



## 1. Application details

### 1.1. Permit application details

Permit application No.: 860/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Fortescue Metals Group Ltd

### 1.3. Property details

Property: E46/590  
Local Government Area: Shire Of Ashburton  
Colloquial name: Cloud Break Surface Miner Trial

### 1.4. Application

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

## 2. Site Information

### 2.1. Existing environment and information

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

Vegetation Description	Clearing Description	Vegetation Condition	Comment
<p>The vegetation of the Cloud Break area was mapped at a 1:250 000 scale and the findings are summarised in Hopkins et al (2001) and Shepherd et al (2001). Two Vegetation Associations are found within the areas to be cleared under that dataset and are described below.</p> <p>Vegetation Association 29: Sparse low Woodland; mulga, discontinuous in scattered groups.</p> <p>Vegetation Association 562: Mosaic: Low woodland; mulga in valleys/hummock grasslands, open low tree-steppe; snappy gum over <i>Triodia wiseana</i>.</p> <p>The vegetation of the wider Cloud Break area including areas to be cleared was surveyed and mapped at a scale of 1:150 000 by Mattiske Consulting in 2005. The four vegetation types that were identified by that survey within the areas to be cleared are as follow:</p> <p>Vegetation type 9: Closed Scrub to Shrubland of <i>Acacia ancistrocarpa</i>, <i>Acacia maitlandii</i>, <i>Acacia</i></p>	<p>The proposed clearing is for the trial of a surface miner machine as part of a feasibility study by the Fortescue Metals Group (FMG). The trial is part of the much larger Cloud Break Iron Ore Mine proposal which is currently the subject of a Public Environmental Review (PER) by the Environmental Protection Agency (EPA). The trial will involve the excavation of a pit, upgrading of tracks, construction of new roads and associated topsoil dumps, waste dump and Run Of Mine (ROM) Ore Pad.</p> <p>The trial was initially proposed to proceed in four stages (FMG 2005b) which was subsequently amended to stages 1 &amp; 2 (MacIsaac 2005). The revised stage 1 overlies an area where 1.1 hectare of vegetation was cleared under a previous exploration approval. Stage 1 proposed to clear 9.8 hectares additional to the 1.1 hectares mentioned previously and was agreed to by FMG and DoIR on the 13th of October 2005 to be exempt under the 10 hectare exemption that currently exists. Stage 2 for a total of 6.9 hectares additional to stage 1 is</p>	<p>Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)</p>	<p>The Cloud Break area is located on the southern flank of the east-west running Chichester Ranges. The trial area is located approximately 6 kilometres north and upstream of the Nationally Important Fortescue Marshes. The trial involves an excavation and clearing of associated vegetation across one minor creekline upstream of the Fortescue Marshes. The vegetation condition assessment is derived from Mattiske (2005b). No Declared Weed Species were recorded at the site in October 2005 (G&amp;G Environmental 2005).</p>

*kempeana*, *Acacia monticola* with occasional *Eucalyptus gamophylla* and *Corymbia deserticola* over *Senna* species, *Triodia basedowii* and *Aristida* species.

Vegetation Type 3: Low woodland to low open forest of *Acacia aneura* var. *aneura*, *Acacia pruinocarpa*, *Acacia tetragonophylla*, *Acacia tenuissima*, *Grevillia wickhamii* subsp. *aprica*, *Psyrax latifolia* over *Dodonea petiolaris* and species of *Triodia* and *Aristida*.

Vegetation type 16: Hummock Grassland of *Triodia basedowii* with pockets of *Triodia epactia* and *Triodia lanigera* with emergent patches of *Eucalyptus leucophloia*, *Corymbia deserticola* over *Acacia ancistrocarpa*, *Acacia hilliana*, *Acacia acradenia*, *Acacia pyrifolia*, *Hakea lorea* subsp. *lorea* over *Goodenia stobbsiana* and mixed *Senna* species.

