



## 1. Application details

### 1.1. Permit application details

Permit application No.: 2062/1  
Permit type: Area Permit

### 1.2. Proponent details

Proponent's name: Worsley Alumina Pty Ltd

### 1.3. Property details

Property: Lot 5314 on Plan 220209  
State Agreement Act, Mineral Lease ML 258 SA (AM 70/258)  
Local Government Area: Shire of Collie  
Colloquial name: Access Road

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
0.25		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>Vegetation within the application area has been mapped at a 1:250,000 scale as Beard vegetation association 3, and is described as: Medium forest; jarrah-marri (Shepherd <i>et al.</i>, 2001).</p> <p>The application area has been mapped by Mattiske Consulting Pty Ltd as the following vegetation type:</p> <p>D – Open forest of <i>Eucalyptus marginata</i> – <i>Corymbia calophylla</i> – on lower slopes with mixed low understorey species, including <i>Baeckea camphorosmae</i> and <i>Acacia extensa</i>.</p>	<p>Worsley Alumina Pty Ltd (hereafter referred to as Worsley) has applied to clear up to 0.25 hectares of native vegetation within a 0.25 hectare application area. The proposed clearing is for the installation of a new access road into the refinery from the new lay-down area.</p> <p>The application area is located approximately 14 kilometres northwest of Collie (GIS Database). The Worsley Alumina Refinery Lease Area is located on the Darling Ranges, northwest of Collie and on the fringes of the Collie Basin.</p>	<p>Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).</p> <p>to</p> <p>Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994).</p>	<p>The vegetation condition is based on the Keighery (1994) vegetation condition scale, from aerial photography and an assessment provided by Worsley.</p> <p>The application area is located within the active Worsley Alumina Refinery lease area (GIS Database). The vegetation under application has been previously cleared and revegetated. The area was initially revegetated for the purpose of erosion control and to control dust.</p>

## 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 application area is located within the Jarrah Forest Bioregion of the Interim Biogeographic Regionalisation of Australia (IBRA) and the Northern Jarrah Forest Subregion (GIS Database). The biodiversity values of the subregion were assessed by Williams and Mitchell (2001). The vegetation of the subregion comprises of Jarrah-Marri forest in the west with Bullich and Blackbutt in the valleys, grading to Wandoo and Marri woodlands in the east with Powderbark on breakaways. There are extensive but localised sand sheets with Banksia low woodlands. Heath is found on granite rocks and as a common understorey of forests and woodlands in the north and east. The majority of the diversity in the communities occurs on the lower slopes or near granite soils where there are rapid changes in site conditions (Williams and Mitchell, 2001).

The application area is located within the Worsley Alumina Refinery Lease Area (the project area) which has been previously disturbed by mining activities (GIS Database). Vegetation within the application area has been previously cleared and is currently revegetated vegetation. Mattiske Consulting carried out a vegetation survey of the project area in 1998 which included the application area. A total of 266 vascular plant species from 52 plant families and seventeen site vegetation types were recorded within the survey area (Mattiske, 1999). Mattiske (1999) identified the vegetation type of the application area as type D (Open forest of *Eucalyptus*

*marginata* – *Corymbia calophylla* – on lower slopes with mixed low understorey species, including *Baekkea camphorosmae* and *Acacia extensa*). Vegetation type D was found to occur on lower, less fertile slopes – an area that William and Mitchell (2001) identified would consist of a higher degree of biological diversity. A total of 75 vascular plant species from 27 plant families were recorded within vegetation type D. Of the seventeen site vegetation types identified within the project area ten vegetation types had species counts equal to or higher than vegetation type D. Given the high number of plant species that have been identified within vegetation type D, the application area is likely to contain a moderate to high level of biological diversity. Matiske (1999) vegetation mapping and assessment of more recent aerial photography shows that vegetation type D is restricted to three small areas in the southern section of the project area which total approximately ten hectares (GIS Database). Clearing of 0.25 hectares constitutes approximately 2.5% of the remaining quantity of vegetation type D within the project area. Considering the limited amount of vegetation type D remaining within the local area and the moderate to high degree of biological diversity associated with vegetation type D, the proposed clearing may have some impact on an area of native vegetation which displays a higher degree of biodiversity than other vegetation types in the local area.

