



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3268/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Hamersley Iron Pty Ltd

1.3. Property details

Property: Iron Ore (Mount Bruce) Agreement Act 1972, Mineral Lease 252SA (AML 70/252)
Local Government Area: Shire of Ashburton
Colloquial name: Turee Syncline Drilling Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
5.5		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 Beard Vegetation Associations have been mapped at a 1:250,000 scale for the whole of Western Australia. Three Beard Vegetation Associations have been mapped within the application area (GIS Database; Shepherd, 2007).

- 82:** Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana*;
- 181:** Shrublands; mulga & snakewood scrub; and
- 567:** Hummock grasslands, shrub steppe; mulga & kanji over soft spinifex & *Triodia basedowii*.

The application area was surveyed by Rio Tinto staff between the 22 - 28 May 2009 (Rio Tinto, 2009). The following vegetation types were identified within the application area:

Vegetation from Hill Slopes and Crests

Vegetation Type 1 - ApAmPITsTe: *Acacia pyrifolia* high open shrubland over *Acacia maitlandii* and *Petalostylis labicheoides* open heath over *Tribulus suberosus* low open shrubland over *Triodia epactia* hummock grassland;

Vegetation Type 2 - EIAPAmSgTe: *Eucalyptus leucophloia* low woodland over *Acacia pyrifolia* high open shrubland over *A. maitlandii* and *Senna glutinosa* open heath over *Triodia epactia* hummock grassland;

Vegetation Type 3 - EIAcAaApApDpEjTe: *Eucalyptus leucophloia*, *Acacia citrinoviridis*, *A. aneura* and *A. pruinocarpa* low woodland over *A. pyrifolia* high open shrubland over *Dodonaea pachyneura* open shrubland over *Eremophila jucunda* low open shrubland over *Triodia epactia* hummock grassland;

Vegetation Type 4 - EIAPaSaEjTeTw: *Eucalyptus leucophloia* low woodland over *Acacia pyrifolia* and *A. aneura* high open shrubland over *Scaevola acacioides* open shrubland over *Eremophila jucunda* low open shrubland over *Triodia epactia* and *T. wiseana* hummock grassland;

Vegetation Type 5 - EIAmTw: *Eucalyptus leucophloia* low open woodland over *Acacia maitlandii* open scrub over *Triodia wiseana* hummock grassland;

Vegetation from Minor Drainage Lines and Valley Floor

Vegetation Type 6 - EIAaAcAsSaAbLpTwTI: *Eucalyptus leucophloia* low open woodland over *Acacia aneura* and *A. citrinoviridis* high open shrubland over *A. synchronica* shrubland over *Scaevola acacioides*, *A. bivenosa* and *Lepidium pedicellosum* low shrubland over *Triodia wiseana* and *T. longiceps* hummock grassland;

Vegetation Type 7 - AcEIASIEcTsSLpTwTI: *Acacia citrinoviridis* low woodland over *Eremophila longifolia* and *A. synchronica* high shrubland over *Senna luerssenii* and *E. cunefolia* shrubland over *Tribulus suberosus*, *Sclerolaena* sp. and *Lepidium pedicellosum* low shrubland over *Triodia wiseana* and *T. longiceps* hummock grassland;

Vegetation from Hill Slopes

Vegetation Type 10 - ApAaAtEfEcSaPoTsTwCaTt: *Acacia pruinocarpa* and *A. aneura* high shrubland over *A. tetragonophylla* open shrubland over *Eremophila fraseri*, *E. cunefolia*, *Scaevola acacioides*, *Ptilotus obovatus* and *Tribulus suberisus* low open heath over *Triodia wiseana* hummock grassland over *Cymbopogon ambiguus* and *Themeda triandra* very open tussock grassland;

Vegetation Type 11 - AaAtEcEcEftw: *Acacia arida* and *A. tetragonophylla* open heath over *Eremophila cunefolia*, *E. cryptothrix* and *E. fraseri* low open shrubland over *Triodia wiseana* hummock grassland;

Vegetation Type 12 - ElApPIAmSpTe: *Eucalyptus leucophloia* low open woodland over *Acacia pyrifolia* and *Petalostylis labicheoides* high shrubland over *A. maitlandii* and *Senna pruinosa* shrubland over *Triodia epactia* hummock grassland;

