Government of **Western Australia**
Department of **Mines and Petroleum**

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4532/7
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Argyle Diamonds Limited**

1.3. Property details

Property: *Diamond (Argyle Diamond Mines Joint Venture) Agreement Act 1981*,
Mining Lease 259SA (AM 70/259)
Mining Lease 80/114
Miscellaneous Licence 80/1
Local Government Area: Shire of Wyndham-East Kimberley
Colloquial name: Argyle Diamond Mine

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
300		Mechanical Removal	Mineral Exploration, Mineral Production and Associated Activities

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 20 October 2016

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. The vegetation of the application area is broadly mapped as Beard vegetation associations:

65 - Grasslands, tall bunch grass savanna, sparse low tree, terminalia; mitchell grass (*Astrebla pectinata* & spp.);

126 - Bare areas; freshwater lakes;

808 - Grasslands, curly spinifex, low tree savanna; snappy gum over curly spinifex;

818 - Hummock grasslands, low tree steppe; Snappy Gum over *Triodia inutilis*;

819 - Grasslands, tall bunch grass savanna low tree; cabbage gum & silverleaved box over aristida & ribbon grass on sandy plains;

820 - Grasslands, high grass savanna sparse low tree; snappy gum (*Eucalyptus brevifofia*) over upland tall grass & curly spinifex on granite;

825 - Grasslands, high grass savanna woodland; cabbage gum & *Eucalyptus foelscheana* over upland tall grass & curly spinifex on basalt;

827 - Hummock grasslands, low tree steppe; terminalia over *Triodia wiseana* on limestone; and

833 - Grasslands, short bunch grass savanna sparse low tree; scattered Snappy Gum over arid short grass on plains (GIS Database).

Several flora surveys conducted by Mattiske (1998; 2002; 2003; 2004), have identified the following vegetation complexes within the application areas:

Mountain Complex
MC1 Kimberley Gum low tree steppe, Frosted Bloodwood steppe woodland. Bloodwood curly Spinifex tree savanna, Cotton tree low tree steppe, Celtis-Pouteria scrub. Halls Creek Gum low tree steppe, Mixed dwarf shrub steppe;

Hummock Grasslands
HG1 Hummock Grassland of *Triodia bitextura* and *Triodia bynoei* with emergent *Eucalyptus brevifolia*, *Corymbia confertiflora*, *Corymbia opaca*, *Eucalyptus pruinosa*, *Bauhinia cunninghamii over Acacia arygraea* and *Acacia hemignosta*;

HG2 Hummock Grassland of *Triodia bitextura* and *Triodia bynoei* with emergent *Corymbia confertiflora*, *Corymbia opaca*, *Eucalyptus brevifolia*, *Eucalyptus pruinosa*, *Bauhinia cunninghamfi* and *Terminalia canescens*;

HG3 Hummock Grassland of *Triodia bitextura* and *Triodia bynoei* with emergent denser pockets of *Terminalia canescens* and *Cochlospermum fraseri*, with the occasional *Corymbia confertiflora* and *Eucalyptus brevifolia*;

Woodlands

W1 Low Open Woodland of *Terminalia canescens* with *Corymbia confertiflora*, *Eucalyptus brevifolia*, *Terminalia oblongata* subsp. *volucris* and *Eucalyptus pruinosa* over patches of *Triodia bitextura* and *Heteropogon contortus*;

W2 Low Open Woodland of *Melaleuca minutifolia* and *Eucalyptus pruinosa* over *Triodia bitextura*;

W3 Low Open Woodland of *Eucalyptus brevifolia* over pockets of *Acacia argyraea* and *Eriachne ciliata*;

W4 Open Woodland and Low Open Woodland of *Terminalia platyptera*, *Terminalia arostrata*, *Adansonia gregorii*, *Buchanania obovata* and *Bauhinia cunninghami*;

W5 Mixture of Open Woodland and Low Open Woodland of *Adansonia gregorii*, *Buchanania obovata*, *Bauhinia cunninghami* and *Eucalyptus brevifolia* over patches of *Typha domingensis*, *Heteropogon contortus*, *Cenchrus elymoides* and *Chloris truncata*;