The proponent has advised that *Phytophthora cinnamomi* (dieback) occurs within the project area, and that the application area is considered to be infected with dieback. Dieback mapping of the project area shows that there are only small isolated dieback free areas remaining within the project area (Field View Nominees, 1997). Dieback is widespread throughout the south-west of Western Australia and impacts on many native plants including Jarrah, Banksias, Grass-trees (*Xanthorrhoea*), Hibbertias, Dryandras and Hakeas (Dieback Working Group, 2000). Dieback can have a significant impact on the biological diversity of native vegetation communities since some native plant species are particularly vulnerable to dieback infection. Dieback is easily spread through surface and sub-surface water flows, however, human activities such as earthmoving and vehicular movements are the main mechanisms through which dieback can be spread (Dieback Working Group, 2000). Dieback mapping indicates that the nearest dieback free area is located approximately one kilometre west of the application area (Field View Nominees, 1997). Topographic contours show that this dieback free area is located upslope from the application area (GIS Database), therefore, is unlikely to be impacted on by any increased surface or groundwater flows which may occur as a result of the proposed clearing. The vegetation surrounding and downstream of the application area is considered to be infected with dieback (Field View Nominees, 1997). Worsley has established and adheres to a Forest Hygiene Management Plan to ensure that activities conducted by Worsley and its contractors do not contribute to the spread of dieback. In order to minimise the risk of vehicles or clearing equipment spreading dieback off-site, the Assessing Officer recommends that should the clearing permit be granted a condition be placed on the permit to ensure that all vehicles are cleaned down on exit from the application area.

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

**Methodology** Dieback Working Group (2000)  
Field View Nominees (1997)  
Matiske (1999)  
Williams and Mitchell (2001)  
GIS Database:  
- Collie 50cm Orthomosaic - DLI04  
- Interim Biogeographic Regionalisation of Australia (regions)  
- Interim Biogeographic Regionalisation of Australia (subregions) - EA 18/10/00  
- Topographic Contours, Statewide

**(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**  
According to the Environmental Protection Authority (EPA) (1996), fauna species of particular conservation significance that have previously been recorded near the application area include:

- The Chuditch (*Dasyurus geoffroii*) (Schedule 1, fauna that is rare or likely to become extinct, 'Wildlife Conservation (Specially Protected Fauna) Notice, 2006')
- The Carpet Python (*Morelia spilota imbricata*) (Schedule 4, other specially protected fauna, 'Wildlife Conservation (Specially Protected Fauna) Notice, 2006')
- The Peregrine Falcon (*Falco peregrinus*) (Schedule 4 - Fauna that is in need of special protection, 'Wildlife Conservation (Specially Protected Fauna) Notice, 2006')
- The Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) (Schedule 1, fauna that is rare or likely to become extinct, 'Wildlife Conservation (Specially Protected Fauna) Notice, 2006')
- Baudin's Black Cockatoo (*Calyptorhynchus baudinii*) (Schedule 1, fauna that is rare or likely to become extinct, 'Wildlife Conservation (Specially Protected Fauna) Notice, 2006' and Listed as Vulnerable, under the *Environmental Protection and Biodiversity Conservation Act 1999*).