Vegetation type 17: Hummock Grassland of *Triodia basedowii* with pockets of *Triodia epactia* and *Triodia lanigera* with emergent patches of *Eucalyptus leucophloia*, *Corymbia deserticola* over *Acacia ancistrocarpa*, *Acacia pyrifolia*, *Hakea lorea* subsp. *lorea* over *Goodenia stobbsiana* and mixed *Senna* and *Ptilotus* species.

subject to this clearing permit. If stages 1 and 2 of the trial are carried out the total area of vegetation cleared will be 18 hectares, of which 1.1 hectares was cleared under a previous exploration approval and 9.8 hectares was agreed to be exempt under the 10 hectare exemption.

### 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 Interim Biogeographic Regionalisation for Australia (IBRA) recognises 53 bioregions in Western Australia. The Cloud Break area is situated within the Pilbara 2 Fortescue Plains subregion. Cloud Break is approximately 5 kilometres south from the Pilbara 1 Chichester subregion boundary (Environment Australia 2000).

High species and ecosystem diversity within both IBRA subregions are described in Kendrick (2001) for the Fortescue Plains Subregion and by Kendrick and McKenzie (2001) for the Chichester subregion. The ecosystems found within the Cloud Break area include hummock grasslands which were noted for their high diversity of reptile and small mammal communities by Kendrick and McKenzie (2001). Mattiske (2005a) recorded two hummock grassland communities, types 16 and 17 within the areas proposed to be cleared.

Hummock grassland communities are widespread in the Pilbara region and it is unlikely that vegetation types 16 and 17 within the areas to be cleared have a higher diversity of fauna species than other hummock grasslands in the Bioregion or local area. The fauna assessment of the 18 hectares at the site by ATA Environmental (ATA 2005) states that there is no reason to believe that the faunal assemblages of that site are significantly different to that for other similar areas to the east, west or north.

As part of the Environmental assessment of the whole Pilbara Iron Ore and Infrastructure Project, Mattiske Consulting mapped the vegetation of the wider Cloud Break area as well as the areas proposed to be cleared

(FMG 2005b, Mattiske 2005a). A total of 18 plant communities were described in the wider Cloud Break area of which 4 were recognised as being regionally and locally significant and another 8 were considered locally significant. Two locally significant communities occur within the areas proposed to be cleared. They are: community type 3 and type 9.

Community type 3 is stated as being locally significant because it represents one of the Mulga (*Acacia aneura*) dominated communities surveyed which are at the northern most extent of their range in that location. Large areas of that community type were mapped within the broader project area by Mattiske (2005a) and considering the small area being cleared the proposal is unlikely to be at variance to principle a for that community type.

Community type 9 is considered locally significant by Mattiske (2005a) because it supports the Priority listed (P3) *Themeda sp* Hamersley Station. This species was not recorded during a detailed Priority and Scheduled vegetation survey in October 2005 of the areas proposed to be cleared. (G & G Environmental 2005).

Based on the above, the proposal is unlikely to be at variance with principle a.

**Methodology** ATA (2005) Fauna Assessment Cloud Break Surface Miner trial Notice of Intent, Version 2, October 2005. Unpublished report for Fortescue Metals Group Ltd.  
Environment Australia (2000) Interim Biogeographic Regionalisation for Australia (subregions) EA 18/10/00.  
FMG (2005b)  
G & G Environmental (2005)  
Kendrick (2001)  
Kendrick and McKenzie (2001)  
Mattiske (2005a)

**(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 at variance to this Principle**

A fauna survey was conducted in April and May 2005 within the Pilbara Iron Ore and Infrastructure Project Area by Bamford Consulting (2005). Seventeen species of Scheduled or Priority listed fauna were recorded or expected to occur within the Cloud Break PER surveyed area (FMG 2005b).

