



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 5919/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Process Minerals International Pty Ltd

1.3. Property details

Property: Miscellaneous Licence 47/643
Local Government Area: Shire of East Pilbara
Colloquial name: Phils Creek Haul Road

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
30		Mechanical Removal	Haul Road Construction

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 30 January 2014

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description

Beard vegetation associations have been mapped for the entirety of Western Australia. Two Beard vegetation associations have been mapped within the application area (GIS Database):

- 29: Sparse low woodland; mulga, discontinuous in scattered groups; and
- 111: Hummock grasslands, shrub steppe; *Eucalyptus gamophylla* over hard spinifex.

A Level 1 flora and vegetation survey of the application area was undertaken in 2013 (Astron Environmental Services, 2013). Seven vegetation communities were identified in the application area during this survey (Astron Environmental Services, 2013):

- PI01: *Acacia ancistrocarpa* and *A. sclerosperma* subsp. *sclerosperma* open shrubland over *Triodia lanigera* hummock grassland and *Cenchrus ciliaris* scattered tussock grasses;
- PI02: *Acacia fuscaneura* and *A. aptaneura* low open woodland over *A. tumida* and *A. ancistrocarpa* open shrubland over *Cenchrus ciliaris* very open tussock grassland;
- PI03: *Acacia aptaneura* and *Corymbia hamersleyana* low woodland to woodland over *Atalaya hemiglauca* low open woodland over *Cenchrus ciliaris* tussock grassland;
- PI04: *Acacia aptaneura* low open woodland over *A. sclerosperma* subsp. *sclerosperma* and *A. synchronicia* scattered shrubs over *Cenchrus ciliaris* very open to open tussock grassland;
- MD01: *Acacia tumida* tall open shrubland over *A. ancistrocarpa* and *A. coriacea* open shrubland over *Ptilotus obovatus* scattered low shrubs over *Cenchrus ciliaris* and *Eulalia aurea* very open tussock grassland;
- MD02: *Eucalyptus victrix*, *Corymbia hamersleyana* (*Acacia aptaneura*) woodland over *Atalaya hemiglauca* scattered low trees over *Malvastrum americanum* low shrubland over *Cenchrus ciliaris* scattered tussock grasses; and
- LR01: *Acacia dictyophleba* open shrubland over *Corchorus sidoides* and *Sida* sp. Pilbara (A.A. Mitchell PRP 1543) low open shrubland over *Triodia melvillei* very open hummock grassland over *Cenchrus ciliaris* very open tussock grassland.

Clearing Description

Phil's Creek mine site haul road.
Process Minerals International Pty Ltd (PMI) proposes to clear up to 30 hectares of native vegetation within a total boundary of approximately 40 hectares to facilitate the construction of a haul road segment. The project is located approximately 100 kilometres north-west of Newman, in the Shire of East Pilbara.

Vegetation Condition

Excellent (Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species) (Keighery, 1994):

to

Good (Vegetation structure significantly altered by very obvious signs of multiple disturbance. Retains basic vegetation structure or the ability to regenerate it) (Keighery, 1994).

Comment

Vegetation condition in the application area was recorded using the condition scale created by Trudgen (1988). The vegetation condition ratings recorded in the application area have been converted into the condition scale created by 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 application area is situated within the Fortescue subregion of the Pilbara bioregion as defined within the Interim Biogeographic Regionalisation of Australia (IBRA) (GIS Database). The Fortescue subregion is described as consisting of alluvial plains and river frontage (Department of Conservation and Land Management, 2002). Extensive salt marsh, mulga-bunch grass and short grass communities occur on alluvial plains in the east (Department of Conservation and Land Management, 2002). River gum woodlands fringe the drainage lines (Department of Conservation and Land Management, 2002). The Fortescue subregion contains the northern limit of Mulga (*Acacia aneura*) (Department of Conservation and Land Management, 2002). An extensive calcrete aquifer originating within a palaeo-drainage valley feeds numerous permanent springs in the central Fortescue, supporting large permanent wetlands with extensive stands of river gum and cadjeput *Melaleuca* woodlands (Department of Conservation and Land Management, 2002).

