



## 1. Application details

### 1.1. Permit application details

Permit application No.: 771/1  
 Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Fox Radio Hill Pty Ltd - Whundo Project

### 1.3. Property details

Property: M477  
 Local Government Area: Shire Of Roebourne  
 Colloquial name:

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
266.1		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 Type            152. Hummock Grasslands, grass steppe; soft and hard spinifex, soft spinifex (Shepherd et al. 2001).</p> <p>Eleven plant communities were mapped by Mattiske (2005) within the Whundo project area and are described as follows:</p> <p>H1: Hummock Grassland of <i>Triodia wiseana</i> with emergent <i>Acacia inaequilatera</i> and <i>Acacia pyrifolia</i>.</p> <p>H2: Hummock Grassland of <i>Triodia wiseana</i> and <i>Aristida burbridgeae</i> with emergent <i>Corymbia opaca</i>, <i>Acacia inaequilatera</i> and <i>Corchorus carnavonensis</i>.</p> <p>H3: Hummock Grassland of <i>Triodia wiseana</i> and <i>Triodia pungens</i> with emergent <i>Corymbia opaca</i>, <i>Acacia inaequilatera</i> and <i>Acacia bivenosa</i></p> <p>H4: Hummock Grassland of <i>Triodia pungens</i> with emergent <i>Acacia pyrifolia</i>, <i>Acacia tumida</i>, <i>Senna glutinosa</i> subsp. <i>pruinosa</i> and <i>Corchorus carnavonensis</i>.</p>	<p>The clearing is to be carried out for the purposes of mineral production which will involve the clearing of native vegetation for the excavation of a pit and associated infrastructure such as waste dump, buildings, top soil and ore stock piles. Some clearing is also required for the widening of the access road to the site. The life of the project is estimated to be less than a year. No mineral processing will take place on site. The initial areas that will be cleared as a result of the mining operation cover approximately 32 hectares. However Fox Resources Ltd have indicated that they may expand their operations in the future hence the application to clear for an area larger than will be cleared initially. Vegetation and topsoil in the areas to be cleared will be stockpiled separately, the stockpiles will be less than 2 metres in height to reduce seed mortality (URS 2005).</p>	<p>Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)</p>	<p>The vegetation condition is based on an assessment by Mattiske (2005). The majority of the vegetation within the purpose permit area is in good condition with approximately 8 hectares of the total area of 266 hectares having been cleared due to previous mining activity.</p> <p>The degraded areas are located in the vicinity of an old abandoned open pit copper mine and associated waste dumps. Two environmental weed species ( Kapok Bush, <i>Aerva javanica</i> and Spiked Malvastrum, <i>Malvastrum americanum</i>) were recorded within the areas proposed to be cleared (URS 2005). No declared weed species are reported to occur in the area. A site visit was conducted by Philip Boglio, DoIR Native Vegetation Assessor, in October 2005.</p>

H5: Hummock Grassland of *Triodia augusta* with emergent *Acacia pyrifolia* and *Acacia bivenosa*.

S1: Low open Shrubland of *Acacia arida* over *Triodia wiseana*.

S2: Tall open Shrubland of *Acacia pyrifolia* with emergent *Corymbia opaca* and *Petalostylis labicheoides* over *Triodia wiseana* and *Triodia pungens*.

A1: Low Woodland of *Acacia xiphophylla* over *Triodia wiseana* with occasional *Hakea lorea* subsp. *lorea*.

A2: Open Woodland of *Corymbia opaca* and/or *Eucalyptus victrix* over *Acacia synchronicia*, *Acacia pyrifolia*, *Acacia ancistrocarpa* and *Indigofera monophylla*.

A3: Low Woodland of *Acacia xiphophylla* with *Senna glutinosa* subsp. *pruinosa* and *Acacia synchronicia*.

A4: Exposed rocks with occasional *Ficus brachypoda*.