Of most significance is the first confirmed sighting of Night Parrots (*Pezoporos occidentalis*) in Western Australia since the 1930's. This species is listed as endangered at a national level (EPBC Act 1999) and very little is known of its habitat requirements or the threats that have contributed to the decline of the species Australia-wide. Although the Night Parrot has mostly been recorded from hummock grasslands and chenopod shrublands, the most recent specimen obtained in 1990 came from the Mitchell Grass Plains area of Western Queensland. In the Cloud Break area three birds were recorded drinking at dusk at a well approximately 13 kilometres from the surface miner trial area (FMG 2005a1). In response to that sighting FMG have produced a Night Parrot Management Plan (FMG 2005a1) with a potential Night Parrot habitat map provided. According to the map within the FMG management plan the hummock grassland dominated vegetation types 16 and 17 found in the Cloud Break area are potential habitat for the Night Parrot (Habitat 2, FMG 2005a1).

ATA Environmental (2005) conducted an EPA level 1 assessment (EPA 2004) of the 860 site including a site visit on the 25th and 26th October 2005, and judged the potential of the Night Parrot to be found at the site as "possible, but rated low given the size of the site and the scarcity of the parrot".

There are recent records within the bioregion of Greater Bilby *Macrotis Lagotis* (S1) in Mulga vegetation (Kendrick 2001), and diggings were recorded within the PER area by Bamford (2005). A grid search of the proposed clearing areas (6.9 hectares) as well as the other areas that were initially applied for (totalling 18 hectares) was carried out by ATA Environmental to look for evidence of Bilbies, Mulgaras *Dasysercus cristicaudata* (S1), Western Pebble Mound Mice *Pseudomys chapmani* (P4) active mounds, Orange horseshoe bat *Rhinioncteris aurantius* (S1) roosting habitat and habitat suitable for Pilbara Olive Python *Liasis olivaceus barroni* (S1).

No evidence of Bilby or Mulgara burrows evidence was found. A total of 17 inactive Western Pebble Mound Mice mounds were found over the 18 hectares surveyed and "it is clear that they have been in the area in the past" (ATA 2005). There is no suitable roosting habitat for the Orange Horseshoe bat at the site (ATA 2005). Based on previous survey experience and records ATA Environmental judged that the Pilbara Olive python is highly unlikely to occur in the 18 hectare area surveyed.

Of the eight species listed under the EPBC Act 1999 as possibly occurring in the proposed clearing area, only the Night Parrot, Fork Tail Swift *Apus pacificus* and the Rainbow Bee Eater *Merops ornatus* are likely to occur (ATA 2005).

Both the Swift and Rainbow Bee Eater are migratory, widespread and unlikely to be affected by the proposed development (ATA 2005).

The Peregrine Falcon *Falco peregrinus* (S4) probably occurs from time to time over the area however they

occur widely and in low numbers and the development is unlikely to impact this species (ATA 2005).

ATA (2005) states that the two Priority 1 and one Priority 2 reptile species listed in the FMG Nol as potentially occurring in the area are unlikely to be present within the areas proposed to be cleared as they have not been found in recent surveys.

In their assessment of the potential for seven Priority 4 species to occur at the site ATA (2005) states that only the Western Pebble Mound Mice is likely to be affected by the development in the area.

It is possible that the proposed clearing will include habitat that is used by the Night Parrot population in the area and by the Western Pebble Mound Mice. As such the proposal is considered at variance to principle b for those two species.

FMG has prepared a Subterranean Fauna management plan (FMG 2004a) in response to the potential impacts of its proposed operations on stygofauna. As part of its ongoing monitoring program FMG has committed to a subterranean sampling program including bores in the vicinity of the Cloud Break area. To date no stygofauna has been located within Mulga bore situated approximately two kilometres from the proposed clearing area. The closest bores that have recorded stygofauna are Cook bore and Minga Well situated approximately 10 and 15 kilometres from the permit area (FMG 2004a).

**Methodology** ATA (2005)  
Bamford (2005)  
DEH (2005)  
EPBC Act (1999)  
EPA (2004)  
FMG (2004a)  
FMG (2005a1)  
FMG (2005b)  
Kendrick (2001)  
Kendrick and McKenzie (2001)

**(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 Declared Rare Flora (DRF) species recorded in the Cloud Break area occur 55 kilometres to the south west near Mindy Creek (CALM 2005). The wider Cloud Break area including the areas proposed to be cleared were the subject of a broad scale vegetation survey and associated mapping at a scale of 1:150 000 in October/November 2004 with a follow up survey in May 2005 (Ian Yull pers comm, Mattiske Consulting 2005a). No known Declared Rare Flora species were recorded.

