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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 2748/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **The Griffin Coal Mining Company Pty Ltd**

1.3. Property details

Property: *Collie Coal (Griffin) Agreement Act 1979*, Coal Mining Leases 12/454, 12/455, 12/460
Local Government Area: Shire of Collie
Colloquial name: Chicken Creek Area 3 Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
31.06		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
The area applied to clear has been broadly mapped at a scale of 1:250,000 as: Beard Vegetation Association 3: Medium forest; Jarrah-Marri; and Beard Vegetation Association 1114: Shrublands tree-heath; Paperbark over Teatree thickets. Bennett Environmental Consulting Pty Ltd (2008a) mapped six vegetation units for the proposed clearing area during a flora and vegetation survey which covered a 50 square kilometre area. The survey was undertaken between 1 and 10 September 2005 and was commissioned by the Griffin Coal Mining Company to describe the flora and vegetation of the Muja South area. Vegetation units within the proposed clearing area are as follows: **High Ground** <u>Forest</u> **Af** - Forest of *Corymbia calophylla* and *Eucalyptus marginata subsp. marginata* over Low Woodland of *Allocasuarina fraseriana* over Open Scrub of *Kunzea glabrescens* over Open Dwarf Scrub of mixed species over Very Open Tall Sedges dominated *by Lepidosperma leptostachyum*; **Low Ground** <u>Woodland</u> **Sr** - Open Low Woodland of *Eucalyptus rudis subsp. rudis* and *Melaleuca preissiana* over Open Scrub of *Astartea*	The Griffin Coal Mining Company Pty Ltd has applied for a Purpose Permit to clear up to 31.06 hectares of native vegetation to continue coal mining operations in the Chicken Creek Area 3. Approximately 11.4 hectares of the proposed clearing consists of native vegetation rehabilitated on the Muja East waste dump in 1989. This vegetation has been applied to clear to allow future rehabilitation of the dump. At present, the slopes of the dump stand at their natural angle of repose and are characterised by significant erosion in the form of gullying and rills. The remaining 19.66 hectares of clearing will be used to expand the existing Chicken Creek Area 3 open cut pit.	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994). to Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994).	The vegetation condition rating is derived from a flora and vegetation survey by Bennett Environmental Consulting (2008), which included the 19.66 hectares of the proposed clearing area which will be used for open pit expansion. The Assessing Officer, Department of Mines and Petroleum (DMP), visited the proposed clearing area at the Muja Coal Mine on 29 October 2008. Observations were made during the site visit which were used in determining the vegetation condition.

scoparia over Low Scrub to Heath of *Melaleuca pauciflora* over Dense Tall Sedges of *Stenotalis ramosissima*;

Ll - Open Low Woodland of *Melaleuca preissisana* and *Banksia littoralis* over tall sedges dominated by *Lepidosperma longitudinale*;

Ha - Open Low Woodland of *Melaleuca preissiana* with emergent *Eucalyptus marginata subsp. marginata* over Dwarf Scrub of *Hypocalymma angustifolium* over Tall Sedges of *Lyginia barbata* or *Hypolaena exsulca* over Herbs and Low Grass;

Thicket

Mv - Dense Thicket of *Melaleuca viminea* over Open Tall Sedges dominated by *Lepidosperma longitudinale* over Open Tall Grass over Dense Herbs; and

Heath

Hm - Dense Heath of *Hakea varia* or Astartea species or *Hakea marginata* or *Melaleuca subtrigona* or *Banksia meisneri subsp. meisneri* over Tall or Low Sedges of several species (Bennett Environmental Consulting Pty Ltd, 2008a).

The 11.4 hectares of rehabilitated native vegetation on top of the Muja East waste dump which is subject to this clearing permit application was not surveyed by Bennett Environmental Consulting Pty Ltd (2008a).

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 proposed clearing area is located approximately 17 kilometres south east of Collie in the Southern Jarrah Forest subregion of the Jarrah Forest Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). The Southern Jarrah Forest subregion is characterised by Jarrah-Marri forest on laterite gravels and, in the eastern part, by Wandoo-Marri woodlands on clayey soils (CALM, 2002). The subregion is rich in endemic species, and a majority of the floristic richness is associated with rapid changes in communities on the lower slopes and variable soil types (CALM, 2002).