A Level 1 flora, vegetation and fauna survey of the application area was undertaken by Astron Environmental Services in June 2013. Seven vegetation associations were identified in the application area (Astron Environmental Services, 2013). The vegetation associations identified within the application area are well represented locally (Astron Environmental Services, 2013). Vegetation condition within the application area ranged from excellent to good (Astron Environmental Services, 2013). No Threatened Ecological Communities were recorded within the application area (Astron Environmental Services, 2013). The application area occurs within the buffer zones of two Priority Ecological Communities (PEC); The Priority 1 Fortescue Marsh (Marsh Land System) PEC and the Priority 3 Fortescue Valley Sand Dunes PEC (GIS Database).

A review of available databases determined that the Fortescue Marsh exists approximately 11 kilometres north north-west of the application area at its closest point (GIS Database). When the distance between these land features is considered alongside the knowledge that the application area will be utilised for road construction, an activity which is not expected to result in adverse environmental impacts to the surrounding environment, it is not anticipated the proposed activities will result in adverse impacts to the Priority 1 Fortescue Marsh (Marsh Land System) PEC. In addition, a review of aerial photography of the application area has determined that the application area is situated in a plain environment which is different in nature from the marsh environment the Fortescue Marsh is situated within (GIS Database). This lack of continuity between the environments of the Fortescue Marsh and the application area further suggests that the proposed activities will not result in adverse impacts to the Fortescue Marsh (Marsh Land System) PEC.

A review of available databases determined that the application area exists in a parcel of land between the Munjina Roy Hill Road and a rail line (GIS Database). Within this land parcel the landscape appears to be flat in nature with no evidence of sand dunes present within the application area (GIS Database). Topographic features which appear to be sand dunes exist on the opposite side of the rail line to the application area (GIS Database). These features are located approximately 180 metres away from the application area at its closest point (GIS Database). When the spatial separation which exists between these land features is considered alongside the low likelihood the proposed activities will result in adverse impacts to the surrounding environment and the existence of the rail line which should serve as a barrier between these features, it is not anticipated that the proposed activities will result in adverse impacts to the Priority 3 Fortescue Valley Sand Dunes PEC.

A desktop search undertaken by Astron Environmental Services identified two threatened flora species (*Lepidium catapycnon* and *Thryptomene wittweri*) and 77 Priority Listed flora species previously recorded within 50 kilometres of the application area (Astron Environmental Services, 2013). The Priority Listed flora species previously recorded in the vicinity of the application area consisted of 30 Priority one, 10 Priority two, 31 Priority three and six Priority four flora species (Astron Environmental Services, 2013). The habitats available to flora species within a 50 kilometre radius of the application area vary considerably and include mesa's and rocky areas, drainage features, plains and marsh lands (GIS Database). Therefore, it is unlikely the application area would constitute suitable habitat for all the Priority Listed flora species previously recorded within 50 kilometres of the application area.

A total of 101 flora taxa representing 62 genera and 25 families were recorded within the application area (Astron Environmental Services, 2013). The *Fabaceae*, *Poaceae*, and *Malvaceae* families had the highest representation within the application area (Astron Environmental Services, 2013). No Threatened or Priority listed flora species were recorded within the application area (Astron Environmental Services, 2013). Six weed species were recorded in the application area (Astron Environmental Services, 2013);

- Kapok Bush (*Aerva javanica*);
- Buffel Grass (*Cenchrus ciliaris*);
- Spiked Malvastrum (*Malvastrum americanum*);
- Common Purslane (*Portulaca oleracea*);

- Caltrop (*Tribulus terrestris*); and
- Mimosa Bush (*Vachellia Farnesiana*).

These weed species were recorded throughout the application area, which was noted as being quite disturbed in condition (Astron Environmental Services, 2013). Buffel Grass had the highest weed density in the application area and was noted as replacing the native understorey throughout most of the application area (Astron Environmental Services, 2013). None of the above weed species are listed as declared pests under Section 22 of the *Biosecurity and Agriculture Management Act 2007* (Department of Agriculture and Food, 2013). To minimise the impact of clearing on the areas biodiversity, a weed management condition has been placed on the permit.

A desktop assessment was undertaken to identify terrestrial vertebrate fauna species previously recorded within or in close proximity to the application area (Astron Environmental Services, 2013). A total of 241 vertebrate fauna species have been previously recorded within the vicinity of the application area, comprising 104 reptiles, 100 birds, 33 mammals and four amphibians (Astron Environmental Services, 2013). Eleven conservation significant fauna species have been previously recorded within the vicinity of the application area (Astron Environmental Services, 2013).

