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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 5511/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: **TT Sand Pty Ltd**

1.3. Property details

Property: Mining Lease 70/793
Local Government Authority: City of Albany
Colloquial name: Mindijup Silica Sand Project

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 23 May 2013

2. Background

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description

The vegetation of the application area is broadly mapped as Beard vegetation association 979: Mosaic: Medium forest; jarrah-marri / Low forest; jarrah & casuarina (probably *Allocasuarina fraseriana*) (GIS Database).

The area under application falls within the Albany Regional Vegetation Survey (ARVS) (Sandiford and Barrett, 2010) Unit 14: *Banksia coccinea* Shrubland/ *Eucalyptus staeri*/ Sheoak Open Woodland although no *Banksia coccinea* are present or known to occur within at least 8 kilometres of the survey area (Sandiford, 2011).

GHD Pty Ltd (2012b) conducted a flora and vegetation survey over the application area and identified one vegetation type:

- Open Woodland to Low Open Woodland of *Eucalyptus staeri* with occasional *Eucalyptus marginata* over *Banksia attenuata* and *Allocasuarina fraseriana*. The upper shrub layer varies from Tall Open Shrubland to Closed Heath and is typically dominated by *Jacksonia spinosa, Agonis theiformis* and *Melaleuca thymoides*. The lower shrub layer varies from a Low Shrubland to Low Closed Heath with a dominance of *Leucopogon distans, Lysinema ciliatum, Andersonia caerulea, Xanthosia rotundifolia.* The sedgeland is dominated by *Anarthria scabra, Anarthria prolifera, Hypolaena exsulca* and *Lyginia barbata.* Common herb species include *Dasypogon bromeliifolius* and *Johnsonia lupulin* (GHD Pty Ltd, 2012b).

Clearing Description

AustSand Mining has applied on behalf of TT Sand Pty Ltd for an area permit to clear up to 69.9 hectares of native vegetation. The application area is located immediately adjacent to an existing sand mine.

Clearing is proposed to be undertaken using a bulldozer with a rake on the front for the purpose of extracting silica sands (GHD Pty Ltd, 2012b). The vegetation will be stockpiled on the boundary of the cleared area and will be respread over rehabilitated areas (GHD Pty Ltd, 2012b).

Vegetation Condition

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

Comment

The vegetation condition was derived from a flora and vegetation survey conducted by GHD Pty Ltd (2012b).

3. Assessment of application against Clearing Principles

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

Comments

Proposal is at variance to this Principle

The application area is located approximately 30 kilometres north-east of Albany within the Southern Jarrah Forest subregion of the Jarrah Forest Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). The vegetation of this subregion is characterised by Jarrah - Marri forest in the west grading to Marri and Wandoo woodlands in the east. There are extensive areas of swamp vegetation in the south-east, dominated by Paperbarks and Swamp Yate. The understory component of the forest and woodland reflects the

more mesic nature of this area. The majority of the diversity in the communities occurs on the lower slopes or near granite soils where there are rapid changes in site conditions (CALM, 2002).

The south coast area of Western Australia is one of the few global regions featuring exceptional concentrations of endemic species and experiencing exceptional loss of habitat (City of Albany, 2010). The high levels of biodiversity in the region are partially due to the biogeographical complexity of the region and the geological and climate history (City of Albany, 2010).

The vegetation within the City of Albany boundary can be described as consisting of several dissected remnants along the central plain (the application area) and large continuous upland and coastal blocks (Connell and ATA Environmental, 2001). The City of Albany retains approximately 38.68% of its pre-European vegetation cover (Government of Western Australia, 2013).

In a local context aerial photography indicates that approximately 60% of the landscape is under vegetation with the remaining 40% cleared for agriculture (GIS Database). However, approximately 35% of this vegetation is native, with the other 25% consisting of plantation (GIS Database). Much of the native vegetation is composed of small fragments (GIS Database), which due to their isolation are likely to be degraded with reduced biodiversity (EPA, 2000). Given that the vegetation of the application area is a part of a large stand of native vegetation it is likely that it contains a high level of biodiversity in comparison to other vegetation stands in the local area.