Five Priority listed species were recorded in the Mattiske 2004 and 2005 surveys. Of those five species one: *Themeda sp.* Hammersley Station was recorded within a vegetation community type (Type 9) that is proposed to be cleared. A vegetation survey targeting rare and priority flora within the whole 18 hectares initially applied to be cleared by FMG was carried out by G. and G. Environmental in October 2005. No Declared Rare Flora or Priority Flora were located at that time (G&G Environmental 2005).

Based on the above results the proposal is unlikely to be at variance with principle c.

**Methodology** CALM 2005 Declared Rare and Priority Flora list 01/07/05  
FMG (2005b)  
G&G Environmental (2005).  
Mattiske Consulting (2005a)

**(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**

The closest endorsed Threatened Ecological Community to the Cloud Break project area is the Ethel Gorge Aquifer stygobiont community located approximately 120 kilometres to the south (CALM Threatened Ecological Communities 2005). Other Ecosystems at risk within the Pilbara 1 IBRA subregion (Pil 1 Chichester) and Pilbara 2 IBRA subregion (Pil 2 Fortescue Plains) are listed in Kendrick and McKenzie (2001) and Kendrick (2001) respectively. None of those Ecosystems are present in the areas proposed to be cleared at Cloud Break.

**Methodology** Kendrick (2001)  
Kendrick and McKenzie (2001)  
Threatened Ecological Communities CALM (12/4/05)

**(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 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 a component of Beard Vegetation Associations 29 and 562 (Hopkins et al. 2001) both of which have 100 % of the pre-European extent remaining (Shepherd et al. 2001). While the benchmark of 15% representation in conservation reserves (JANIS Forests Criteria, 1997) has not been met for Beard vegetation association 29 or 562, more than 7 million hectares for association 29 and 112,469 hectares for association 562 remain and it is therefore of 'least concern' for biodiversity conservation (Department of Natural Resources and Environment 2002).

reserves/CALM-	Pre-European area (ha)	Current extent (ha)	Remaining %*	Conservation Status**	% in managed land
IBRA Bioregion Pilbara	17,944,694 ***	17,944,694 ***	~100%	Least concern	
Shire of Ashburton	No information available				
Beard vegetation associations - 29		7,782,264	7,782,264	~100%	Least concern
- 562		112,469	112,469	~100%	Least concern

\* Shepherd et al. (2001)

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

\*\*\* Area within the Intensive Landuse Zone

Bioregional Conservation Status of Ecological Vegetation Classes (Department of Natural Resources and Environment 2002)

Presumed extinct	Probably no longer present in the bioregion
Endangered*	<10% of pre-European extent remains
Vulnerable*	10-30% of pre-European extent exists
Depleted*	>30% and up to 50% of pre-European extent exists
Least concern	>50% pre-European extent exists and subject to little or no degradation over a majority of this area

\* Or a combination of depletion, loss of quality, current threats and rarity gives a comparable status

Based on the above the proposal is considered not at variance to principle e.

**Methodology** Department of Natural Resources and Environment, (2002).  
EPA, (2000).  
Hopkins et al. (2001)  
JANIS Forests Criteria, (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**

The proposal will result in the clearing of a small area of creek and drainage line vegetation type 9 (FMG 2005b, Mattiske 2005a). This vegetation type was recorded in other creek lines in the wider Cloud Break area (Mattiske 2005a). The creek flows into the Fortescue Marshes (DoE 2004) and associated vegetation types are recognised as having significant environmental values at both state and national level (Kendrick 2001). There is the potential for local scouring and increased siltation of downstream areas as a result of the works proposed which may affect the vegetation downstream. FMG has proposed a number of management measures including the construction of diversion drains, low bunding around stockpiles and waste dump, and a sedimentation basin to collect run off prior to discharge downstream of the trial area (FMG 2005b).