Vegetation Type 13 - ApEcTw: *Acacia pruinocarpa* scattered tall shrubs over *Eremophila cunefolia* shrubland over *Triodia wiseana* hummock grassland;

Vegetation from Stony Clay Flats

Vegetation Type 14 - AaAcAtAxAsSaSIMvTeTpCc: *Acacia aneura* and *A. citrinoviridis* low open forest over *A. tetragonophylla*, *A. xiphophylla* and *A. synchronicia* open scrub over *Senna artemisioides* and *S. luerssenii* open heath over *Maireana villosa* low open shrubland over *Triodia epactia* and *T. pungens* very open hummock grassland over *Cenchrus ciliaris* very open tussock grassland;

Vegetation Type 15 - AsAaAtSIEcAc: *Acacia synchronicia*, *A. aneura* and *A. tetragonophylla* high shrubland over *Senna luerssenii* and *Eremophila cunefolia* open heath over *Aristida contorta* very open bunch grass;

Vegetation from the Plains

Vegetation Type 16 - AaAcApSoEIPoTwCc: *Acacia aneura*, *A. citrinoviridis* and *A. pyrifolia* open scrub over *Senna oligophylla* and *Eremophila latrobei* shrubland over *Ptilotus obovatus* low open shrubland over *Triodia wiseana* hummock grassland over *Cenchrus ciliaris* open tussock grassland; and

Vegetation Type 17 - AcAaReEfSoCc: *Acacia citrinoviridis* and *A. aneura* low open forest over *Rhagodia eremaea* high shrubland over *Eremophila forrestii* and *Senna oligophylla* open shrubland over *Cenchrus ciliaris* closed tussock grassland (Rio Tinto, 2009).

Four alien weed species was recorded within the application area: Ruby Dock (*Acetosa vesicaria*), Kapok Bush (*Aerva javanica*), Buffel Grass (*Cenchrus ciliaris*) and Spiked Malvastrum (*Malvastrum americanum*) (Rio Tinto, 2009).

Clearing Description	<p>Hamersley Iron Pty Ltd is proposing to clear up to 5.5 hectares of native vegetation within a boundary of 174 hectares (Hamersley Iron Pty Ltd, 2009). The proposed program covers one tenement (AML 70/252) and includes;</p> <ul style="list-style-type: none">• Maintaining and establishing tracks,• Clearing of drill lines and access tracks (4.49 kilometres x 4 metres);• Creation of 33 drill pads (20 metres x 20 metres);• Creation of 33 sumps (3 metres x 2 metres x 1 metre); and• Drilling of 33 holes (Hamersley Iron Pty Ltd, 2009).
Vegetation Condition	<p>Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994)</p> <p>To</p> <p>Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).</p>
Comment	<p>The application area is located in the Pilbara region, approximately 15 kilometres east of Paraburdoo (GIS Database). The vegetation condition was derived from a vegetation survey conducted by Rio Tinto (2009).</p>

3. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Comments	<p>Proposal is not likely to be at variance to this Principle</p> <p>The application area occurs within the Hamersley (PIL3) subregion of the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This subregion is characterised by Mulga low woodland over bunch grasses on fine textured soils in valley floors, and <i>Eucalyptus leucophloia</i> over <i>Triodia brizoides</i> on skeletal soils on the ranges (CALM, 2001).</p>
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A vegetation survey of the application area and surrounding vegetation identified 178 native flora species belonging to 85 genera from 41 families from 15 vegetation communities (Rio Tinto, 2009). This is considered to be typical for the survey area. These vegetation communities are well represented locally and within the Pilbara region and the clearing of 5.5 hectares is unlikely to significantly impact on the biodiversity of the area.

Four alien weed species were recorded within the application area (Rio Tinto, 2009). These were Ruby Dock (*Acetosa vesicaria*), Kapok Bush (*Aerva javanica*), Spiked Malvastrum (*Malvastrum americanum*) and Buffel Grass (*Cenchrus ciliaris*) (Rio Tinto, 2009). Weeds have the potential to alter the biodiversity of an area, competing with native vegetation for available resources and making areas more fire prone. This in turn can lead to greater rates of infestation and further loss of biodiversity if the area is subject to repeated fires. None of these species are listed as 'Declared Plant' species under the *Agriculture and Related Resources Protection Act 1976* by the Department of Agriculture and Food (DAFWA). Should the permit be granted, it is recommended that appropriate conditions be imposed on the permit for the purpose of weed management.

