



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 5185/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Robe River Mining Co Pty Ltd

1.3. Property details

Property: Iron Ore (Robe River) Agreement Act 1964, Mineral Lease 248SA (AML 70/248)
Miscellaneous Licence 47/53
Miscellaneous Licence 47/409
Miscellaneous Licence 52/75

Local Government Area: Shire of East Pilbara and Shire of Ashburton
Colloquial name: West Angelas Pipeline and Stations Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
500		Mechanical Removal	Gas Pipeline, Gas Stations and Associated Works

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 24 October 2012

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 whole of Western Australia. Four Beard vegetation associations have been mapped within the application area (GIS Database):

18: Low woodland; mulga (*Acacia aneura*);
29: Sparse low woodland; mulga, discontinuous in scattered groups;
82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana*;
169: Shrublands; mulga & Minnie ritchie scrub.

Two flora and vegetation surveys of the application area have been conducted by ENV Australia (2011; 2012) in July 2011 and March 2012. These surveys identified the following 29 vegetation communities across three major landforms within the application area (ENV Australia, 2011; 2012):

Major and Minor Creeklines

AanAciERfoTp: *Acacia aneura*, *A. citrinoviridis* low open forest over *Eremophila forrestii* low open shrubland over *Triodia pungens* open hummock grassland;

AanApyTHt: *Acacia aneura* low open woodland over *Acacia pyrifolia* scattered tall shrubs over *Themeda triandra* tussock grassland;

AciApyEfrTp: *Acacia citrinoviridis*, *Acacia pyrifolia* tall shrubland over *Eremophila fraseri* low open shrubland over *Triodia pungens* open hummock grassland;

AciTHtTp: *Acacia citrinoviridis* tall shrubland over *Themeda triandra* open tussock grassland over *Triodia pungens* scattered hummock grasses;

AmoTp: *Acacia monticola* tall open scrub over *Triodia pungens* hummock grassland;

ApyAciTp: *Acacia pyrifolia*, *Acacia citrinoviridis* tall shrubland over *Triodia pungens* open hummock grassland;

CfDOPeRITp: *Corymbia ferritcola* low woodland over *Dodonaea pachyneura*, *Eremophila latrobei* subsp. *filiformis* shrubland over *Triodia pungens* open hummock grassland;

ChAciAanArSAITp: *Corymbia hamersleyana*, *Acacia citrinoviridis*, *Acacia aneura* low open woodland over *Acacia rhodophloia*, *Santalum lanceolatum* tall shrubland over *Triodia pungens* hummock grassland;

ChApyAmoGOrTHtERITp: *Corymbia hamersleyana* scattered low trees over *Acacia pyrifolia*, *Acacia monticola*, *Gossypium robinsonii* tall shrubland over *Themeda triandra*, *Eriachne tenuiculmis* tussock grassland and *Triodia*

pungens open hummock grassland;

EcAciCcrTp: *Eucalyptus camaldulensis*, *Acacia citrinoviridis* low woodland to open forest over *Corchorus crozophorifolius* open shrubland over *Triodia pungens* open hummock grassland; and

EvAciTHtEUaCYaTp: *Eucalyptus victrix*, *Acacia citrinoviridis* low woodland over *Themeda triandra*, *Eulalia aurea*, *Cymbopogon ambiguus* open tussock grassland and *Triodia pungens* hummock grassland.

Foothills, Rocky Hill Slopes and Crests

AanAbTsh: *Acaica aneura* low open woodnad over *Acacia bivenosa* scattered shrubs over *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) hummock grassland;

AiTbrTw: *Acacia inaequilatera* tall shrubland over *Triodia brizoides*, *Triodia wiseana* hummock grassland;

AprAciApyTp: *Acacia pruinocarpa*, *Acacia citrinoviridis*, *Acacia pyrifolia* open shrubland over *Triodia pungens* hummock grassland;

AprAiTw: *Acacia pruinocarpa*, *Acacia inaequilatera* open shrubland over *Triodia wiseana* hummock grassland;