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

### 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 Whundo project area is situated near the boundary of the Pilbara 4 (PIL 4) Roebourne Interim Biogeographic Regionalisation for Australia (IBRA) subregion and Pilbara 1 (PIL 1) Chichester IBRA subregion (GIS Database 2000). Kendrick and Stanley (2001) assessed the biodiversity of the Roebourne IBRA subregion's known special values in relation to landscape, ecosystem, species and genetic values. The basalt rock piles in the region are listed as fire refuges in Kendrick and Stanley (2001). A small area of such rock piles is present within the south east corner of the Whundo project area and is largely absent of native vegetation. Following discussions between DoIR, URS and the applicant, that area will not be disturbed by the proposed mining operation as the applicant has agreed to establish a 100 metre wide no clearing buffer zone surrounding the rock piles (Fox Resources 9/12/2005).

The biodiversity values of the Chichester subregion were assessed by Kendrick and McKenzie (2001). Hummock grassland reptile and small mammal communities were noted for their high species and ecosystem diversity (Kendrick and McKenzie 2001). The fauna assessment of the site undertaken by Ninnox in 2005 stated that there were no fauna habitats of regional significance in the Whundo project area (Ninnox 2005). The Ninnox report did state that the rocky hill in the south west of the project area and the creekline containing *Euclaptus victrix* could be of local significance to the vertebrate fauna (Ninnox 2005). As stated previously the basalt rockpile in the south west of the project area will not be affected by the clearing. Following negotiations

between DoIR and Fox Resources a buffer area subject to a no clearing condition has been set to protect the majority of the trees present in the creekline in the north of the project area.

The vegetation survey of the Whundo project area undertaken by Mattiske in 2005 did not record any vegetation types of higher biodiversity than similar vegetation types in the local area (Mattiske 2005).

In its assessment of this principle CALM (2006) stated that it was supportive of the exclusion of the rock pile area identified in the south east corner of the Whundo area as it is likely that this area represents a prime habitat for reptilian fauna in a local context. CALM also advised that if the clearing permit was granted that conditions be placed on the permit to protect these areas from further development. Following a review of the flora survey report by Mattiske (2005) CALM stated that it was evident that the application area does not represent an area of higher biodiversity than that which is extant in a broader regional context.

**Methodology** CALM (2006).  
GIS Database-IBRA subregions-EA 18/10/2000.  
Kendrick and McKenzie (2001).  
Kendrick and Stanley (2001).  
Ninox (2005).

**(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.**

**Comments Proposal may be at variance to this Principle**

An assessment of the value of the project area as habitat to vertebrate fauna was prepared for Fox Resources Ltd by Ninox Wildlife Consulting in May 2005. That assessment was based on a one day site visit by an experienced zoologist and a desktop assessment based on the current knowledge of the fauna known to occur in the area (Ninox 2005).

Based on that report only one fauna species listed in the Wildlife Conservation (specially protected fauna) Notice 2005, the Peregrine Falcon *Falco peregrinus*, (Schedule 4 - Other specially protected fauna) is predicted to occur within the survey area. This species is widespread in Australia with large home ranges. The project will not be destroying or impacting on potential nesting or roosting sites favoured by that species and it is unlikely that a project of this size would significantly impact that species in the local area.

Five vertebrate species listed on CALM's Priority Fauna list may occur in the habitats of the Whundo project area (Ninox 2005).

The Australian Bustard *Ardeotis australis* has been recorded nearby however no impact is predicted on this wide ranging and nomadic bird species.

The Bush-Stone Curlew *Burhinus grallarius* has also been recorded nearby (Ninox 2005). The Bushstone curlew is a nocturnal bird and may be impacted from roadkills at night (Ninox 2005).

The Long Tailed-Dunnart *Sminthopsis longicaudata* may occur in the project areas rocky slopes (Ninox 2005).

The Ghost Bat *Macroderma gigas* may forage in the project area but is not likely to roost within the project area since no suitable roosting sites were noted in the field assessment by Ninox (2005).