An area search of the Department of Environment and Conservation's online fauna database conducted by the assessing officer suggests that the application area is diverse in reptile species (DEC, 2009a). The database search found 61 reptile species as potentially occurring within the application area, or within a 20 kilometre radius of the application area. The vegetation communities within the application area are not likely to be considered as rare, geographically restricted or of significant conservation value. The vegetation communities and potential fauna habitats within the application area are considered common within the Pilbara region, and are unlikely to be of higher biodiversity than the surrounding areas. The proposed clearing is unlikely to have a significant impact on the biological diversity of the region, or comprise of a high level of biological diversity.

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

Methodology CALM (2001)
DEC (2009a)
Rio Tinto (2009)
GIS Database
- Interim Biogeographic Regionalisation of Australia

(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

The assessing officer has conducted a search of the Department of Environment and Conservation's (DEC) online fauna database between the coordinates 118.1123°E, 22.9622°S and 117.6188°E, 23.3872°S, representing a 20 kilometre radius around the application area.

This search identified 1 Amphibian, 15 Avian, 16 Mammalian and 61 Reptilian species that may occur within the application area (DEC, 2009a). Of these, the following species of conservation significance has previously been recorded within the search area:

Schedule 1 - Fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008*: Northern Quoll (*Dasyurus hallucatus*), and the Pilbara Olive Python (*Liasis olivaceus* subsp. *barroni*);

P1 - DEC Priority Fauna List: *Ramphotyphlops ganeii*; and

P4 - DEC Priority Fauna List: Long-tailed Dunnart (*Sminthopsis longicaudata*) and the Western Pebble-mound Mouse (*Pseudomys chapmani*).

Hamersley Iron Pty Ltd (2009) conducted a desktop search of the DEC's Threatened and Priority Fauna Database in August 2009. In addition to those species listed above, the following fauna species of conservation significance were identified through this search:

Schedule 4 - Other specially protected fauna, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008*: Peregrine Falcon (*Falco peregrinus*); and

P4 - DEC Priority Fauna List: Lakeland Downs Mouse (*Leggadina lakedownensis*) and the Australian Bustard (*Ardeotis australis*) (DEC, 2009b).

Four broad habitat types were recorded within the application area;

- Minor drainage lines;
- Stony hill slopes;
- Clay plains; and
- Valleys (Rio Tinto, 2009).

There were three recordings of the Western Pebble-mound Mouse within the application area (Rio Tinto, 2009). Rio Tinto (2009) recorded abundant suitable habitat for the Western Pebble-mound Mouse during the flora and vegetation survey over the application area. However, the Western Pebble-mound Mouse is recorded as being widespread and abundant within the Hamersley subregion, with the status of the species being secure (CALM, 2001).

Based on the above, the proposed clearing is not likely to be at variance to this Principle. The fauna habitats identified within the application area are not considered as necessary for the on-going maintenance of any significant fauna habitat. It is likely that equal or higher quality vegetation and fauna habitats would exist throughout the surrounding area, and Pilbara region.

Methodology CALM (2001)
DEC (2009a)
DEC (2009b)
Hamersley Iron Pty Ltd (2009)
Rio Tinto (2009)

(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

According to available GIS databases there are no known records of Declared Rare Flora (DRF) or Priority Flora within the application area (GIS Database). The nearest record of DRF is a population of *Thryptomene wittweri* (DRF) located approximately 73 kilometres north-east of the application area (GIS Database).

A flora survey was conducted over the application area by staff from Rio Tinto between 22 - 28 May 2009 (Rio Tinto, 2009). The application area was systematically traversed on foot using a grid search technique (Rio Tinto, 2009).

No DRF were recorded during the survey. Three species of Priority flora were recorded within the application area (Rio Tinto, 2009):

P3 - *Eremophila coacta*, *Sida* sp. Barlee Range; and

P4 - *Ptilotus mollis* (Rio Tinto, 2009).

