



1. Application details

1.1. Permit application details

Permit application No.: 1995/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: BGC (Australia) Pty Ltd

1.3. Property details

Property: Mining Lease 70/1085
Local Government Area: Shire of Mundaring
Colloquial name: Mining Lease 70/1085

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
24.18		Mechanical Removal	Mineral Production

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
<p>The area applied to clear has been broadly mapped at a scale of 1:250,000 as: Beard Vegetation Association 3003: Medium forest; Jarrah and Marri on laterite with Wandoo in valleys, sandy swamps with Teatree and Banksia (GIS Database).</p> <p>Mattiske Consulting Pty Ltd (2007) undertook a flora and vegetation survey of the proposed clearing area during Spring 2007. The following four vegetation communities were mapped for the area:</p> <ol style="list-style-type: none"> 1. Woodland to Open Woodland of <i>Eucalyptus marginata</i> subsp. <i>thalassica</i> - <i>Corymbia calophylla</i> with scattered understorey, including <i>Dryandra lindleyana</i> var. <i>lindleyana</i>, <i>Hibbertia hypericoides</i>, <i>Hakea lissocarpha</i> and <i>Xanthorrhoea gracilis</i> on mid slopes; 2. Woodland of <i>Eucalyptus wandoo</i> - <i>Eucalyptus marginata</i> subsp. <i>thalassica</i> with scattered understorey, including <i>Gastrolobium spinosum</i>, <i>Lepidosperma squamatum</i>, <i>Synaphea gracillima</i>, <i>Trymalium angustifolium</i> and <i>Dryandra lindleyana</i> var. <i>lindleyana</i> on lower slopes; 3. Open Woodland of <i>Eucalyptus wandoo</i> with low shrub understorey layer, including <i>Bossiaea ornata</i>, <i>Leucopogon nutans</i>, <i>Hibbertia hypericoides</i>, <i>Dryandra lindleyana</i> subsp. <i>lindleyana</i>, <i>Hakea lissocarpha</i> and <i>Xanthorrhoea gracilis</i> on mid to upper slopes; and 4. Open Woodland of <i>Eucalyptus wandoo</i> with dense understorey, including <i>Dryandra squarrosa</i> subsp. <i>squarrosa</i>, <i>Allocasuarina humilis</i>, <i>Petrophile striata</i>, <i>Synaphea gracillima</i>, <i>Dryandra sessilis</i> and <i>Hibbertia huegelii</i> over patches of occasional <i>Borya sphaerocephala</i> on mid slopes. 	<p>This clearing permit application is for a Purpose Permit to clear up to 24.18 hectares of native vegetation within a boundary of approximately 24.3 hectares (GIS Database). The proposed clearing will allow BGC Clay Products to extract clay and gravel from a portion of Mining Lease 70/1085. The operation will involve mining to a depth of approximately 15 - 20 metres below the ground surface. The mine pit will be developed in four stages, each covering an area of approximately 5 hectares.</p> <p>The area applied to clear allows for two alternate access routes to the mining area off Burma Road. Both routes involve minor upgrades to existing access tracks. BGC Clay Products (2008) are currently liaising with the Shire of Mundaring to determine which route should be used to gain site access.</p>	<p>Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)</p> <p>to</p> <p>Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994)</p>	<p>Two officers from the Native Vegetation Assessment Branch (Department of Industry and Resources) visited the proposed clearing area on 16 August 2007. A representative from BGC Clay Products and AWI Environmental were also present.</p> <p>The vegetation condition rating is based on information reported by Mattiske Consulting Pty Ltd (2007).</p>

3. Assessment of application against clearing principles

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

Comments

Proposal is not likely to be at variance to this Principle

The area applied to clear is within the Northern Jarrah Forest Interim Biogeographic Regionalisation for Australia (IBRA) subregion (GIS Database). This subregion is characterised by Jarrah-Marri forest on laterite gravels (CALM, 2002).

With respect to the proposed clearing area, Matiske Consulting Pty Ltd (2007) recorded a total of 166 plant taxa from 35 families and 92 genera during a Spring flora and vegetation survey of the area. CALM (2002) note that the Northern Jarrah Forest subregion has moderate species richness (400 - 600 species per kilometre). No Declared Rare Flora (DRF) or Priority Flora species were recorded within the proposed clearing area (Matiske Consulting Pty Ltd, 2007). Four vegetation associations were mapped from the area, all of which extend both north and south on the eastern and north-eastern fringes of the Jarrah forest in the south-west forest region. In addition, Matiske Consulting Pty Ltd (2007) reports that all four vegetation associations are well represented in conservation estate.