The Laleland Down Mouse *Leggadina lakedownensis* is likely to occur within the stony hummock grassland areas present within the project area (Ninox 2005).

An inactive mound created by Western Pebble-Mound Mouse *Pseudomys chapmani*, was located on a rocky scree slope in the Whundo project area during the site assessment. No recent active mounds were found (Ninox 2005). Given that the site assessment of the whole project area was only for one day by one person it is possible that active mound locations were missed.

A skink *Notoscincus butleri* is listed in Ninox (2005) as potentially occurring in the spinifex grasslands in the vicinity of creeklines particularly in the northern portion of the project area (Ninox 2005).

The presence of *Eucalyptus victrix* within the creeklines is of local significance to the vertebrate fauna within the project area as it is likely that the hollows present in those trees would be used by a range of animals (Ninox 2005). The adjacent spinifex grassland communities could also support the P4 listed skink *Notoscincus butleri* (Ninox 2005). The small area of rocky hills in the south east of the project area may support a range of specific animals such as the Long -Tailed Dunnart and, like other such hills found in the bioregion, may also be important as a fire refuge (Kendrick and Stanley 2001).

Although artificial in nature a permanent large pool of good quality freshwater at the bottom of the old Whundo Mine open pit provides a significant source of water to a number of native and introduced fauna species in the area. A large number of Euro scats *Macropus robustus* and birds were noted in the vicinity of the pit by the DoIR assessor during a site visit in October 2005.

CALM (2006) in its assessment of this principle stated that the fauna survey undertaken in support of this clearing application is adequate as a preliminary habitat assessment to determine predicted fauna assemblages, including endangered or specially protected fauna which may use the area. There are however obvious limitations in terms of comprehensiveness considering the small duration of the survey and lack of suitable sampling undertaken. On this basis it is difficult to adequately assess the full impact of this project on fauna values without further survey. However based on the information available to support this application the proposal is unlikely to have a significant impact on local fauna assemblages provided that those areas identified as pertaining refuge opportunities such as rock piles and riparian vegetation are adequately excluded from clearing and properly managed for the duration of the project.

**Methodology** CALM (2006).  
Kendrick and Stanley (2001).  
Ninox (2005).

**(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**

The closest known location of a Declared Rare Flora or Priority listed flora species to the Whundo project area is for the Priority 3 listed *Terminalia supranitifolia* located approximately 10 kilometres west of the project area (GIS Database).

A flora and vegetation survey of the Whundo lease was undertaken by Matisse Consulting for Fox Resources Limited in 2005. The field work was undertaken in April and August 2005 (Matisse 2005). No Declared Rare Flora or Priority flora species were located during the survey (Matisse 2005).

CALM (2006) reviewed the survey information and DoIR's assessment report and agreed with the conclusion that the proposal is unlikely to impact on Declared Rare or priority Flora.

It is therefore unlikely that the clearing will be at variance to this principle.

**Methodology** CALM (2006).  
GIS Database-Declared Rare and Priority flora list-CALM 1/7/2005.  
Matisse (2005).

**(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 is no known Threatened Ecological Community located within the Whundo project area (Matisse 2005) or in the vicinity (GIS Database). Other Ecosystems at risk within the Pilbara 4 IBRA subregion (Pil 4 Roebourne synopsis) and Pilbara 1 (Chichester subregion) are listed in Kendrick and Stanley (2001) and Kendrick and McKenzie (2001) respectively. None of those Ecosystems are present in the areas proposed to be cleared within the Whundo project area.

CALM (2006) reviewed the above information and agreed that the proposal is not likely to impact on any known Threatened Ecological Communities.

**Methodology** CALM (2006).  
GIS Database-Threatened Ecological Communities-CALM 12/04/2005.  
Kendrick and McKenzie (2001).  
Kendrick and Stanley (2001).  
Matisse (2005).

