



## 1. Application details

### 1.1. Permit application details

Permit application No.: 1135/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Pilbara Chromite Pty Ltd

### 1.3. Property details

Property: M52/791  
M52/798  
Local Government Area: Shire Of Meekatharra  
Colloquial name: Coobina Alluvial Mine

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
85		Mechanical Removal	Mineral Production

## 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>Beard Vegetation Association 216: Low woodland; mulga (with spinifex) on rises. According to Shepherd et al. (2001) there is approximately 100% of this vegetation type remaining, none of which is found in reserves.</p> <p>The application area is dominated by Acacias, particularly mulga (<i>Acacia aneura</i> group), with a mixture of <i>Senna</i> and <i>Eremophila</i> species forming the shrub layer. Hummock grasses (particularly <i>Triodia</i>) form the ground layer (MBS Environmental, 2006a).</p> <p>MBS Environmental (2006a) conducted a vegetation survey of the application area in November 2005. The survey recorded 158 native flora species from 35 families. No Declared Rare Flora (DRF) or Priority Flora species were recorded during this survey. One weed species was found in the area: Buffel Grass (<i>Cenchrus ciliaris</i>).</p> <p>The flora and vegetation survey identified 4 broad landform types. These were: creeklines, colluvial spurs, very gently sloping alluvial plains, and loamy clay/clay soils. Nine vegetation units were described from these landform types (MBS Environmental, 2006a).</p> <p>Vegetation of the creeklines:</p> <p>1). <i>Eucalyptus gamophylla</i> scattered low trees over <i>Acacia ancistrocarpa</i> open shrubland over <i>Dicrasyllis georgei</i>, <i>Keraudrenia velutina</i> subsp. <i>elliptica</i> low open shrubland over <i>Paraneurachne muelleri</i>, <i>Eragrostis</i> aff. <i>eriopoda</i>, <i>Triodia</i> aff. <i>basedowii</i>, <i>Amphipogon sericeus</i> (Newman form) open hummock grassland and open grassland.</p>	<p>The application is to clear up to 85ha, within a defined area of approximately 105ha. The proposed clearing is for the mining of shallow alluvial gravels to the south of the existing mining operations.</p> <p>The area applied to clear will be divided into a series of mining blocks northeast and southwest of an ephemeral drainage line that dissects the area. No clearing will take place within 10 metres either side of the centreline of the drainage line. Land cleared under this proposal will be progressively rehabilitated behind mining activities (MBS, 2006c).</p>	<p>Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)</p>	<p>The Coobina Chromite operations currently consist of 11 open pit mines, associated waste dumps, haul and access roads, and other mining infrastructure (MBS Environmental, 2006c).</p> <p>The area applied to clear falls within the Sylvania Pastoral Lease and has a long history of disturbance from pastoral activities (MBS Environmental, 2006c, GIS Database). Since the 1970's the vegetation of the Coobina area has been exposed to mining disturbances. Consequently, some of the vegetation at the Coobina site is very degraded, however other vegetation is in very good condition and shows few signs of disturbance (MBS Environmental, 2006c).</p>

2). *Acacia paraneura*, *Corymbia hamersleyana*, *Acacia pruinocarpa* scattered low trees over *Petalostylis labicheoides*, *Gossypium robinsonii* high shrubland over *Senna artemisioides* subsp. *oligophylla* scattered shrubs over *Corchorus lasiocarpus* subsp. *lasiocarpus*, *Tephrosia rosea* var *glabrior* scattered low shrubs over *Triodia pungens*, *Cymbopogon ambiguus*, *Eriachne mucronata* (typical form), *Paraneurachne muelleri*, *Themeda triandra* open grassland/hummock grassland.

3). *Acacia paraneura*, *Acacia pruinocarpa*, *Corymbia hamersleyana* low open woodland over *Acacia bivenosa*, *Acacia* aff. *stowardii* (linear form), *Acacia ancistrocarpa* high open shrubland to high shrubland over *Triodia pungens*, *Cymbopogon ambiguus*, *Paraneurachne muelleri*, *Eriachne mucronata* (typical form) open hummock grassland/grassland (MBS Environmental, 2006a).