CdEsTbrTp: *Corymbia deserticola*, *Eucalyptus socialis* scattered low trees/mallee over *Triodia brizoides*, *Triodia pungens* hummock grassland;

EgCdAanAaAbTp: *Eucalyptus gamophylla*, *Corymbia deserticola*, *Acacia aneura* low open woodland over *Acacia ancistrocarpa*, *Acacia bivenosa* tall open scrub over *Triodia pungens* hummock grassland;

EIAmERsp.TpTbr: *Eucalyptus leucophloia* low woodland over *Acacia maitlandii*, *Eremophila* sp. (identification pending) open shrubland over *Triodia pungens*, *Triodia brizoides* hummock grassland;

EIAprTp: *Eucalyptus leucophloia* scattered trees over *Acacia pruinocarpa* open shrubland over *Triodia pungens* hummock grassland;

EITbrTp: *Eucalyptus leucophloia* scattered low trees over *Triodia brizoides*, *Triodia pungens* hummock grassland; and

EITshTp: *Eucalyptus leucophloia* scattered low trees over *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) and *Triodia pungens* hummock grassland.

Plains

AanAprHcTp: *Acacia inaequilatera* tall shrubland over *Triodia brizoides*, *Triodia wiseana* hummock grassland;

AanAprRHeERfoHTHTlo: *Acacia aneura*, *Acacia pruinocarpa* low woodland over *Rhagodia eremaea*, *Eremophila forrestii* open shrubland over *Themeda triandra* open tussock grassland and *Triodia longiceps* scattered hummock grasses;

AanAprTp / AanTp: *Acacia aneura*, *A. pruinocarpa* tall open scrub over *Triodia pungens* very open hummock grassland; occurring in a mosaic with groves of *Acacia aneura* low open forest over *Triodia pungens* hummock grassland;

AanAprTbrTp: *Acacia aneura*, *Acacia pruinocarpa* tall open shrubland over *Triodia brizoides*, *Triodia pungens* hummock grassland;

AanAprTshTp: *Acacia aneura*, *Acacia pruinocarpa* tall open shrubland over *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) and *Triodia pungens*;

AanArERfoTp: *Acacia aneura* low woodland over *Acaica rhodophloia*, *Eremophila forrestii* open shrubland over *Triodia pungens* open hummock grassland;

AanArGbERfoERpCAsTp: *Acacia aneura* low woodland over *Acacia rhodophloia*, *Grevillea berryana* scattered tall shrubs over *Eremophila forrestii*, *Eremophila phyllopoda*, *Cassia stricta* low open shrubland over *Triodia pungens* very open hummock grassland;

AanArGbPSIERp: *Acacia aneura*, *Acacia rhodophloia*, *Grevillea berryana* low open woodland over *Psydrax latifolia* scattered tall shrubs over *Eremophila phyllopoda* scattered low shrubs;

AanEphTp: *Acacia aneura* low woodland over *Eremophila phyllopoda* low shrubland over *Triodia pungens* hummock grassland;

AanEjuTp: *Acacia aneura* low woodland over *Eremophila jucunda* low open shrubland over *Triodia pungens* hummock grassland;

AanTp: *Acacia aneura* low closed forest over *Triodia pungens* hummock grassland;

AanTp/Bare Ground: *Acacia aneura* low closed forest over *Triodia pungens* hummock grassland – groving mulga;

ApaSglAscTep: *Acacia paraneura* low woodland over *Senna glutinosa* subsp. *pruinosa*, *Acacia sclerosperma* shrubland over *Triodia epactia* / *pungens* open hummock grassland;

AprAanAwTp: *Acacia pruinocarpa*, *Acacia aneura* tall open scrub over *Acacia wanyu* scattered shrubs over *Triodia pungens* hummock grassland; and

HcApyCAhTp: *Hakea chordophylla*, *Acacia pyrifolia* tall shrubland over *Cassia helmsii* scattered low shrubs over *Triodia pungens* open hummock grassland.

Clearing Description Robe River Mining Co Pty Ltd has applied to clear approximately 500 hectares of native vegetation within a 1,352 hectare boundary for the purpose of installing and maintaining a gas pipeline, gas stations and associated works and infrastructure.