**(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 State Government is committed to the National Objectives Targets for Biodiversity Conservation which includes a target that prevents clearance of ecological communities with an extent below 30% of that present pre-European settlement (Department of Natural Resources and Environment, 2002; EPA, 2000). The vegetation of the site is classified as Beard Vegetation Association 152 (GIS Database) which has 100 % of the pre-European extent remaining (Shepherd et. al. 2001).

Approximately 2.4 % of Beard Vegetation Association 152 described as occurring within the Whundo project area is protected in IUCN class I-IV reserves and 1.6 % is located in CALM managed pastoral leases (Shepherd et. al. 2001).

The benchmark of 15% representation in conservation reserves (JANIS Forests Criteria, 1997) has not been met

for Beard Vegetation Association 152. Given that Vegetation Association 152 remains at its current pre-European extent and that the proposed clearing will not reduce the extent of that vegetation Association to less than 30 % in the bioregion, it is of 'least concern' for biodiversity conservation (Department of Natural Resources and Environment 2002).

**Methodology** Department of Natural Resources and Environment (2002).  
EPA (2000).  
JANIS (1997).  
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 may be at variance to this Principle**

Two non-perennial watercourses are identified as occurring within the project area according to the Department of Environment dataset for the state of Western Australia (GIS Database). Mattiske (2005) mapped and described the vegetation communities within the project area including vegetation community A2 which occurs along the main drainage lines. Vegetation community A2 occurs along the main flow line in the north of the project area and is also intersected at one point along the Whundo project access road.

The direct impact of the project on that vegetation type will be limited to the 5 metre widening of the access road since the proposed pit, laydown areas, waste dump, ore stockpile, magazine and borrow pits are all located away from drainage lines. The water supply as well as the dewatering discharge pipelines will be bridged across any drainage lines to prevent disturbance to stream flows (URS 2005b). Approximately 0.11 hectares of vegetation community A2 will be disturbed by the Whundo project proposed works (URS 19/12/2005).

The large gum trees (*Corymbia opaca*, *Eucalyptus victrix*) found within the drainage line are environmentally significant as a source of tree hollows in the local area (Ninox 2005).

URS (2005a) have stated that where possible those trees will not be disturbed. Following discussions between DoIR, URS and the applicant on the 6/12/2005, the applicant has agreed to establish a no clearing buffer zone 50 metres out from the centre of the main drainage line in the north west corner of the areas applied to clear. The buffer zones agreed to were drawn on a site layout map which was provided to DoIR (Fox Resources Ltd 9/12/2005). The aim of the buffer zone is to prevent the clearing of the large trees within that drainage line.

At its closest point the proposed pit will be approximately 500 metres away from that vegetation type (Mattiske 2005). Dewatering of the proposed pit will be required and may affect the vegetation nearby if it is groundwater dependent.

Based on the distance from the proposed pit to the buffer zone, the short term duration of the project and the dewatering system used, the trees within the buffer zone are unlikely to be affected by the dewatering (Humphreys pers comm. 18/01/2006).

**Methodology** GIS Database-Hydrography linear-DoE 1/2/2004.  
Mattiske (2005).  
URS (2005a).  
URS (2005b).  
URS (19/12/2005).

**(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 project area is located on the Ruth and Capricorn Land Systems with the Ruth Land System comprising the majority of the project area (URS 2005a). Both land systems are recognised as resistant to erosion under pastoral land use. However, mining has potential to initiate erosion in drainage channels if surface water is not carefully managed (DAWA 2006).

Any potential erosion activities are likely to occur during local rainfall events. The applicant has stated that they will implement surface water management measures to prevent or minimise potential erosion. For example they have stated that stabilised drainage outfalls would be utilised where the diverted water re enters the drainage line (URS 2005b). No major diversion of streamlines is planned for this project (URS 2005a).

