassland of *Triodia epactia*.

**AxTPeTw:** Open shrubland of *Acacia xiphophylla* over open hummock grassland of *Triodia* sp. *Peedamulla* (A.A. Mitchell PRP 1636) and *Triodia wiseana*.

**AaTPe:** Scattered low shrubs of *Acacia ancistrocarpa* over open hummock grassland of *Triodia* sp. *Peedamulla* (A.A. Mitchell PRP 1636).

##### Clearing Description

Mt Minnie Sand Project

Kalamazoo Resources Pty Ltd proposes to clear up to 38.1 hectares of native vegetation within a total boundary of approximately 38.1 hectares, for the purpose of sand extraction, a haul road and associated infrastructure. The project is located approximately 42 kilometres south east of Onslow, in the Shire of Ashburton.

##### Vegetation Condition

Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994);

to

Very Good: Vegetation structure altered with obvious signs of disturbance (Keighery, 1994).

#### Comment

Vegetation condition was determined by MMWC (2014) using the Keighery scale.

The application area consists of a haul road corridor approximately 8.9 kilometres in length and an area of approximately 204 hectares for sand mining within and adjacent to the Cane River.

### 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 Roebourne subregion of the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). The Roebourne subregion is characterised by coastal and sub-coastal alluvial and older colluvial plains with a grass savannah of mixed bunch and hummock grasses, and dwarf shrub steppe of *Acacia stellaticeps* or *A. pyrifolia* and *A. inaequilatera* (GIS Database).

A flora and vegetation survey was conducted by MMWC Environmental over the application area in 2014 (MMWC, 2014). A total of 60 flora taxa (including subspecies and varieties) representing 18 families and 38 genera were recorded from the application area during the flora and vegetation survey (MMWC, 2014).

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

A total of four introduced flora species were recorded within the application area during the flora and vegetation survey (MMWC, 2014). These included *Cenchrus ciliaris* (Buffel Grass), *Chloris barbata* (Purpletop Chloris), *Malvastrum americanum* (Spiked Malvastrum) and *Vachellia farnesiana* (Mimosa Bush). None of these introduced flora species are Declared Pests or listed as Weeds of National Significance (MMWC, 2014). Potential impacts on biological diversity from weeds may be minimised by the implementation of a weed management condition.

A fauna assessment was conducted by MMWC (2014) over the application area in 2014. No significant fauna habitats were recorded within the application area however one conservation significant fauna species (Rainbow Bee-eater) was recorded within the application area during the survey. This species is not expected to be restricted to the application area or rely exclusively on fauna habitats present within the application area.

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

##### Methodology MMWC (2014)

GIS Database:

- IBRA WA (Regions - Sub Regions)
- 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 survey was conducted by MMWC (2014) over the application area in 2014. The following five fauna habitats were recorded within the application area during the fauna survey:

##### **Drainage**

The Drainage habitat is identified by having an open stream bed with sandy/stony soils and large Eucalyptus species growing along the margins and scattered through the stream bed. In the application area the Drainage habitat has a high habitat value due to it providing the greatest diversity of micro habitats, with tree hollows, logs, leaf litter and ephemeral water holes all being present. This habitat type represented the river bed.

##### **Floodplain**

The Floodplain habitat is identified by its soft alluvial soils and its location adjacent to stream beds and drainage lines. During large rain events it is likely to be inundated with water, which can bring woody debris from surrounding habitats. The Floodplain habitat has a moderate habitat value due to it providing soils suitable for burrowing animals, tree hollows, leaf litter and woody debris. This habitat type represented the river bank.

##### **Alluvial Plain**

The Alluvial Plain and Sandplain habitat types are identified by their soils and vegetation. They have harder soils to the Floodplain and lack the woody debris, leaf litter and logs. In the Pilbara they are often associated with *Triodia* grasses, with few large trees and shrubs present. The Sandplain and Alluvial Plain habitats can be distinguished from each other by the Sandplain habitat having softer soils more suited to burrowing animals. Both the Alluvial Plain and Sandplain have a low habitat value due to their low diversity of microhabitat and high level of disturbance. This habitat type represented the haul road.

### Claypan

The Claypan habitat type is characterised by hard clay based soils with isolated stands of Snakewood shrubs (*Acacia xiphophylla*) providing ground cover and leaf litter. The Claypan habitat has a low habitat value due to its low diversity of microhabitats, as well as a low diversity in vegetation type. This habitat type represented the haul road.

No significant fauna habitats were recorded within the application area and the fauna habitats within the application area are well represented elsewhere in the local area (GIS Database; MMWC, 2014).

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

**Methodology** MMWC (2014)  
GIS Database:  
- Pre-European Vegetation

### (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 MMWC over the application area did not record any species of Threatened Flora (MMWC, 2014).

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

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

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

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

**Methodology** MMWC (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 Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion in which approximately 99% 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 associations (GIS Database):

**605:** Hummock grasslands, shrub steppe; *Acacia pachycarpa* & waterwood over soft spinifex

**606:** Hummock grasslands, shrub steppe; *Acacia victoriae* & snakewood over soft spinifex

**641:** Medium woodland; coolabah & river gum

Approximately 100% of Beard vegetation associations 605, 606 and 641 remain at state 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 - Pilbara	17,808,657.06	17,733,583.95	~99.58	Least Concern	8.41
Beard vegetation associations - State					
605	114,115.85	114,115.85	~100	Least Concern	0.36
606	32,177.32	32,177.32	~100	Least Concern	0
641	29,027.63	29,027.63	~100	Least Concern	3.80
Beard vegetation associations - Bioregion					
605	114,115.85	114,115.85	~100	Least Concern	0.36
606	32,103.70	32,103.70	~100	Least Concern	0
641	18,327.78	18,327.73	~100	Least Concern	6.02

\* 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 at variance to this Principle**

The Cane River extends through part of the application area (GIS Database). The river bed is proposed to be impacted as sand is to be excavated from the river bed (MMWC, 2014). The proposed area of disturbance within the river bed is 22.86 hectares however the primary sand extraction zones within the river bed will be the large existing open areas (MMWC, 2014).