Vegetation of the colluvial spurs:

4). *Corymbia hamersleyana* scattered low trees over *Acacia orthocarpa* wispy variant, (*Acacia trudgeniana*, *Hakea lorea* ssp. *lorea*) scattered tall shrubs over *Triodia* aff. *basedowii* hummock grassland.

5). *Eucalyptus gamophylla*, *Acacia tetragonophylla*, *Acacia paraneura* scattered low trees to low open woodland over *Acacia orthocarpa* wispy variant, *Acacia trudgeniana*, *Acacia bivenosa* scattered tall shrubs over *Senna artemisioides* subsp. *helmsii*, *Senna glutinosa* subsp. *x luerssenii* scattered shrubs over *Triodia* aff. *basedowii*, *Amphipogon sericeus* (Newman form) hummock grassland/grassland with *Chrysocephalum pterochaetum* scattered herbs.

6). *Eucalyptus gamophylla* scattered low trees over *Acacia trudgeniana*, *Hakea lorea* subsp. *lorea* scattered tall shrubs over *Triodia* aff. *basedowii* hummock grassland (MBS Environmental, 2006a).

Vegetation of the very gently sloping alluvial plains:

7). *Eucalyptus gamophylla*, *Acacia* aff. *aneura* (narrow fine veined), *Acacia pruinocarpa* low open woodland to low woodland over *Acacia bivenosa*, *Acacia dictyophleba* open shrubland over *Dicrastylis georgei*, *Indigofera monophylla* (small leaflet form) low open shrubland over *Paraneurachne muelleri*, *Eragrostis* aff. *eripoda*, *Aristida holathera* var. *holathera*, *Triodia basedowii* grassland/hummock grassland with *Scaevola parvifolia* subsp. *pilbarae*, *Bonamia rosea* very open herbland.

Vegetation of the loamy clay/clay soils:

8). *Acacia paraneura*, *Acacia pruinocarpa* low woodland to low open forest over *Eremophila latrobei* subsp. aff. *filiformis*, *Senna glutinosa* subsp. *x luerssenii* scattered tall shrubs over *Indigofera monophylla* (small leaflet form), *Corchorus lasiocarpus* subsp. *lasiocarpus* scattered low shrubs over *Triodia* aff. *basedowii*, (*Eragrostis* aff. *eripoda*, *Aristida contorta*, *Amphipogon sericeus* (Newman form) open hummock grassland/grassland.

9). *Acacia paraneura*, *Acacia pruinocarpa*, (*Corymbia hamersleyana*) low open woodland over *Hakea lorea* subsp. *lorea* scattered tall shrubs *Senna artemisioides* subsp. *oligophylla* scattered shrubs over *Solanum lasiophyllum* scattered low shrubs over *Aristida contorta*, *Eragrostis* aff. *eripoda*, *Paraneurachne muelleri*, *Triodia pungens* open grassland/hummock grassland with *Actinobole uliginosum*, *Chrysocephalum apiculatum* very open herbland.

### 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 Sylvania Pastoral Lease, and has a long history of disturbance from grazing (GIS Database; MBS Environmental, 2006c). More recently, the Coobina area has been disturbed by mining activities, with mining becoming the dominant land use since the 1970's (MBS Environmental, 2006c). There are numerous abandoned mines in the surrounding area, and the clearing application area is immediately adjacent to an operational minesite (GIS Database; MBS Environmental, 2006c). The condition of the vegetation in the application area ranges from very good to severely degraded (MBS Environmental, 2006a).

A survey of the application area was conducted in November 2005, and concluded that the vegetation proposed to clear is of low to moderate diversity (MBS Environmental, 2006a). Given the availability of similar habitat in the surrounding area, it appears unlikely that the area proposed to be cleared consists of significant habitat for flora or fauna (Department of Environment and Conservation (DEC), 2006).

There are no known Threatened Ecological Communities (TEC's) within a 50km radius of the application area, and no flora or fauna species of conservation significance are known to occur within the vicinity of the proposed clearing area (GIS Database; MBS Environmental, 2006a).

The clearing as proposed is unlikely to comprise a high level of biological diversity.

##### Methodology

DEC (2006).