Approximately one third (11.4 hectares) of the proposed clearing area consists of rehabilitated native vegetation on the Muja East waste dump (Environ Australia Pty Ltd, 2008). This vegetation was established in 1989, and according to rehabilitation monitoring data obtained from the Mulga Research Centre in 1998, consists of Marri (*Corymbia calophylla*), Tuart (*Eucalyptus gomphocephala*), Wandoo (*Eucalyptus wandoo*), and Swan River Blackbutt (*Eucalyptus patens*). Vegetation is now well established in this area, with some trees measuring in excess of 5 metres height in 1998 (Environ Australia Pty Ltd, 2008). The rehabilitated native vegetation is not likely to be important in a biodiversity context given its relatively low species diversity, lack of understorey species and young age. The proponent is seeking approval to clear the vegetation to allow for future rehabilitation of the Muja East Waste dump. At present, the slopes of the dump stand at their natural angle of repose and are characterised by significant erosion in the form of gullies and rills (Environ Australia Pty Ltd, 2008). This was confirmed by the Assessing Officer, DMP, during a site visit on 29 October 2008.

The remainder of the proposed clearing area lies both east and west of Centaur Road, adjacent to existing and historical coal mining operations. To the west of Centaur Road, vegetation is confined by the existing Muja East Waste dump (to the west), Buck's pit (to the south) and Centaur Road itself (to the east). To the east of Centaur Road, vegetation applied to clear abuts the Centaur Longpool (an abandoned open pit from the 1960's) (HGM, 2002; GIS Database).

No Declared Rare Flora (DRF) is known from the proposed clearing area, however two Priority Flora species were recorded by Bennett Environmental Consulting Pty Ltd (2008): *Synaphea petiolaris subsp. simplex* (P2) and *Acacia semitrullata* (P3). Whilst the presence of Priority Flora increases the biodiversity value of the proposed clearing area, it is acknowledged that both species were recorded in low numbers and a loss of these plants is not considered significant in a local or regional context (Bennett Environmental Consulting Pty Ltd,

2008a). No Threatened Ecological Communities (TEC's) are known from the area (Bennett Environmental Consulting Pty Ltd, 2008a; HGM, 2002; GIS Database). None of the vegetation communities recorded in the proposed clearing area by Bennett Environmental Consulting Pty Ltd (2008a) are noted as unique or conservation significant.

From a faunal perspective, the proposed clearing area contains a faunal assemblage that is typical of the Jarrah Forest bioregion (Bamford Consulting Ecologists, 2006). Modified wetland environments exist in the proposed clearing area which are likely to provide suitable habitat for a number of species, including various bird, mammal, reptile and frog species. Wetland environments exist throughout the Muja South area (GIS Database; Bennett Environmental Consulting Pty Ltd, 2008a) which are subject to less disturbance and modification, and are likely to be representative of more suitable habitat for indigenous fauna species. No nesting habitat for the three conservation significant Black-Cockatoo species known from the Collie area was recorded in the proposed clearing area (Bamford Consulting Ecologists, 2008).

Phytophthora cinnamomi (Dieback) mapping has been undertaken over much of the Muja South area, including the portion of the proposed clearing area to the east of Centaur Road. This area has been confirmed as "dieback infested". The portion of the proposed clearing area to the west of Centaur Road has not been surveyed to confirm the presence or absence of *Phytophthora*, however Griffin Coal environmental personnel are treating the area as "dieback infested". The spread of *Phytophthora cinnamomi* poses a serious threat to the biological diversity values of the local area, therefore it is important that any topsoil stripped prior to clearing is clearly sign-posted as "dieback infested", is not stockpiled in "dieback free " locations and is stockpiled away from "dieback free" topsoil. Topsoil sourced from "dieback infested" areas should not be used in the rehabilitation of areas known to be "dieback free". Other considerations include stockpiling infested topsoil away from watercourses and in elevated areas that are not prone to flooding. Griffin Coal are aware of the risks associated with spreading *Phytophthora cinnamomi*, and have a series of environmental procedures in place to prevent the spread of dieback. Provided that there is adherence to these procedures, the risk of the proposed clearing spreading *Phytophthora cinnamomi* into unifested areas is considered low. As a precaution, appropriate conditions dealing with the management of dieback should be imposed on any clearing permit issued to Griffin Coal for the development of Chicken Creek Area 3.

