Government of Western Australia
Department of Mines and Petroleum

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4708/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: Holcim (Australia) Pty Ltd

1.3. Property details

Property: Mining Lease 45/93
Local Government Authority: Town of Port Hedland
Colloquial name: Turner River Dune Sand Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
13.41		Mechanical Removal	Sand Mining

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 2 February 2012

2. Background

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 application area is mapped as Beard vegetation association (GIS Database; Shepherd 2009):

589: Abydos Plain - Mosaic: Short bunch grassland - savanna/ grass plain (Pilbara) / Hummock grassland, grass steppe; soft spinifex.

Clearing Description
Holcim (Australia) Pty Ltd has applied to clear up to 13.41 hectares of native vegetation for the purpose of sand mining.

The proposed clearing is located approximately 36 kilometres west of Port Hedland.

Vegetation Condition
Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994).

To:

Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).

Comment
The vegetation condition was assessed using aerial imagery and information provided by Holcim (Australia) Pty Ltd (2011).

The application area is located within the Boodarie Pastoral Lease and immediately adjacent to an existing sand mine previously approved under Clearing Permit CPS 2030/1 (GIS Database).

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 within the Roebourne (Pil 4) subregion of the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This subregion is characterised by quaternary alluvial and older colluvial coastal and subcoastal plains with a grass savannah of mixed bunch and hummock grasses, and dwarf shrub steppe of *Acacia stellaticeps* or *A. pyrifolia* and *A. inaequilatera* (CALM, 2002).

The vegetation within the application area is broadly mapped as Beard vegetation association 589 which has approximately 100% of its pre-European extent remaining (Shepherd, 2009; GIS Database). The area has been used for pastoral grazing purposes and the vegetation has generally been heavily grazed and periodically burned (Holcim, 2011a). The vegetation to be cleared ranges from degraded to good condition (GIS Database; Holcim, 2011a; Keighery, 1994).

No Declared Rare Flora, Threatened Ecological Communities or Priority Ecological Communities have been recorded within the application area, however, a desktop assessment by Bennett Environmental (2007) identified potential for the area to provide suitable habitat for the following Priority Flora species due to the presence of red sandy soils:

Ptilotus appendiculatus var. *minor* - P1;
Gomphrena cucullata - P2;
Gonocarpus ephemerus - P2;
Acacia glaucocaesia - P3; and
Goodenia pascua - P3.

Although none of these species have been recorded from the application area, *Ptilotus appendiculatus* var. *Minor* was recorded from red-brown alluvial sand between tributaries of the Turner River and it is possible that this species and the others growing in red sands may occur within the mining lease (Bennett Environmental, 2007). The implementation of a flora management condition will minimise the risk of clearing to these species.

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

Methodology

Bennett Environmental (2007)
CALM (2002)
Holcim (2011a)
Keighery (1994)
Shepherd (2009)
GIS Database:
- Thouin 50cm Orthomosaic - Landgate 2004
- Declared Rare and Priority Flora List
- IBRA WA (Regions - Subregions)
- Pre-European Vegetation
- 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 is not likely to be at variance to this Principle

A desktop fauna study identified 18 threatened fauna species and 55 migratory species which have potential to utilise the application area (Holcim, 2011b). However, of these species the Northern Quoll (*Dasyurus hallucatus* - endangered), Barn Swallow (Hirundo rustica - migratory), Rainbow Bee-eater (Merops ornatus - migratory) and the Fork-tailed Swift (Apus pacificus - migratory) are most likely to utilise the mining lease (Holcim, 2011b).

The application area is mostly flat and located approximately 200 metres from the Turner River. Holcim (2011b) have identified five broad fauna habitat types within the local area:

- Small scattered trees, low shrubs and mature spinifex reaching 1 metre in height on a substrate of red sandy clay which has recently been burnt;
- A few scattered trees and shrubs, Spinifex and grasses approximately 1 metre in height on a substrate of red sandy clay. Ground cover varies between 30-70%;
- Along the Turner River there are treed areas with an understorey of grasses and shrubs of varying densities. Vegetation is not well established or protected due to being washed away when the Turner River flows.
- Mature trees with limited understorey which has been heavily grazed and disturbed due to cattle and kangaroos. There are a number of trees with hollows that could be used as retreats or nesting sites by vertebrate fauna.
- Disturbed areas that have been rehabilitated.