Matiske Consulting Pty Ltd (2007) recorded a total of 7 introduced flora species within the proposed clearing area. This included: Silvery Hairgrass (*Aira caryophyllea*), Blowfly Grass (*Briza maxima*), Wild Gladiolus (*Gladiolus caryophyllaceus*), Capeweed (*Arctotheca calendula*), Smooth Catsear (*Hypochaeris glabra*), Ursinia (*Ursinia anthemoides*) and *Anagallis arvensis* var. *caerulea*. Introduced flora species were largely confined to the fringes of the proposed clearing area where the site abuts cleared agricultural land. Should a clearing permit be granted, it is recommended that a weed management condition be imposed on the permit to ensure that clearing operations do not spread or introduce weeds to non-infested areas.

Matiske Consulting Pty Ltd (2007) concluded that the proposed clearing area is relatively undisturbed. Notwithstanding this, horses from the local trotting club ride through the area, trail bikes are seen on occasion, and an access track to the farming property to the east of the application area dissects the north-eastern corner of the site (C. Mulders - AWI Environmental, pers comm. 16/08/07).

From a faunal perspective, AWI Environmental (2007) report that the proposed clearing area is likely to support an array of vertebrate fauna species which are indigenous to the Northern Jarrah Forest and Perth Hills region. This is likely to include a host of bird and reptile species, whilst few native mammal species are expected given the proximity of the site to cleared agricultural properties, human activity and the presence of introduced predators such as the Fox and Feral Cat. AWI Environmental (2007) note that rabbits and Western Grey kangaroos are commonly observed in the area.

Selective logging in the past 30 - 40 years has removed most of the larger trees from the proposed clearing area. An environmental consultant commissioned by BGC Clay Products visited the proposed clearing area on 15 May 2008 to undertake a brief site assessment of the proposed clearing area to determine whether hollow-bearing Eucalypts are present which may provide important nesting habitat for native fauna species. A small number of hollow-bearing trees were located on Mining Lease 70/1085, although most of these were located outside of the proposed clearing area in the 40 - 50 metre wide vegetation buffers on the eastern and western sides (C. Mulders, pers comm. 15/05/08). Based on this assessment, a small number of hollow-bearing Eucalypts may occur in the proposed clearing area. These are unlikely to be representative of significant nesting habitat for native fauna given that the Woondowing Nature Reserve is located immediately to the east (covering an area in excess of 1,500 hectares) and seven other nature reserves occur within a 10 kilometre radius which are likely to support hollow-bearing Eucalypts.

It is unlikely that the area under application is of a higher biodiversity value than any other area of native vegetation in the local or regional area. Floral and faunal diversity of the proposed clearing area is likely to have been impacted to some degree by historical selective logging practices, land clearing in the surrounding area and the introduction of non-native flora and fauna. It should be noted that the area to be cleared is part of a vegetation remnant that abuts cleared farmland. The area would have far higher biodiversity than the adjacent cleared areas.

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

Methodology

AWI Environmental (2007).
CALM (2002).
Matiske Consulting Pty Ltd (2007).
GIS Database:
- Interim Biogeographic Regionalisation for Australia (Subregions).

(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 may be at variance to this Principle

AWI Environmental (2007) undertook a desktop fauna study of the proposed clearing area. This involved the following methods:

- researching and obtaining information from previous studies undertaken in close proximity to the proposed clearing area. For example, data was used from low level fauna surveys undertaken by the Darling Range branch of the Western Australian Naturalists Club in the adjacent Woondowing Nature Reserve;
- conducting a search of the Department of Environment and Conservation's (DEC's) Threatened and Priority Fauna Database to compile a list of conservation significant fauna which may potentially occur in the proposed clearing area;
- consulting bioregional literature on fauna;
- an environmental consultant from AWI Environmental accompanied a geologist from BGC Clay Products to conduct a brief site visit of the proposed clearing area on 5 June 2007. No trapping or detailed on-site assessment was undertaken as part of this visit (AWI Environmental, 2007).