During the Level 1 fauna survey 15 species of vertebrate fauna were recorded by direct or secondary evidence (tracks and scats), comprising 10 bird species, four mammal species and one reptile species (Astron Environmental Services, 2013). None of the fauna species recorded in the application area were of conservation significance (Astron Environmental Services, 2013). Four broad fauna habitats were identified within the application area (Astron Environmental Services, 2013). The fauna habitats identified in the application area are common and widespread with no significant features (Astron Environmental Services, 2013). A number of Eucalypt trees were also observed in the application area to contain suitable hollows for fauna (Astron Environmental Services, 2013).

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

Methodology Astron Environmental Services (2013)
 Department of Agriculture and Food (2013)
 Department of Conservation and Land Management (2002)
 GIS Database
 -Geodata, Lakes
 -Tengraph System
 -Threatened Ecological Sites Buffered
 -Mount George 50cm Orthomosaic
 -Mount Marsh 50cm Orthomosaic
 -Munjina 50cm Orthomosaic
 -Roy Hill 50cm Orthomosaic
 -Weeli Wolli 50cm Orthomosaic

(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**

Prior to the Level 1 fauna survey of the application area, a desktop search was undertaken to identify terrestrial vertebrate fauna species recorded within or in close proximity to the application area (Astron Environmental Services, 2013). A total of 241 vertebrate fauna species have been previously recorded within 20 kilometres of the application area, comprising 104 reptiles, 100 birds, 33 mammals and four amphibians (Astron Environmental Services, 2013). The following conservation significant fauna species were identified during this desktop assessment as either recorded within the vicinity of the application area or potentially occurring within this area (Astron Environmental Services, 2013);

- Australian Bustard (*Ardeotis australis*) (Priority 4);
- Dirk Hartog Island White-winged Fairy-wren (*Malurus leucopterus* subsp. *leucopterus*) (Schedule 1, Vulnerable);
- Rainbow Bee-eater (*Merops ornatus*) (Schedule 3, Migratory);
- Northern Quoll (*Dasyurus hallucatus*) (Schedule 1, Endangered);
- Ghost Bat (*Macroderma gigas*) (Priority 4);
- Western Pebble-mound Mouse (*Pseudomys chapmani*) (Priority 4);
- Pilbara Orange Leaf-nosed Bat (*Rhinioncteris aurantius*) (Schedule 1, Vulnerable);
- Pilbara Olive Python (*Liasis olivaceus* subsp. *barroni*) (Schedule 1, Vulnerable);
- Night Parrot (*Pezoporus occidentalis*) (Schedule 1, Endangered);
- Greater Bilby (*Macrotis lagotis*) (Schedule 1, Vulnerable);
- Northern Marsupial Mole (*Notoryctes caurinus*) (Schedule 1, Endangered);
- Fork-tailed Swift (*Apus pacificus*) (Schedule 3, Migratory);
- Great Egret (*Ardea alba*) (Schedule 3, Marine);
- Cattle Egret (*Ardea ibis*) (Schedule 3, Migratory); and

- Oriental Plover (*Charadrius veredus*) (Schedule 3, Migratory).

During the fauna survey 15 species of vertebrate fauna were recorded in the application area, comprising 10 bird species, four mammal species and one reptile species (Astron Environmental Services, 2013). No conservation significant fauna species were identified during this survey (Astron Environmental Services, 2013).

The fauna habitats identified in the application area during the survey consisted of the following (Astron Environmental Services, 2013):

- Plains of *Acacia* species open shrubland over *Triodia* hummock grassland;
- Minor depression of *Acacia* spp. shrubland over *Cenchrus* and *Eulalia* very open tussock grassland;
- Gently undulating plains/floodplains of mulga low open woodland over *Acacia* spp. scattered shrubs over *Cenchrus* very open tussock grassland; and
- Low rise of *Acacia* shrubland over *Triodia* very open hummock grassland and *Cenchrus* very open tussock grassland.