A number of weed species are present within the proposed clearing area, and like dieback, weeds have the potential to seriously impact upon the local biodiversity if adequate measures are not put in place to stop their spread. Griffin Coal has a weed management plan in place which applies to all operations on its mining leases. As a precaution, appropriate conditions dealing with the management of weeds should be imposed on any clearing permit issued to Griffin Coal for the development of Chicken Creek Area 3.

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

Methodology

Bamford Consulting Ecologists (2006).
Bamford Consulting Ecologists (2008).
Bennett Environmental Consulting Pty Ltd (2008a).
CALM (2002).
Environ Australia Pty Ltd (2008).
HGM (2002).
GIS Database:
- Collie 50cm Orthomosaic.
- Hydrography, linear.
- Threatened Ecological Communities.

(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 number of vertebrate fauna surveys have been conducted in the vicinity of the proposed clearing area. Of relevance is Bamford Consulting Ecologists' 2005 desktop study and follow-up 2006 field survey of the Buckingham area. The Buckingham survey focussed on sites approximately 1.5 - 3 kilometres south and east of the proposed clearing area (Bamford Consulting Ecologists, 2006; GIS Database).

Prior to conducting a field survey of the Buckingham area, Bamford Consulting Ecologists (2005) undertook a desktop assessment in order to compile a potential species inventory for the area. The following databases and references were consulted:

- Western Australian Museum Faunabase;
- Department of Environment and Conservation Threatened and Priority Fauna Database;
- Birds Australia Atlas Database;
- Environment Protection and Biodiversity Conservation (EPBC) Protected Matters Search Tool; and
- relevant publications on frogs, reptiles, birds and mammals which provide information on general patterns of distribution (Bamford Consulting Ecologists, 2005).

Bamford Consulting Ecologists (2005) reported the Buckingham area to be characterised by Eucalypt woodlands with a canopy of Jarrah (*Eucalyptus marginata*) and Marri (*Corymbia calophylla*). Low paperbark woodlands of *Melaleuca priessiana* dominate the broad valley floors and swamps. The desktop assessment

concluded that the Buckingham area has the potential to support a rich range of frogs, reptiles, birds and mammals, and that most of this fauna is likely to be typical of the forested areas of the south-west. However, Bamford Consulting Ecologists (2005) added that the area potentially supports a number of conservation significant species, and recommended that a follow-up field survey be conducted to enable detailed comments to be made with respect to likely impacts from mining development.

Bamford Consulting Ecologists (2006) undertook field surveys for frog, reptile, bird and mammal species in the Buckingham area in January 2006. Sampling methods included pitfall, cage and Elliot trapping, bird surveys, spotlighting, mist netting, harp trapping, acoustic surveys (for bats), hand searching and opportunistic observations (Bamford Consulting Ecologists, 2006).

As a result of the field survey, Bamford Consulting Ecologists (2006) concluded that the Buckingham area contains a faunal assemblage that is typical of the Jarrah Forest of the region. A good diversity was recorded for each of the major terrestrial vertebrate classes (Bamford Consulting Ecologists, 2006). Notwithstanding, several species or groups of species expected to occur were not observed during the field survey. This is most likely due to the survey timing and sampling methods employed. Further surveys in the Buckingham area would most likely yield a larger suite of species (Bamford Consulting Ecologists, 2006).

Bamford Consulting Ecologists (2008) undertook a site inspection of the proposed clearing area on 23 October 2008. The purpose of the site inspection was to assess the likelihood of Black-Cockatoo species nesting in the area, and to identify and record the locations of any potential nesting trees. Three conservation significant Black-Cockatoo species are known to be present in the Collie area:

1. Carnaby's Black-Cockatoo (*Calyptorhynchus latirostris*) - listed as Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) (EPBC Act), and as Schedule 1 (Endangered) under the *WA Wildlife Conservation Act 1950*;

2. Baudin's Black-Cockatoo (*Calyptorhynchus baudinii*) - Vulnerable under the *EPBC Act 1999* and as Schedule 1 (Endangered) under the *WA Wildlife Conservation Act 1950*; and

3. Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso*) - listed as Schedule 1 (Vulnerable) under the *WA Wildlife Conservation Act 1950*.

The Forest Red-tailed Black-Cockatoo is threatened because clearing has greatly reduced the available breeding and feeding habitat (Bancroft et al., 2007). Feral bees and Galahs also compete with *C. banksii naso* for nesting hollows. The range of this subspecies is closely tied to the distribution of Marri (*Corymbia calophylla*) (Bancroft et al., 2007).