Disturbance to the site also increases the possibility of weed invasion into the creek line and ecosystems further downstream. Mesic habitats such as creeklines are particularly susceptible to weed invasion. This was recognised in FMG's Weed Management Plan (FMG 2005c).

Based on the potential for further degradation to the Fortescue Marshes Vegetation downstream of the Surface Miner Trial through potential soil erosion and weed impacts, the proposal may be at variance to principle (f).

**Methodology** DoE Hydrography Linear 1/2/04  
FMG (2005b)  
FMG (2005c)

Kendrick (2001)  
Mattiske (2005a)

**(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 area proposed to be cleared occurs over three land systems, Newman, Christmas and Jamindie (DAWA 2005). The Newman land system is generally regarded as having a very low soil erosion risk. The Christmas land system has a moderate risk of soil erosion if the drainage tracts are disturbed (DAWA 2005). The majority of the proposed clearing areas are located within the Jamindie land system which is characterised predominantly by stoney soils and red earths (DAWA 2005). Following a desktop assessment of the potential for land degradation to occur at the 860 site the Office of the Commissioner of Soil and Land Conservation concluded that the proposed clearing may cause minor soil erosion if the surface water flows are not safely diverted around the trial sites and recommended that the proposed clearing may be at variance with principle (g) for soil erosion (DAWA 2005). The Commissioner recommended that conditions to manage surface water flows around the site be considered.

FMG has proposed a number of management measures including the construction of diversion drains, low bunding around stockpiles and waste dump, and a sedimentation basin to collect run off prior to discharge downstream of the trial area (FMG 2005b).

**Methodology** DAWA (2005)  
FMG (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 may be at variance to this Principle**

CALM (02/12/2005) advises that the proposed Surface Miner Site occurs within a pastoral lease that has been identified by CALM for exclusion in 2015 for future addition to the conservation reserve system as an A class Nature Reserve. The Minister for Planning and Infrastructure endorsed the exclusion in November 2004 and the area is now a formally proposed Nature Reserve awaiting exclusion in 2015.

The nearest existing conservation area is the ANCA listed Fortescue Marsh wetland 6 kilometres to the south of the Cloud Break proposal (CALM 2001, FMG 2005b). The clearing and associated earthworks have the potential to impact on surface water flows and quality of one minor non-perennial creek within the proposed clearing area. That creek is upstream from the Fortescue Marsh (DoE Hydrography Linear 1/2/04). FMG has proposed a number of management measures including the construction of diversion drains, low bunding around stockpiles and waste dump, and a sedimentation basin to collect run off prior to discharge downstream of the trial area (FMG 2005b).

The clearing and associated earthworks have the potential to introduce new weeds and to increase the spread of weeds in the trial area which may in the case of some particularly aggressive weed species (for example Mexican Poppy *Argemone ochroleuca*) migrate downstream towards the Fortescue Marshes following drainage lines.

Creeklines can form ecological linkages in an arid environment such as the Pilbara as they tend to be more densely vegetated than the surrounding landscape and a number of drainage line specialist fauna species tend to be found and travel within such areas (Phil Boglio pers. obs.). The proposed clearing within the drainage line may disrupt such a linkage to the Fortescue Marshes downstream.

The Department of Conservation and Land Management advises that the proposal may be at variance with principle h on the basis of the proposals potential to impact on a formally proposed conservation reserve (CALM 02/12/2005).

**Methodology** CALM ANCA Wetland 08/2001  
CALM (02/12/2005)  
DoE Hydrography Linear 1/2/04  
FMG (2005b)

**(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 is the potential for local scouring and increased siltation of downstream areas as a result of the works proposed which may affect the vegetation downstream. FMG has committed in the NOI submitted for this project to implement a number of management strategies to minimise impacts on surface water flows and quality (FMG 2005b). Those measures include the construction of diversion drains, low bunding around stockpiles and waste dump, and a sedimentation basin to collect run off prior to discharge downstream of the trial area (FMG 2005b).