A flora and vegetation survey was conducted by GHD Pty Ltd (2012b) in March 2012 with further surveys of the surrounding areas having been undertaken between October 2006 and March 2011 including a number of spring surveys (GHD Pty Ltd, 2012b). Surveys from 2006 to 2012 have identified 202 native flora species within the Mindijup Minesite. The survey of the application area conducted in March 2012 recorded 81 native flora species. This included 34 individuals of the Priority 3 flora species *Petrophile longifolia* (Long Leaved Cone Bush). GHD Pty Ltd (2012b) estimate that clearing of the application area will result in a loss of 30% of *Petrophile longifolia* within the Mindijup Minesite. Based on Florabase records the clearing of 34 plants will reduce the known population by less than 2% (GHD Pty Ltd, 2012b).

The Western Australian South Coast Macro Corridor Network has identified 21 potential vegetation corridors that could be defined as macro corridors, all of which have regional nature conservation significance and strategic special significance within the south coast region (Wilkins et al., 2006). The native vegetation within the application area is within the junction of the Kalgan River corridor and the Porongurup Range corridor, which are both listed as 'very high priority'. The application area is also within 'Strategic Zone A' of the macro corridor network and forms part of a relatively continuous chain of vegetation linking important conservation areas (Wilkins et al., 2006). The removal of native vegetation from the application area will negatively impact upon these corridors (Wilkins et al., 2006) and this vegetation may form part of a regionally significant remnant of native vegetation.

Sandiford (2011) identifies that although potential corridors have been identified; no definitive corridors have yet been identified and state that it is unclear whether the area under application would form part of a best fit corridor. The applicant has excluded a 100 metre boundary buffer and 20 metre internal corridors from the application area. Considering these areas of native vegetation which will remain uncleared on the mining lease, and the staged approach to mining and rehabilitation, sufficient linkages to the corridors which are ultimately designated are likely to be maintained (GHD Pty Ltd, 2012b).

The vegetation under application is located immediately adjacent to an existing sand mine however this vegetation forms part of a relatively large stand of native vegetation (approximately 350 hectares). A flora survey conducted by GHD Pty Ltd (2012b) identified the vegetation to be in 'Excellent Condition' (Keighery, 1994). Opportunistic reconnaissance fauna surveys of the application area and surrounding area have recorded 42 species of vertebrate fauna which utilise Mining Lease 70/793, of which four were mammals, four were reptiles, two were amphibians, and 32 were birds (GHD Pty Ltd, 2012b).

Of particular importance is the potential for the application area to provide feeding and breeding habitat for three conservation significant black cockatoo species. GHD Pty Ltd (2012b) highlight that although the application area is unlikely to provide significant breeding habitat, all of the application area is considered to provide feeding habitat for conservation significant black cockatoo species (GHD Pty Ltd, 2011b). Advice provided by the Department of Environment and Conservation (DEC) on 30 August 2011 in relation to a previous clearing permit approval (CPS 4537/1) identified that the Banksia woodland of the Mindijup Minesite would be considered significant feeding habitat for Carnaby's black cockatoo (*Calyptorhynchus latirostris)* (DEC, 2011a).

Austsand Mining has implemented the, "Austsand Mining - Mindijup Mine Clearing Permit Offset Proposal - January 2012". This offset provided funds to the DEC to purchase land which will be managed for conservation purposes (GHD Pty Ltd, 2012a). The offset land totals 793 hectares of which 420 hectares will be utilised for this application to offset the clearing of 69.9 hectares of native vegetation at a 6:1 ratio (GHD Pty Ltd, 2012b). The offset land is rich in Proteaceous species which will provide feeding habitat for Carnaby's black cockatoo (DEC, 2011b) and is strategically located adjacent to the Stirling Range National Park. DEC advice has indicated that the proposed offset is suitable (DEC, 2013). The implementation of this offset will mitigate the environmental impacts associated with the proposed clearing.

