



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4089/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Gilt-Edged Mining NL

1.3. Property details

Property: Mining Lease 16/309
Mining Lease 15/669
Miscellaneous Licence 16/28
Local Government Area: Shire of Coolgardie
Colloquial name: Hornet Project

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 13 January 2011

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description Beard vegetation associations have been mapped at a 1:250,000 scale for the whole of Western Australia. Three Beard vegetation associations have been mapped within the application area (GIS Database; Shepherd, 2007):

- 125:** Bare areas; salt lakes;
- 268:** Medium woodland; salmon gum & goldfields blackbutt; and
- 540:** Succulent steppe with open low woodland: sheoak over saltbush.

Botanica Consulting (2010a) conducted a flora survey of the application area and surrounding region on 15 September 2010, and described the vegetation types of the application area as follows;

Casuarina tall shrubland - Upper-storey dominated by *Casuarina pauper*. The mid-storey includes *Acacia* sp. narrow phyllode, *Eremophila scoparia*, *Eremophila decipiens*, *Exocarpos aphyllus*, *Scaevola spinescens*, *Santalum acuminatum*, *Dodonaea lobulata*, *Lycium australe*, *Halgania andromedifolia*, *Eremophila scoparia*, and *Senna artemisioides* supsp. *filifolia*. The lower-storey includes *Olearia muelleri*, *Maireana triptera*, *Maireana georgei*, *Sclerolaena diacantha*, *Rhagodia drummondii*, *Maireana tomentose*, *Atriplex nummularia*, *Dianella revolute*, *Acacia colletiodes* and *Cratystylis microcephala*;

Rehabilitation/Chenopod shrubland - Upper-storey dominated by *Senna artemisioides* supsp. *filifolia*, *Eremophila scoparia*, *Eremophila decipiens* and *Exocarpos aphyllus*. The lower-storey includes *Maireana triptera*, *Maireana georgei*, *Sclerolaena diacantha*, *Rhagodia drummondii*, *Maireana tomentose*, *Atriplex vesicaria*, *Atriplex nummularia*, *Maireana pentatropis* and *Acacia hemiteles*;

Mixed Eucalyptus woodland - Upper-storey dominated by *Eucalyptus oleosa* supsp. *oleosa*, *Eucalyptus gracilis*, *Eucalyptus transcontinentalis*, *Eucalyptus celastroides*, *Casuarina pauper*, *Eucalyptus salubris*, *Eucalyptus salmonophloia*, *Eucalyptus clelandii* and *Eucalyptus oleosa*. The mid-storey includes *Eremophila clarkii*, *Eremophila oldfieldii* supsp. *angustifolia*, *Alyxia buxifolia*, *Senna artemisioides* supsp. *filifolia*, *Acacia* sp. narrow phyllode, *Scaevola spinescens*, *Eremophila scoparia*, *Eremophila decipiens*, *Eremophila ionantha*, *Exocarpos aphyllus* and *Santalum acuminatum*. The lower-storey includes *Ptilotus obovatus*, *Olearia muelleri*, *Olearia pimeleoides*, *Cratystylis conocephala*, *Maireana triptera*, *Maireana georgei*, *Sclerolaena diacantha*, *Atriplex vesicaria*, *Atriplex stipitata*, *Enchylaena tomentose*, *Maireana sedifolia*, *Sclerolaena eurotioides*, *Maireana pentatropis*, *Acacia hemiteles*, *Solanum lasiophyllum*, *Cratystylis microcephala*, *Eremophila clarkii*, *Eremophila parvifolia* subsp. *parvifolia* and *Acacia colletioides*;

Samphire vegetation - Mid-storey includes *Dodonaea lobulata* and *Maireana pyramidata*. The lower-storey includes *Sclerolaena diacantha*, *Tecticornia indica* subsp. *indica* and *Disphyma crassifolium*;

Melaleuca thicket - Upper-storey dominated by *Melaleuca lateriflora* subsp. *lateriflora*, and *Melaleuca aff. pauperiflora* subsp. *pauperiflora*. The mid-storey includes *Senna artemisioides* subsp. *filifolia*, *Eremophila scoparia*, *Eremophila decipiens*, *Exocarpos aphyllus* and *Eremophila oldfieldii* subsp. *angustifolia*. The

lower-storey includes *Ptilotus obovatus*, *Olearia muelleri*, *Maireana triptera*, *Maireana georgei*, *Sclerolaena diacantha*, *Rhagodia drummondii*, *Maireana pentatropis*, *Acacia colletioides* and *Olearia dampieri*;