The proposed surface miner trial excavation will be situated approximately 9 metres above the standing water table (Maclsaac 2005) and no dewatering is planned as a result of that excavation (Maclsaac pers comm). As a result of the small scale of the clearing and lack of dewatering it is unlikely that water regimes of groundwater dependent ecosystems will be affected.

The proposal is judged unlikely to be at variance to principle (j).

**Methodology** FMG (2005b)  
Mclsaac (2005)

**(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 surface hydrology of the wider Cloud Break Area was investigated by Aquaterra Consultants in 2005 (Aquaterra Consulting 2005). At an elevation of 415 to 450 metres above seal level the project is considered well above any potential flood storage level in the Fortescue Marshes (FMG 2005b). The local catchment upstream of the ROM Ore Pad has an area of around 10 hectares. The local catchments upstream of the trial excavation, waste dump and western topsoil pile are less than one hectare in total (FMG 2005b). A number of small ephemeral water courses are located within the trial area. FMG has proposed a number of measures to minimise the impact of the clearing on the hydrology of the ephemeral watercourses in the clearing areas. Those measures include diversion drains around the ROM Ore Pad and Excavation areas to divert flows back into the natural downstream creeklines, and flood bunding around the full perimeter of the excavation to protect the excavation from flooding due to adjacent surface waterflows. Low bunding around the perimeter of all stockpiles and waste dump areas will be constructed to divert and collect external surface waterflows to a sedimentation basin prior to discharge back into the natural creeklines downstream of the project areas (FMG 2005b).

Due to the small size of the areas being cleared, the ephemeral nature of the creek lines being affected by the proposal, and the surface flow management measures proposed by FMG it is unlikely that the proposal will be at variance to principle (j).

**Methodology** Aquaterra Consulting (2005) Pilbara Iron Ore and Infrastructure project, Cloud Break Mining Area, Surface Hydrology. June 2005.  
FMG (2005b)

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

**Comments**

There is a Native Title Claim over the area under application by the Niyaparli People (Native Title Claims-DLI 19/12/04). However, the exploration license has been granted, and the clearing is for a purpose that is consistent with the existing exploration license, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

The proposed clearing does not contain any Registered Indigenous Heritage Sites (DIA 2003). However 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. FMG undertook a heritage assessment for the site on the 22nd and 23rd June 2005 (Archaeological Risk Assessment Services 2005). As a result of that assessment five isolated artefact finds were identified within the surface miner trial area and once recorded were moved to new locations based on an agreement between the Pilbara Native Title Service and FMG (Archaeological Risk Assessment Services 2005).

The Cloud Break mine proposal is currently being formally assessed under part IV of the EP Act as a Public Environmental Review (PER). Under the EP Act (1986) DoIR cannot make a decision about a clearing matter that is related to a proposal that has been referred to the EPA, unless otherwise advised by the EPA. A letter dated 19th October 2005 from the Chairman of the EPA gave approval for DoIR to make a decision on the application received for the Surface Miner Trial at Cloud Break. The same letter further states that the EPA would require that DoIR impose a rehabilitation condition on the trial mining requiring that all remaining material after ore sampling be replaced in the pit, unless mining at the stage B project commences within 3 years of the trial mining (EPA 2005).

The Cloud Break proposal is currently being assessed under part IV of the EP Act; subsequently no water licences under the RIWI Act can be approved that relate to dewatering or water supply for mineral processing. The Licences currently held by FMG relate to water supply for mineral exploration, mining camp purposes and groundwater investigation studies to determine aquifer parameters (DoE Advice 2005). There are currently no EP licences or Works Approvals applications for that project (DoE Advice 2005).