Clearing will be conducted using a dozer with blade down techniques and vegetation will be stockpiled and used in rehabilitation.

Vegetation Condition Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994);

To

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

Comment The application area is located in the Pilbara and Gascoyne regions of Western Australia and is situated approximately 80 kilometres east of Paraburdoo at the closest point.

3. Assessment of application against clearing principles

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

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

The application area lies within the Hamersley (PIL3) subregion of the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) bioregion and the Augustus (GAS3) sub-region of the Gascoyne IBRA bioregion (GIS Database). At a broad scale, vegetation of the Hamersley subregion can be described as Mulga low woodlands over bunch grasses on fine textured soils in valley floors and *Eucalyptus leucophloia* over *Triodia brizoides* on skeletal soils of the ranges (CALM, 2002). Rare features of the subregion include gorges of the Hamersley Ranges (particularly those within Karijini National Park), Palm Spring, Duck Creek and Themeda grasslands (CALM, 2002). Permanent spring systems such as Weeli Wolli are also listed for their importance as refugia (CALM, 2002). The Augustus sub-region is characterised by rugged low Proterozoic sedimentary and granite ranges divided by broad flat valleys (CALM, 2002).

A flora and vegetation survey conducted over the majority of the application area was conducted by ENV Australia (2011) in July 2011. This survey identified 265 flora taxa from 126 genera and 44 families within the majority of the application area (ENV Australia, 2011).

According to available databases there are no Threatened Flora species within the application area (GIS Database). A flora and vegetation survey conducted over the majority of the application area by ENV Australia (2011) identified no Threatened Flora species and two Priority Flora species, *Rhagodia* sp. Hamersley (M. Trudgen 17794) (Priority 3) and *Eremophila forrestii* subsp. Pingandy (Priority 2), within the application area. A flora survey over the majority of the application area conducted by Biota (2010) also identified Priority 3 species *Sida* sp. Barlee Range (S. van Leeuwen1642) approximately 100 metres from the application area and *Acacia effusa* (P3) and *Indigofera gilesii* subsp. *gilesii* (Priority 3) within approximately 7 kilometres of the application area. The clearing of Priority Flora should be avoided where possible however, given the majority of the clearing is to be linear and narrow in nature over a large stretch of land, it is considered unlikely that the proposed clearing will significantly impact on the conservation of any Priority Flora species.

According to available databases the application area is within the buffer of four occurrences of the West Angelas Cracking Clay Priority Ecological Community (PEC) (GIS Database). Flora surveys conducted by Biota (2010) and ENV Australia (2011) have identified small patches of cracking clay within the application area however, the species composition within these cracking clay occurrences is not the same as that of the PEC. According to ENV Australia (2011), this community is present within 1 kilometre of the application area and may be impacted by weed invasion and changes in fire regimes. Potential impacts as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

No Threatened Ecological Communities (TEC's) are known to occur within or nearby the application area (GIS Database).

Seven introduced flora species, *Acetosa vesicaria*, *Bidens bipinnata*, *Cenchrus ciliaris*, *Cenchrus setiger*, *Flaveria trinervia*, *Malvastrum americanum*, *Portulaca oleracea* and *Setaria verticillata*, have been recorded within and adjacent to the application area during flora surveys conducted by ENV Australia (2011). 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 can in turn 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. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation

of a weed management condition.

A fauna survey of the application area was conducted by ENV Australia (2011) in July 2011 and identified the four fauna habitats. Given the linear nature of the proposed clearing it is considered unlikely to cause a significant impact upon the fauna habitats present within the application area. Therefore the proposed clearing is considered unlikely to impact upon a high level of faunal diversity.

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

Methodology Biota (2010)
CALM (2002)
ENV Australia (2011)
GIS Database:
- IBRA WA (regions – subregions)
- Threatened Ecological Sites Buffered
- Threatened and Priority Flora

(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

A fauna survey of the application area was conducted by ENV Australia (2011) in July 2011 and identified the following fauna habitats:

- Plains (Moderate Habitat Value);
- Major and Minor Creeklines (Moderate Habitat Value);
- Rocky Hill: Foothills, Rocky Hill Slopes (Moderate Habitat Value); and
- Rocky Hill: Upper Slopes and Gorges (Moderate Habitat Value).