The desktop study identified a number of fauna species which may be present on site, including a host of bird and reptile species. The area is likely to support an array of vertebrate fauna species which are indigenous to the Northern Jarrah Forest and Perth Hills region. It is likely that the site supports only a limited number of mammals as a result of current land uses in the surrounding area, livestock activity, human activity and predation by introduced species (AWI Environmental, 2007). The following introduced species are expected to occur in the proposed clearing area: Fox (*Vulpes vulpes*), Domestic Cat (*Felis domesticus*) and European Rabbit (*Oryctolagus cuniculus*) (AWI Environmental, 2007).

Conservation significant mammals such as the Numbat; *Myrmecobius fasciatus* and the Chuditch; *Dasyurus geoffroii* (both listed as 'Vulnerable' under the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* and Schedule 1 'Fauna that is rare or likely to become extinct', *Wildlife Conservation (Specially Protected Fauna) Notice 2008*) which were identified as potentially occurring based on historical records from the DEC's Threatened and Priority Fauna Database are highly unlikely to occur. Currently in Western Australia, the Numbat is known only from two remnant native populations at Dryandra and Perup, and several reintroduced populations including Boyagin Nature Reserve, Tutanning Nature Reserve, Batalling block and Karroun Hill Nature Reserve (Friend & Thomas 1995 cited in Department of the Environment, Water, Heritage and the Arts, 2008). The Chuditch has a patchy distribution in Karri, Marri and Jarrah forests throughout the south-west of the state, in addition to very low numbers in the Midwest, Wheatbelt and South Coast regions (Department of Environment and Conservation, 2006). Given the presence of introduced predators and surrounding land uses in the area, the area under application is not likely to support Chuditch or constitute significant habitat.

The area under application has been subject to selective logging activities in the previous 30 - 40 years (C. Mulders - AWI Environmental, pers comm. 16/08/07). Consequently, most of the older and larger trees in the area have been removed. This was confirmed by the Assessing Officer, Department of Industry and Resources (DoIR) during a site visit to the proposed clearing area on 16 August 2007. Large open areas devoid of overstorey vegetation were observed.

A small number of large dead Jarrah and Marri trees located immediately west and east of the proposed clearing area showed evidence of supporting hollows (C. Mulders, pers comm. 15/05/08). These may potentially provide nesting habitat for conservation significant species such as Carnaby's Black-Cockatoo; *Calyptorhynchus latirostris* (listed as 'Endangered' under the *EPBC Act 1999* and Schedule 1 'Fauna that is rare or likely to become extinct', *Wildlife Conservation (Specially Protected Fauna) Notice 2008*), Forest Red-tailed Black-Cockatoo; *Calyptorhynchus banksii naso* (listed as Schedule 1 'Fauna that is rare or likely to become extinct', *Wildlife Conservation (Specially Protected Fauna) Notice 2008*) and other Cockatoo species. It must be noted that whilst these trees exist on Mining Lease 70/1085, they are located outside of the proposed clearing area in 40 - 50 metre vegetation corridors which will be retained as buffers. These trees will not be cleared. Notwithstanding this, a small number of hollow-bearing trees may be present in the proposed clearing area. As a precaution, it is recommended that BGC Clay Products engage suitably qualified persons to identify hollow-bearing trees within the proposed clearing area and search hollows for fauna prior to clearing. Any fauna found in hollows should be relocated to the adjacent nature reserve which supports similar habitat types. Any fauna relocation must be undertaken in accordance with any authority required from the Department of Environment and Conservation.

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

Methodology AWI Environmental (2007).
Department of Environment and Conservation (2006).
Department of the Environment, Water, Heritage and the Arts (2008).

(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 Declared Rare Flora (DRF) in the proposed clearing area (GIS Database). Matiske Consulting Pty Ltd (2007) undertook a Spring flora and vegetation survey over the proposed clearing area in 2007 and did not locate any DRF species. The nearest known record of DRF to the proposed clearing

area is a population of *Grevillea flexuosa* and *Thelymitra manginiorum*, located approximately 17 kilometres west/north-west (GIS Database).