The fauna habitats identified in the application area are common and widespread with no significant features, although a number of eucalypt trees were observed in the survey area to contain hollows which were occupied by Galahs (*Eolophus roseicapillus*) (Astron Environmental Services, 2013). The proponent has advised that these fauna habitat trees are unable to be avoided by the construction of the haul road segment, however they will be avoided where practicable during the establishment of borrow pits, topsoil stockpiles and vegetation stockpiles created to support the construction of the haul road segment.

The application area has only been subject to a Level 1 fauna survey to date. While no conservation significant fauna species were recorded in the application area during this survey, the presence of conservation significant fauna species in the application area cannot be disregarded based on this survey's results. Conversely, the application area consists of a linear corridor approximately 5.8 kilometres in length with a width in most areas of between 50 and 70 metres. Some parts of the corridor are wider than 70 metres where additional area is required to facilitate the construction of the road (for instance the laydown area which occurs at the midpoint of the corridor (approximately 150 metres in width), the southern end of L47/643 (approximately 400 metres in width) and the northern end of L47/643 (approximately 100 metres in width)). As the application area consists of a linear, narrow corridor which contains only fauna habitats which are widespread and common, it is not anticipated that the application area constitutes significant habitat for conservation significant fauna species and therefore the clearing activities are not anticipated to result in a significant loss of habitat for conservation significant fauna species.

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

Methodology Astron Environmental Services (2013)

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

Comments **Proposal is not likely to be at variance to this Principle**

There are three Threatened flora species known to occur within the Pilbara region; *Aluta quadrata*, *Lepidium catapycnon* and *Thryptomene wittweri*. None of these species were identified in the application area during the flora and vegetation survey (Astron Environmental Services, 2013).

Florabase states that *Lepidium catapycnon* occurs on skeletal soils on hillsides; *Thryptomene wittweri* appears to be associated with steep slopes, cliff faces, the edges of cliffs, breakways, skeletal soils and appears to occur high in the landscape and *Aluta quadrata* appears to occur on steep slopes, gorges, near the crests of ridges, areas high in the landscape and gully's on the side of hills (Western Australian Herbarium, 2014). The application area is situated in a flat plain environment therefore suitable habitat for the above species is not present in this area.

In addition, a search of available databases determined that Threatened flora species have been recorded 24 kilometres to the south of the application area (GIS Database). A review of local topographic data and aerial photographs revealed that these occurrences of Threatened flora were recorded in rocky, mesa like environments, which contain habitats very different in nature from those found in the application area (GIS Database).

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

Methodology Astron Environmental Services (2013)
Western Australian Herbarium (2014)
GIS Database
-Mount George 50cm Orthomosaic
-Mount Marsh 50cm Orthomosaic
-Munjina 50cm Orthomosaic

- Roy Hill 50cm Orthomosaic
- Threatened and Priority Flora
- Topographic Contours, Statewide
- Weeli Wolli 50cm Orthomosaic.

(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 application area is situated approximately 96 kilometres to the north of the nearest Threatened Ecological Community (TEC) (GIS Database); the Ethel Gorge aquifer stygobiont community (Department of Environment and Conservation, 2013). No vegetation associations matching the descriptions of any TEC's were identified during the flora and vegetation survey of the application area (Astron Environmental Services, 2013). Therefore, no impacts to TEC's are expected to result from the proposed activities.

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

Methodology Astron Environmental Services (2013)
 Department of Environment and Conservation (2013)
 GIS Database
 -Threatened Ecological Sites

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Comments **Proposal is not at variance to this Principle**

The application area is situated within the Fortescue sub-region of the Pilbara bioregion as defined in the IBRA and contained within Beard vegetation associations 29 and 111 (GIS Database). These Beard vegetation associations retain almost 100% of their pre-European extent (see table below). Hence, the application areas vegetation does not represent a significant remnant of vegetation within an extensively cleared area.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in DEC Managed Land
IBRA Bioregion – Fortescue	1,951,434.93	1,951,000.88	~100	Low	~0.5
Beard veg assoc. – State					
29	7,903,991.47	7,900,200.44	~99.9	Low	~0.3
111	762,963.54	762,326.21	~99.9	Low	~5.5
Beard veg assoc. – Bioregion					
29	893,394.62	893,221.87	~99.9	Low	~0.3
111	454,784.97	454,730.43	~99.9	Low	~1.5

* Government of Western Australia (2013)

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

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

Methodology Government of Western Australia (2013)
 Department of Natural Resources and Environment (2002)
 GIS Database:
 -Pre-European vegetation
 -IBRA WA (Regions – Sub-regions).