Due to past mining operations, a large portion of the Whundo project area has been affected by Acid Rock Drainage (ARD). The soils within the disturbed area are highly acidic (pH 2.7-6.0) and stream sediments to the west of the mined zone also show low pH values (URS 2005a). Sediment analysis along the creeklines has also found evidence of heavy metals exceeding the DoE ecological guidelines (URS 2005a). The disturbed areas within the Whundo project support very little vegetation and the proposed operation will not clear vegetation on those sites (Fox Resources 2005). Fox Resources have indicated that some rehabilitation of the ARD sites will be undertaken as part of the Whundo Project and that some of the material may be of enough commercial value to be removed from the site (Laurie Chew pers. comm. 06/12/2005).

The Department of Agriculture advice in relation to this principle has recommended that the Department of Industry and Resources impose conditions, either under the Clearing Permit System or the *Mining Act (1978)* to ensure that the waste rock stockpiles managed in such a manner to avoid on site and off site problems arising from Acid Rock Drainage (e.g.Capping).

There are no low lying areas with poor drainage within the project area and the clearing is not expected to increase water logging or salinisation on or off the site.

**Methodology** DAWA (2006).  
Fox Resources (2005).  
URS (2005a).  
URS (2005b).

**(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 nearest conservation reserve is the Millstream National Park, situated approximately 11 kilometres to the south east (GIS Database). None of the drainage lines within the project area flow into that National Park (GIS Database). The project area does not provide a buffer to the National Park nor does it contribute to an ecological linkage to the National Park given that the majority of the land in the region has not been cleared (Shepherd et. al. 2001).

**Methodology** GIS Database-CALM managed Land and Waters-CALM 1/7/2005.  
GIS Database-Hydrography Linear-DoE 1/2/2004.  
Shepherd et. al. (2001).

**(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 climate of the local area is characterised by high evaporation rates of 3400 mm per year (GIS Database) and low rainfall of approximately 300 mm per year (URS 2005a). Two minor non perennial watercourses are located within the project area (GIS Database). The Whundo project area is not located within or upstream of a Public Drinking Water Source Area (GIS Database).

Surface runoff occurs following thunderstorms or cyclonic activity, resulting in intermittent and short duration surface water flows in the drainage lines through the project area (URS 2005a). Any potential erosion activities are likely to occur during local rainfall events and Fox Resources have stated that they will implement surface water management measures to prevent or minimise erosion. For example, diversion of surface water flows with stabilised drainage outfalls would be utilised where the diverted water re-enters the drainage line. Such measures will minimise the likelihood of lower quality water from the diverted drainage lines entering the intermittent tributary systems. No major diversion of streamlines is planned for this project (URS 2005a).

With high annual evaporation rates and low annual rainfall there is little recharge into regional groundwater. The proposed clearing is unlikely to have an impact on groundwater considering the magnitude of the groundwater province and the extent of native vegetation remaining in the Pilbara Bioregion (100%), (Shepherd et. al. 2001).

**Methodology** GIS Database-Evaporation Isopleths-DoE 1/2/2004.  
GIS Database-Linear Hydrography-DoE 1/2/2004.  
GIS Database-Public Drinking Water Source Areas (PDWSA)-DoE 9/8/2005.  
URS (2005a).  
Shepherd et. al. (2001).

**(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**

With an average annual rainfall of approximately 300 mm per year (URS 2005a) and high evaporation rate of 3400 mm per year (GIS Database) water flows in the drainage lines only occur following thunderstorms or cyclonic events and are of short duration. A minor increase in surface run-off and peak discharge is expected; however, given the surface water management proposed for the project, this increase is not expected to significantly impact the receiving environment (URS 2005a).

**Methodology** GIS Database-Evaporation Isopleths-BoM 9/1998.  
URS (2005).

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

### Comments

There is a native title claim over the area under application; Ngaluma/Injibandi, WC 99\_014 (GIS Database). This claim has been registered with the National Native Title Tribunal on behalf of the Ngaluma/Injibandi claimant groups. 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 (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*.