W6 Low Open Woodland of *Melaleuca minutifolia* over patches of *Typha domingensis*;

W7 Low Open Woodland of *Bauhinia cunninghamii* and *Eucalyptus pruinosa* over mixed grasses and herbs;

W8 Low Woodland of *Cochlospermum fraseri*, *Eucalyptus brevifolia*, *Eucalyptus pruinosa* and *Corymbia opaca* over *Triodia bitextura* and *Cyperus cunninghamii* subsp, *cunninghamii*;

W9 Low Open Woodland of *Corymbia opaca*, *Eucalyptus brevifolia*, *Eucalyptus pruinosa* and *Cochlospermum fraseri* over *Ptilotus spicatus* subsp. *spicatus*, *Cleome viscosa* and *Phyllanthus maderaspatensis var.angusfifolia*; and

Sedgelands
S1 Sedgelands of *Typha domingensis* with emergent *Adansonia gregorii*, *Melaleuca viridiflora* and *Lophostemon grandiflora* subsp. *riparius.*

A subsequent flora and vegetation survey of the application area was conducted by Mattiske (2006) in July 2006. This survey identified the following four vegetation communities within the application area:

1: Woodland of *Eucalyptus camaldulensis* var. *obtusa* and *Melaleuca leucadendra* with *Terminalia cunninghamii*, *Terminalia hadleyana* and over *Acacia holosericea, Buchanania obovata, Ficus coronulata* and *Cynodon dactylon* on sands in major drainage channels;
2: Open Woodland of *Bauhinia cunninghamii* with *Corymbia opaca* and *Hakea arborescens* over *Jatropha gossypifolia, Carissa spinarum, Chrysopogon fallax* and *Aristida holathera* on red clay loams;
3: Tall shrubland of *Acacia holosericea* and emergent *Eucalytpus pruinosa* over *Carissa spinarum* and *Triodia bitextura* on red clay loams;
4. Hummock grassland of *Triodia bitextura* with *Aristida latifolia, Enneapogon purpurascens, Sporablous australasicus* and emergent *Corymbia aspera* and *Eucalyptus brevifolia* on red clay loam.

Clearing Description

Argyle Diamond Mine.

Argyle Diamonds Limited is proposing to clear up to 300 hectares of native vegetation within a boundary of approximately 6,579 hectares for the purposes of mineral exploration, infrastructure, operational maintenance and reworking of tailings material. The project is located approximately 200 kilometres south west of Kununurra within the Shire of Wyndham-East Kimberley.

Vegetation Condition

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

To

Completely Degraded: No longer intact; completely/almost completely without native species (Keighery,1994).

Comment

Clearing permit CPS 4532/1 was granted by the Department of Mines and Petroleum on 13 October 2011. The clearing permit authorised the clearing of 50 hectares of native vegetation within a total boundary of 1,900 hectares. CPS 4532/1 was amended on 2 August 2012 for the purpose of changing the annual reporting date from 31 July to 30 September each year. On 27 December 2012, CPS 4532/2 was amended for the purpose of increasing the permit boundary from approximately 1,900 hectares to 2,608 hectares and changing the purpose of the clearing to infrastructure and operational maintenance. CPS 4532/3 was amended on the 6 February 2014, to increase the permit boundary by 18.34 hectares to approximately 2,626 hectares. CPS 4532/4 was amended on the 24 December 2015, to increase the permit boundary from 2,626 hectares to 2,696 hectares. CPS 4532/5 was amended on 26 May 2016 to amend the purpose of clearing, amend the period in which clearing is authorised to allow for 15 hectares to be cleared each financial year, and increase the permit boundary.

Argyle Diamonds Limited has applied to amend CPS 4532/6, to for the purposes of increasing the permit boundary, increase the permitted amount of clearing to 300 hectares, amend the purpose of clearing and amalgamate eight existing permits into one permit.