The applicant has committed to the following management measures relating to vegetation within the river bed:

- Areas of deep rooted vegetation will be avoided where possible during clearing, to retain basic flow dynamics;
- Clearing activities will be limited to only the areas necessary and, where possible, existing areas of disturbance will be used;
- Habitat trees will be marked prior to clearing with a view of retaining the trees where possible;
- Retention of large habitat trees within the proposed clearing area, where possible; and
- Erosion control measures will be put in place, including limiting the amount of vegetation removed from the banks of the river.

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

**Methodology** MMWC (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**

The application area occurs across two land systems: Uaroo and Cane (GIS Database). The Uaroo land system has records of slight erosion over 1% of the land system (MMWC, 2014). The Cane land system has records of erosion ranging from slight to extreme over 55% of the land system (MMWC, 2014).

The applicant has committed to implementing erosion control measures, including limiting the amount of vegetation removed from the banks of the river (MMWC, 2014).

It is anticipated that sand removed from the river bed during the mining process will be replaced naturally during flood water movements downstream. The potential impacts of erosion on the river bank cause by the clearing of vegetation will be minimised but having a single access point for machinery entering and leaving the river bed (MMWC, 2014).

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

**Methodology** MMWC (2014)  
GIS Database:  
- 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 the Cane River Conservation Reserve which lies approximately 5 kilometres south west of the application area (GIS Database). Given the distance between the application area and the conservation reserve, the proposed clearing is not likely to impact the environmental values of the conservation area.

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

**Methodology** GIS Database:  
- DPaW 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) (GIS Database).

The Cane River extends through part of the application area (GIS Database). The river bed is proposed to be impacted as sand is to be excavated from the river bed (MMWC, 2014). The river bed will be mined during the dry season therefore the surface water quality of the river bed is unlikely to be affected (MMWC, 2014).

Groundwater salinity within the application area is between 500 and 1,000 milligrams/Litre Total Dissolved Solids (TDS) which is considered to be relatively fresh to brackish (GIS Database). The proposed clearing is not likely to cause groundwater or surface water quality within the application area to alter significantly.

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

**Methodology** MMWC (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 may be at variance to this Principle**  
The Pilbara has an arid-tropical climate with two distinct seasons, a hot and wet summer from October to April and a mild winter from May to September (BoM, 2015).

The Cane River extends through part of the application area (GIS Database). The river bed is proposed to be impacted as sand is to be excavated from the river bed (MMWC, 2014). The river bed will be mined during the dry season therefore the proposed clearing within the application area is unlikely to cause or exacerbate the incidence of flooding or localised waterlogging.

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

**Methodology** BoM (2015)  
MMWC (2014)

GIS Database:  
- Hydrography, linear

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

### Comments

There are no Native Title Claims over the application area (GIS Database).

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.

The clearing permit application was advertised on 8 June 2015 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received in relation to the application.

### 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

- MMWC (2014) Mt Minnie Sand Project: Flora, Vegetation and Fauna Assessment, May 2014. Report prepared by MMWC Environmental Pty Ltd for Kalamazoo Resources Pty Ltd, Western Australia.
- BoM (2015) Bureau of Meteorology (WWW Document). Retrieved from <http://www.bom.gov.au> on 16 June 2015.
- Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape. Department of Natural Resources and Environment, Victoria.
- 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.

## 5. Glossary

### Acronyms:

<b>BoM</b>	Bureau of Meteorology, Australian Government
<b>DAA</b>	Department of Aboriginal Affairs, Western Australia
<b>DAFWA</b>	Department of Agriculture and Food, Western Australia
<b>DEC</b>	Department of Environment and Conservation, Western Australia (now DPaW and DER)
<b>DER</b>	Department of Environment Regulation, Western Australia
<b>DMP</b>	Department of Mines and Petroleum, Western Australia
<b>DRF</b>	Declared Rare Flora
<b>DotE</b>	Department of the Environment, Australian Government
<b>DoW</b>	Department of Water, Western Australia
<b>DPaW</b>	Department of Parks and Wildlife, Western Australia
<b>DSEWPaC</b>	Department of Sustainability, Environment, Water, Population and Communities (now DotE)
<b>EPA</b>	Environmental Protection Authority, Western Australia
<b>EP Act</b>	<i>Environmental Protection Act 1986</i> , Western Australia
<b>EPBC Act</b>	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Federal Act)
<b>GIS</b>	Geographical Information System
<b>ha</b>	Hectare (10,000 square metres)
<b>IBRA</b>	Interim Biogeographic Regionalisation for Australia
<b>IUCN</b>	International Union for the Conservation of Nature and Natural Resources
<b>PEC</b>	Priority Ecological Community, Western Australia
<b>RIWI Act</b>	<i>Rights in Water and Irrigation Act 1914</i> , Western Australia
<b>s.17</b>	Section 17 of the <i>Environment Protection Act 1986</i> , Western Australia
<b>TEC</b>	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:**  
(a) 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.  
(b) 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.  
(c) 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.