Reptile fauna and significant mammal species such as the Northern Quoll are supported by Spinifex grasslands on the sandy levee and sand sheet landforms of the Turner River (Holcim, 2011b; Van Vreeswyk et al. 2004) and broad shallow valleys are the typical landform/ vegetation type that the Northern Quoll inhabits (Holcim, 2011b).

However, the application area has been used for pastoral grazing purposes and the vegetation has generally been heavily grazed and periodically burned (Holcim, 2011a). The vegetation to be cleared ranges from degraded to good condition (GIS Database; Holcim, 2011a; Keighery, 1994). The vegetation within the application area is broadly mapped as Beard vegetation association 589 which has approximately 100% of its pre-European extent remaining (Shepherd, 2009; GIS Database) and is located adjacent to an existing sand mine. The habitat types provided by the application area are likely to be well represented along the Turner River system and as such it is unlikely that the application area is necessary for the maintenance of a significant habitat for fauna.

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

Methodology

Holcim (2011a)
Holcim (2011b)
Keighery (1994)
Shepherd (2009)
GIS Database:
- Thouin 50cm Orthomosaic - Landgate 2004

- Declared Rare and Priority Flora List
- Pre-European Vegetation

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

Comments

Proposal is not likely to be at variance to this Principle

There are no records of Declared Rare Flora (DRF) located within 30 kilometres of the application area (GIS Database).

A desk top flora survey of the application area did not identify the potential for any DRF species to occur within the application area (Bennett Environmental, 2007).

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

Methodology

Bennett Environmental (2007)
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

There are no known Threatened Ecological Communities (TECs) within the application area and there are no TECs recorded within 100 kilometres of the proposed clearing (GIS Database).

A desk top flora survey of the application area did not identify the potential for any TECs within the application area (Bennett Environmental, 2007).

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

Methodology

Bennett Environmental (2007)
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 falls within the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). Shepherd (2009) reports that approximately 99.95% of the pre-European vegetation remains in this bioregion.

The vegetation within the application area is recorded as Beard vegetation association:

589: Abydos Plain - Mosaic: Short bunch grassland - savanna/ grass plain (Pilbara) / Hummock grassland, grass steppe; soft spinifex. (GIS Database; Shepherd, 2009).

According to Shepherd (2009) 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
IBRA Bioregion - Pilbara	17,804,188	17,794,647	~99.95%	Least Concern	~6.32%
Beard vegetation associations - State					
589	809,753	809,636	~100%	Least Concern	~1.6%
Beard vegetation associations - Bioregion					
589	730,717	730,683	~100%	Least Concern	~1.8%

* Shepherd (2009)
** 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 (2009)
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 not at variance to this Principle

The application area is located 200 metres west of the Turner River, which is mapped as a non-perennial watercourse (GIS Database). There are no mapped watercourses or wetlands located within the application area (GIS Database).

A desk top flora survey of the application area did not identify the potential for any vegetation growing in association with watercourses or wetlands within the application area (Bennett Environmental, 2007).

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

Methodology Bennett Environmental (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 may be at variance to this Principle

The application area is mapped as the River Land System and described as active floodplains and major rivers supporting grassy eucalypt woodlands, tussock grasslands and soft Spinifex grasslands (Van Vreeswyk *et al.*, 2004). The geomorphology is river floodplains and river terraces subject to over bank flooding from major channels and watercourses (Van Vreeswyk *et al.*, 2004). The banks, levees and slightly higher upper terraces receive less regular flooding than the lower areas (Van Vreeswyk *et al.*, 2004). The system is stabilised by Buffel Grass and Spinifex and accelerated erosion is uncommon; however, if the cover is removed, the susceptibility to erosion is high (Van Vreeswyk *et al.*, 2004).