GIS Database:

- Declared Rare and Priority Flora List- CALM 01/07/05.
- Natmap 250K Series Mapping - GA 08/03 (Image).
- Threatened Ecological Communities - CALM 12/04/05.
- Pastoral Leases - DOLA 10/01.
- Pre-European Vegetation - DA 01/01.
- Threatened Fauna - CALM 30/9/05.

MBS Environmental (2006a)

MBS Environmental (2006b)

MBS Environmental (2006c).

#### (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**

MBS Environmental (2006b) described 4 typical habitats within the application area and the wider Coobina region: Rocky ridges with spinifex and scattered shrubs, scree and outwash fans with sparse spinifex, creeklines with dense shrubs, and Mulga woodlands and shrub thickets. These habitats are common in the Gascoyne, Pilbara and other extensive arid regions of Australia (MBS Environmental, 2006b).

MBS Environmental conducted a desktop search of CALM's Threatened Fauna Database, and the Commonwealth's Department of the Environment and Heritage (DEH) Database in 2006 to determine which fauna species of conservation significance may potentially occur within the application area. The search identified the following 4 species: Bilby, *Macrotis lagotis* (VU), Western Pebble-mound Mouse, *Pseudomys chapmani* (P4), Australian Bustard, *Ardeotis australis* (P4), Pilbara Leaf-nosed Bat, *Rhinonictis aurantius* (VU), and 4 migratory bird species: Oriental Plover/Oriental Dotterel, *Charadrius veredus*; Rainbow Bee-eater, *Merops ornatus*; Great Egret/White Egret, *Ardea alba*; and Cattle Egret, *Ardea ibis* (MBS Environmental, 2006b).

A survey of the proposed clearing area by MBS Environmental (2006a) in November 2005 revealed the existence of *Triodia* Hummock grassland, mulgas and other shrublands which would provide suitable habitat for the Australian Bustard. This species has been previously sighted in the area within the Sylvania Pastoral station (MBS Environmental, 2006b). However, the habitat required by the Australian Bustard is common to the Gascoyne Region, therefore the proposed clearing is unlikely to result in a loss of significant habitat.

MBS Environmental concluded that the Western Pebble-mound Mouse may potentially occur on the rocky slopes of the Coobina Hills, although the vegetation associations on the hills would not provide the most suitable habitat. The Western Pebble-mound Mouse occurs widely throughout the Pilbara rangelands, and it is therefore unlikely that the proposed clearing will result in a loss of significant habitat for the Western Pebble-mound Mouse (MBS Environmental, 2006b).

MBS Environmental (2006b) concluded that the Hummock and Tussock grasslands and the mulga and other shrublands within the application area provide suitable habitat for the Bilby. However, there is no evidence to suggest that the Bilby has been recorded from the Coobina area (MBS Environmental, 2006b). The proposed clearing is unlikely to have a significant impact upon the Bilby considering the extent of similar habitats available in surrounding areas.

The Pilbara Leaf-nosed Bat is listed as Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999*. This is largely a result of a loss of roost sites (MBS Environmental, 2006b). This species has a limited distribution, with only 10 known roost sites in the Pilbara and 1 in the Gascoyne (MBS Environmental, 2006b). Although there may be some small caves providing suitable roost sites in the Coobina Hills area, these will not be impacted upon by the proposed clearing. Therefore it is unlikely that the proposal will impact upon the Pilbara Leaf-nosed Bat.

The Oriental Plover/Oriental Dotterel prefers open grassland environments in arid and semi- arid areas (MBS Environmental, 2006b). It is a wide ranging species and has been known to migrate to Indonesia, New Zealand and Australia during the southern summer (MBS Environmental, 2006b). The Oriental Plover/Oriental Dotterel is unlikely to be significantly impacted upon by the proposal as there is a large amount of similar habitat within the Gascoyne Bioregion, and the species is only a seasonal visitor to the site (if a visitor at all).

The preferred habitat for the Rainbow Bee-eater is along watercourses (MBS Environmental, 2006b). As there are no permanent watercourses within the application area it is unlikely that the Rainbow Bee-eater will be affected by the proposed clearing.

The Great Egret/White Egret is unlikely to visit the Coobina area as it prefers habitats with permanent water bodies. It is more likely that this species uses the site as a fly-over area rather than a place to establish a habitat (MBS Environmental, 2006b).