The Carnaby's Cockatoo occurs in the south-west of WA, approximately south-west of a line between the Murchison River (near Kalbarri) and Cape Arid National Park (east of Esperance) (Bancroft et al., 2007). Land clearing and degradation has reduced available breeding sites (tree hollows) and fragmented breeding and feeding sites. Feral bees, galahs and corellas out-compete *C. latirostris* for nesting hollows (Bancroft et al., 2007).

The Baudin's Cockatoo occurs in the deep south-west of WA, approximately south-west of a line between Morangup (near Bullsbrook) and Waychinicup National Park (east of Albany) (Bancroft et al., 2007). Birds generally breed in the Karri, Marri and Wandoo forests, in the southern parts of the species' range and move north to the Darling Range and Swan Coastal Plain during autumn and winter (non-breeding periods) (Bancroft et al., 2007). Clearing for agriculture and logging has removed nesting and feeding trees for this species (Bancroft et al., 2007).

In general, hollows of sufficient size to support Black-Cockatoos do not form until trees are at least 230 years old, and the majority of nests are found in 300-500 year old trees (Bancroft et al., 2007). In some cases artificial nest hollows (or nest boxes) have been used with great success (Bancroft et al., 2007). Loss of feeding grounds, nesting trees and competition from bees and Corellas have increased the importance of available nesting hollows. Hollows present are of significance to the conservation of Black Cockatoo species.

Bamford Consulting Ecologists (2008) did not record any Black-Cockatoo species in the proposed clearing area, nor were any potential nesting trees located. No evidence of Black-Cockatoo nesting was observed. There were, however, signs of recent feeding activity (Marri, Jarrah and Sheoak fruits with feed marks and some scats on understorey vegetation) (Bamford Consulting Ecologists, 2008). Nine potential nesting trees were recorded within several hundred metres north of the proposed clearing area. This included five Jarrah trees (*Eucalyptus marginata*) and four Marri trees (*Corymbia calophylla*) with Diameter at Breast Height (DBH) measurements between 800 - 1800 millimetres. Previous studies have demonstrated that the minimum DBH of trees that support Black-Cockatoo nests is 600 millimetres (Bamford Consulting Ecologists, 2008). Four of the nine trees were rated as having a low potential to provide Black-Cockatoo nesting habitat, three trees were rated as having a medium potential, and one tree was rated as having a high potential to provide nesting habitat for Black-Cockatoos (Bamford Consulting Ecologists, 2008). None of these trees will be directly impacted as a result of this clearing proposal.

Bamford Consulting Ecologists (2008) concluded that the proposed clearing at Chicken Creek Area 3 will result in a minor loss of foraging habitat and some loss of potential or future nest sites. It is acknowledged that the proposed clearing area is small in comparison to the extensive foraging and nesting habitat for Black-

Cockatoos which is located in State Forest to the north and east (Bamford Consulting Ecologists, 2008).

The Southern Brown Bandicoot or Quenda (*Isodon obesulus*) is listed as Priority 5 (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) on the Department of Environment and Conservation's (DEC's) Priority Fauna List. Bamford Consulting Ecologists (2008) recorded indirect evidence (diggings) of this species among swampy vegetation on the eastern side of Centaur Road. The species is likely to occur in the area in low densities, but it is expected that individuals will be able to displace into adjacent wetland vegetation at the onset of clearing (HGM, 2002).

Whilst the proposed clearing area does provide habitat for a range of fauna species, the proposed clearing is unlikely to result in a loss of significant habitat for any indigenous fauna. This is largely based upon the proximity of the proposed clearing area to existing mining operations, presence of feral pigs, modified drainage and weed species.

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

Methodology
Bamford Consulting Ecologists (2005).
Bamford Consulting Ecologists (2006).
Bamford Consulting Ecologists (2008).
Bancroft et al. (2007).
Griffin Coal (2008a).
HGM (2002).

(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) within the proposed clearing area (GIS Database). HGM (2002) and Bennett Environmental Consulting Pty Ltd (2008a) conducted flora and vegetation surveys covering the Chicken Creek Area 3 and did not record any DRF species. It is acknowledged that approximately 11.4 hectares (one third of the area applied to clear) consists of rehabilitated native vegetation on the Muja East waste dump which has not been subject to flora and vegetation surveys. However, it is considered unlikely that this area would support DRF, given the lack of DRF in the surrounding area.