Mattiske Consulting Pty Ltd (2007) located two individuals of the Priority 3 species *Tetratheca similis* from two locations on the western fringe of the proposed clearing area. This taxon is known from 15 records at the Western Australian Herbarium and has been primarily recorded in Wandoo woodlands (Mattiske Consulting Pty Ltd, 2007). Subsequent to this survey, BGC Clay Products (2008) revised the area applied to clear in order to provide five metre exclusion zones around the two known *Tetratheca similis* plants. Both locations of this species will be fenced off and are outside of the revised area applied to clear. No other Priority Flora species were recorded during the survey (Mattiske Consulting Pty Ltd, 2007).

The vegetation types within the proposed clearing area are well represented both locally and regionally (Mattiske Consulting Pty Ltd, 2007) and are unlikely to be necessary for the continued in situ existence of DRF or Priority Flora.

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

Methodology BGC Clay Products (2008).
Mattiske Consulting Pty Ltd (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 (TEC's) within, or in close proximity to, the proposed clearing area (GIS Database). The nearest known TEC is located approximately 27.5 kilometres to the west (GIS Database).

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

Methodology GIS Database:
- Threatened Ecological Communities.

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

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

The area applied to clear is within the Interim Biogeographic Regionalisation for Australia (IBRA) Northern Jarrah Forest subregion (GIS Database). According to Shepherd et al (2001) there is approximately 58.8% of the pre-European vegetation remaining in the Northern Jarrah Forest subregion. The vegetation of the application area is classified as Beard Vegetation Association 3003: Medium forest; Jarrah and Marri on laterite with Wandoo in valleys, sandy swamps with Teatree and Banksia (GIS Database). There is approximately 61.3% of the pre-European vegetation remaining of Beard Vegetation Association 3003 in the Northern Jarrah Forest subregion (Shepherd et al, 2001).

The proposed clearing area is located adjacent to cleared agricultural properties in the Shire of Mundaring. The vegetation may provide an ecological linkage which increases its value as a remnant. In this context, the area under application could be considered a significant remnant in the local area. However, the Woondowing Nature Reserve is located immediately east of the area applied to clear and contains in excess of 1,500 hectares of native vegetation (GIS Database). In addition, there are 7 other conservation reserves within a 10 kilometre radius of the proposed clearing area which conserve more than 1,800 hectares of native vegetation (GIS Database).

Whilst the Comprehensive, Adequate and Representative (CAR) conservation reserve system target of 15% has not been met for Beard Vegetation Association 3003, the proposed clearing will not reduce the extent of Beard Vegetation Association 3003 below current recognised threshold levels, below which species loss increases significantly.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves and (current %)
IBRA bioregion – Jarrah Forest	4,506,675***	2,426,080***	~53.8	Least concern	14.0 (25.5)
IBRA subregion – Northern Jarrah Forest	1,898,799***	1,117,139***	~58.8	Least concern	10.0 (16.9)
Shire of Mundaring	No information	available			
Beard Vegetation Association – subregion					
3003	66,454	40,727	~61.3	Least concern	12.9 (7.9)

* Shepherd et al. (2001) updated 2005

** Department of Natural Resources and Environment (2002)

*** Area within the Intensive Landuse Zone

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

Methodology Department of Natural Resources and Environment (2002).
Shepherd et al (2001).
GIS Databases:
- Interim Biogeographic Regionalisation for Australia (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 likely to be at variance to this Principle

There are no perennial or intermittent watercourses or wetlands in the proposed clearing area (GIS Database). Tributaries of the Wooroloo Brook are located approximately 500 metres south and 600 metres west of the area under application respectively (BGC Clay Products, 2008; GIS Database). The proposed clearing is not expected to have any significant impact upon these creeklines.

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

Methodology BGC Clay Products (2008).
GIS Database:
- Hydrography, linear.

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

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

The proposed clearing area is located in the Shire of Mundaring on the eastern fringes of the Darling Range (Mattiske Consulting Pty Ltd, 2007). Soils are characterised by sandy gravels to clay loams, varying from 0 - 0.5 metres thick over laterite and gravel (Mattiske Consulting Pty Ltd, 2007; BGC Clay Products, 2008).

With respect to topography, the project area is a gently undulating hill top that slopes south and northward towards Wooroloo Brook and local creeklines which drain from east to west (BGC Clay Products, 2008). Elevation is approximately 260 metres (Australian Height Datum) in the north of the site, reaching a maximum of 276 metres towards the centre of the site (BGC Clay Products, 2008).