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 occurs predominantly within the Ord (OVP1) subregion of the Ord Victoria Plains. An area of approximately 73 hectares, less than 4% of the application area, lies within the Victoria Bonaparte P1 subregion of the Victoria Bonaparte Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). The Ord subregion is characterised by level to gently undulating plains with scattered hills on Cambrian volcanic and Proterozoic sedimentary rocks; vertosols on plains and predominantly skeletal soils on hills (CALM, 2002). The overall vegetation is grassland with scattered Bloodwoods (*Eucalyptus* sp.) and Snappy Gum (*Eucalyptus brevifolia*) with spinifex and annual grasses (CALM, 2002).

The Australian Natural Resources Atlas (ANRA) (2016) notes that the Ord Victoria Plains bioregion includes a blend of biota from arid environments and high rainfall areas. It is noted that the Argyle lease area is located in the Northern Botanical District, near the point where three of the four Kimberley Botanical Districts meet (Argyle Diamonds Ltd, 2008). A very high diversity and abundance of granivorous birds are present in the bioregion. This is likely to be a reflection of the numerous grass species present in the area. Pastoral practices, weeds, feral animals and changed fire regimes are identified as being the most influential factors affecting biodiversity of the bioregion (ANRA, 2016).

The vegetation within the application area consists of 9 Beard vegetation associations, all of which are common and widespread throughout the Ord Victoria Plains and Victoria Bonaparte bioregions with over 96% of the pre-European vegetation extent remaining (Government of Western Australia, 2015; GIS Database). The application area is located in the Northern Botanical Province, within the East Kimberley near the point where three of the four Kimberley Botanical Districts meet (Argyle Diamonds, 2011).

The vegetation ranges from ‘completely degraded’ to 'excellent' condition (Keighery, 1994). A total of 206 vascular plant taxa from 124 genera and 51 families were recorded as part of surveys conducted across a large portion of the application area. Botanical studies on the wider Argyle lease area have recorded a total of 466 taxa (Mattiske, 2004). No Threatened or Priority Flora species have been previously recorded within the operational areas of the minesite (Argyle Diamonds, 2011). A search of available databases revealed no Threatened or Priority Flora species that may potentially occur in the application area. No Threatened Ecological Communities or Priority Ecological Communities were recorded or identified within the application area (GIS Database).

A fauna review of the Argyle lease area was undertaken by Bamford Consulting Ecologists in January 2005. The review concluded that the Argyle area is rich in reptile, amphibian and avifauna, with an abundance of waterbirds drawn to the natural riverine systems and artificial water sources associated with the mining operation. A large number of conservation significant species have previously been recorded from the lease area. However, the fauna habitats present within the subregion are common and widespread and fauna assemblages within the Argyle lease area are not likely to be different to that found in similar habitat located elsewhere in the region (Bamford Consulting Ecologists, 2005).

The vegetation communities identified within the application area are typical of the of the Ord Victoria Plains and Victoria Bonaparte bioregions. The vegetation to be cleared is largely disturbed due to its proximity to existing mine infrastructure and is unlikely to comprise a high level of biological diversity.

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

Methodology

ANRA (2016)
Argyle Diamonds (2011)
Bamford Consulting Ecologists (2005)
CALM (2002)
Government of Western Australia (2015)
Keighery (1994)
Mattiske (2004)

GIS Database:
- IBRA WA (Regions - Sub Regions)
- Threatened and Priority Flora
- Threatened Ecological Sites Buffered

(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 not likely to be at variance to this Principle

Numerous fauna surveys have been undertaken at the Argyle Diamond Mine lease area, including surveys undertaken in 1980/1981, 2000 and 2002. In addition, the annual Rio Tinto Bird Watch has been undertaken at Argyle since 2001 and has made an important contribution to understanding the local avifauna of the area (Argyle Diamonds Ltd, 2008).