The Chuditch is predominantly located throughout the Jarrah forest and mixed Karri/Marri/Jarrah forest of southwest Western Australia (WA Museum, 2003; Orell & Morris, 1994). The Chuditch is found in a wide range of habitats, including woodlands, dry sclerophyll forests, riparian vegetation, beaches and deserts. However, it has been known to show preference for woodland and mallee habitats (WA Museum, 2003; Orell & Morris, 1994). Some of the threats facing the Chuditch are habitat alteration, competition for food, predation from cats

and foxes, hunting and poisoning (Wildlife Australia, 1996). In certain areas of the Jarrah Forest where foxes are not controlled, male chuditch have a home range of approximately 15 square kilometres, whilst females have a home range of approximately 3-4 square kilometres (WA Museum, 2003; Orell & Morris, 1994). Chuditch are known to occupy hollow logs and burrows, and have also been recorded in tree hollows and cavities. Suitable hollow or burrow entrance for the Chuditch is often at least 30 centimetres in diameter (WA Museum, 2003; Orell & Morris, 1994). Tree hollows generally take a long time to form and in particular may only occur in large trees which are approximately 100-150 years old (DEC NSW, 2004). The vegetation within the application area has previously been cleared and the current vegetation is regrowth which is approximately 15-20 years old (Worsley, 2008). As a result, the trees within the application area are not likely to be of sufficient age to have formed hollows of suitable size to provide habitat for the Chuditch. Given the large home range of the Chuditch compared to small size of the application area and the lack of suitable nesting dens, the proposed clearing of 0.25 hectares of native vegetation is unlikely to impact on significant habitat for the Chuditch.

The Carpet Python (western subspecies) inhabits temperate climatic areas with good winter rains and dry summers, and has been recorded in semi-arid coastal and inland habitats, Banksia woodlands, Eucalypt woodlands and grasslands (WA Museum, 2003). The Carpet Python subspecies is ecologically flexible and tends to adapt to whatever habitats are available (Pearson *et al.*, 2005). Some of the vegetation proposed to be cleared may be suitable habitat for the python species. However, given the Carpet Pythons broad range and ability to utilise a wide range of habitats, the vegetation within the application is unlikely to be considered as significant habitat for this species.

The Peregrine Falcon is a wide ranging bird that has little habitat specificity apart from an affinity with cliffs, tall trees for nesting and water (Pizzey and Knight, 1997). The habitat within the application area is widespread in the local area. Given the lack of cliffs, tall trees or perennial watercourses within the project area, the proposed clearing is unlikely to impact on significant habitat for the Peregrine Falcon.

The Carnaby's Black Cockatoo and Baudin's Black Cockatoo nest in hollows of large eucalypts, usually Salmon Gum and Wandoo (Pizzey, G. & Knight, F. 1997). The vegetation within the proposed clearing area has previously been cleared and the current vegetation is approximately 15-20 years old (Worsley, 2007). The vegetation within the application area is unlikely to be of suitable age to provide appropriate nesting habitat for either the Carnaby's Black Cockatoo or the Baudin's Black Cockatoo. There are large areas throughout the local area that are of suitable foraging habitat for these species. It is unlikely that the vegetation within the application would be regarded as significant habitat for either the Carnaby's Black Cockatoo or Baudin's Black Cockatoo.

The vegetation within the application area has been previously cleared and has since been revegetated (Worsley, 2007). The area is located immediately adjacent to a rail corridor and other large areas of disturbance (GIS Database), and as a result the habitat value of the application area is likely to have been reduced. Analysis of aerial photography shows that the vegetation proposed to be cleared is an insignificant portion of an area of the Jarrah Forest that remains uncleared. The habitat types within the application area are likely to be well represented and of higher value in the surrounding areas. The proposed clearing is unlikely to impact on significant habitat for fauna species indigenous to Western Australia.

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

**Methodology** DEC NSW (2004)  
Environmental Protection Authority (1996)  
Orell & Morris (1994)  
Pearson *et al.* (2005)  
Pizzey & Knight (1997)  
Shepherd *et al.* (2001)  
WA Museum (2003)  
Worsley (2007)  
GIS Database:  
- Threatened Fauna - CALM 30/9/05  
- Collie 50cm Orthomosaic - DLI04

**(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 known records of Declared Rare Flora (DRF) within a five kilometre radius of the application area (GIS Database).