Under the *EPBC Act 1999*, species listed as threatened (which includes the endangered category) are considered matters of national environmental significance. Actions that have, will have, or are likely to have, a significant impact on a listed threatened species are not to be undertaken without approval from the

Commonwealth Minister for the Environment and Heritage (*EPBC Act 1999* Section 18). The Cloud Break Iron Ore Mine proposal was referred to the DEH under the EPBC Act and deemed a controlled action because of the potential significant impacts on two listed species, the Night Parrot and Bilby. Following correspondence between the DoIR assessor, and the Director of the EPBC referrals section on the 4th of October the DEH advised that FMG should provide a letter stating why the Surface Miner trial should proceed prior to the PER assessment being finalised and stating why the impacts were thought not to be significant to the Night Parrot. Following receipt of a letter from FMG, dated 12th October, the DEH Director of the Referrals Section wrote to FMG on the 13th of October to confirm that a separate referral under the EPBC Act for the proposed trial excavation was not warranted (DEH 2005).

**Methodology** Archeological Risk Assessment Services (2005).  
 DIA (2003) Aboriginal Sites of Significance, 28/02/03.  
 DEH (2005).  
 DoE (2005) DoE Email advice dated 14th and 27th September 2005 in relation to water licences, RIWI Act and EP Licences/works approvals.  
 EPA (2005)  
 Native Title Claims-DLI 19/12/04

#### 4. Assessor's recommendations

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
Mineral Exploration	Mechanical Removal	6.9	Grant	<p>The proposal is judged not at variance to principle e and not likely to be at variance to principles c,d,i &amp; j.</p> <p>The proposal is at variance to principle b as it possible that the clearing will remove habitat that is used by the Night Parrot (S1) and Western Pebble Mound Mouse (P4).</p> <p>Considering that the elusive Night Parrot is probably present in very low numbers in the area and that the remaining habitat is widespread in the region, it is unlikely that the clearing of 6.9 hectares will significantly affect that species. This conclusion was also reached by ATA Environmental (2005). However regular surveys for that species and further research to find effective ways to survey and monitor the population in the Fortescue Marshes area as proposed in FMG's Night Parrot Management Plan (FMG 2005a) should still be implemented.</p> <p>The Western Pebble Mound Mouse is likely to be present within the clearing areas. However, large areas of suitable habitat are located in the vicinity of the trial area and the clearing of 6.9 hectares is unlikely to significantly impact this species (ATA 2005).</p> <p>The proposed clearing may be at variance to principles f, g and h. Those impacts relate to the potential for weed invasion and associated soil erosion impacts on the wetland vegetation downstream of the clearing areas (principle f), land degradation (principle g) and the potential impacts on the conservation values of the Fortescue Marshes (principle h).</p> <p>FMG have committed to implementing a number of management measures listed in the Nol to manage potential soil erosion issues. These measures include the construction of diversion drains, low bunding around stockpiles and waste dump, and a sedimentation basin to collect run off prior to discharge downstream of the trial area (FMG 2005b).</p> <p>A weed management plan (FMG 2005c) has been produced and provided that the management actions listed in that plan under objectives 1, 2 &amp; 3 are carried out, the risk of further weed invasions to the trial area and further downstream will be minimised. Weed management is also part of FMG's Exploration Management Plan (FMG 2005d) and the Annual Exploration Environmental Report provides a reporting mechanism to inform DoIR of any weed related management issues and progress.</p> <p>The assessor has set two conditions to ensure that in the event that the whole of the Surface Miner Trial area does not become part of the larger Cloud Break Iron Ore Mine proposal, all the areas cleared under stage 1 and 2 of the Cloud Break Surface Miner Trial are rehabilitated within 3 years of the completion of the clearing. The areas cleared under this permit are to be rehabilitated to a vegetation type of similar structure and species composition to the existing environment.</p> <p>The assessor has set a further 2 conditions requiring the permit holder to submit a record to the Director, Environment, DoIR, on an annual basis of the locations, areas and dates on which areas are cleared under this permit.</p>

#### 5. References

- Aquaterra Consulting (2005) Pilbara Iron Ore and Infrastructure project, Cloud Break Mining Area, Surface Hydrology. June 2005, Western Australia.
- Archeological Risk Assessment Services (2005) Heritage Assessment for Notice of Intent for FMG Surface Miner Trial area at Cloud Break. Unpublished report to Fortescue Metals Group July 2005. Western Australia.