In 2005, a general review of the local fauna was undertaken by Bamford Consulting Ecologists (2005). As a result of previous surveys at the Argyle lease, 27 mammals, 205 birds, 79 reptiles and 19 amphibians have been recorded. Of these 330 species, 41 are of conservation significance. This includes 29 bird species listed under either the Japan-Australia Migratory Bird Agreement (JAMBA) or China-Australia Migratory Bird Agreement (CAMBA), 24 of which are waterbirds (Bamford Consulting Ecologists, 2005).

The Argyle lease area has rich reptile, amphibian and avifauna. A mixture of arid and northern zone species is present. Many of the amphibians and reptiles recorded from the lease area are common to the spinifex and sorghum grasslands found on the alluvial plains of the region (Bamford Consulting Ecologists, 2005). A high number of waterbird species (72) have previously been recorded from the lease area. The existing natural riverine systems of the area and 'man-made' tailings storage facility and numerous water storage dams associated with the mining operation provide suitable habitat for waterbird species (Bamford Consulting Ecologists, 2005).

The native mammal fauna of the Argyle lease is typical of the arid region of the East Kimberley. The distribution and abundance of mammal fauna is highly seasonal, particularly rodents; with many species reaching plague proportions during favourable seasons. Introduced mammal fauna known from the lease area include cats, donkeys and foxes (Argyle Diamonds Ltd, 2008).

According to Government of Western Australia (2015) approximately 99% of the pre-European vegetation remains within the Ord Victoria Plain and Victoria Bonaparte bioregions. Given the extent of native vegetation remaining in the local area and bioregion, the vegetation to be cleared does not represent a significant ecological linkage in a regional context. The size of the proposed clearing (300 hectares) in relation to the size of the Argyle lease area (approximately 182,069 hectares) (GIS Database) and the surrounding uncleared landscape suggests that any potential loss of significant habitat is likely to be low.

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

Methodology Argyle Diamonds Ltd (2008)
Bamford Consulting Ecologists (2005)
Government of Western Australia (2015)

(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 known records of Threatened Flora within the application area or within 10 kilometres of the application area (GIS Database).

A flora survey was conducted over the application area by staff from Mattiske Consulting in 2004 (Mattiske, 2004). No Threatened or Priority flora species were recorded within the application area (Argyle Diamonds, 2010; Mattiske, 2004).

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

Methodology Argyle Diamonds (2010)
Mattiske (2004)

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**
A search of available databases reveals that there are no Threatened Ecological communities (TECs) within the application area (GIS Database). A search of available databases reveals there are no known TECs within a 100 kilometre radius of the application area (GIS Database).

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 areas fall within the Ord Victoria Plain and the Victoria Bonaparte IBRA bioregions (GIS Database). The vegetation within the application areas are recorded as:

65 - Grasslands, tall bunch grass savanna, sparse low tree, terminalia; mitchell grass (*Astrebla pectinata* & spp.);
126 - Bare areas; freshwater lakes;
808 - Grasslands, curly spinifex, low tree savanna; snappy gum over curly spinifex;
818 - Hummock grasslands, low tree steppe; Snappy Gum over *Triodia inutilis*;
819 - Grasslands, tall bunch grass savanna low tree; cabbage gum & silverleaved box over aristida & ribbon grass on sandy plains;
820 - Grasslands, high grass savanna sparse low tree; snappy gum (*Eucalyptus brevifofia*) over upland tall grass & curly spinifex on granite;
825 - Grasslands, high grass savanna woodland; cabbage gum & *Eucalyptus foelscheana* over upland tall grass & curly spinifex on basalt;

827 - Hummock grasslands, low tree steppe; terminalia over *Triodia wiseana* on limestone; and
833 - Grasslands, short bunch grass savanna sparse low tree; scattered Snappy Gum over arid short grass on plains (GIS Database).