Eremophila coacta is a spreading shrub growing in laterite, shale soils, ironstone, hills and creeklines (Western Australian Herbarium, 2009). *Eremophila coacta* has a small range (approximately 200 kilometres x 200 kilometres) within the Pilbara and Gascoyne IBRA regions (Rio Tinto, 2009). Three populations containing 2, 10 and 15 individuals respectively were recorded within the application area (Rio Tinto, 2009). These populations occur towards the eastern end of the known species range and while the disturbance of three small populations is unlikely to impact the conservation significance of this species, care should be taken as far as are practicable to avoid unnecessary disturbance to this species.

Sida sp. Barlee Range prefers skeletal red soil pockets and steep slopes (Western Australian Herbarium, 2009). This species is known from scattered locations within the Hamersley Ranges, from between Auski and Barlee Range (Rio Tinto, 2009). One individual was recorded from within the application area. Given its wide distribution outside of the application area, the proposed clearing of one individual is unlikely to affect the conservation status of this species

Ptilotus mollis is a compact perennial shrub preferring stony hills and screes (Western Australian Herbarium, 2009). Rio Tinto recorded three populations of 1 to 5 individuals as occurring within the application area (Rio Tinto, 2009). This species has previously been recorded from scattered locations through the eastern Pilbara and adjacent Little Sandy Desert IBRA regions (Rio Tinto, 2009). Given its wide distribution outside of the application area, the proposed clearing is unlikely to affect the conservation status of this species.

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

Methodology Rio Tinto (2009)
Western Australian Herbarium (2009)
GIS Database
- Declared Rare and Priority Flora List

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

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

A search of available databases reveals that there are no Threatened Ecological Communities (TEC's) within the application area (GIS Database).

The nearest (TEC) is located approximately 76 kilometres north of the application area (Themeda Grasslands) while the nearest Priority Ecological Community (PEC) is located approximately 63 kilometres north-east of the application area (Coolabah-lignum flats). At this distance there is little likelihood of any impact to the TEC or PEC from the proposed clearing.

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

Methodology GIS Database
- Threatened Ecological Communities

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

Comments Proposal is not at variance to this Principle

The application area falls within the Pilbara IBRA bioregion (GIS Database). Shepherd (2007) report that approximately 99.95% of the pre-European vegetation still exists in this bioregion.

The vegetation in the application area is recorded as Beard Vegetation Associations 82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana*; 181: Shrublands; mulga & snakewood scrub; and 567: Hummock grasslands, shrub steppe; mulga & kanji over soft spinifex & *Triodia basedowii* (GIS Database; Shepherd, 2007).

According to Shepherd (2007) approximately 100% of these Beard Vegetation Associations remain within the Pilbara bioregion (see table below).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves (and post clearing %)
IBRA Bioregion – Pilbara	17,804,187.89	17,794,646.75	~99.95%	Least Concern	~6.32%
Beard veg assoc. – State					
82	2,565,901	2,565,901	~100%	Least Concern	~10.2%
181	1,697,291	1,697,291	~100%	Least Concern	~2.4%
567	777,507	777,507	~100%	Least Concern	~22.3%
Beard veg assoc. – Bioregion					
82	2,563,583	2,563,583	~100%	Least Concern	~10.2%
181	65,091	65,091	~100%	Least Concern	~4.9%
567	776,824	776,824	~100%	Least Concern	~22.4%
Beard veg assoc. - subregion					
82	2,177,572.58	2,177,572.58	~100%	Least Concern	~12.03%
181	65,090.53	65,090.53	~100%	Least Concern	~4.87%
567	776,823.93	776,823.93	~100%	Least Concern	~22.35%

* Shepherd (2007)

** Department of Natural Resources and Environment (2002)

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

Methodology Department of Natural Resources and Environment (2002)
Shepherd (2007)
GIS Database
- Interim Biogeographic Regionalisation for Australia
- Pre-European Vegetation

(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

According to available GIS Databases, there are no permanent watercourses within the application area, however, there are numerous minor, non-perennial watercourses within the application area (GIS Database). Two of the fifteen vegetation associations found within the application area are associated with drainage areas (Rio Tinto, 2009).