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

Methodology

CALM (2002)
City of Albany (2010)
Connell and ATA Environmental (2001)
DEC (2011a)
DEC (2011b)
DEC (2013)
EPA (2000)
GHD Pty Ltd (2011b)
GHD Pty Ltd (2012a)
GHD Pty Ltd (2012b)
Keighery (1994)
Sandiford (2011)
Government of Western Australia (2013)
Wilkins et al. (2006)
GIS Database:
- Many Peaks 50cm Orthomosaic 2007
- IBRA WA (Regions - subregions)
- NLWRA, Current Extent of Native Vegetation
- Pre-European Vegetation
- Towns

(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 at variance to this Principle

GHD Pty Ltd (2012b) identify that Level 1 reconnaissance fauna surveys were conducted over the application area on 18 October 2006, 29 October 2007, 11 November 2009 and 14 and 15 March 2011. These surveys recorded 42 species of vertebrate fauna utilising Mining Lease 70/793, of which four were mammals, four were reptiles, two were amphibians, and 32 were birds. Opportunistic sightings of fauna were also recorded during the March 2012 assessment (GHD Pty Ltd, 2012b).

Of the species recorded during the surveys five are significant as they are protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and/or the *Wildlife Conservation Act 1950.* Four of these are listed as marine species under the EPBC Act but are not considered to be threatened under Western Australian legislation. The Baudin's black cockatoo (*Calyptorhynchus baudinii* - Schedule 1, Vulnerable*)* was identified within the Mining Lease during a 2007 survey (GHD Pty Ltd, 2011a). The presence of *Banksia* species and some larger potentially hollow forming Eucalypt species indicates that the vegetation of the application area may also provide suitable feeding and breeding habitat for the Carnaby's black cockatoo (*Calyptorhynchus latirostris* - Schedule 1, Endangered) and the Forest Red-tailed black cockatoo (*Calyptorhynchus banksii naso* - Schedule 1, Vulnerable).

A further assessment of the potential feeding and breeding habitat for black cockatoos within the application area and surrounding Mining Lease was undertaken in July 2011 (GHD Pty Ltd, 2011b). This assessment was conducted in line with EPA Guidance Statement No.56 (Assessment of Environmental Factors for Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia) and the EPBC Act referral guidelines for the three threatened black cockatoo species. As a result of this assessment it was identified that no breeding or potential breeding trees will be impacted by the proposed expansion of the sand mine, however, all of the vegetation within the Mindijup Minesite was identified as potential feeding habitat for black cockatoos (GHD Pty Ltd, 2011b). During the survey six Carnaby's black cockatoos were observed feeding alongside the area proposed for clearing and advice provided by DEC has indicated that the area proposed for clearing would be considered significant feeding habitat for Carnaby's black cockatoo (DEC 2011a; GHD Pty Ltd, 2011b).

The Western Australian South Coast Macro Corridor Network has identified 21 potential vegetation corridors that could be defined as macro corridors, all of which have regional nature conservation significance and strategic special significance within the south coast region (Wilkins et al., 2006). The native vegetation within the application area is within the junction of the Kalgan River corridor and the Porongurup Range corridor, which are both listed as 'very high priority'. The application area is also within 'Strategic Zone A' of the macro corridor network and forms part of a relatively continuous chain of vegetation linking important conservation areas (Wilkins et al., 2006). The removal of native vegetation from the application area will negatively impact upon these corridors (Wilkins et al., 2006) and this vegetation may form part of a regionally significant remnant of native vegetation.