***Eucalyptus clelandii* woodland** - Upper-storey dominated by *Eucalyptus clelandii*. The mid-storey includes *Scaevola spinescens*, *Eremophila scoparia* and *Exocarpos aphyllus*. The lower-storey includes *Olearia muelleri*, *Cratystylis conocephala*, *Maireana tomentosa*, *Acacia hemiteles*, *Cratystylis microphylla* and *Zygophyllum glaucum*;

***Eucalyptus clelandii* thicket** - Upper-storey dominated by *Eucalyptus clelandii*. The mid-storey includes *Scaevola spinescens*, *Eremophila scoparia*, *Eremophila decipiens* and *Exocarpos aphyllus*. The lower-storey species includes *Ptilotus obovatus*, *Olearia muelleri*, *Maireana triptera*, *Sclerolaena diacantha*, *Rhagodia drummondii* and *Acacia hemiteles* (Botanica Consulting, 2010a).

Clearing Description	<p>Gilt-Edged Mining is proposing to clear up to 70 hectares of native vegetation within a 96.05 hectare application area, for the Hornet Project (Cardno, 2010). The clearing of vegetation is required to establish the structural and operational requirements of the Project such as the ROM pad, waste dump area, pit, and pipeline infrastructure and support facilities.</p> <p>The vegetation will be cleared using a dozer with vegetation stockpiled for use in rehabilitation.</p>
Vegetation Condition	<p>Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994); to</p> <p>Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994).</p>
Comment	<p>The application area is located in the Eastern Goldfield subregion of Western Australia and is situated approximately 19 kilometres west of Kalgoorlie (GIS Database).</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	<p>Proposal is not likely to be at variance to this Principle</p> <p>The application area occurs within the Eastern Goldfields subregion of the Coolgardie Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This subregion is characterised by gently undulating plains interrupted in the west with low hills and a series of large playa lakes in the western half (CALM, 2002). The vegetation is dominated by Mallees, <i>Acacia</i> thickets and shrub-heaths on sandplains, diverse <i>Eucalyptus</i> woodlands occur around salt lakes, on ranges, and in valets, and dwarf shrublands of samphire around salt lakes (CALM, 2002).</p> <p>The vegetation within the application area consists of Beard vegetation associations 125, 468 and 540, which are common and widespread throughout the Coolgardie bioregion, with approximately 100% of the pre-European vegetation extent remaining (Shepherd, 2007; GIS Database). A vegetation survey of the application area and surrounding vegetation identified 57 species of native flora belonging to 30 Genera and 18 Families (Botanica Consulting, 2010a). No Declared Rare Flora (DRF) or Priority flora species were found. A search on the Department of Environment and Conservation Declared Rare and Priority Flora databases revealed that one Priority 1 species (<i>Gnephosis intonsa</i>) may potentially occur in the application area (Botanica Consulting, 2010a).</p> <p>Seven vegetation types as described by Botanica Consulting (2010a) were identified within the application area. The vegetation condition of six vegetation types were classed as 'good' (<i>Casuarina</i> tall shrubland, Mixed <i>Eucalyptus</i> Woodland, <i>Melaleuca</i> thicket, Samphire Vegetation, <i>Eucalyptus clelandii</i> Woodland and <i>Eucalyptus clelandii</i> thicket) and one vegetation type was classed as 'degraded' (Rehabilitation/chenopod shrubland). No Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) were recorded or identified within the application area (GIS Database).</p> <p>Botanica Consulting (2010a) found three weed species within the application area. These were: <i>Atriplex lentiformis</i> (Quailbrush), <i>Nicotiana glauca</i> (Tree tobacco) and <i>Cucumis myriocarpus</i> (Paddy melon). None of these species are listed as a 'Declared Plant' species under the <i>Agriculture and Related Resources Protection Act 1976</i> by the Department of Agriculture and Food (DAFWA). Weeds have the potential to significantly change the dynamics of a natural ecosystem and lower the biodiversity of an area. Potential impacts to the biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.</p> <p>Nine broad habitat types were recorded as occurring within the application area (Botanica Consulting, 2010b). The broad habitats are common and widespread within the subregion and faunal assemblages are unlikely to be different to that found in similar habitat located elsewhere in the region (Botanica Consulting, 2010b). The habitat types are not of high ecological significance and the clearing of 70 hectares of native vegetation is unlikely to have a significant impact in a regional context.</p> <p>Based on the above, the proposed clearing is not likely to be at variance to this Principle.</p>
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Methodology Botanica Consulting (2010a)