Two landform and soil units are represented in the proposed clearing area, as described by Churchward and McArthur (1980), cited in Mattiske Consulting Pty Ltd (2007):

1. Yalanbee - Gently undulating landscape dominated by fine gravels, some duricrust on ridges; and
2. Pindalup - Valleys on the central part of the plateau; gravely duplex on slopes; some outcrop; grey sands; duplex yellow soils and orange earths in broad floors.

Mattiske Consulting (2007) noted scattered trees within the proposed clearing area to be experiencing decline

in vigour and canopy. This physiological stress is likely to be a result of drier conditions in recent years in the Darling Ranges (Mattiske Consulting Pty Ltd, 2007). Another environmental consultant observed similar physiological stresses during a brief assessment of the site on 15 May 2008. No obvious evidence of Phytophthora was observed, and it was concluded that any stresses observed were most likely related to dry climatic conditions in the area in recent years (C. Mulders, pers comm. 15/05/08).

The proposed vegetation clearing will be undertaken on a progressive basis (approximately 5 hectare stages). It is expected that a stage will be cleared every 3 - 5 years. Vegetation will be cleared using a bulldozer. Cleared vegetation will be mulched and stockpiled for use in rehabilitation, whilst large tree trunks will be retained in windrows to serve as fauna habitat (BGC Clay Products, 2008). Topsoil will be stripped and stockpiled in low bunds to preserve seed viability. An estimated 10,000 cubic metres of topsoil will be stripped from each 5 hectare mining stage.

The mining operation will involve removing the top 2 - 3 metres of nodular laterite gravel below the topsoil (this will be used for road building and will also be stockpiled for use as fill material during progressive rehabilitation). Following removal of the laterite, a clay layer (up to 30 metres thick) is exposed. BGC Clay Products will mine to a depth of approximately 15 - 20 metres. Some overburden material will be returned to the pit area at the cessation of each stage of mining so that the final landform at the end of the operation will be a shallow vegetated depression (approximately 12 metres below the natural surface) on the top of the small hill.

Should a clearing permit be granted it is recommended that conditions be imposed on the permit to enforce management commitments made by the proponent. This could include restricting the amount of clearing allowed in each calendar year for the life of the permit and requiring topsoil and vegetative material to be stockpiled for use in rehabilitation.

Given the progressive nature of both vegetation clearing and site rehabilitation, it is unlikely that the proposed clearing will lead to appreciable land degradation.

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

Methodology BGC Clay Products (2008).
Mattiske Consulting Pty Ltd (2007).

(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 area applied to clear is located approximately 50 metres west of the 'C' Class Woondowing Nature Reserve (GIS Database). This reserve covers an area in excess of 1,500 hectares (GIS Database).

It is likely that the proposed clearing area acts as an ecological linkage to the Woondowing Nature Reserve given its close proximity. In addition, the area under application is a vegetated site largely surrounded by agricultural properties which have been cleared. To ensure that the proposed clearing will not significantly impact upon this ecological linkage, BGC Clay Products (2008) will retain a 40 - 50 metre vegetation buffer on all sides of the project area. The retention of vegetated corridors will serve several purposes:

1. The 40 - 50 metre wide vegetated corridor located to the east of the application area will act as a buffer between the proposed mining operations and the nature reserve. Impacts such as noise and dust will be minimised;
2. The vegetated corridor to the north of the application area will serve an aesthetic function in screening the proposed mining operation from Burma Road, in addition to minimising dust and noise impacts;
3. The retention of corridors will provide ecological linkages for fauna moving into and out of the adjacent nature reserve (BGC Clay Products, 2008).

It must also be acknowledged that the proposed clearing will be undertaken in a staged approach. Blocks of vegetation (approximately 5 hectares in area) will be cleared every 3 - 5 years. This will ensure that large cleared areas are not open at any one time, and that the area under application continues to provide a buffer and ecological linkage in the short term.

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

Methodology BGC Clay Products (2008).
GIS Database:
- CALM Managed Lands and Waters.

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

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

The proposed clearing area is located on the top of a small, gently undulating hill (BGC Clay Products, 2008). There are no ephemeral or perennial watercourses in the project area. Surface water run-off from the site occurs to the north and south into local creeklines which drain from east to west (BGC Clay Products, 2008). The proponent will use a combination of bunding and retention basins to contain on site run-off. This will ensure that sediment laden run-off from cleared areas does not enter local drainage lines off site.