Sandiford (2011) identifies that although potential corridors have been identified, no definitive corridors have yet been identified and states that it is unclear whether the area under application would form part of a best fit corridor. The applicant has excluded a 100 metre boundary buffer and 20 metre internal corridors from the application area. Considering these areas of native vegetation which will remain uncleared on the mining lease, and the staged approach to mining and rehabilitation, sufficient linkages to the corridors which are ultimately designated are likely to be maintained (GHD Pty Ltd, 2012b).

As the vegetation of the application area forms a part of a corridor for fauna movements and provides significant feeding habitat for Carnaby's black cockatoo the vegetation is considered to provide significant habitat for fauna indigenous to Western Australia.

Austsand Mining has implemented the, "Austsand Mining - Mindijup Mine Clearing Permit Offset Proposal - January 2012". This offset provided funds to the DEC to purchase land which will be managed for conservation purposes (GHD Pty Ltd, 2012a). The offset land totals 793 hectares of which 420 hectares will be utilised for this application to offset the clearing of 69.9 hectares of native vegetation at a 6:1 ratio (GHD Pty Ltd, 2012b). The offset land is rich in Proteaceous species which will provide feeding habitat for Carnaby's black cockatoo (DEC, 2011b) and is strategically located adjacent to the Stirling Range National Park. DEC advice has indicated that the proposed offset is suitable (DEC, 2013). The implementation of this offset will mitigate the environmental impacts associated with the proposed clearing.

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

Methodology

DEC (2011a)
DEC (2011b)
DEC (2013)
GHD Pty Ltd (2011a)
GHD Pty Ltd (2011b)
GHD Pty Ltd (2012b)
Sandiford (2011)
Wilkins et al. (2006)

(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 known records of threatened flora within the application area (GIS Database).

Flora surveys conducted over the application area by staff from GHD Pty Ltd from 2006 to 2012 did not identify any threatened flora species within the application area (GHD Pty Ltd, 2012b).

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

Methodology

GHD Pty Ltd (2012b)
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 records of Threatened Ecological Communities (TEC's) within the application area (GIS Database).

The nearest TEC is located approximately 43 kilometres north north-east of the application area (GIS Database). At this distance there is little likelihood the application area is necessary for the maintenance of the TEC.

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 may be at variance to this Principle

The application area is within the Interim Biogeographic Regionalisation of Australia (IBRA) Jarrah Forest bioregion in which approximately 54.57% of the pre-European vegetation is remaining (Government of Western Australia, 2013).

The application area is located in the City of Albany (GIS Database). The City of Albany is within the Intensive Land Use Zone of the south-west of Western Australia which has been largely cleared. Approximately 38.68% of the pre-European vegetation extent remains within the City of Albany (Government of Western Australia, 2013). The application area is broadly mapped as Beard vegetation association 979 (GIS Database). There is approximately 18.68% of the pre-European vegetation remaining of Beard vegetation association 979 in the State, bioregion and subregion (Government of Western Australia, 2013).

Sandiford (2011) has identified that the vegetation within the area proposed for clearing does not correlate well with Beard mapping units. Sandiford (2011) indicates that the digitized Beard unit 979 is not a separate original Beard unit but an artefact of digitizing and a mosaic of digitized units 3 and 994. The vegetation of the Albany region is very complex, reflecting rapid changes in soil and hydrological factors and a recent study determining local vegetation associations found little one to one correlation with Beards associations (Sandiford, 2011). Sandiford and Barrett (2010) identify that Beard mapping in this region is very rarely informative in terms of vegetation variety or type.

GHD Pty Ltd (2012b) identify that the vegetation within the Mindijup Minesite is considered to be representative of Beard vegetation association 3. Beard vegetation association 3 retains approximately 68.84% of its pre-European vegetation extent which is more than the 30% threshold level.