Botanica Consulting (2010b)
CALM (2002)
Shepherd (2007)
GIS Database:
- IBRA WA (Regions - Subregions)
- Pre-European vegetation
- Threatened Ecological Sites Buffered

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

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

Botanica Consulting (2010b) conducted a level one fauna survey of the application area and surrounding areas on 15 September 2010. From the fauna survey, Botanica Consulting (2010b) recorded 26 native fauna species, and one introduced species. Of these species three were reptiles, 21 were birds, and three were non-volant mammals. No fauna species of conservation significance were positively identified during the fauna survey within the application area (Botanica Consulting, 2010b; Atlas of Living Australia, 2010).

There were nine broad habitat types occurring within the survey area as recorded by Botanica Consulting (2010b);

1. Mixed *Eucalyptus* woodland;
2. *Eucalyptus clelandii* woodland;
3. *Eucalyptus clelandii* thicket;
4. *Melaleuca* thicket;
5. Samphire vegetation;
6. *Casuarina* tall shrubland;
7. Rehabilitation/Chenopod shrubland;
8. Salt Lake; and
9. Existing Mine Disturbed Areas

Any vertebrate fauna assemblages that are likely to be recorded within the application area are likely to be similar to those found in neighbouring areas due to the availability of fauna habitats in the surrounding areas (Botanica Consulting, 2010b). The habitats recorded during the survey are considered typical to those found in the Eastern Goldfields subregion (Botanica Consulting, 2010b; GIS Database). The application area does not contain habitats of high ecological significance or contain faunal assemblages that are ecologically significant, and no species of conservation significance has the potential to be directly affected by a significant degree by the clearing of native vegetation in the application area. The proposed clearing is not likely to significantly impact important habitat for endemic fauna.

There is approximately 100% of the pre-European vegetation remaining within the Coolgardie bioregion (Shepherd, 2007; GIS Database). Given the extent of the native vegetation remaining in the local area and bioregion, the vegetation to be cleared does not represent a significant ecological link.

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

Methodology Atlas of Living Australia (2010)
Botanica Consulting (2010b)
Shepherd (2007)
GIS Database:
- Kalgoorlie 50cm Orthomosaic - Landgate 2006
- Pre-European Vegetation

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

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

Searches made on the available GIS Database reveal that there are no known records of Declared Rare Flora (DRF) existing in the application area (GIS Database).

Biota Environmental Sciences conducted a vegetation and flora survey of the application area and surrounding regions on 15 September 2010 (Botanica Consulting, 2010a). No DRF were recorded within the survey area.

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

Methodology Botanica Consulting (2010a)
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 at variance to this Principle

A search of the available databases shows that there are no Threatened Ecological Communities (TEC's) within 100 kilometres of the application area (GIS Database). It is unlikely the proposed clearing will impact on a TEC.

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

Methodology GIS Database:
- Threatened Ecological Sites Buffered

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

Comments Proposal is not at variance to this Principle

The application area falls within the Coolgardie Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). Beard vegetation associations 125, 468 and 540 retain approximately 100% of their pre-European extent, respectively which is more than the 30% threshold level recommended in the National Objectives Targets for Biodiversity Conservation below which species loss appears to accelerate exponentially at an ecosystem level (EPA, 2000). The vegetation within the application area is recorded as Beard vegetation associations:

- **Beard vegetation association 125:** Bare areas; salt lakes;
- **Beard vegetation association 468:** Medium woodland; salmon gum and goldfields blackbutt; and
- **Beard vegetation association 540:** Succulent steppe with open low woodland; sheoak over saltbush (GIS Database; Shepherd, 2007).