The Cattle Egret is an infrequent visitor to Western Australia and prefers damp pastures and wetlands, usually in the presence of cattle (MBS Environmental, 2006b). It is therefore unlikely to occur in the area.

Although there are likely to be some local impacts from habitat loss and fragmentation, the vegetation associations and fauna habitats occurring within the application area are all well represented in the region (MBS Environmental, 2006c). According to the Department of Environment and Conservation, it appears unlikely that the area proposed to be cleared consists of significant habitat for fauna (2006).

The clearing as proposed is not likely to be at variance to this principle.

**Methodology** DEC (2006).  
MBS Environmental (2006a).  
MBS Environmental (2006b).  
MBS Environmental (2006c).

**(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 three known populations of *Lepidium catapycnon* (R), approximately 65km west/northwest of the Coobina area (GIS Database). These are the nearest known populations of Declared Rare Flora (DRF). The vegetation associations of the area applied to clear are well represented on a local and regional scale (MBS Environmental, 2006c). It is highly unlikely that they would be necessary for the continued existence of rare flora.

CALM databases record one Priority Flora species within a 50km radius of the application area (MBS Environmental, 2006a). *Eremophila pilosa* (P1) has been recorded from two areas in the south-east corner of the nearby Fortescue Botanical District (MBS Environmental, 2006a). A vegetation survey conducted by MBS Environmental in November 2005 did not find *Eremophila pilosa* or any other DRF or Priority Flora species within the area applied to clear. It should also be noted that a vegetation survey conducted by Martinick McNulty Pty Ltd in 2001 also did not find *Eremophila pilosa* or any other DRF or Priority Flora in the Coobina area (MBS Environmental, 2006a).

The area applied to clear does not include any known populations of DRF or Priority Flora and the proposed clearing is unlikely to have any impact upon the continued existence of such flora.

The clearing as proposed is not likely to be at variance to this principle.

**Methodology** GIS Database: Declared Rare and Priority Flora List- CALM 01/07/05.  
MBS Environmental (2006a).  
MBS Environmental (2006c).

**(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 TEC's within the vicinity of the proposed clearing area (GIS Database). According to DEC (2006), there is no evidence to suggest that TEC's occur in the area. The nearest known TEC is the Ethel Gorge aquifer stygobiont community, which is approximately 50km to the northwest of the application area (GIS

Database). It is unlikely that the proposed clearing will have an impact upon this TEC considering its distance from the area applied to clear.

The clearing as proposed is not likely to be at variance to this principle.

**Methodology** DEC (2006).  
GIS Database: Threatened Ecological Communities - CALM 12/04/05.

**(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 application area falls within the IBRA Gascoyne Bioregion (GIS Database). Shepherd et al (2001) reported that approximately 100% of the Pre-European Vegetation still exists within the IBRA Gascoyne Bioregion. The vegetation of the area applied to clear is classified as Beard Vegetation Association 216: Low woodland, mulga (with spinifex) on rises (GIS Database). There is approximately 100% of this vegetation type remaining (Shepherd et al, 2001). The area proposed to clear does not represent a significant remnant of vegetation in an area that has been extensively cleared.

The clearing as proposed is not at variance to this principle.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	% in IUCN Class I-IV Reserves*
IBRA Bioregion - Gascoyne	18,075,252	18,075,252	~100%	Least concern	1.9%
Shire of Meekatharra	No	information	available		
Beard vegetation associations - 216	280,760	280,760	~100%	Least concern	0%

\* Shepherd et al. (2001)

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

**Methodology** Department of Natural Resources and Environment (2002).  
GIS Database: IBRA - EA - 18/10/00.  
- Pre - European Vegetation - DA 01/01  
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 not likely to be at variance to this Principle**

There are no permanent watercourses or wetlands within the area applied to clear (GIS Database). A minor seasonal creekline forming part of the Caramulla Creek System runs diagonally through the proposed clearing area (GIS Database). Surface mining will avoid this ephemeral drainage line which dissects the area. A ten metre wide buffer will be maintained either side of the centreline of the ephemeral drainage line to protect the riparian vegetation and the main drainage path. Vegetation growing on the creek bed or immediately fringing the creekline will therefore not be cleared.

The clearing as proposed is not likely to be at variance to this principle.