Two Priority Flora species were recorded in the proposed clearing area by Bennett Environmental Consulting Pty Ltd (2008a):

1. *Synaphea petiolaris subsp. simplex* (P2)
2. *Acacia semitrullata* (P3)

The Assessing Officer, DMP, requested that the proponent provide further information on Priority Flora in order to quantify the impacts of this clearing proposal. In response, the proponent commissioned Bennett Environmental Consulting Pty Ltd to undertake a count of Priority Flora individuals in the proposed clearing area. This was undertaken on 19 November 2008.

Approximately 33 plants of *Synaphea petiolaris subsp. simplex* will be cleared should a clearing permit be granted. However, many hundreds of individuals of this species were recorded on the eastern side of the old Centaur railway easement in September 2008, and a further 20 plants were recorded further north along Centaur road. The 33 plants proposed for clearing represent a small percentage of those recorded from the proponent's lease area previously (Bennett Environmental Consulting Pty Ltd, 2008b).

Three individuals of *Acacia semitrullata* were recorded in the proposed clearing area during Bennett Environmental Consulting's 2005 survey, however no plants were recorded during the search undertaken on 19 November 2008. More than 50 plants of this taxon were recorded in the surrounding remnant native vegetation to the north of the proposed clearing area, however these plants will not be directly impacted (Bennett Environmental Consulting Pty Ltd, 2008b).

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

Methodology
Bennett Environmental Consulting Pty Ltd (2008a).
Bennett Environmental Consulting Pty Ltd (2008b).
HGM (2002).
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

According to available databases, there are no known Threatened Ecological Communities (TEC's) within the proposed clearing area (GIS Database). The nearest known TEC is located approximately 52.5 kilometres

west/north-west of the proposed clearing area (GIS Database).

HGM (2002) undertook a flora and vegetation survey of parts of the proposed clearing area and adjoining areas in October 2000. Three vegetation communities were recorded, all of which are typical of the Collie and Muja Regional Vegetation Complexes, as described by Heddle et al (1980), cited in HGM (2002). No Threatened Ecological Communities were recorded.

Bennett Environmental Consulting Pty Ltd (2008a) did not record any TEC's in the proposed clearing area during a flora and vegetation survey of the Muja South area.

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

Methodology Bennett Environmental Consulting Pty Ltd (2008a).
HGM (2002).
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 at variance to this Principle**
The area applied to clear is within the Interim Biogeographic Regionalisation for Australia (IBRA) Jarrah Forest bioregion (GIS Database). According to Shepherd et al (2001) there is approximately 53.8% of the pre-European vegetation remaining in the Jarrah Forest bioregion. At the subregional level, there is approximately 50.2% of the pre-European vegetation remaining in the Southern Jarrah Forest subregion.

The vegetation of the application area is classified as Beard Vegetation Association 3: Medium forest; Jarrah-Marri and Beard Vegetation Association 1114: Shrublands tree-heath; Paperbark over Teatree thickets. There is approximately 61.6% and 50.3% of the pre-European vegetation remaining of Beard Vegetation Associations 3 and 1114 in the Southern Jarrah Forest subregion respectively (Shepherd et al, 2001). Approximately 30.3% and 14.2% of the current extent of Beard Vegetation Associations 3 and 1114 are represented in conservation reserves respectively (Shepherd et al, 2001). The proposed clearing will not reduce the extent of Beard Vegetation Associations 3 or 1114 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 – Southern Jarrah Forest	2,607,875	1,308,940	~50.2	Least concern	16.9 (32.9)
Shire of Collie	172,072	161,845	~94.1	Least concern	
Beard veg assoc. – State					
3	2,661,515	1,863,983	~70.0	Least concern	18.4 (26.2)
1114	19,837	13,488	~68.0	Least concern	20.2 (29.1)
Beard veg assoc. – Subregion					
3	1,482,495	913,331	~61.6	Least concern	18.8 (30.3)
1114	10,002	5,028	~50.3	Least concern	7.5 (14.2)

* 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 at variance to this Principle.

Methodology Department of Natural Resources and Environment (2002).
Shepherd et al (2001).
GIS Databases:
- Interim Biogeographic Regionalisation of Australia.
- Pre-European Vegetation.