There are four Aboriginal sites of significance (FS1, FS2, FS3 and Gurru Bunjy) within the area under application (GIS Database 28/02/2003). 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.

There is no current water licence or application for a water licence for this project (DoE 16/11/2005). The DoE is waiting to receive a copy of a Notice of Intent (NoI) to mine from Fox Resources to ascertain if any approvals (works approval, licence) are required for the Whundoo project. The DoE has recommended that approval to clear should only be granted if and when approval to mine is granted (DoE 16/11/2005). The covering letter with this permit states that the grant of the permit does not exonerate the applicant from complying with other approvals including the requirement under the *Mining Act (1978)* for the applicant to have a Notice of intent approved by the Department of Industry and Resources prior to mechanised equipment being used within the tenements covered by the permit application.

**Methodology** GIS Database-Sites of Aboriginal Significance-DIA 28/02/2003.  
GIS Database-Native Title Claims-DLI 7/11/2005.  
DoE (16/11/2005) Advice from DoE dated 16/11/2005.

## 4. Assessor's recommendations

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
Mineral Production	Mechanical Removal	266.1	Grant	<p>The proposal is judged not at variance to principle e, and not likely to be at variance to principle a,c,d,h,i &amp; j.</p> <p>The proposal may be at variance to principle b because it may disturb habitat used by the Priority 4 (P4) listed Western Pebble Mound Mouse, the P4 listed Long-Tailed Dunnart <i>Sminthopsis longicaudata</i>, the P4 listed Lakeland Downs Mouse <i>Leggadina lakedownensis</i> and the P4 listed skink <i>Notoscincus butleri</i>. The proposal may also lead to the clearing of some large gum trees present within the creeklines of the project area. Those trees are significant because they would have hollows which are essential habitat for some of the fauna present in the area (Ninox Wildlife Consulting 2005).</p> <p>The Pebble Mound Mouse is relatively common and widespread in the Pilbara (Ninox Wildlife Consulting 2005) and not regarded as threatened by Kendrick and McKenzie (2001). It is unlikely that the clearing of up to 150 hectares of native vegetation over the 266 hectares of the purpose permit application will be significant to that species given the large areas of suitable habitat that remain in the area.</p> <p>A permit condition has been set to ensure that the rocky outcrop likely to be most significant to the Long-Tailed Dunnart and local reptilian fauna, located in the south east corner of the project area, will not be cleared. Other scree slopes present within the area are located outside of the purpose permit application area.</p> <p>The Lakeland Downs Mouse is listed by Ninox Wildlife Consulting (2005) as likely to occur on stony hummock grasslands which are represented by the vegetation community types H1, H3, H4 and H5 (Mattiske 2005). Approximately 11.44 hectares of vegetation community type H1 and 0.35 hectares of vegetation community type H3 will be cleared as a result of the proposed initial works (URS 2005). The total area of vegetation types H1, H3, H4 and H5 remaining after the proposed initial clearing is approximately 104 hectares. It is unlikely that the initial clearing of approximately 12 hectares of native vegetation suitable for the Lakeland Downs Mouse or further subsequent clearing of those vegetation types over the 266 hectares of the purpose permit application will be significant to the local population dynamics of that species given the large areas of suitable habitat that remain in the area.</p> <p>The P4 listed skink <i>Notoscincus butleri</i> is listed by Ninox Wildlife consulting (Ninox 2005) as potentially occurring within Vegetation Community type A2 of which approximately 0.11 hectares will be disturbed by the proposed project (URS 19/12/2005). It is unlikely that the clearing of 0.11 hectares of that vegetation type will be significant to that species given that the majority of that vegetation type present within the Whundo project area will not be affected by the proposed operation.</p> <p>The large gum trees (<i>Eucalyptus victrix</i>) situated within the major creeklines within the Whundo project areas have been identified as of local significance (Ninox 2005). To</p>

prevent the clearing of the majority of those trees a 50 metre wide (either side of the main channel) no clearing buffer zone for the major creekline running near the northern boundary of the project outwards has been agreed to with Fox Resources Limited and set as part of a permit condition. Fox Resources have also agreed to avoid clearing such trees where possible when widening the access road linking the project to the Karratha-Tom Price access road to the north.