The River Land System is divided into 5 units:
1. Sandy levee and sand sheet
2. Upper terrace
3. Flood plain and lower terrace
4. Stony plain
5. Minor and major channels

The location of the application area is likely to be included in units 1 and 2 (Bennett Environmental, 2007) and is therefore less susceptible to erosion than other areas. Both of the units are deep red sands with a vegetation cover of hummock grasslands of *Triodia pungens* with very scattered shrubs of Acacia species (Bennett Environmental, 2007).

Given the above there is a risk of wind and water erosion once vegetation is removed however the application area is located adjacent to an existing sand mine and there are unlikely to be any significant increased land degradation risks associated with the proposed clearing. The implementation of a staged clearing condition will minimise the risk of land degradation.

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

Methodology Bennett Environmental (2007)
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 nearest recorded conservation reserve to the application area is the North Turtle Island Nature Reserve, which is located approximately 76 kilometres north-northeast of the application area, and 19 kilometres offshore (GIS Database). At this distance, and considering that the conservation reserve is an offshore island, the clearing of 13.41 hectares on the mainland is unlikely to affect the environmental values of the reserve.

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

Methodology GIS Database:
- DEC Tenure

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

Comments

Proposal is not likely to be at variance to this Principle

The application area is located within the Turner River Water Reserve (GIS Database). This Public Drinking Water Source Area (PDWSA) is currently designated as 'policy use not assigned' (Department of Water, 2011). Advice from the Department of Water (2011) indicates that this potential source is not likely to be viable as a public drinking water supply option and will be de-proclaimed.

Groundwater salinity levels are already low (1,500 - 3,000 milligrams per litre Total Dissolved Solids) within the application area and the removal of 13.41 hectares of vegetation is not likely to significantly increase salinity levels or impact upon the quality of underground water.

The average annual evaporation rate in the local area (3,400 millimetres) greatly exceeds the local annual rainfall (400 millimetres) (GIS Database) and any surface water is likely to be short lived. The Turner River is only likely to flood during significant rainfall events when it will already be subject to heavy sedimentation. Given the above the removal of 13.41 hectares of native vegetation is unlikely to cause any significant deterioration in the quality of surface water.

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

Methodology Department of Water (2011)
GIS Database:
- Evaporation Isopleths
- Groundwater Salinity
- Hydrography Linear
- Public Drinking Water Source Areas (PDWSAs)
- Soils, Statewide
- Rainfall, Mean Annual

(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 is located within the Turner River catchment area of the Port Hedland Coast basin (GIS Database). Given the size of the area to be cleared (13.41 hectares) in relation to the size of the catchment area (480,100 hectares) (GIS Database), the proposed clearing is not likely to increase the potential of flooding on a local or catchment scale.

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

Methodology GIS Database:
- Hydrographic Catchments - Catchments

Planning instrument, Native Title, RIWI Act Licence, EP Act Licence, Works Approval, Previous EPA decision or other matter.

Comments

There is one Native Title Claim (WC99/3) over the area under application (GIS Database). This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no registered 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 15 November 2011 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received.

Methodology GIS Database:
- Aboriginal Sites of Significance

- Native Title Claims - Determined by the Federal Court

4. References

Bennett Environmental (2007) Desktop Study of Readymix Turner River Lease, Prepared for Readymix, Rinker Australia Pty Ltd. Unpublished Report dated May, 2007. Bennett Environmental Consulting Pty Ltd.

CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Department of Conservation and Land Management, 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.

Department of Water (2011) Advice to assessing officer for clearing permit application CPS 4473/1. Received on 17 August 2011.

Holcim (2011a) Turner River Dune M45/93 Supporting Documentation for Clearing Permit. Application prepared by Holcim (Australia) Pty Ltd September 2011.

Holcim (2011b) Turner River Dune Sand Quarry Mining Proposal M45/93. Application prepared by Holcim (Australia) Pty Ltd May 2011.

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Shepherd, D.P. (2009) Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth.

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, 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.
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.