Alluvial areas with banded Mulga are considered to be of high local conservation significance as they host undescribed and poorly collected mygalomorph spiders (ENV Australia, 2011). Other habitats within the application area occur widely throughout the Pilbara (ENV Australia, 2011).

The fauna survey of the application area conducted by ENV Australia (2011) identified two conservation significant fauna species within the application area. Both the Australian Bustard (*Ardeotis Australia*) (Priority 4) and the Western Pebble-mound Mouse (*Pseudomys chapmani*) (Priority 4) were recorded within the application area. These species occur broadly throughout the Pilbara bioregion and the habitats within the Pilbara bioregion are common (ENV Australia, 2012). It is therefore considered unlikely that the proposed clearing will impact on the conservation of these species.

A further five conservation significant fauna species were identified as having the potential to occur within the application area by ENV Australia (2011).

The Fork-tailed Swift (*Apus pacificus*) (Migratory) is an aerial species which forages high above the tree canopy and rarely descends lower (ENV Australia, 2011).

The Pilbara Olive Python (*Liasis olivaceus barroni*) (Vulnerable, Schedule 1) is known to occur in gorges, major and minor creeklines (ENV Australia, 2011). However, this species prefers larger gorges with permanent water which are absent from the application area (ENV Australia, 2011).

The Peregrine Falcon (*Falco peregrinus*) (Schedule 4) occurs near creeklines, on cliffs above gorges and on upper-slopes (ENV Australia, 2011). The Bush Stone-curlew (*Burhinus grallarius*) (Priority 4) may occur on plains adjacent to creeklines (ENV Australia, 2011). The linear nature of the proposed clearing renders it unlikely that the proposed clearing will significantly impact upon these vegetation communities (ENV Australia, 2011).

The Rainbow Bee-eater (*Merops ornatus*) (Migratory) may potentially utilise all habitat types within the application area (ENV Australia, 2011). The Rainbow Bee-eater is a highly mobile species and it is considered unlikely that the proposed clearing will impact on the conservation of this species.

The fauna survey conducted by ENV Australia (2011) identified that, based on the habitats present and the linear nature of the project, the proposed clearing is unlikely to have a significant impact on any conservation significant fauna species that may occur within the application area.

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

Methodology ENV Australia (2012)

(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 databases, there are no Threatened Flora species within the application area (GIS Database).

Two flora and vegetation surveys of the application area have been conducted by ENV Australia (2011; 2012) in July 2011 and March 2012. These surveys did not locate any Threatened Flora species within the application area.

Biota (2010) also conducted a flora survey over the application area which did not locate any Threatened Flora species.

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

Methodology Biota (2010)
ENV Australia (2011)
ENV Australia (2012)
GIS Database:
- Threatened and Priority Flora

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

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

There are no known records of Threatened Ecological Communities (TEC's) within the application area (GIS Database). The nearest known TEC is located approximately 100 kilometres north west of the application area (GIS Database). At this distance there is little likelihood of any impact to the TEC as a result of 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 Sites Buffered

(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 located within the Pilbara and Gascoyne Interim Biogeographic Regionalisation for Australia (IBRA) bioregions (GIS Database). Approximately 99.58% and 99.96% of the pre-European vegetation remains in the Pilbara and Gascoyne bioregions respectively (Government of Western Australia, 2011).

The vegetation in the application area has been broadly mapped as Beard vegetation associations:

18: Low woodland; mulga (*Acacia aneura*);
29: Sparse low woodland; mulga, discontinuous in scattered groups;
82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana*;
169: Shrublands; mulga & minnieritchie scrub.