**Methodology** GIS Database - Hydrography, linear - DOE 01/02/04.  
MBS Environmental (2006a).  
MBS Environmental (2006c).

**(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 proposed clearing area is within the Sylvania land system on the elevated Coobina Hills complex (DAFWA 2006; MBS Environmental, 2006c). The soils here are predominantly shallow red and brown loams, protected to some degree by a stony surface mantle (DAFWA 2006; MBS Environmental, 2006c).

DAFWA (2006) have advised that soil erosion is likely to occur after clearing and disturbance if surface water run off is not managed. This risk will be minimized by the progressive rehabilitation of the alluvial pits post mining.

MBS Environmental (2006c) have outlined the following management strategies which will be implemented to manage surface water flows and minimise erosion:

- Retention of the ephemeral drainage line dissecting the shallow mining area to maintain uninterrupted stormwater runoff. Essentially, mining will occur in small blocks to the northeast and southwest of the drainage line.
- Bunding the upper boundary of each active mining block to direct the natural surface flows at gentle gradients into the natural drainage line.
- At the completion of mining and progressively throughout the projects development, the shallow alluvial pits will be rehabilitated and re-contoured back to the natural profile and shape in the landscape such that surface water runoff flows into the natural drainage line.
- Topsoil will be respread over the reinstated area and deep ripped along the contour to establish stony, well drained, stable and non-erosive surfaces. Where possible, stockpiled vegetation will be spread over the rehabilitated area to further minimise erosion and encourage regrowth of stabilising vegetation.

MBS Environmental (2006c) lists additional strategies which will be employed to minimise land degradation in general:

- Topsoil stripping will be conducted during periods of low winds
- Topsoil will be stockpiled for use in rehabilitation
- Establishing vegetation on bare surfaces on completion of mining activities.
- Vehicles will be confined to existing tracks and haul roads
- Continuation of the existing weed management plan to control infestations of Ruby Dock (*Acetosa vesicaria*).

The implementation of such management strategies will ensure that land degradation issues such as wind and water erosion, soil compaction and weed infestation are adequately addressed.

The clearing as proposed is not likely to be at variance to this principle.

**Methodology** DAFWA (2006).  
MBS Environmental (2006c).

**(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 no CALM Reserves in close proximity to the application area (GIS Database). The nearest CALM Reserve is the Collier Range National Park which lies approximately 125km to the southwest (GIS Database). Therefore it is unlikely that the proposal will have any impact upon conservation areas and their associated environmental values.

The clearing as proposed is not likely to be at variance to this principle.

**Methodology** GIS Database - CALM Managed Lands and Waters - CALM 01/07/05.

**(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 proposed to clear is not associated with any permanent watercourses or waterbodies (GIS Database). An ephemeral creekline, forming part of the Caramulla Creek System, runs diagonally through the application area (GIS Database). This creek forms part of the much larger Upper Fortescue River Catchment (GIS Database). A 10 metre wide buffer will be maintained either side of the centreline of the ephemeral drainage line to protect the main drainage path. The upper boundary of each active mining block will be bunded to direct the natural surface flows at gentle gradients into the natural drainage line (MBS, 2006c). This will minimise the risk of erosion, sedimentation and turbidity to watercourses on and off site. It is unlikely that the proposed clearing will cause deterioration to surface water quality or impact upon flow regimes.

The groundwater of the area is monitored bi-annually using the Coobina Mine Bore which is located within the project area. Water levels in the bore range between 8.98 and 20.95 metres depth. The groundwater is categorized as brackish (2,550mg/L total dissolved solids), with a pH ranging between 7.36 and 7.51 (MBS Environmental, 2006c). No dewatering is required for the mining operation, and the removal of 85ha of vegetation is unlikely to have any significant impact upon groundwater levels or quality. The proponent will continue to monitor groundwater quality parameters in accordance with their current groundwater licence (MBS Environmental, 2006c).

The clearing as proposed is not likely to be at variance to this principle.

**Methodology** GIS Database:  
 - Hydrographic Catchments - Catchments - DOE 23/3/05.  
 - Hydrography, linear - DOE 01/02/04.  
 MBS Environmental (2006c).