The Albany Regional Vegetation Survey (ARVS) has been undertaken over 2-3 years. This survey has mapped vegetation types at fine scales and mapped a total of 65 vegetation types within the region, across a number of vegetation remnants and reserves (Sandiford and Barrett, 2010). The survey does not include the application area, but comes within 8 kilometres of it to the south. Sandiford (2011) has subsequently conducted a regional vegetation assessment of the application area in Mining Lease 70/793 and concluded that the vegetation within the proposed clearing area falls within the ARVS Unit 14 of *Banksia coccinea* Shrubland/ *Eucalyptus staeri*/ Sheoak Open Woodland though no *Banksia coccinea* are present or known to occur within at least 8 kilometres of the survey area. Unit 14 has been mapped as occurring across 1,330 hectares within the survey area. As the vegetation of the application area is considered to match Unit 14 described by Sandiford and Barrett (2010), the clearing constitutes 1.20 % of the total area of this vegetation within the Albany Region.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	% Current extent in All DEC Managed Lands (% Pre-European Extent)
IBRA Bioregion - Jarrah Forest	4,506,660	2,459,298	~54.57%	Least Concern	~14.06% (~25.07%)
IBRA Subregion - Southern Jarrah Forest	2,607,879	1,355,801	~51.22%	Least Concern	~16.97% (~32.05%)
Local Government - Albany	431,370	166,839	~38.68%	Depleted	~8.49% (~21.03%)
Beard vegetation associations - State					
979	7,722	1,442	~18.68%	Vulnerable	No information available
3	2,661,405	1,832,023	~68.84%	Least Concern	~80.51% (58.33%)
Beard vegetation associations - Bioregion					
979	7,722	1,442	~18.68%	Vulnerable	No information available
3	2,390,591	1,631,110	~68.23%	Least Concern	~80% (57.65%)
Beard vegetation associations - subregion					
979	7,723	1,430	~18.51%	Vulnerable	No information available
3	1,482,491	898,443	~60.60%	Least Concern	~76.89% (49.81%)

* Government of Western Australia (2013)
** Department of Natural Resources and Environment (2002)

The vegetation under application is located immediately adjacent to an existing sand mine however this vegetation forms part of a relatively large stand of native vegetation (approximately 350 hectares). A flora survey conducted by GHD Pty Ltd (2012b) identified the vegetation to be in 'Excellent Condition' (Keighery, 1994).

The Western Australian South Coast Macro Corridor Network has identified 21 potential vegetation corridors that could be defined as macro corridors, all of which have regional nature conservation significance and strategic special significance within the south coast region (Wilkins et al., 2006). The native vegetation within the application area is within the junction of the Kalgan River corridor and the Porongurup Range corridor, which are both listed as 'very high priority'. The application area is also within 'Strategic Zone A' of the macro corridor network and forms part of a relatively continuous chain of vegetation linking important conservation

areas. The removal of native vegetation from the application area will negatively impact upon these corridors (Wilkins et al., 2006) and this vegetation may form part of a regionally significant remnant of native vegetation.

Sandiford (2011) identifies that although potential corridors have been identified, no definitive corridors have yet been identified and states that it is unclear whether the area under application would form part of a best fit corridor. The applicant has excluded a 100 metre boundary buffer and 20 metre internal corridors from the application area. Considering these areas of native vegetation which will remain uncleared on the mining lease, and the staged approach to mining and rehabilitation, sufficient linkages to the corridors which are ultimately designated are likely to be maintained (GHD Pty Ltd, 2012b).

Austsand Mining has implemented the, "Austsand Mining - Mindijup Mine Clearing Permit Offset Proposal - January 2012". This offset provided funds to the DEC to purchase land which will be managed for conservation purposes (GHD Pty Ltd, 2012a). The offset land totals 793 hectares of which 420 hectares will be utilised for this application to offset the clearing of 69.9 hectares of native vegetation at a 6:1 ratio (GHD Pty Ltd, 2012b). The offset land is strategically located adjacent to the Stirling Range National Park. DEC advice has indicated that the proposed offset is suitable (DEC, 2013). The implementation of this offset will mitigate the environmental impacts associated with the proposed clearing.