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Comments

Proposal is at variance to this Principle

The Assessing Officer, DMP, visited the Muja Coal Mine on 29 October 2008 and noted that parts of the proposed clearing area consist of seasonally wet depressions and swampland either side of Centaur Road. This is characteristic of the Chicken Creek and Buckingham areas which support a network of low-lying swamplands that are inundated on a seasonal basis (HGM, 2002).

To the west of Centaur Road, a seasonal dampland area abuts the Muja East waste dump to the west, the existing Chicken Creek Area 3 open cut pit to the south and Centaur Road to the east. The area is characterised by:

An open low woodland of *Melaleuca preissiana* and *Nuytsia floribunda* over a low scrub of *Astartea scoparia* or dwarf scrub of *Hypocalymma angustifolium* over open low sedges dominated by *Hypolaena exsulca* over herbs dominated by *Hypochaeris glabra**; and

A low woodland of *Melaleuca preissiana* over thicket of *Astartea scoparia* (Bennett Environmental Consulting Pty Ltd , 2008a).

The vegetation condition of the area was rated as 'degraded' to 'good' by Bennett Environmental Consulting Pty Ltd (2008a), with dense infestations of Watsonia (*Watsonia meriana subsp. bulbillifera**) noted along the road verge. In addition, evidence of historical logging, fire and heavy grazing by kangaroos were noted as disturbance factors (Bennett Environmental Consulting Pty Ltd, 2008a). Griffin Coal environmental personnel and the Assessing Officer, DMP, also noted evidence of feral pigs in the area during a visit to the site. A white silt material was noted on the ground in this area, to the extent that it was impossible to see the natural earth. This material was most likely deposited from eroding material off the adjacent Muja East waste dump. During a follow-up survey in October 2006, Bennett Environmental Consulting Pty Ltd (2008a) noted that the white material had dried out and cracked. No annual taxa, including weeds, were recorded in this material.

To the east of Centaur Road another wetland environment exists which is characterised by Scrub of *Hakea linearis* over low heath of *Astartea scoparia* and *Melaleuca pauciflora* over very open low sedges (Bennett Environmental Consulting Pty Ltd, 2008a). During a site visit, the Assessing Officer, DMP, noted standing water in a 'man made' drain in this area. Dense infestations of the weed species *Typha orientalis** were noted in the drain. Other disturbance in the form of various weed species and historical tracks were noted. The vegetation proposed for clearing on the eastern side of Centaur Road abuts the disused Centaur Longpool pit.

Given the presence of wetland environments within the proposed clearing area, the proposed clearing is at variance to this Principle.

However, it is noted that the wetland environments subject to this clearing permit application have been modified by past and present mining activities and are subject to varying levels of degradation. Wetlands within the proposed clearing area are not likely to be of any greater significance than other wetlands in the wider Muja South area as described by Bennett Environmental Consulting Pty Ltd (2008a).

* = introduced flora species

Methodology

Bennett Environmental Consulting Pty Ltd (2008a).
HGM (2002).

(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 Collie Coal Basin, some 200 kilometres south of Perth (HGM, 2002). The Chicken Creek Area 3 occurs on the Cardiff landform unit and is characterised by broad, shallow swampy depressions dominated by grey sands. Soils are typically well drained, chemically infertile and have poor water and nutrient holding capacities (HGM, 1991; cited in HGM, 2002).

It is acknowledged that approximately two thirds of the proposed clearing is for the purposes of expanding an open pit mining operation, and that the natural land surface and topography will be fundamentally altered as mining follows vegetation clearing. Prior to mining, topsoil will be stripped and stockpiled for use in rehabilitation. Topsoil is a vital resource in that it contains an abundance of micro-organisms, native vegetation seeds and organic matter which will facilitate natural regeneration of rehabilitated areas. It is important that topsoil is stripped soon after vegetation clearing to minimise the risk of topsoil being blown away. Equally important are the topsoil handling and storage techniques. Topsoil stripped from areas known to be free from Phytophthora fungal disease should be stockpiled separately to topsoil known to be infected or topsoil unable to be interpreted for *Phytophthora*.

The 11.4 hectares of rehabilitated native vegetation on the Muja East Waste Dump is providing an important soil stabilisation role and should not be cleared until remedial earthworks and re-shaping of the Muja East Waste Dump is imminent.

Provided that the proponent retains topsoil and implements appropriate topsoil storage and handling techniques, it is unlikely that the proposed vegetation 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 HGM (2002).