Approximately 99.39%, 99.51% and 100% of Beard vegetation associations 18, 82 and 169 remain within the Pilbara bioregion while 99.93% of Beard vegetation association 29 remains within the Gascoyne bioregion (see table on next page) (Government of Western Australia, 2011).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion - Pilbara	17,804,427	17,729,352	~99.58	Least Concern	~6.32
IBRA Bioregion - Gascoyne	18,075,219	18,067,441	~99.96	Least Concern	~1.93
Beard vegetation associations - State					
18	19,892,305	19,843,823	~99.76	Least Concern	~2.13
29	7,903,991	7,900,200	~99.95	Least Concern	~0.29
82	2,565,901	2,553,217	~99.51	Least Concern	~10.24
169	430,553	430,541	~100	Least Concern	~7.01
Beard vegetation associations - Pilbara					
18	676,557	672,242	~99.39	Least Concern	~16.79
82	2,563,583	2,550,899	~99.51	Least Concern	~10.25
169	103,844	103,844	~100	Least Concern	~29.06
Beard vegetation associations - Gascoyne					
29	3,802,460	3,799,636	~99.93	Least Concern	~0.03

* Government of Western Australia (2011)

** Department of Natural Resources and Environment (2002)

The vegetation within the application area is not considered to be a remnant of vegetation in an area that has been extensively cleared.

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

Methodology Department of Natural Resources and Environment (2002)
Government of Western Australia (2011)
GIS Database:
- IBRA WA (regions – subregions)
- 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 databases there are no permanent wetlands or watercourses within the application area however, there are numerous non-perennial watercourses (GIS Database). Flora surveys conducted by Biota (2010) and ENV Australia (2012) have identified eleven vegetation communities associated with non-perennial watercourses within the application area. The linear nature of the proposed clearing renders it unlikely to significantly impact on these vegetation communities. It is however, important to maintain the natural flow of perennial watercourses within the application area. Potential impacts to watercourse flow may be minimised by a watercourse management condition.

Based on the above, the proposed clearing is at variance to this Principle.

Methodology Biota (2010)
ENV (2012)
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 may be at variance to this Principle

According to available databases, the application area intersects the following six land systems (GIS Database):

The Boolgeeda land system is characterised by stony lower slopes and plains below hill systems supporting hard and soft Spinifex grasslands and mulga shrublands (Van Vreeswyk et al., 2004). This vegetation is generally not prone to degradation and the system is not susceptible to erosion (Van Vreeswyk et al., 2004).

The Jamindie land system is characterised by stony hardpan plains and rises supporting groved mulga shrublands, occasionally with Spinifex understory (Van Vreeswyk et al., 2004). Drainage tracts within this land system are moderately susceptible to erosion, while some hardpan plains are slightly susceptible and other parts are inherently resistant to erosion (Van Vreeswyk et al., 2004).

The Newman land system is characterised by rugged jaspilite plateaux, ridges and mountains supporting hard Spinifex grasslands (Van Vreeswyk et al., 2004). This land system is not susceptible to erosion (Van Vreeswyk et al., 2004).

The Platform land system is characterised by dissected slopes and raised plains supporting hard Spinifex grasslands (Van Vreeswyk et al., 2004). This land system is not susceptible to erosion (Van Vreeswyk et al., 2004).

The Robe land system is characterised by low limonite mesas and buttes supporting soft spinifex (and occasionally hard spinifex) grasslands (Van Vreeswyk et al., 2004). This land system is generally not susceptible to erosion (Van Vreeswyk et al., 2004).

The Rocklea land system is characterised by basalt hills, plateaux, lower slopes and minor stony plains supporting hard Spinifex (and occasionally soft Spinifex) grasslands (Van Vreeswyk, 2004). This land system has very low erosion susceptibility (Van Vreeswyk et al., 2004).

Units within the Jamindie and Rocklea land systems have slight to moderate susceptibility to erosion (Van Vreeswyk et al., 2004). Potential erosion as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition.

Based on the above, the proposed clearing may 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 may be at variance to this Principle

The application is not located within a conservation reserve (GIS Database). The nearest conservation reserve is Karijini National Park, located approximately 100 metres from the application area at the closest point (GIS Database). Given the low impact nature of the proposed clearing, it is considered unlikely that the proposed clearing will have a significant impact on Karijini National Park however, the increase in vehicle movement in the area may increase the potential spread of weeds. Potential spread of weeds to Karijini national Park as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

Based on the above, the proposed clearing may 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 application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). The nearest PDWSA is the Marandoo Water Reserve, approximately 66 kilometres north west of the application area (GIS Database). Given the distance separating the application area and the nearest water supply, the proposed clearing is not likely to impact on the water quality of the Marandoo Water Reserve.