Vegetation from Minor Drainage lines and Valley Floor

- **Vegetation Type 6 - EI Aa Ac As Sa Ab Lp Tw Tl:** *Eucalyptus leucophloia* low open woodland over *Acacia aneura* and *A. citrinoviridis* high open shrubland over *A. synchronica* shrubland over *Scaevola acacioides*, *A. bivenosa* and *Lepidium pedicellosum* low shrubland over *Triodia wiseana* and *T. longiceps* hummock grassland;
- **Vegetation Type 7 - Ac EI As SI Ec Ts SLp Tw Tl:** *Acacia citrinoviridis* low woodland over *Eremophila longifolia* and *A. synchronica* high shrubland over *Senna luerssenii* and *E. cunefolia* shrubland over *Tribulus suberosus*, *Sclerolaena* sp. and *Lepidium pedicellosum* low shrubland over *Triodia wiseana* and *T. longiceps* hummock grassland (Rio Tinto, 2009).

The vegetation associated with any drainage channels is likely to be a fauna refuge and as such disturbance should be kept to a minimum. The vegetation communities growing in association with the watercourses are not unique and are considered common and widespread in the Pilbara bioregion (Shepherd, 2007; GIS Database). The proposed clearing is unlikely to significantly impact on vegetation communities growing in association with these drainage channels.

Based on the above, the proposed clearing is at variance to this Principle. However, the clearing of vegetation for the proposed access track and drill holes is unlikely to have a significant impact on the extent of these vegetation communities within the application area, or local area.

Methodology Rio Tinto (2009)
Shepherd (2007)
GIS Database
- Hydrography - Linear

(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 has been surveyed by the Department of Agriculture and Food (Van Vreeswyk et al., 2004). The application area is composed of the following land systems (GIS Database);

- Newman Land System
- Paraburdoo Land System
- Rocklea Land System

The Newman Land System is described as rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands (Van Vreeswyk et al., 2004). Most of this system is not susceptible to erosion or vegetation degradation (Van Vreeswyk et al., 2004). An analysis of aerial photography for the application area reveals the application area is most likely to fall within the 'plateaux, ridges, mountains and hills' land unit. The soils of this land unit (stony soils, red shallow loams and some red shallow sands) are not susceptible to erosion due to a surface mantle of pebbles of ironstone and other rocks, as well as outcrops of parent rock.

The Paraburdoo Land System is described as basalt derived stony gilgai plains and stony plains supporting snakewood and mulga shrublands with spinifex and tussock grasses (Van Vreeswyk et al., 2004). Most of this system is not susceptible to erosion (Van Vreeswyk et al., 2004). An analysis of aerial photography for the application area reveals the application area is most likely to fall within the 'upper interfluvies and slopes' and 'gilgai plains' land units. The soils of these land units (shallow red/brown non-cracking clays, red shallow loams and self mulching cracking clays) have a low susceptibility to erosion (Schoknecht, 2002; Van Vreeswyk et al., 2004).

The Rocklea Land System is described as basalt hills, plateaux, lower slopes and minor stony plains supporting hard spinifex (and occasionally soft spinifex) grasslands (Van Vreeswyk et al., 2004). This system is not susceptible to erosion (Van Vreeswyk et al., 2004). An analysis of aerial photography for the application area reveals the application area is most likely to fall within the 'lower slopes' and 'drainage floors and channels' land units. The soils of these land units (red shallow loams, red shallow sandy duplex soils, red loamy earths and red/brown non-cracking clays) have a low to moderate susceptibility to erosion (Schoknecht, 2002; Van Vreeswyk et al., 2004).

Based on the above, the proposed clearing is not likely to be at variance to this Principle. It is recommended that should a permit be granted, a condition be imposed on the permit to retain vegetative material and topsoil.

Methodology Schoknecht (2002)
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

The proposed clearing is not located within a conservation reserve (GIS Database). The nearest known conservation reserve is the Karijini National Park, located approximately 10 kilometres east (GIS Database).

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

Methodology GIS Database
- CALM Managed Lands and Waters

(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

According to available databases, the application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database).

The application area is located within a *Rights in Water Irrigation Act, 1914* (RIWI Act) Groundwater Area, namely the Pilbara Groundwater Area (DoW, 2009; GIS Database). Any extraction of groundwater in this area will require a groundwater license.

The groundwater salinity within the application area is approximately 500 - 1000 milligrams/Litre Total Dissolved Solids (TDS) (GIS Database). This is considered to be potable water. Given the size of the area to be cleared (5.5 hectares) compared to the size of the Hamersley Groundwater Province (10,166,832 hectares) (GIS Database), the proposed clearing is not likely to cause salinity levels within the application area to alter significantly.