According to Shepherd (2007) approximately 100% of Beard vegetation associations 125, and 468 and 540, respectively, remain within the Coolgardie bioregion (see table below).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion - Coolgardie	1,202,941	1,199,776	99.74	Least Concern	4.09
Beard vegetation associations - State					
125	3,489,858	3,246,667	93	Least Concern	7.2
468	592,022	592,022	100	Least Concern	4.3
540	202,424	202,242	100	Least Concern	27.8
Beard vegetation associations - Bioregion					
125	543,774	540,608	99.4	Least Concern	4.5
468	583,358	583,358	100	Least Concern	4.3
540	75,810	75,810	100	Least Concern	-

* Shepherd (2007)

** Department of Natural Resources and Environment (2002)

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

Methodology Department of Natural Resources and Environment (2002)
EPA (2000)
Shepherd (2007)
GIS Database:
- IBRA WA (Regions - Subregions)
- Pre-european vegetation

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

Comments Proposal is at variance to this Principle

The application area encroaches on the north-west portion of Lake Kopai (GIS Database). Lake Kopai is a small ephemeral salt lake consisting of two adjoining claypans connected by culverts below a site access road, and was found by Botanica Consulting (2010a) to be characterised by samphire flats, open woodlands, shallow channels and exposed bays. Both the upland vegetation and Lake Kopai show signs of disturbance from exploration and recreational activities (Outback Ecology, 2003).

Based on vegetation mapping by Botanica Consulting (2010a) two of the seven vegetation associations found within the application area are associated with the salt lake;

Samphire vegetation - Mid-storey of *Dodonaea lobulata* and *Maireana pyramidata*. The lower-storey species includes *Sclerolaena diacantha*, *Tecticornia indica* subsp. *indica* and *Disphyma crassifolium*; and

Melaleuca thicket - Upper-storey of *Melaleuca lateriflora* supsp. *lateriflora* and *Melaleuca aff. pauperiflora* subsp. *pauperiflora*. Mid-storey species includes *Senna artemisioides* subsp. *filifolia*, *Eremophila scoparia*, *Eremophila decipiens*, *Exocarpos aphyllus* and *Eremophila oldfieldii* supsp. *angustifolia*. The lower-storey includes *Ptilotus obovatus*, *Olearia muelleri*, *Maireana triptera*, *Maireana georgei*, *Sclerolaena diacantha*, *Rhagodia drummondii*, *Maireana pentatropis*, *Acacia colletioides* and *Olearia dampieri* (Botanica Consulting, 2010a).

Both the samphire vegetation and Melaleuca thicket sparsely line Lake Kopai in the application area and have been classed as 'good' health condition (Keighery, 1994). The vegetation within the application area is likely to be disturbed due to the open pit or associated infrastructure. The highest abundance of fringing flora is located on the eastern side of the lake, which will not be impacted by the Hornet Project (Outback Ecology, 2003).

Based on the above, the proposed clearing is at variance to this Principle. The proposed clearing however, is not likely to significantly impact on the conservation of vegetation growing in association with permanent watercourses or wetlands due to the absence of these features within the application area and Lake Kopai is an ephemeral lake. The proposed clearing of native vegetation is unlikely to significantly impact on vegetation communities growing in association with the salt lake, as they are well represented throughout the bioregion (Botanica Consulting, 2010a).

Methodology Botanica Consulting (2010a)
Keighery (1994)
Outback Ecology (2003)
GIS Database:
- Geodata, Lakes
- Hydrography, Linear

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

Comments Proposal is not at variance to this Principle

The application area lies within the Coolgardie bioregion (GIS Database), on Yilgarn Craton's 'Eastern Goldfields Terrains' (CALM, 2002). Landforms of the Coolgardie bioregion include granite rocky outcrops, low greenstone hills, laterite uplands and broad plains (Bastin, G., and the ACRIS Management Committee, 2008). A series of large playa lakes in the western half are the remnants of an ancient major drainage line. The vegetation is of Mallees, Acacia thickets and shrub-heaths on sandplains. Diverse *Eucalyptus* woodlands occur around salt lakes, on ranges, and in valleys, and salt lakes support dwarf shrublands of samphire (CALM, 2002). Over-grazing by stock and rabbits is the major cause of land degradation and the Eastern Goldfields subregion is not likely to be susceptible to erosion (Morton, Short, Barker & 1995).