Mattiske Consulting Pty Ltd (Mattiske, 1999) was commissioned to undertake botanical studies on the uncleared areas of the Worsley Refinery Lease Area for Worsley Alumina Pty Ltd during the spring and summer months of 1998. The survey included the clearing application area.

No Declared Rare Flora species gazetted under the *Wildlife Conservation Act 1950* were located on the

Worsley Refinery Lease area, however, two Priority species were located, namely *Pultenaea skinneri* (P4) and *Hibbertia silvestris* (Mattiske 1999).

*Pultenaea skinneri* was recorded at four sites and was restricted to the valley floors and three site-vegetation types within the southern section of the project area. *Pultenaea skinneri* was recorded within site vegetation type D (Open forest of *Eucalyptus marginata* – *Corymbia calophylla* – on lower slopes with mixed low understorey species, including *Baëckea camphorosmae* and *Acacia extensa*) which was identified by Mattiske (1999) as the vegetation type within the application area. A Priority species distribution map produced by Mattiske (1999) shows that no populations of *Pultenaea skinneri* were recorded within the clearing application area during the flora and vegetation survey. The closest population of *Pultenaea skinneri* was recorded approximately 500 metres south of the application area within site vegetation type SW (Open forest of *Eucalyptus marginata* – *Corymbia calophylla* – *Banksia grandis* with scattered understorey, including *Adenanthos bargiger*, *Hypocalymma angustifolium* and *Styphelia tenuiflora* on lower to mid slopes with moist loam gravelly soils) (Mattiske, 1999). This species is known to occur in three separate bioregions and has been recorded from Collie, Binningup and Boyanup (Florabase, 2008; Mattiske, 1999). Given the distance separating the application area and the nearest recorded population of *Pultenaea skinneri*, the proposed clearing of 0.25 hectares is unlikely to impact on this species.

*Hibbertia silvestris* was recorded at 39 recording sites and within nine site-vegetation types, therefore, is not restricted in occurrence within the survey area (Mattiske, 1999). *Hibbertia silvestris* was not recorded within the application area, nor was it recorded within the vegetation type associated with the application area – vegetation type D (Mattiske, 1999). This species is known to occur from Waroona, Collie, Barlee Brook, Glenoran, Dickson, Dwellingup, Harvey River valley systems (Mattiske, 1999). Mattiske has recorded *Hibbertia silvestris* in a range of locations in the central and northern Jarrah Forest in recent years and recommended that the conservation status of this priority species requires review (Mattiske, 1999). The Assessing Officer carried out a search for *Hibbertia silvestris* on FloraBase on 7 January 2008 which noted that the conservation status of the species has been altered to Not Threatened (FloraBase, 2008).

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

**Methodology** Florabase (2008)  
Mattiske (1999)  
GIS Database:  
- Declared Rare and Priority Flora List

**(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**

A search of available databases reveals that there are no known Threatened Ecological Communities (TECs) within 30 kilometres of the application area (GIS Database). The vegetation community described by Mattiske (1999) was not identified as a TEC. Given the distance from the application area to the nearest TEC, the clearing of 0.25 hectares of vegetation is unlikely to impact on the conservation of the TEC.

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

**Methodology** Mattiske (1999)  
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 likely to be at variance to this Principle**

The application area is located within the Northern Jarrah Forest subregion in which approximately 58.8% of the pre-European vegetation remains (Shepherd et al. 2001; GIS Database).

The vegetation proposed to be cleared has been mapped as Beard vegetation association 3, Medium forest; Jarrah - Marri (GIS Database). According to Shepherd et al. (2001) approximately 82.4% of Beard vegetation association 3 remains within the Northern Jarrah Forest subregion and 12.4% is located within conservation reserves.