**(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 average annual rainfall of the proposed clearing area is 270mm, with annual evaporation rates in the range of 3,800mm (MBS Environmental, 2006c). Rainfall not lost to evaporation usually infiltrates below the ground surface. Most precipitation occurs between December and March and is primarily associated with cyclonic activity and thunderstorms (MBS Environmental, 2006c). As a result of this, the drainage channels in the area only flow following significant rainfall events and remain dry for most of the year (MBS Environmental, 2006c). Localised flooding is occasionally associated with intense seasonal rainfall in the area (MBS Environmental, 2006c).

The ephemeral drainage line transecting the application area will be retained to allow uninterrupted stormwater runoff from the catchments upstream and within the shallow mining areas (MBS Environmental, 2006c). The proposed clearing is unlikely to cause or exacerbate the incidence or intensity of flooding.

The clearing as proposed is not likely to be at variance to this principle.

**Methodology** MBS Environmental (2006c).

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

**Comments**  
 There is one native title claim over the area under application; WC05/006 . This claim has been registered with the National Native Title Tribunal on behalf of the claimant group (GIS Database). However, the mining tenements have 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 known sites of aboriginal significance within the area applied to clear (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Sites of Aboriginal Significance are damaged through the clearing process.

Pilbara Chromite Pty Ltd has a current operating licence 7753 granted in accordance with the *Environmental Protection Act 1986*. The proposed clearing is not at variance to this licence, and no amendment to the licence will be required for the proposed works (DoE, 2006).

Pilbara Chromite Pty Ltd has a current groundwater licence GWL107191(4) for the purpose of dust suppression, ore processing and mining camp purposes granted in accordance with the *Rights in Water and Irrigation Act 1914* (DoE, 2006). There appear to be no water allocation or licencing issues that would preclude the process for the native vegetation clearing permit assessment (DoE, 2006). It is the proponent's responsibility to liaise with the Department of Water to determine whether a Bed and Banks Permit is required for the proposed works.

**Methodology** DoE (2006).  
 GIS Database:  
 - Aboriginal Sites of Significance - DIA 04/07/02.  
 - Native Title Claims - DLI 19/12/04.

**4. Assessor's recommendations**

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
Mineral Production	Mechanical Removal	85	Grant	<p>The clearing principles have been addressed and the proposal is either not at variance or not likely to be at variance to any of the clearing principles. The assessing officer therefore recommends that the permit should be granted with the following conditions:</p> <ol style="list-style-type: none"> <li>1. The Permit Holder shall not clear any native vegetation within the area cross hatched red on attached Plan 1135/1.</li> <li>2. The Permit Holder shall record the following for each instance of clearing:               <ol style="list-style-type: none"> <li>a) the location of where the clearing occurred, expressed as grid</li> </ol> </li> </ol>

coordinates using the Geocentric Datum of Australia 1994 coordinate system;

- b) the size of the area cleared in hectares, and;
- c) the dates on which the area was cleared.

- 3. The Permit Holder shall provide a report to the Director, Environment, Department of Industry and Resources by 30 September each year, setting out the records required under condition 2 of this permit in relation to clearing carried out between 1 January and 31 December of the previous year.

## 5. References

- DAFWA Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food Western Australia.
- DEC (2006). Land clearing proposal advice. Advice to Native Vegetation Assessor, Native Vegetation Assessment Branch, Department of Industry and Resources. Biodiversity Coordination Section, Department of Environment and Conservation. Perth, Western Australia.
- 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.
- DoE (2006) Water Allocation/Licence Advice. Advice to Assessing Officer, Native Vegetation Assessment Branch, Department of Industry and Resources (DoIR). Department of Environment, Western Australia.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- MBS Environmental (2006a) A Flora and Vegetation Survey of Areas Proposed for Alluvial Mining at Coobina, Western Australia. MBS Environmental, Western Australia.
- MBS Environmental (2006b) Fauna of Conservation Significance, Coobina Chromite Alluvial Extension, MBS Environmental, Western Australia.
- MBS Environmental (2006c) Purpose Permit Application, Coobina Alluvial Mine Extensions: Assessment of Clearing Principles. MBS Environmental, 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 (updated 2005).
- 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