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

Methodology

DEC (2013)
Department of Natural Resources and Environment (2002)
GHD Pty Ltd (2012a)
GHD Pty Ltd (2012b)
Government of Western Australia (2013)
Keighery (1994)
Sandiford (2011)
Sandiford and Barrett (2010)
Wilkins et al. (2006)
GIS Database:
- Many Peaks 50cm Orthomosaic 2007
- IBRA WA (Regions Sub-regions)
- NLWRA, Current Extent of Native Vegetation
- 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 likely to be at variance to this Principle

According to available GIS Databases, there are no watercourses or wetlands within the application area (GIS Database).

The vegetation of the application area, as described by GHD Pty Ltd (2012b), is not classed as riparian vegetation. The proposed clearing is not likely to impact on native vegetation growing in, or in association with, a watercourse or wetland.

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

Methodology

GHD Pty Ltd (2012b)
GIS Database:
- Many Peaks 50cm Orthomosaic 2007
- Geodata, Lakes
- 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 within the Dempster Crest Phase of the Soil Landscape Mapping available on 'NRMInfo' (DAFWA, 2011). This is described as sands and laterite on elongate crests; Jarrah-Albany Blackbutt-Marri forest. The silica deposit is part of a remnant aeolian dune system. The deposit varies in depth from 15 metres to 0 metres over the site. A sand layer with high clay content defines the bottom of the deposit (GHD Pty Ltd, 2011a).

An assessment of Soil-Landscape Degradation Hazards was made using 'NRMInfo' (DAFWA, 2011; GHD Pty Ltd, 2011a) which highlighted that the main land degradation risk associated with the clearing is likely to be wind erosion due to the sandy nature of the soils. Advice received from the Department of Agriculture and Food (DAFWA, 2013) identifies that the site is highly susceptible to wind erosion once protective cover is removed and that the vegetation buffer provided at the eastern end of the Mining Lease may not be adequate in terms of wind fetch and soil erosion.

The application area is located adjacent to an active sand mine. At the cessation of mineral production activities the mining lease conditions applied under the *Mining Act 1978* require the area to be rehabilitated back to native vegetation. The implementation of a staged clearing condition, limiting clearing to 6 hectares per financial year, will minimise the risk of adverse impacts from wind erosion.

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

Methodology DAFWA (2011)
DAFWA (2013)
GHD Pty Ltd (2011a)

(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 area is located in proximity to a number of conservation areas:

- an unnamed Nature Reserve occurs approximately 2.8 kilometres east-north east of the application area;
- Granite Hill Nature Reserve occurs approximately 6.5 kilometres north of the application area;
- North Sister Nature Reserve occurs approximately 6.7 kilometres south-east of the application area;
- South Sister Nature Reserve occurs approximately 7 kilometres south-east of the application area;
- White Lake Nature Reserve occurs approximately 7.3 kilometres east of the application area;
- Takenup Road Nature Reserve occurs approximately 7.4 kilometres north-west of the application area;
- Napier Nature Reserve occurs approximately 8.6 kilometres west of the application area;
- Porongurup National Park is located approximately 13.7 kilometres to the north-west of the application area; and
- Stirling Range National Park is located approximately 32 kilometres to the north of the application area (GIS Database).

The application area is part of a relatively large stand of native vegetation totalling approximately 350 hectares (GIS Database). This vegetation is likely to form part of an important link between the above mentioned nature reserves, allowing for the transition of flora and fauna between nature reserves. This can aid in the diversification of the nature reserves by allowing genes to be shared from reserve to reserve (Wilkins et al., 2006).