According to the Bioregional Conservation Status of Ecological Vegetation Classes, the conservation status for the Northern Jarrah Forest subregion and for Beard vegetation association 3 is of 'least concern' (Department of Natural Resources and Environment, 2002).

Mattiske (1999) vegetation mapping of the project area illustrates that the vegetation type described for the application area is well represented throughout the surrounding project area. Analysis of aerial photography shows that the vegetation to be cleared is an insignificant portion of an area of the Jarrah Forest that remains uncleared, therefore, the vegetation within the application area does not represent a significant remnant of

native vegetation.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-european % in IUCN Class I-IV Reserves
IBRA Subregion – Northern Jarrah Forest	1,898,799	1,117,139	~ 58.8	Least Concern	10.0%
Beard veg assoc. – State					
3	2,661,515	1,863,983	~ 70.03	Least Concern	18.45%
Beard veg assoc. – Subregion					
3	908,040	747,888	~ 82.4	Least Concern	12.4%

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

\* Shepherd *et al.* (2001) updated 2005

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

**Methodology** Department of Natural Resources and Environment (2002)  
Shepherd *et al.* (2001)  
GIS Database:  
- Pre European Vegetation DA 01/01

**(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**  
According to available databases, there are no watercourses or drainage lines within the application area (GIS Database). A minor drainage line is situated approximately 25 metres south-east of the application area, and a reservoir is situated approximately 250 metres north-east of the application area (GIS Database). It is unlikely that the proposal will affect vegetation growing in association with any watercourses or reservoir.

No groundwater dependent ecosystems are known to occur in or near the application area (GIS Databases).

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

**Methodology** GIS Database:  
- Geodata, Lakes – GA 28/06/02  
- Hydrography, Linear – DoE 1/2/04  
- Potential Groundwater Dependand Ecosystems – DoE 2004  
- Rivers

**(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 Worsley Refinery Lease Area occurs on the lateritic capped Archaean granite and metamorphic rocks of the Darling Plateau (Williams and Mitchell, 2001). A study of the landforms and soil units of the Darling System has been undertaken by Churchward and McArthur (1980). Three landforms and soil units are represented within the project area and these include;

- Dwellingup – Gently undulating landscape with duricrust on ridges; sand and gravels in shallow depressions;
- Murray – Deeply incised valleys with red and yellow earths on slopes; narrow alluvial terraces, and;
- Yarragil – Valleys of the western part of the plateau; sandy gravels on the slopes; orange earth in swampy floors.

Mattiske (1999) has mapped the vegetation type of the proposed clearing area as vegetation type D (Open forest of *Eucalyptus marginata* – *Corymbia calophylla* – on lower slopes with mixed low understorey species, including *Baeckea camphorosmae* and *Acacia extensa*), and observed that this vegetation type mainly occurs within the Yarragil complex. The site vegetation was observed to occur on lower, less fertile slopes with a topographic gradient of less than 3%, and with sandy-clays to clay loam soils (Mattiske, 1999; GIS Database). A minor drainage line is situated approximately 25 metres south-east of the proposed clearing application area. Given the small size of the area applied to clear, soil types and topography of the application area, water

logging, water erosion and wind erosion are unlikely to occur or be increased either on or off-site.

The area of proposed clearing occupies 0.25 hectares and is located adjacent to an existing mine and production site which has undergone a high level of disturbance due to present and historic mining activities. The proposed clearing of an additional 0.25 hectares is not likely to cause appreciable land degradation within the application area or to surrounding areas.

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

**Methodology** Churchward and McArthur (1999)  
Mattiske (1999)  
Williams and Mitchell (2001)  
GIS Database:  
- 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**  
The proposed clearing is located wholly within the Harris River State Forest which occupies an area of approximately 16,000 hectares (GIS Database).