The clearing of vegetation is unlikely to cause significant land degradation due to the isolated nature of the project and the minimal vegetation requiring clearing.

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

Methodology Bastin, G., and the ACRIS Management Committee (2008)
CALM (2002)
Morton, Short & Baker (1995)
GIS Database:
- IBRA WA (Regions - Subregions)

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

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

The proposed application area is not located within any conservation areas (GIS Database). The nearest conservation area is Kurrawang Nature Reserve, located approximately 11 kilometres south-east of the application area (GIS Database). At this distance, the proposed clearing is unlikely to impact on the environmental values of the Kurrawang Nature Reserve.

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

Methodology GIS Database:
- DEC Tenure

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

Comments Proposal may be at variance to this Principle

The available databases show that the application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). There are no permanent watercourses or water bodies within the application area (Bastin, G., and the ACRIS Management Committee, 2008; GIS Database).

The application area experiences a semi-arid climate with hot summers and mild wet winters (Bastin et al., 2008). The application area receives an average annual rainfall of 200-300 millimetres/year with an average annual pan evaporation rate of 2,400-2,800 millimetres/year (BoM, 2010). As the annual evaporation rate exceeds the annual rainfall, any surface water resulting from rain events is expected to be short-lived and evaporate or be utilised by vegetation quickly (Bastin et al., 2008). The proposed clearing is not likely to cause the quality of surface water to deteriorate.

The application area has saline (5,000-35,000 milligrams/Litre Total Dissolved Solids (TDS)) to hypersaline (greater than 35,000 milligrams/Litre TDS up to 300,000 milligrams/Litre TDS) groundwater from palaeochannels or bedrock aquifers (Outback Ecology, 2003; GIS Database). Groundwater is generally more hypersaline near salt lakes such as the Lake Kopai, where the application area overlaps the edge of this ephemeral salt lake (DoF, 2010; GIS Database). This saline or hypersaline groundwater is generally utilised by the mining industry (DoF, 2010). Due to the variation in groundwater salinity, the proposed clearing is not likely to cause salinity levels within the application area to alter significantly.

Clearing of native vegetation for a waste dump and bund walls may be an issue to the surface and groundwater quality of the application area due to seepage. Gilt-Edged Mining have stated that Potentially Acid Forming (PAF) waste will be taken to the Run of Mine (ROM) pad, therefore lowering the risk of hostile seepages from either the landform or bund to Lake Kopai (Outback Ecology, 2003). As the application area is in a flood-prone area adjacent to Kopai Lake, the proposed bunding of the landform and pit is designed to withstand a one in 100 year rainfall event, which should provide adequate protection from surface water flow that may be contaminated by hazardous materials from the Hornet landform, bund or pit (Outback Ecology, 2003).

Groundwater in the application area is of 10-20 metres below surface prior to mining commencement (Cardno, 2010). The maximum depth of the Hornet's open pit is 100 metres below surface in the final second stage of mining (Aquaterra, 2003). Dewatering during stage one of the Hornet Project will drop groundwater levels between two and 10 metres within a two kilometre radius of the Hornet pit. Dewatering during stage two of the Hornet Project will drop groundwater levels between two and 25 metres within a four kilometre radius of the Hornet pit (Outback Ecology, 2003). The total volume of dewatering is expected to be approximately two gigalitres (Aquaterra, 2003). The flora survey provided by Botanica Consulting (2010a) did not find any phreatophytic species within the application area. Gilt-Edged Mining stated to Outback Ecology (2003) that it is unlikely that vegetation rooted within the cone of depression surrounding the pit would be subjected to water stress with the local lowering of the water table. Drawdown is most likely to only affect the saline aquifers of the transition and fractured basement rocks, rather than the fresh soil water in the unsaturated zone (Outback Ecology, 2003). The proposed clearing may cause the quality of the groundwater to deteriorate as the lake sediments become partially saturated during flood events but do not constitute a significant aquifer. There is little to no recharge of the water table by infiltration of floodwaters through the Lake sediments (Aquaterra, 2003).

The application area is within the Raeside-Ponton catchment area (GIS Database). The size of the area to be cleared (70 hectares) compared to the size of the catchment area (11,589,533 hectares) (GIS Database) is not likely to have a significant impact on the groundwater quality or quantity.