There are no known groundwater dependent ecosystems within the application area (GIS Database).

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

Methodology DoW (2009)
GIS Database
- Groundwater Provinces
- Groundwater Salinity, Statewide
- Potential Groundwater Dependent Ecosystems
- Public Drinking Water Source Area
- RIWI Act, Groundwater 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 this Principle

The application area experiences a semi-desert, tropical climate with an average annual rainfall of 283.3 millimetres recorded from the nearest weather station at Paraburdoo approximately 15 kilometres west of the application area (CALM, 2001; BoM, 2009). Rainfall is usually experienced during summer months and can be either cyclonic or thunderstorm events (CALM, 2001).

The application area is located within the Ashburton River catchment area (GIS Database). However, the small area to be cleared (5.5 hectares) in relation to the size of the Ashburton River catchment area (7,877,743 hectares) (GIS Database) is not likely to increase the potential for flooding within the application area, local area or within the catchment (GIS Database).

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

Methodology BoM (2009)
CALM (2001)
GIS Database
- Hydrographic Catchments - Catchments

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

Comments

There is one Native Title Claim (WC96_061) over the area under application. This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the tenement 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 numerous known Aboriginal sites of significance within close proximity of the application area (GIS Database). 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.

The application area falls within a groundwater management area under the *Rights in Water Irrigation Act, 1914* (DoW, 2009). Extraction of groundwater, obstruction or interference of the beds and banks of a watercourse or wetland is subject to licensing by the Department of Water (DoW).

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

One public submission was received stating no objection to this Clearing Permit application.

Methodology DoW (2009)
GIS Database
- Aboriginal Sites of Significance
- Native Title Claims
- RIWI Areas

4. Assessor's comments

Comment

The proposal has been assessed against the Clearing Principles, and the proposal is at variance to the Principle (f), is not likely to be at variance to Principles (a),(b), (c), (d), (g), (h), (i) and (j), and is not at variance to Principle (e).

It is recommended that should a permit be granted, conditions be imposed on the permit for the purpose of weed management, stockpiling all cleared topsoil and vegetation, record keeping and permit reporting.

5. References

- BoM (2009) Bureau of Meteorology Website - Climate Averages by Number, Averages for PARABURDOO.
http://www.bom.gov.au/climate/averages/tables/cw_007178.shtml (Accessed 15 September 2009)
- CALM (2001) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Pilbara 3 (PIL3 - Hamersley subregion) Department of Conservation and Land management, Western Australia
- DEC (2009a) NatureMap - Department of Environment and Conservation and Western Australian Museum.
<http://naturemap.dec.wa.gov.au/default.aspx> (Accessed 14 September 2009)
- DEC (2009b) Threatened and Priority Fauna Database. Department of Environment and Conservation, Western Australia
Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.
- DoW (2009) Water Quality Advice. Advice to assessing officer, Native Vegetation Assessment Branch, Department of Mines and Petroleum (DMP), received (15 June). Department of Water, Western Australia
- Hamersley Iron Pty Ltd (2009) Application for a Clearing Permit (Purpose Permit) Turee Syncline - Access Tracks and Drilling Program - On Tenement ML252SA. Supporting Documentation. Rio Tinto Group, Western Australia
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Rio Tinto (2009) Botanical Survey for Multiple Areas at Turee Syncline. Unpublished report prepared by A. Rowe. May 2009
- Schoknecht N. (2002) Soil Groups of Western Australia. A simple guide to the main soils of Western Australia. Resource Management Technical Report 246. Edition 3
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6. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government.
CALM	Department of Conservation and Land Management, Western Australia.
DAFWA	Department of Agriculture and Food, Western Australia.
DA	Department of Agriculture, Western Australia.
DEC	Department of Environment and Conservation
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DoE), 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, Western Australia.
DoIR	Department of Industry and Resources, Western Australia.
DOLA	Department of Land Administration, Western Australia.
DoW	Department of Water
EP Act	Environment Protection Act 1986, Western Australia.
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System.
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	Rights in Water and Irrigation Act 1914, Western Australia.
s.17	Section 17 of the Environment Protection Act 1986, Western Australia.
TECs	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.