(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 proposed clearing area is located in the Muja State Forest (GIS Database). This state forest is managed for multiple purposes, including conservation. No other conservation areas are located in close proximity to the proposed clearing area.

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

The *Collie Coal (Griffin) Agreement Act 1979* (WA) permits Griffin Coal entry into State Forest for the purposes of exploration, clearing of timber and undergrowth, and mining. It is standard procedure for the Forest Products Commission (FPC) to be notified by Griffin Coal for all clearing in State Forest. FPC is responsible for deciding whether any timber will be salvaged following clearing operations (Griffin Coal, 2008). FPC inspected the Chicken Creek Area 3 proposed clearing area on 16 January 2009 and deemed that no salvageable timber was present in the area (Griffin Coal, 2008).

Should a clearing permit be granted, appropriate hygiene conditions should be imposed to ensure that the proposed clearing does not spread and/or introduce dieback and weed species to other areas of native vegetation in the State Forest.

Methodology Griffin Coal (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**
Approximately one third of the proposed clearing consists of rehabilitated native vegetation on top of the Muja East waste dump. The vegetation is providing a soil stabilisation role, and is most likely minimising sediment transportation off the top of the dump and into the surrounding environment during rainfall events. The vegetation is proposed for clearing to allow the Muja East dump to be re-contoured and rehabilitated to meet best practice environmental standards. Clearing this vegetation is unlikely to significantly impact upon the quality of surface water onsite or offsite.

The remainder of the proposed clearing area consists of low-lying seasonal wetlands immediately adjacent to mining landforms such as the Muja East waste dump, Buck's Pit, and the Centaur Longpool Pit. Narrow, linear strips of vegetation either side of Centaur Road are also proposed for clearing. Should a clearing permit be granted, these areas will be engulfed by the expansion of Buck's Pit. Centaur Road will need to be re-aligned (subject to necessary approvals) as this too will be engulfed by the proposed pit expansion. Surface water features such as seasonal wetlands will cease to exist in the proposed clearing area, should a permit be granted.

Chicken Creek has already been modified by historical mining operations, with a 'man made' drain constructed to the east of the Centaur Longpool Pit, adjacent to the disused railway easement. Bennett Environmental Consulting Pty Ltd (2008a) noted that this drain remains inundated even when the surrounding area is dry. Any surface water flowing into Buck's Pit (and groundwater encountered during mining) will be pumped out and placed into the disused Centaur Longpool (Environmental Manager - Griffin Coal, pers comm. 21/01/09).

The proposed clearing area is located within Zone D of the Wellington Dam Catchment, a Public Drinking Water Source Area (PDWSA), gazetted under the *Country Areas Water Supply Act 1947* (GIS Database). Zone D is a low salinity risk part of the catchment where Department of Water (DoW) Policy and Guidelines provide for the unconditional (apart from notice of clearing works commencement) grant of a licence to clear indigenous vegetation under Part IIA of the *Country Areas Water Supply Act 1947* (DoW, 2008).

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

Methodology Bennett Environmental Consulting Pty Ltd (2008a).
DoW (2008).
GIS Database:
- CAWSA Part IIA Clearing Control Catchments (Zone).
- 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

Approximately one third of the area applied to clear consists of rehabilitated native vegetation on top of the Muja East waste dump. This vegetation is proposed for clearing in several years time when rehabilitation works are undertaken on the Muja East waste dump. Currently, the slopes of this dump stand at their natural angle of repose and are highly eroded. Clearing of vegetation to allow remediation works to be undertaken on the Muja East waste dump is not likely to pose a flooding risk.

The remainder of the proposed vegetation clearing is in low-lying areas that are seasonally inundated. Bennett Environmental Consulting (2008a) had difficulty in conducting a flora and vegetation survey in areas either side of Centaur Road in September 2005, following heavy winter rainfall. All low-lying areas were flooded and drains and creeks in the area were swollen (Environ Australia Pty Ltd, 2008). During a visit to the Muja Coal Mine on 29 October 2008 the Assessing Officer, DMP, noted that the Centaur Long Pool (an abandoned open cut pit located immediately east of the proposed clearing area) was full of water as a result of surface water run-off. The proposed clearing area is subject to seasonal inundation, however should a clearing permit be granted, it is necessary to consider that the area will be an operating open cut pit for the purposes of mining. The proponent will implement appropriate surface water management strategies to ensure that the open pit does not flood. Surface water flows will be diverted to the east of the open cut pit (HGM, 2002).