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

Methodology Aquaterra (2003)
Bastin, G., and the ACRIS Management Committee (2008)
BoM (2010)
Botanica Consulting (2010a)

Cardno (2010)
DoF (2010)
Outback Ecology (2003)
GIS Database:
- Public Drinking Water Source Areas
- Hydrographic Catchments - Catchments
- Hydrography, Linear
- Groundwater Salinity, Statewide

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

Comments Proposal may be at variance to this Principle

The application area experiences a semi-arid climate with an average annual rainfall of 200-300 millimetres/year recorded at the closest weather station at Kalgoorlie-Boulder Airport, approximately 18 kilometres away from the application area (BoM, 2010). The application area experiences a relatively high average annual evaporation rate of approximately 2,400-2,800 millimetres (BoM, 2010).

A small section in the west of the application area is prone to flooding, as well as a small floodplain that infringes onto the Lake Kopai (GIS Database). The clearing of native vegetation in the flood prone areas is unlikely to cause or exacerbate the incidence of flooding due to the sparseness of the vegetation in the area, and the small quantity of vegetation requiring removal from this area. As the annual evaporation rate exceeds the annual rainfall, any surface water resulting from rain events is expected to be short-lived (Bastin, G., and the ACRIS Management Committee, 2008). The proposed bunding of the landform and pit is designed to withstand a one in 100 year rainfall event, which should provide adequate protection from surface water flow that may be contaminated by hazardous materials from the Hornet landform, bund or pit (Outback Ecology, 2003).

The proposed clearing of 70 hectares of native vegetation represents only a very small proportion of the size of the Raeside-Ponton catchment area (11,589,533 hectares) (GIS Database). Shepherd (2007) vegetation statistics indicate that approximately 98.42% of the pre-European vegetation extent remains within the Coolgardie Interim Biogeographic Regionalisation for Australia (IBRA) region. Vegetation is considered an important ground cover as it slows surface water flows, and enables rainwater to infiltrate the soil to depths where it can be utilised by vegetation. Given that the Coolgardie bioregion remains largely uncleared, the proposed clearing is not likely to impact on the drainage characteristics of the Raeside-Ponton catchment area.

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

Methodology BoM (2010)
Bastin, G., and the ACRIS Management Committee (2008)
Outback Ecology (2003)
Shepherd (2007)
GIS Database:
- Hydrographic Catchments - Catchments
- Hydrography, Linear

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

Comments

The clearing permit application was advertised on 13 December 2010 by the Department of Mines and Petroleum inviting submissions from the public. One submission was received in relation to this application regarding Aboriginal heritage issues. A written response was provided on the matters raised.

There is one Native Title Claim (WC98/027) over the area under application (GIS Database). This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are one registered Aboriginal Sites of Significance within the application area (site ID: 18384) (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal sites of significance are damaged through the clearing process.

It is the proponent's responsibility to liaise with the Department of Environment and Conservation and the Department of Water, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

Methodology GIS Database:
- Aboriginal Sites of Significance
- Native Title Determined
- Native Title Federal