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Comments **Proposal is at variance to this Principle**

While no permanent watercourses or wetlands occur in the application area, the application area intercepts ephemeral watercourses and the vegetation communities associated with these watercourses. Based on the above, the proposed activities are at variance to this principle. Some minor drainage lines will also be filled in to facilitate the construction of the haul road (Process Minerals International, 2013).

There are two vegetation associations which were identified during the flora and vegetation survey as being

associated with minor depressions and drainage lines; MD01 and MD02 (Astron Environmental Services, 2013). Neither of these vegetation associations was identified as being rare, restricted or unique in nature (Astron Environmental Services, 2013). In addition, the application area consists of a linear corridor approximately 5.8 kilometres in length with a width in most areas of between 50 and 70 metres. While it is anticipated that the clearing of this corridor will result in the clearing of moderately sized areas of vegetation associations MD01 and MD02, the clearing activities are not anticipated to adversely impact the conservation status or distribution of these vegetation communities. The clearing activities will in essence create a strip of disturbed land and consequently it is anticipated vegetation communities MD01 and MD02 would continue on in the surrounding landscape either side of the application area. Based on the above, it is considered unlikely the proposed activities will result in adverse impacts to the conservation status and distribution of vegetation communities MD01 and MD02.

Methodology Astron Environmental Services (2013)
Process Minerals International (2013)
GIS Database
-Hydrography, Linear Properties

(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 application area occurs within the Divide and Fortescue Land Systems (GIS Database). The Divide land system is described as consisting of sand plains and occasional dunes supporting shrubby hard spinifex grasslands (van Vreeswyk et al, 2004). This land system is susceptible to wind erosion following burning, but stabilisation occurs rapidly after rainfall (van Vreeswyk et al, 2004). At the time the land systems survey was undertaken, 98 percent of this land system had not experienced erosion (van Vreeswyk et al, 2004).

The Fortescue land system is described as consisting of alluvial plains and flood plains supporting patchy grassy woodlands, shrublands and tussock grasslands (van Vreeswyk et al, 2004). Alluvial plains and levees within this land system are highly susceptible to erosion if vegetative cover is lost (van Vreeswyk et al, 2004). At the time the land systems survey was undertaken, 65 percent of this land system had not experienced erosion (van Vreeswyk et al, 2004).

While both land systems the application area is situated within are susceptible to erosion, the proposed activities are not anticipated to result in land degradation within the surrounding environment. The proposed activities consist of the clearing of a corridor of vegetation to facilitate the construction of a haul road segment. While the area cleared will not be insignificant in size (up to 30 hectares), this cleared land will be surrounded by intact vegetation except where the proposed haul road segment joins with the rest of the haul road. Consequently, while some erosion may occur within the cleared area which could lead to the generation of dust emissions and the contribution of additional sediment to surface water flows during rainfall events, the vegetation within the surrounding environment will remain intact which will confine these erosion impacts to the cleared area. Furthermore, the proponent will be required to rehabilitate the haul road at the completion of mining operations. Any erosion impacts which have occurred during the roads construction and operation will need to be remedied by the rehabilitation activities. Therefore, any erosion impacts which do result from the clearing activities are anticipated to be short-term in nature and confined to the haul road corridor.

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

Methodology van Vreeswyk et al (2004)
GIS Database
-Rangeland Land System Mapping

(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**

A review of available databases determined that the application area is approximately 47 kilometres east south-east of the nearest conservation reserve; Karijini National Park (GIS Database). When the distances between the application area and conservation reserves are considered, it is unlikely the proposed activities will result in adverse impacts to any conservation reserves.

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

Methodology GIS Database
-DEC Tenure.

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Comments Proposal is not likely to be at variance to this Principle

The proponent has recognised that the proposed activities have the potential to impact on surface water flows and quality within the local environment (Process Minerals International Pty Ltd, 2013). These surface water impacts have the potential to arise from the clearing of vegetation and the infill of minor drainage lines to facilitate construction of the haul road (Process Minerals International Pty Ltd, 2013). Potential impacts to surface water flows and quality resulting from the construction and operation of the haul road include: impacts on downstream water quality due to erosion, the potential discharge of contaminants (hydrocarbons) into drainage lines and minor increases in stream flows to drainage lines due to increased runoff resulting from vegetation clearing and ground compaction (Process Minerals International Pty Ltd, 2013).