The vegetation within the application area consists of 9 Beard vegetation associations, all of which are common and widespread throughout the Ord Victoria Plains and Victoria Bonaparte bioregions with over 96% of the pre-European vegetation extent remaining for each (Government of Western Australia, 2015; GIS Database). This is more than the 30% threshold level recommended in the National Objectives Targets for Biodiversity Conservation below which species loss appears to accelerate exponentially at an ecosystem level.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in DPAW Managed Lands
IBRA Bioregion - Ord Victoria Plain	5,497,881	5,493,144	~99	Least Concern	~17.11
IBRA Bioregion - Victoria Bonaparte	1,870.996	1,847,137	~99	Least Concern	~18.84
Beard vegetation associations - State					
65	64,736	63,795	~99	Least Concern	~1.97
126	23,503	9,564	~40.69	Least Concern	~38.41
808	1,201,800	1,201,483	~100	Least Concern	~0.88
818	33,260	32,969	~99	Least Concern	~0
819	38,133	37,451	~98	Least Concern	~0
820	59,639	59,407	~100	Least Concern	~0
825	64,206	64,161	~100	Least Concern	~0
827	81,397	81,309	~100	Least Concern	~60.58
833	38,675	37,916	~98	Least Concern	~0
Beard vegetation associations - Bioregion Ord Victoria Plain					
65	32,251	32,251	~100	Least Concern	~0
126	1,089	1,089	~100	Least Concern	~0
808	4,137	4,137	~100	Least Concern	~0
818	33,174	32,883	~99	Least Concern	~0
819	30,659	29,978	~98	Least Concern	~0
820	5,305	5,078	~96	Least Concern	~0
825	22,590	22,555	~100	Least Concern	~0
827	81,302	81.302	~100	Least Concern	~60.58
833	38,498	37,739	~98	Least Concern	~0
Beard vegetation associations - Bioregion Victoria Bonaparte					
126	1,361	1,361	~100	Least Concern	~1.08
808	64,036	64,031	~100	Least Concern	~0

* Government of Western Australia (2015)
** 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)
Government of Western Australia (2015)

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

There are numerous minor and major ephemeral drainage lines (GIS Database) which intersect the application areas. Mattiske (2004) identified one sedgeland vegetation unit (S1) in a survey which covered a portion of the application area. The nearest permanent water course (Bow River) is approximately 7 kilometres south of the application areas (GIS Database).

The application areas lie entirely within the Ord River catchment, upstream of Lake Argyle which is a RAMSAR listed wetland located 1.5 kilometres north-east (GIS Database) of the minesite. The mine is located at the south eastern end of the Matsu Range of hills that form the headwaters of a number of creeks that ultimately drain north into Lake Argyle. The majority of the drainages are ephemeral with flows restricted largely to the wet season when rainfall allows rapid flows in these areas (Argyle Diamonds, 2011). Argyle Diamonds (2011) have also identified that some of the operational and infrastructure maintenance activities which require clearing will include the removal of vegetation with the potential to block culverts within watercourses and also dam wall vegetation removal.

Given the above, the vegetation under application is considered to be growing in an environment associated with a watercourse or wetland. However, ephemeral drainage lines are common throughout the Ord River catchment and it is unlikely that the clearing of vegetation from these areas will have any significant environmental impacts in a local or regional context.

The proposed clearing of 300 hectares is for the purpose of mineral production, mineral exploration and associated activities. As vegetation clearing will be associated with areas which have been previously disturbed and considering the level of disturbance which already exists within the Argyle Diamond mine lease there are unlikely to be any significant additional environmental impacts upon the nearby Lake Argyle.

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

Methodology Argyle Diamonds (2011)
Mattiske (2004)

GIS Database:
- Geodata, Lakes
- Hydrography, linear
- Imagery

(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 comprises of the following nine land systems (GIS Database):

Argyle land system - Gently undulating 'black soil' plain;
Wave Hill land system - Gently undulating stony plains on Basalt;
Dinnabung land system - Gently undulating limestone;
Wickham land system - Rugged plateaux, ridges and hills formed on sedimentary rocks;
Gordon land system - Low hilly to undulating limestone country;
Headley land system - Dissected limestone hills;
Weaber land system - Scattered small areas of rugged sandstone hills, with some gentle lower slopes;
Macphee land system - Undulating sandy granite country; and
O'Donnell land system - Stony undulating country with scattered hills and loamy skeletal soils.