- ATA (2005) Fauna Assessment Cloud Break Surface Miner trial Notice of Intent, Version 2, October 2005. Unpublished report for Fortescue Metals Group Ltd. Western Australia.
- CALM (02/12/2005) Land clearing proposal advice. Advice to the Program Manager Native Vegetation Assessment Branch, Department of Industry and Resources (DoIR). Department of Conservation and Land Management, Western Australia.
- DAWA (2005). Advice from the Commissioner Soil and Land Conservation in relation to the application for clearing permit 860/1 and land degradation (principle g). Letter to DoIR Native Vegetation Assessment Branch dated 1st November 2005.
- DEH (2005) Letter dated 13th October from DEH Director of Referrals section to FMG in relation to Cloud break Project and referral under the EPBC Act.
- Department of Environment and Heritage DEH (2005), EPBC ACT Principal Significant Impact Guidelines 1.1, Matters of National Environmental Significance.
- 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 (2005) DoE Email advice dated 14th and 27th September 2005 in relation to water licences, RIWI Act and EP Licences/works approvals.
- Environment Protection and Biodiversity Conservation Act (1999), section 18 subdivision c.
- EPA (2004) Guidance for the Assessment of Environmental Factors - terrestrial fauna surveys for Environmental Impact Assessment in Western Australia. Report by the EPA under the Environmental Protection Act 1986. No 56 WA.
- EPA (2005) Letter from the EPA Chairman, Mr Walter Cox, to the Director General DoIR, dated 19/10/2005, titled: Thin Seam Miner Technology Trial, Cloud Break NoI August 2005 (CPS 860/1).
- Fortescue Metals Group Limited (2004a). Pilbara Iron Ore Project Subterranean Fauna Management Plan. Unpublished report, Western Australia, December 2004.
- Fortescue Metals Group Limited (2004b). Pilbara Iron Ore Project Rehabilitation and Revegetation Management Plan, Unpublished report, Western Australia, December 2004.
- Fortescue Metals Group Limited (2005a1). Pilbara Iron Ore Project Night Parrot (*Pezoporus occidentalis*) Management Plan. Unpublished report, Western Australia, August 2005.
- Fortescue Metals Group Limited (2005a2). Pilbara Iron Ore Project Bilby Management Plan (*Macrotis lagotis*) Management Plan. Unpublished report, Western Australia, August 2005.
- Fortescue Metals Group Limited (2005b). Cloud Break Surface Miner Trial Notice of Intent Document. Unpublished report, Western Australia, August 2005.
- Fortescue Metals Group Limited (2005c). Pilbara Iron Ore Project Weed management Plan Revision No 1.0. Unpublished report, Western Australia, September 2005.
- G&G Environmental (2005). Survey for rare and priority flora in mine trial area at Cloud Break, FMG. Unpublished report to Fortescue Metals Group, Western Australia, October 2005.
- Hopkins, A.J.M., Beeston, G.R. and Harvey J.M. (2001) A database on the vegetation of Western Australia. Stage 1. CALM Science after J. S. Beard, late 1960's to early 1980's Vegetation Survey of Western Australia, UWA Press.
- 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.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Kendrick P (2001). Subregional description and biodiversity values Pilbara 2 (PIL2-Fortescue Plains subregion) in: A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002.
- Kendrick P and McKenzie N (2001). Subregional description and biodiversity values Pilbara 1 (PIL1-Chichester subregion) in: A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions
- Mattiske Consulting Pty Ltd (2005a). Flora and Vegetation on the Cloud Break and White Knight Leases. Report prepared for Fortescue metals Group limited, February 2005.
- Mattiske Consulting Pty Ltd (2005b). Review of vegetation condition on the Cloud Break Lease area. Report prepared for Fortescue metals Group limited, June 2005.
- Mclsaac.J. (2005) Letter from Mr Mclsaac, Principal Mining Engineer FMG, to DoIR dated 18th October 2005 in relation to the depth of the excavation for the trial and location of the water table at the Surface Miner trial Site.
- 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>DAWA</b>	Department of Agriculture, 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.