The proponent has advised that water management measures will be implemented to mitigate the potential surface water impacts identified above (Process Minerals International Pty Ltd, 2013). These measures include (Process Minerals International Pty Ltd, 2013):

- Undertaking construction during the dry season where possible;
- Constructing drainage diversion channels to redirect surface runoff around the haul road;
- Conducting visual checks of the haul road to monitor levels of erosion;
- The installation of silt traps at drainage outfalls where diverted surface water re-enters the drainage line and where discharge flows into the drainage lines from the haul road (if necessary);
- Bunding mobile service trucks used for refuelling; and
- Cleaning up any contaminant spills using appropriate spill procedures.

No diversion of major creek lines will be required for the construction of the haul road (Process Minerals International Pty Ltd, 2013).

When the nature of the proposed activities is considered, the likely impact of the clearing of vegetation on surface water quality would be the sedimentation of surface water flows. Since it is likely surface water flows in this region normally carry a sediment load, the contribution of additional sediment to surface water flows would be unlikely to adversely impact surface water quality. In addition, the application area is situated between the Roy Hill – Munjina Road and an existing rail line which are also likely in turn to contribute additional sediment to surface water flows. Therefore, any contribution of additional sediment to surface water flows resulting from the haul roads construction and operation is not anticipated to result in adverse impacts to surface water quality. In addition, the haul roads existence will be temporary in nature and at the cessation of mining operations, the proponent will be required to rehabilitate the haul road to produce a stable, self-supporting environment.

The application area is situated approximately 80 kilometres north north-west of the nearest Public Drinking Water Source Area (PDWSA), the Priority 1 Newman Water Reserve (GIS Database). The proposed activities will not go beneath ground level and therefore the construction of the haul road is not anticipated to result in adverse impacts to groundwater quality.

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

Methodology Process Minerals International Pty Ltd (2013)
GIS Database
-Public Drinking Water Source Areas.

(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 Principle

The application area is situated within the Upper Fortescue River catchment which has an area of approximately 2,975,190 hectares (GIS Database). When the Pilbara regions natural propensity for flooding is considered alongside the size of the Upper Fortescue River catchment and the small area of clearing proposed in this application, it is considered unlikely the proposed activities will increase the incidence or intensity of flooding within the surrounding region.

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

Methodology GIS Database
-Hydrographic Catchments

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

Comments

There is one Native Title Claim (WC2011/006) over the area under application (GIS Database). This claim has been registered with the Native Title Tribunal on behalf of the claimant group. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act

(i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no registered sites of Aboriginal heritage significance in the vicinity of the application area. It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

It is the proponent's responsibility to liaise with the Department of Environment Regulation (formerly Department of Environment and Conservation) and the Department of Water, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

The clearing permit application was advertised on 16 December 2013 by DMP inviting submissions from interested parties. No submissions have been received regarding this application.

Methodology GIS Database
-Aboriginal Sites of Significance
-Native Title Claims – Registered with the NNTT

4. References

- Astron Environmental Services (2013) Phil's Creek haul road – Level 1 flora and fauna survey, July 2013. Report prepared for Process Minerals International Pty Ltd.
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- Government of Western Australia (2013) 2012 Statewide vegetation statistics incorporating the CAR Reserve Analysis (Full Report). Current as of October 2012. WA Department of Environment and Conservation, Perth.
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- Western Australian Herbarium (2014) Florabase - The Western Australian Flora. Department of Parks and Wildlife. <<http://florabase.dpaw.wa.gov.au/>> Accessed January 2014.

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
CALM	Department of Conservation and Land Management (now DEC), Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DEC), Western Australia
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
DoE	Department of Environment (now DEC), Western Australia
DoIR	Department of Industry and Resources (now DMP), Western Australia
DOLA	Department of Land Administration, Western Australia
DoW	Department of Water
EP Act	Environmental Protection Act 1986, Western Australia
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union

RIWI Act	Rights in Water and Irrigation Act 1914, Western Australia
s.17	Section 17 of the Environment Protection Act 1986, Western Australia
TEC	Threatened Ecological Community

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.