The proposed clearing area is not located within a Public Drinking Water Source Area (GIS Database). Groundwater is not perceived to be a significant issue associated with the clearing proposal given the geology of the site. The thick clay sequence below the top 2 - 3 metres of laterite has a very low hydraulic conductivity. Some winter infiltration occurs in the laterite component of the soil profile. Water remains perched above the clay layer as shallow subsurface run-off, joining surface water run-off into drainage systems of the area (BGC Clay Products, 2008).

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

Methodology BGC Clay Products (2008).
GIS Database:
- Hydrography, linear.
- Public Drinking Water Source Areas (PDWSAs).

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

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

The proposed clearing area is not prone to flooding as it is a gently undulating hill top that slopes south and northward towards Wooroloo Brook and local creek lines which drain from east to west (BGC Clay Products, 2008). In natural circumstances the topography of the site would ensure that any rainfall over the application area runs off into local drainage lines.

However, BGC Clay Products (2008) will use bunding to prevent surface water run-off from the site into downstream areas. Surface water will be retained on site in detention basins where it will be left to evaporate, used to wash down machinery and/or pumped and removed (C. Mulders - AWI Environmental, pers comm. 15/05/08). It is not expected that this will create a flood risk.

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

Methodology BGC Clay Products (2008).

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

Comments

The clearing permit application was advertised by DoIR, inviting submissions from the public. Two public submissions were received. The first submission raised concerns regarding the potential impacts of the proposed vegetation clearing on Sites of Aboriginal Significance.

There are no registered Sites of Aboriginal Significance within the area applied to clear (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Sites of Aboriginal Significance are damaged through the clearing process.

There are no native title claims over the area under application (GIS Database).

The second public submission raised concerns that the proponent had not applied for relevant approvals with the Shire, including an extractive industries licence. BGC Clay Products (2008) are liaising with the Shire of Mundaring to obtain all necessary development approvals.

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.

BGC Clay Products referred the Burma Road Clay Pit proposal to the Environmental Protection Authority (EPA) on 22 January 2008. On 28 April 2008, the EPA set a level of assessment on BGC Clay Products' proposal as 'Not Assessed - Managed under Part V of the EP Act (Clearing)'. The EPA will not formally assess this project but expects the proponent and relevant decision making authorities to ensure that it is environmentally acceptable.

Methodology BGC Clay Products (2008).

GIS Databases:

- Aboriginal Sites of Significance.
- Native Title Claims.

4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comment
Mineral Production	Mechanical Removal	24.18	<p>The Clearing Principles have been addressed and the proposed clearing may be at variance to Principles (b) and (h) and is not likely to be at variance to Principles (a) (c), (d), (e), (f), (g), (i) or (j).</p> <p>Should the permit be granted, it is recommended that conditions be imposed on the permit for the purposes of fauna management, weed management, rehabilitation, record keeping and permit reporting.</p>

5. References

- AWI Environmental (2007) Fauna and Flora Desktop Study: Mining Lease M7001085 - Burma Road, Bailup (Wundowie). Prepared for BGC Clay Products. July 2007, Western Australia.
- BGC Clay Products (2008) Project Description and Supporting Information for EPA Referral. Clay and Gravel Extraction: Burma Road, Bailup (M70/1085).
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions.
- Department of Environment and Conservation (2006). Chuditch (*Dasyurus geoffroii*). Available from: www.naturebase.net. Accessed 2008-05-28.
- 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 the Environment, Water, Heritage and the Arts (2008). *Myrmecobius fasciatus* in Species Profile and Threats Database, Department of the Environment, Water, Heritage and the Arts, Canberra. Available from: <http://www.environment.gov.au/sprat>. Accessed 2008-05-28@14:21:59.
- 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 Consulting Pty Ltd (2007) Flora and Vegetation: Burma Road - Bailup. Prepared for BGC Clay Products. December 2007.
- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia (updated 2005).

6. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government.
CALM	Department of Conservation and Land Management, Western Australia.
DAFWA	Department of Agriculture and Food, Western Australia.
DA	Department of Agriculture, Western Australia.
DEC	Department of Environment and Conservation
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DoE), Western Australia.
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia.
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.