Argyle Diamonds (2011) have identified that the landscape surrounding the Argyle Diamond mine is hilly, with gentle foothills and well defined drainage lines. The clearing permit area is comprised of relatively flat to gently undulating slopes associated with underlying extensively folded and faulted sedimentary units (Argyle Diamonds, 2011). The soils in the Argyle Lease area vary from skeletal to extensive silt and sandy flats (Dames and Moore, 1982).

Given that the application area is extensive, covering over 6,500 hectares and a range of land systems and soil types, some parts of the application area may be associated with increased land degradation risks. Where soils

are comprised of sand or silt the removal of vegetation may increase the risk of wind or water erosion. However, the areas proposed for clearing are adjacent to or within areas which have been previously disturbed and considering the level of disturbance which already exists within these areas, it is unlikely that the proposed clearing would cause significant appreciable land degradation.

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

Methodology Argyle Diamonds (2011)
Dames and Moore (1982)

GIS Database:
- IBRA WA (Regions - Sub Regions)
- Rangelands

(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 application areas are not located within any conservation areas (GIS Database). The nearest conservation area is the Purnululu National Park, located approximately 48 kilometres south-east of the application area (GIS Database). Given the distance separating Purnululu National Park and the application area the proposed clearing is not likely to impact the environmental values of the conservation area.

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

Methodology GIS Database:
- DPaW 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 be at variance to this Principle**
The application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). The nearest permanent water course (Bow River) is 7 kilometres south of the application area (GIS Database).

Argyle Diamonds (2011) have identified that the depth to groundwater across the site is generally 15 metres below the ground surface. The regional direction of groundwater flow is towards the AK1 pit largely due to dewatering influences.

The groundwater in the application area is of marginal salinity (500-1,000 milligrams/Litre Total Dissolved Solids) (GIS Database). The application area occurs within the Ord River catchment, and given the size of the Ord River catchment area (4,526,080 hectares) (GIS Database) the clearing of 300 hectares of native vegetation is not likely to deteriorate the quality of surface or underground water.

The application area experiences a dry hot tropical, semi-arid climate with tropical rainfall (CALM, 2002). The application area receives an average annual rainfall of 762.4 millimetres/year with an average annual pan evaporation rate of approximately 2,600-2,800 millimetres/year (BoM, 2016). The application area contains numerous ephemeral drainage lines with flows restricted largely to the wet season when rainfall allows rapid flows in these areas (Argyle Diamonds, 2011).

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

Methodology Argyle Diamonds (2011)
BoM (2016)
CALM (2002)

GIS Database:
- Geodata, Lakes
- Hydrography, Linear
- Public Drinking Water Source Areas
- RIWI Act, Groundwater Areas
- Groundwater Salinity, Statewide

(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 dry hot tropical, semi-arid climate with tropical rainfall, where the annual evaporation rate greatly exceeds the annual rainfall (CALM, 2002; BoM, 2016). The application area is located within the Ord River catchment area (4,526,080 hectares) (GIS Database). The proposed clearing of native vegetation is not likely to significantly impact on the drainage characteristics of the catchment or increase the

potential for flooding within the application area.

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

Methodology BoM (2016)
CALM (2002)

GIS Database:
- Hydrographic Catchments – Catchments
- Hydrography, Linear

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

Comments

There are no native title claims over the area under application (DAA, 2016). 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*.

According to available databases, there numerous registered Aboriginal Sites of Significance within the application area (DAA, 2016). 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, Department of Parks and Wildlife 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 26 September 2016 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received.

Methodology DAA (2016)

GIS Database:
- Aboriginal Sites of Significance

4. References

ANRA (2016) Australian Natural Resource Atlas - Biodiversity Assessment Ord Victoria Plains Department of the Environment and Energy, < https://www.environment.gov.au/system/files/resources/a8015c25-4aa2-4833-ad9c-e98d09e2ab52/files/bioregion-ord-victoria-plain.pdf> accessed 13 October 2016.