The proposal maybe at variance to principle f (clearing of vegetation associated with a watercourse), however the setting of a buffer zone along the main creekline outlined above will address this.

The Department of Agriculture advised that the proposed clearing and diversion of surface water has the potential to cause erosion in the drainage floor of surface water channels and stated that the proposal may be at variance to principle (g).

The construction of surface water management structures and monitoring of the performance of those structures is required under condition 4 of this permit to minimise potential erosion impacts arising from the clearing.

The Department of Agriculture also recommended that a condition be set under the Clearing permit or the Mining Act (1978) to ensure that any Acid Rock Drainage issues associated with the waste rock stockpiles are managed appropriately. Such conditions will be part of the NoI and tenement conditions currently being negotiated between the Department of Industry and Resources and Fox Resources Pty Ltd.

Based on the above the assessor recommends the grant of the purpose permit with conditions attached to ensure that no clearing of native vegetation is to take place within the buffer zones outlined on plan 771/1 associated with the permit. The assessor has set a reporting condition to allow DoIR to monitor the amount of clearing carried out for this project.

## 5. References

- DAWA (2006) Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture Western Australia. Advice received by DoIR on 18/1/2006.
- 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.
- EPA (2000) Environmental protection of native vegetation in Western Australia. Clearing of native vegetation, with particular reference to the agricultural area. Position Statement No. 2. December 2000. Environmental Protection Authority.
- Fox Resources LTD (9/12/2005). Email from Laurie Chew, Manager of Projects Fox Resources Limited to Philip Boglio, DoIR Environmental Assessor, with site layout for proposed Whundo project.
- JANIS Forests Criteria (1997) Nationally agreed criteria for the establishment of a comprehensive, Adequate and Representative reserve System for Forests in Australia. A report by the Joint ANZECC/MCFFA National Forest Policy Statement Implementation Sub-committee. Regional Forests Agreement process. Commonwealth of Australia, Canberra.
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- Kendrick P & McKenzie N (2001) Pilbara 1 (PIL1-Chichester Subregion). In 'A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002'.
- Kendrick P & Stanley F (2001) Pilbara 4 (PIL4 - Roebourne synopsis). In 'A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002'.
- Mattiske Consulting Pty Ltd (2005) Flora and Vegetation of the Whundo lease area and associated haul road. Unpublished report prepared for Fox Resources Limited, September 2005.
- Ninox Wildlife Consulting (2005) Vertebrate fauna assessment of the Whundo project area, near Karratha, Western Australia. Unpublished report prepared for Fox Resources Ltd, dated May 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.
- URS (19/12/2005) Email from Blair Hardman, URS Environmental Scientist, to Philip Boglio, DoIR Environmental Assessor, with table of areas of proposed disturbance to various vegetation types identified by Mattiske within the Whundo project areas.
- URS (2005a) Report, Supporting Documentation for the Clearing Permit Application Whundo Copper Project. Unpublished report prepared for Fox Resources Limited, dated 7 November 2005.
- URS (2005b) Report, Notice of Intent, West Whundo Copper Project. Unpublished report prepared for Fox Resources Limited, dated 23 December 2005.

## 6. Glossary

Term	Meaning
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CALM	Department of Conservation and Land Management
DAWA	Department of Agriculture
DEP	Department of Environmental Protection (now DoE)
DoE	Department of Environment
DoIR	Department of Industry and Resources
DRF	Declared Rare Flora
EPP	Environmental Protection Policy
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
TEC	Threatened Ecological Community
WRC	Water and Rivers Commission (now DoE)