### Acronyms:

<b>BoM</b>	Bureau of Meteorology, Australian Government.
<b>CALM</b>	Department of Conservation and Land Management, Western Australia.
<b>DAFWA</b>	Department of Agriculture and Food, Western Australia.
<b>DA</b>	Department of Agriculture, Western Australia.
<b>DEH</b>	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
<b>DEP</b>	Department of Environment Protection (now DoE), Western Australia.
<b>DIA</b>	Department of Indigenous Affairs
<b>DLI</b>	Department of Land Information, Western Australia.
<b>DoE</b>	Department of Environment, Western Australia.
<b>DoIR</b>	Department of Industry and Resources, Western Australia.
<b>DOLA</b>	Department of Land Administration, Western Australia.
<b>EP Act</b>	Environment Protection Act 1986, Western Australia.
<b>EPBC Act</b>	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
<b>GIS</b>	Geographical Information System.
<b>IBRA</b>	Interim Biogeographic Regionalisation for Australia.
<b>IUCN</b>	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
<b>RIWI</b>	Rights in Water and Irrigation Act 1914, Western Australia.
<b>s.17</b>	Section 17 of the Environment Protection Act 1986, Western Australia.
<b>TECs</b>	Threatened Ecological Communities.

### Definitions:

{Atkins, K (2005). *Declared rare and priority flora list for Western Australia, 22 February 2005*. Department of Conservation and Land Management, Como, Western Australia} :-

**P1** **Priority One - Poorly Known taxa:** taxa which are known from one or a few (generally <5) populations



which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.

- P2 Priority Two - Poorly Known taxa:** taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
- P3 Priority Three - Poorly Known taxa:** taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in need of further survey.
- P4 Priority Four – Rare taxa:** taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5–10 years.
- R Declared Rare Flora – Extant taxa (= Threatened Flora = Endangered + Vulnerable):** taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.
- X Declared Rare Flora - Presumed Extinct taxa:** taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

**{Wildlife Conservation (Specially Protected Fauna) Notice 2005} [Wildlife Conservation Act 1950] :-**

- Schedule 1 Schedule 1 – Fauna that is rare or likely to become extinct:** being fauna that is rare or likely to become extinct, are declared to be fauna that is need of special protection.
- Schedule 2 Schedule 2 – Fauna that is presumed to be extinct:** being fauna that is presumed to be extinct, are declared to be fauna that is need of special protection.
- Schedule 3 Schedule 3 – Birds protected under an international agreement:** being birds that are subject to an agreement between the governments of Australia and Japan relating to the protection of migratory birds and birds in danger of extinction, are declared to be fauna that is need of special protection.
- Schedule 4 Schedule 4 – Other specially protected fauna:** being fauna that is declared to be fauna that is in need of special protection, otherwise than for the reasons mentioned in Schedules 1, 2 or 3.

**{CALM (2005). Priority Codes for Fauna. Department of Conservation and Land Management, Como, Western Australia} :-**

- P1 Priority One: Taxa with few, poorly known populations on threatened lands:** Taxa which are known from few specimens or sight records from one or a few localities on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, active mineral leases. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P2 Priority Two: Taxa with few, poorly known populations on conservation lands:** Taxa which are known from few specimens or sight records from one or a few localities on lands not under immediate threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P3 Priority Three: Taxa with several, poorly known populations, some on conservation lands:** Taxa which are known from few specimens or sight records from several localities, some of which are on lands not under immediate threat of habitat destruction or degradation. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P4 Priority Four: Taxa in need of monitoring:** Taxa which are considered to have been adequately surveyed, or for which sufficient knowledge is available, and which are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.
- P5 Priority Five: Taxa in need of monitoring:** Taxa which are not considered threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

**Categories of threatened species (Environment Protection and Biodiversity Conservation Act 1999)**

- EX Extinct:** A native species for which there is no reasonable doubt that the last member of the species has died.
- EX(W) Extinct in the wild:** A native species which:  
 (a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or  
 (b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
- CR Critically Endangered:** A native species which is facing an extremely high risk of extinction in the wild in

the immediate future, as determined in accordance with the prescribed criteria.

**EN**

**Endangered:** A native species which:

- (a) is not critically endangered; and
- (b) is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.

**VU**

**Vulnerable:** A native species which:

- (a) is not critically endangered or endangered; and
- (b) is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.

**CD**

**Conservation Dependent:** A native species which is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.