4. References

- Aquaterra (2003) Assessment of Groundwater Inflows - Hornet Pit, Prepared for Placer Dome Asia Pacific. Unpublished report dated July 2003.
- Atlas of Living Australia (2010) Interim Biogeographic Regionalisation of Australia (IBRA): Coolgardie, National Collaborative Research Infrastructure Strategy, viewed 16 December 2010, <www.ala.org.au/>.
- Bastin, G., and the ACRIS Management Committee (2008). Rangelands 2008 - Taking the Pulse; Coolgardie Bioregion. Published on behalf of the Australian Collaborative Rangeland Information System (ACRIS) Management Committee by the National Land and Water Resources Audit, Canberra.
- BoM (2010) Climate Statistics for Australian Locations. A Search for Climate Statistics for Kalgoorlie-Boulder Airport, Australian Government Bureau of Meteorology, viewed 15 December 2010, <www.bom.gov.au/climate/>.
- Botanica Consulting (2010a) Level 1 Rubicon/Hornet Spring Flora Survey, Prepared for Barrick-Kanowna Belle. Unpublished report dated September 2010.
- Botanica Consulting (2010b) Level 1 Rubicon/Hornet Terrestrial Fauna Survey, Prepared for Barrick-Kanowna Belle. Unpublished report dated October 2010.
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Coolgardie 3 (COO3 - Eastern Goldfields subregion) Department of Conservation and Land Management, Western Australia.
- Cardno (2010) Hornet Project Permit Application Supporting Documentation, Prepared for Barrick-Kanowna Belle. November 2010, 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.
- DoF (2010) Aquaculture Groundwater Resource Atlas, Goldfields, Department of Fisheries, viewed 22 November 2010, <<http://www.fish.wa.gov.au/docs/pub/AquaGroundWater/goldfields.php?00>>.
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5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
CALM	Department of Conservation and Land Management (now DEC), Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DEC), Western Australia
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
DoE	Department of Environment (now DEC), Western Australia
DoIR	Department of Industry and Resources (now DMP), Western Australia
DOLA	Department of Land Administration, Western Australia
DoW	Department of Water
EP Act	Environmental Protection Act 1986, Western Australia
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
RIWI Act	Rights in Water and Irrigation Act 1914, Western Australia
s.17	Section 17 of the Environment Protection Act 1986, Western Australia
TEC	Threatened Ecological Community

Definitions:

{Atkins, K (2005). *Declared rare and priority flora list for Western Australia, 22 February 2005. Department of Conservation and Land Management, Como, Western Australia*} :-

- P1 Priority One - Poorly Known taxa:** taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
- P2 Priority Two - Poorly Known taxa:** taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
- P3 Priority Three - Poorly Known taxa:** taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in need of further survey.
- P4 Priority Four – Rare taxa:** taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5–10 years.
- R Declared Rare Flora – Extant taxa (= Threatened Flora = Endangered + Vulnerable):** taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.
- X Declared Rare Flora - Presumed Extinct taxa:** taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

{Wildlife Conservation (Specially Protected Fauna) Notice 2005} [Wildlife Conservation Act 1950] :-

- Schedule 1 Schedule 1 – Fauna that is rare or likely to become extinct:** being fauna that is rare or likely to become extinct, are declared to be fauna that is need of special protection.
- Schedule 2 Schedule 2 – Fauna that is presumed to be extinct:** being fauna that is presumed to be extinct, are declared to be fauna that is need of special protection.
- Schedule 3 Schedule 3 – Birds protected under an international agreement:** being birds that are subject to an agreement between the governments of Australia and Japan relating to the protection of migratory birds and birds in danger of extinction, are declared to be fauna that is need of special protection.
- Schedule 4 Schedule 4 – Other specially protected fauna:** being fauna that is declared to be fauna that is in need of special protection, otherwise than for the reasons mentioned in Schedules 1, 2 or 3.

{CALM (2005). *Priority Codes for Fauna. Department of Conservation and Land Management, Como, Western Australia*} :-

- P1 Priority One: Taxa with few, poorly known populations on threatened lands:** Taxa which are known from few specimens or sight records from one or a few localities on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, active mineral leases. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P2 Priority Two: Taxa with few, poorly known populations on conservation lands:** Taxa which are known from few specimens or sight records from one or a few localities on lands not under immediate threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P3 Priority Three: Taxa with several, poorly known populations, some on conservation lands:** Taxa which are known from few specimens or sight records from several localities, some of which are on lands not under immediate threat of habitat destruction or degradation. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P4 Priority Four: Taxa in need of monitoring:** Taxa which are considered to have been adequately surveyed, or for which sufficient knowledge is available, and which are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.
- P5 Priority Five: Taxa in need of monitoring:** Taxa which are not considered threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

Categories of threatened species (Environment Protection and Biodiversity Conservation Act 1999)

- EX Extinct:** A native species for which there is no reasonable doubt that the last member of the species has died.
- EX(W) Extinct in the wild:** A native species which:
(a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past

range; or

(b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.

CR **Critically Endangered:** A native species which is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.

EN **Endangered:** A native species which:

(a) is not critically endangered; and

(b) is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.

VU **Vulnerable:** A native species which:

(a) is not critically endangered or endangered; and

(b) is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.

CD **Conservation Dependent:** A native species which is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.