Argyle Diamonds (2011) Lease Clearing for Infrastructure and Operational Maintenance Application supporting documentation, July 2011.

Bamford Consulting Ecologists (2005) Review of Terrestrial Vertebrate Fauna of the Argyle Diamond Lease and East Kimberley (including impacts of proposed mine expansion near Limestone Creek). Unpublished report prepared for Argyle Diamond Mine Pty Ltd, January 2005.

BoM (2016) Climate Statistics for Australian Locations. A Search for Climate Statistics for Argyle, Australian Government Bureau of Meteorology, <http://www.bom.gov.au/climate/averages/tables/cw_012018.shtml> accessed 10 October 2016.

CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Ord Victoria Plains 1 (OVP1 – Ord subregion) Department of Conservation and Land Management, Western Australia.

DAA (2016) Aboriginal Heritage Inquiry System, Government of Western Australia, Department of Aboriginal Affairs, Perth < http://maps.dia.wa.gov.au/AHIS2/> accessed 13 October 2016.

Dames and Moore (1982) Environmental Review and Management Programme, Argyle Diamond Project. Unpublished report prepared for Argyle Diamond Mines Pty Ltd, 1982.

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.

Government of Western Australia (2015) 2015 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.

Mattiske (2004) Flora and Vegetation Survey, Expansion of Waste Dumps and Area Associated with Underground Expansion near Limestone Creek. Unpublished report prepared for Argyle Diamond Mines Pty Ltd, March, 2004.

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government

DAA	Department of Aboriginal Affairs, Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia (now DPaW and DER)
DER	Department of Environment Regulation, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
DRF	Declared Rare Flora
DotEE	Department of the Environment and Energy, Australian Government
DoW	Department of Water, Western Australia
DPaW	Department of Parks and Wildlife, Western Australia
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (now DotE)
EPA	Environmental Protection Authority, Western Australia
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
PEC	Priority Ecological Community, Western Australia
RIWI Act	*Rights in Water and Irrigation Act 1914*, Western Australia
TEC	Threatened Ecological Community

Definitions:

{DPaW (2015) Conservation Codes for Western Australian Flora and Fauna. Department of Parks and Wildlife, Western Australia}:-

T **Threatened species:**
Published as Specially Protected under the *Wildlife Conservation Act 1950,* listed under Schedules 1 to 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora (which may also be referred to as Declared Rare Flora).

Threatened fauna is that subset of 'Specially Protected Fauna' declared to be 'likely to become extinct' pursuant to section 14(4) of the Wildlife Conservation Act.

Threatened flora is flora that has been declared to be 'likely to become extinct or is rare, or otherwise in need of special protection', pursuant to section 23F(2) of the Wildlife Conservation Act.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

CR **Critically endangered species**
Threatened species considered to be facing an extremely high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.

EN **Endangered species**
Threatened species considered to be facing a very high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.

VU **Vulnerable species**
Threatened species considered to be facing a high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.

EX **Presumed extinct species**
Species which have been adequately searched for and there is no reasonable doubt that the last individual has died. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Presumed Extinct Fauna and Wildlife Conservation (Rare Flora) Notice for Presumed Extinct Flora.

IA **Migratory birds protected under an international agreement**
Birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and the Bonn Convention, relating to the protection of migratory birds. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice.

CD **Conservation dependent fauna**
Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 6 of the Wildlife Conservation (Specially Protected Fauna) Notice.

OS **Other specially protected fauna**
Fauna otherwise in need of special protection to ensure their conservation. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 7 of the Wildlife Conservation (Specially Protected Fauna) Notice.

P **Priority species**
Species which are poorly known; or
Species that are adequately known, are rare but not threatened, and require regular monitoring. Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

P1 **Priority One - Poorly-known species:**
Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

P2 **Priority Two - Poorly-known species:**
Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

P3 **Priority Three - Poorly-known species:**
Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

P4 **Priority Four - Rare, Near Threatened and other species in need of monitoring:**
(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.
(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for Vulnerable, but are not listed as Conservation Dependent.
(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.