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

Methodology

Bennett Environmental Consulting Pty Ltd (2008a).
Environ Australia Pty Ltd (2008).
HGM (2002).

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

Comments

There is one native title claim over the area under application (GIS Database). This claim (WC98-058) has been registered with the National Native Title Tribunal on behalf of the claimant group (GIS Database). However, the mining tenements have been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

According to available databases, there are four registered sites of Aboriginal Significance on the Department of Indigenous Affairs Interim Register within the proposed clearing area (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.

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.

A proposal to mine the Chicken Creek Area 3 deposit was lodged with the Minister for State Development in 2002, pursuant to Clause 10 of the *Collie Coal (Griffin) Agreement Act 1979*. The proposal was referred to the Environmental Protection Authority (EPA) pursuant to Part IV (Section 38) of the *Environmental Protection Act 1986* (Griffin Coal, 2008). On 19 August 2002, the EPA set the level of assessment on the Chicken Creek Area 3 proposal as “Not Assessed – Public Advice Given and Managed under Part V of the EP Act”. This level of assessment included the expectation that the Collie Coal Mines Environment Committee (CCMEC) would ensure that Griffin Coal implements the proposed development in line with its project commitments. In November 2002, the Minister for State Development granted Griffin Coal conditional approval to mine the Chicken Creek Area 3 deposit. Pursuant to Clause 8 (c) of the Agreement Act, Griffin Coal must implement its proposal and project commitments as outlined in the March (2002) and July (2002) (Addendum) proposal documents, and document the development and rehabilitation of the Chicken Creek Area 3 deposit via its annual environmental reporting process (Griffin Coal, 2008).

Methodology

Griffin Coal (2008).
GIS Databases:
- Aboriginal Sites of Significance.
- Native Title Claims.

4. Assessor’s comments

Comment

The proposal has been assessed against the Clearing Principles, and the proposed clearing is at variance to Principle (f), may be at variance to Principle (h), is not likely to be at variance to Principles (a), (b), (c), (d), (g), (i) or (j) and is not at variance to Principle (e).

Should a clearing permit be granted, it is recommended that conditions be imposed on the permit for the purposes of dieback and weed control, record keeping and permit reporting.

5. References

Bamford Consulting Ecologists (2005) Boyup Basin and Buckingham Fauna Assessment (desktop). Unpublished report for Kellogg Brown and Root Pty Ltd (KBR).

Bamford Consulting Ecologists (2006) Fauna survey of Griffin Coal's Ewington II and Buckingham sites, January 2006. Unpublished report for the Griffin Group.

Bamford Consulting Ecologists (2008) Inspection of Griffin Coal's proposed Ewington and Chicken Creek Area 3 clearing zones for Black-Cockatoo nesting activity, October 2008.

Bancroft, W., Metcalf, B. and Bamford, M. (2007) Fauna values of Griffin Coal's proposed Ewington Conveyor Alignment, report prepared for the Griffin Group, Kingsley, Western Australia.

Bennett Environmental Consulting Pty Ltd (2008) Flora and Vegetation of proposed development at Griffin Coal Mine: Muja South, Collie. Prepared for: The Griffin Group. August 2008.

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

DoW (2008) Advice to Assessing Officer, Native Vegetation Assessment Branch, Department of Mines and Petroleum (DMP), 14 October 2008. Department of Water, Western Australia.

Environ Australia Pty Ltd (2008) Briefing Note: Vegetation Information to support Clearing Permit application for Chicken Creek 3. 23 October 2008.

Griffin Coal (2008a) Ewington Mining Operations - Environmental Management Programme: Fauna Management Plan. July 2008.

Griffin Coal (2008b) Email advice from Environment Manager, Griffin Coal, to the Assessing Officer, DMP, in support of clearing permit application CPS 2748/1. Advice received: 3 December 2008, 21 January 2009.

HGM (2002) The Griffin Coal Mining Company Pty Ltd - Chicken Creek Area 3 Open-cut Mine: Additional Proposal under Clause 10 of the Collie Coal (Griffin) Agreement Act 1979. March 2002.

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., 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.
DMP	Department of Mines and Petroleum, Western Australia.
DoE	Department of Environment, 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.