The Western Australian South Coast Macro Corridor Network has identified 21 potential vegetation corridors that could be defined as macro corridors, all of which have regional nature conservation significance and strategic special significance within the south coast region (Wilkins et al., 2006). The native vegetation within the application area is within the junction of the Kalgan River corridor and the Porongurup Range corridor, which are both listed as 'very high priority'. The application area is also within 'Strategic Zone A' of the macro corridor network and forms part of a relatively continuous chain of vegetation linking important conservation areas. The removal of native vegetation from the application area will negatively impact upon these corridors (Wilkins et al., 2006) and this vegetation may form part of a regionally significant remnant of native vegetation.

Sandiford (2011) identifies that although potential corridors have been identified, no definitive corridors have yet been identified and states that it is unclear whether the area under application would form part of a best fit corridor. The applicant has excluded a 100 metre boundary buffer and 20 metre internal corridors from the application area. Considering these areas of native vegetation which will remain uncleared on the mining lease, and the staged approach to mining and rehabilitation, sufficient linkages to the corridors which are ultimately designated are likely to be maintained (GHD Pty Ltd, 2012b).

Austsand Mining has implemented the, “Austsand Mining - Mindijup Mine Clearing Permit Offset Proposal - January 2012”. This offset provided funds to the DEC to purchase land which will be managed for conservation purposes (GHD Pty Ltd, 2012a). The offset land totals 793 hectares of which 420 hectares will be utilised for this application to offset the clearing of 69.9 hectares of native vegetation at a 6:1 ratio (GHD Pty Ltd, 2012b). The offset land is strategically located adjacent to the Stirling Range National Park. DEC advice has indicated that the proposed offset is suitable (DEC, 2013). The implementation of this offset will mitigate the environmental impacts associated with the proposed clearing.

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

Methodology DEC (2013)
GHD Pty Ltd (2012a)
GHD Pty Ltd (2012b)
Sandiford (2011)
Wilkins et al. (2006)
GIS Database:
- Many Peaks 50cm Orthomosaic 2007
- 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 within a Public Drinking Water Source Area (GIS Database) and is therefore unlikely to cause an incremental deterioration in the quality of drinking water.

There are no watercourses or water bodies within the application area (GIS Database). The Kalgan River occurs approximately 2.3 kilometres to the west north- west and a South Coast Significant Wetland occurs approximately 0.5 kilometres to the south-west of the application area (GIS Database). Advice provided by the Department of Agriculture and Food identifies that ground water from the site discharges into the middle-upper section of the Kalgan River, which is immediately down gradient of the mining operation. This advice identifies that this section of the Kalgan River is mildly saline, however, it is not expected that the proposed clearing would adversely impact on the river's water quality (DAFWA, 2013).

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

Methodology

DAFWA (2013)
GIS Database:
- Hydrographic Catchments - Catchment
- Hydrography, Linear
- Public Drinking Water Source Areas (PDWSA)
- Southcoast Significant Wetlands

(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

Given the size of the proposed clearing (17.27 hectares) in relation to the large size of the Oyster Harbour Kalgan King catchment (298,270 hectares) (GIS Database), it is unlikely to cause an incremental rise in the frequency or duration of flooding. In addition, the application area has a slight relief with no wetlands or watercourses (GIS Database).

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

Methodology

GIS database:
- Hydrography, linear
- Topographic Contours, Statewide

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

Comments

There are two native title claims (WC96/109 and WC98/70) over the area under application (GIS Database). These claims have been registered with the National Native Title Tribunal on behalf of the claimant groups. 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 noted that the proposed clearing may impact on a protected matter under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act). This project was referred to the (Federal) Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) for environmental assessment under the EPBC Act and deemed a controlled action to be assessed by preliminary documentation. A decision on the federal approval is currently pending.

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 11 March 2013 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 NNTT

6. References

CALM (2002) Jarrah Forest 2 (JF2 - Southern Jarrah Forest subregion) in A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002. Report published by CALM, Perth, Western Australia.

City of Albany (2010) Albany Local Planning Strategy, Albany, Western Australia.

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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.