The area of proposed clearing has previously been cleared and rehabilitated, and as a result the 0.25 hectare area proposed to be cleared comprises of revegetation (Worsley, 2008). The area proposed to be cleared is located next to an existing road, and is also adjacent to the Worsley mine and production sites which have undergone a high level of disturbance due to present and historic mining activities. Given the small size of the area proposed to be cleared, the vegetation is unlikely to act as a significant ecological linkage or buffer to the surrounding vegetation which adjoins the application area.

Advice received from the Department of Environment and Conservation on 8 October 2007 to the Assessing Officer advised that the issue of clearing vegetation within the State Forest was addressed under the initial State Agreement Act (DEC, 2007). The proposed clearing of 0.25 hectares is unlikely to significantly reduce the environmental values of the Harris River State Forest.

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

**Methodology** DEC (2007)  
Worsley (2008)  
GIS Database:  
- CALM Managed Lands  
- Collie 50cm Orthomosaic - DLI04\_1

**(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**  
There are no permanent waterbodies or watercourses within, or in association with the application area (GIS Database). The application area is characterised by a topographic gradient of less than 3%, therefore, any additional runoff which may be generated as a result of the proposed clearing is unlikely to cause significant water erosion issues which may lead to sedimentation and turbidity of downstream waterbodies. A minor vegetated drainage line is located approximately 25 metres south-east of the application area (GIS Database), and any additional run-off which may be generated as a result of the proposed clearing will be collected within this drain. The small amount of clearing is unlikely to cause deterioration in the quality of nearby surface water.

The proposed clearing is located wholly within the Brunswick Catchment Public Drinking Water Source Area (PDWSA) (GIS Database). Due to the small scale of the proposed clearing, it is unlikely to significantly degrade water quality. Advice received from the DoW on 17 November 2007 to the Assessing Officer advised that the proposed clearing will have little impact on the Public Drinking Water Source Protection Area – Brunswick Catchment Area (DoW 2007).

The application area is located within the Leschenault Estuary-Lower Collie Catchment which occupies an area in excess of 91,000 hectares (GIS Database). The proposed clearing of 0.25 hectares of vegetation is unlikely to significantly increase groundwater recharge or 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** DoW (2007)  
GIS Database:

- Hydrographic Catchments – Catchments – DoW
- Hydrography, Linear – DoE 1/2/04
- Collie 50cm Orthomosaic – DLI 04

**(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 limited amount of clearing proposed (0.25 hectares) in comparison to the extent of the Leschenault Estuary-Lower Collie Catchment (in excess of 91,000 hectares) is unlikely to result in incremental increase in peak flood height or flood peak duration (GIS Database).

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

**Methodology** GIS Database:  
- Hydrographic Catchments – Catchments – DoW

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

**Comments**

There is one Native Title claim over the area under application; WC98\_058. This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the mining tenement has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (ie. 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*.

The buffer area of one Aboriginal Site of Significance intercepts a small area on the western side of the application area (GIS Database). Advice received from the Department of Indigenous Affairs (DIA) on 9 October 2007, states that the proposed clearing is unlikely to impact on any registered DIA sites. 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.

The proposed access road for Worsley Alumina Pty Ltd is subject to the *Mining Act 1978* approval process. A mining proposal must be approved by DoIR prior to the commencement of the proposed works.

It is the proponent's responsibility to liaise with the DEC and the DoW to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licence or approvals are required for the proposed works.

**Methodology** DIA (2007)  
GIS Database:  
- Native Title Claims – DLI 7/11/05  
- Sites of Aboriginal Significance DIA

**4. Assessor's comments**

Purpose	Method	Applied area (ha)/ trees	Comment
Mineral Production	Mechanical Removal	0.25	The clearing principles have been addressed and the proposed clearing may be at variance to Principle (a), and is not likely to be at variance to Principles (b), (c), (d), (e), (f), (g), (h), (i) and (j).  Should the permit be granted, it is recommended that conditions be imposed on the permit for the purposes of dieback management and permit reporting.

**5. References**

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## 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>DEC</b>	Department of Environment and Conservation
<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>DoW</b>	Department of Water
<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.