The groundwater salinity within the application area is between 500 - 1,000 milligrams per litre of Total Dissolved Solids (TDS) (GIS Database). Given the linear nature of the proposed clearing within the Hamersley Groundwater Province (10,166,832 hectares) and Ashburton Groundwater Province (2,656,650 hectares), the proposed clearing is not likely to cause the salinity levels within the application area to alter significantly.

There are no permanent wetlands or watercourses within the application area (GIS Database). The application

area experiences an average annual rainfall ranging between approximately 244.5 millimetres in the south and 351.8 millimetres in the north and an average annual evaporation rate of approximately 3,400 millimetres (BoM, 2012a; BoM 2012b; GIS Database). It is therefore unlikely that the proposed clearing will impact upon the quality of surface water as any surface water within the application area will be short lived.

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

Methodology BoM (2012a)
BoM (2012b)
GIS Database:
- Evaporation Isopleths
- Groundwater Provinces
- Groundwater Salinity, Statewide
- Hydrography, linear
- Public Drinking Water Source Areas (PDWSAs)

(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 to desert climate with an annual average rainfall ranging between approximately 244.5 millimetres in the south and 351.8 millimetres in the north (CALM, 2002; BoM 2012a; BoM, 2012b). The annual evaporation within the application area is approximately 3,400 millimetres (GIS Database), therefore any surface water is likely to be relatively short lived.

As the proposed clearing is predominantly of a linear nature over a large distance it is considered unlikely to cause, or exacerbate, the incidence or intensity of flooding.

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

Methodology BoM (2012a)
BoM (2012b)
CALM (2002)
GIS Database:
- Evaporation Isopleths

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

Comments

There are two Native Title Claim (WC10/11 and WC99/13) over the area under application (GIS Database). WC10/11 has been registered with the National Native Title Tribunal on behalf of the claimant group and WW99/13 has been determined by the Federal Court. However, the 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 Aboriginal Sites of Significance within 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.

It is the proponent's responsibility to liaise with the 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 20 August 2012 by the Department of Mines and Petroleum inviting submissions from the public. One submission was received in relation to the proposed clearing requesting a map of all clearing permits granted within the Shire of East Pilbara. A map was provided to the submission party.

Methodology GIS Database:
- Native Title Claims – Registered with the NNTT
- Native Title Claims – Determined by the federal Court

4. References

- Biota (2010) A Flora and Vegetation Survey of the Proposed West Angelas Gas-Fired Power Station and Pipeline Corridor. Unpublished Report Prepared for Rio Tinto Iron Ore Pty Ltd dated September 2010.
- BoM (2012a) BoM Website - Climate Averages by Number, Averages for TUREE CREEK
www.bom.gov.au/climate/averages/tables.shtml (Accessed 11 October 2012)
- BoM (2012b) BoM Website - Climate Averages by Number, Averages for MULGA DOWNS
www.bom.gov.au/climate/averages/tables.shtml (Accessed 11 October 2012)
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Department of Conservation and Land Management
- 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.
- ENV Australia (2011) Flora, Vegetation and Fauna Assessment of the West Angelas Gas Pipeline Deviation. Unpublished report prepared for Rio Tinto Iron Ore Pty Ltd dated August 2012.
- ENV Australia (2012) Flora, Vegetation and Fauna Assessment of the Re-Aligned Gas Pipeline Corridor at West Angelas. Unpublished report prepared for Rio Tinto Iron Ore Pty Ltd dated November 2011.
- Government of Western Australia (2011) 2011 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). WA Department of Environment and Conservation, Perth.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Van Vreeswyk, A.M.E., Payne, A.L., Hennig, P., and Leighton, K.A. (2004) An Inventory and Condition Survey of the Pilbara Region, Western Australia, Department of Agriculture, Western Australia.

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.