



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 5987/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: BHP Billiton Iron Ore Pty Ltd

1.3. Property details

Property: Iron Ore (Hope Downs) Agreement Act 1992, Mining Lease 282SA (AM 70/282)
Iron Ore (Hamersley Range) Agreement Act 1963, Miscellaneous Licence 5SA (AL70/5)
Local Government Area: Shire of East Pilbara
Colloquial name: Central Pilbara Rail Study

1.4. Application

| Clearing Area (ha) | No. Trees | Method of Clearing | For the purpose of: |
|--------------------|-----------|--------------------|---|
| 40 | | Mechanical Removal | Geotechnical and sterilisation drilling investigations, drilling of water exploration bores, construction of water pipelines, turkey's nest, water tanks, access tracks, laydown areas and associated activities. |

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 27 March 2014

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 over the entirety of Western Australia. The following Beard vegetation association exists within the application area (GIS Database):

- 18: Low woodland; mulga (*Acacia aneura*).

A flora and vegetation survey of the application area recorded the following vegetation associations within this area (BHP Billiton, 2014):

- 1b: Hummock grassland of *Triodia longiceps* (*T. pungens*) with scattered to high open shrubland of *Acacia citrinoviridis* and *Acacia pruinocarpa* with scattered low trees of *Eucalyptus xerothermica* on red-brown clay loam in broad drainage features (Pebble Mouse Creek) and on floodplains bordering a major creek line (Weeli Wolli Creek) in the study area;
- 2a: High shrubland to low woodland of *Acacia citrinoviridis* with scattered trees of *Eucalyptus victrix* on red-brown alluvial clay in sections of the major creek lines within the study area (Pebble Mouse Creek and Weeli Wolli Creek);
- 2b: Open scrub of *Acacia pyrifolia* and *Petalostylis labicheoides* with open hummock grassland of *Triodia longiceps* (*T. wiseana* and *T. pungens*) with scattered low trees of *Eucalyptus xerothermica* on red-brown alluvial clay on a stony floodplain fringing Pebble Mouse Creek;
- 3a: Open woodland of *Eucalyptus victrix* on red-brown clay loam in the channel at the western end of a major creek line (Pebble Mouse Creek);
- 4b: Low open woodland to low woodland of *Acacia "aneura"* (*A. aptaneura* ms) and *A. pruinocarpa* with scattered to low open shrubland of *Maireana villosa* with scattered hummock grasses of *Triodia pungens* (*T. longiceps*) with scattered tussock grasses of *Chrysopogon fallax* on alluvial red-brown sandy loam on floodplains fringing the major creek line (Pebble Mouse Creek) in the western half of the study area;
- 5b: Hummock grassland of *Triodia pungens* with low open woodland of *Corymbia deserticola* subsp. *deserticola* with high open shrubland of *Acacia ancistrocarpa* on red-brown clay loam in a series of minor flow lines in the southern central section of the study area;
- 6a: Open heath of *Acacia bivenosa* with open hummock grassland of *Triodia wiseana* with scattered low trees of *Eucalyptus leucophloia* subsp. *leucophloia* on red-brown clay loam in minor flow lines at the western end of the study area;
- 6c: High shrubland of *Petalostylis labicheoides* and *Acacia pyrifolia* with low open woodland of *Eucalyptus xerothermica* with very open to open hummock grassland of *Triodia pungens* on brown clay loam in two minor creek lines at the western end of the study area;
- 6d: High shrubland of *Acacia bivenosa* over open hummock grassland of *Triodia pungens* with scattered low trees of *Eucalyptus leucophloia* subsp. *leucophloia* on red-brown clay loam in minor

flow lines in the south central section of the study area;

- 6e: High shrubland of *Acacia monticola* (*A. tumida* var. *pilbarensis*) and *Petalostylis labicheoides* over very open to open hummock grassland of *Triodia pungens* with scattered low trees or low open woodland of *Corymbia hamersleyana* on red-brown alluvial sandy loam on moderate and minor creek beds and floodplains;
- 8b: Low woodland of *Acacia "aneura"* (*Acacia aneura*) (forma), *Acacia aptaneura* and *A. catenulate* with very open hummock grassland to hummock grassland of *Triodia pungens* and *T. sp.* Shovelanna Hill (S. van Leeuwen 3835) on red brown clay loam on the plains and hilltops in the central section of the study area;
- 8c: Low open woodland to low open forest of *Acacia "aneura"* (*Acacia aptaneura*) and *A. catenulate* with scattered to open hummock grassland of *Triodia pungens* on red-brown clay loam on broad plains, particularly through the central section of the study area, but also occasionally on low stony hills;
- 9a: Very open hummock grassland to hummock grassland of *Triodia sp.* Shovelanna Hill (S. van Leeuwen 3835) with an open shrubland of *Acacia ancistrocarpa* with scattered to open mallee of *Eucalyptus gamophylla* on brown clay loam on colluvial foot slopes and low stony plains in the western two-thirds of the study area;
- 9e: Hummock grassland of *Triodia sp.* Shovelanna Hill (S. van Leeuwen 3835) with high open shrubland of *Acacia ancistrocarpa* with scattered low trees of *Corymbia deserticola* subsp. *deserticola* on red-brown clay loam on stony plains in the southern section of the study area;
- 10: Very open to open mallee of *Eucalyptus gamophylla* with an open shrubland of *Acacia ancistrocarpa* with a very open hummock grassland of *Triodia pungens* and *T. sp.* Shovelanna Hill (S. van Leeuwen 3835) on red brown silty clay on a stony plain, on foot slopes and low plains in the western half of the study area, occurring between Mulga drainage areas and the adjacent low stony hills;
- 11a: Hummock grassland of *Triodia sp.* Shovelanna Hill (S. van Leeuwen 3835) with scattered tall shrubs of *Acacia inaequilatera* with scattered low trees of *Eucalyptus leucophloia* subsp. *leucophloia* with scattered tussock grasses of *Amphipogon sericeus* on red-brown clay loam on low stony hills throughout the study area;
- 11b: Hummock grassland of *Triodia sp.* Shovelanna Hill (S. van Leeuwen 3835) with scattered tall shrubs of *Acacia inaequilatera* on red-brown clay loam on low rocky hilltops and slopes in the western section of the study area; and
- 11e: Hummock grassland of *Triodia pungens* and *T. sp.* Shovelanna Hill (S. van Leeuwen 3835) with scattered low trees of *Eucalyptus leucophloia* subsp. *leucophloia* on red-brown clay loam with ironstone scree on gently sloping stony plains, as well as on some south-facing slopes with rocky break ways in the western section of the study area.

| | |
|-----------------------------|--|
| Clearing Description | Central Pilbara Rail Study BHP Billiton Iron Ore Pty Ltd proposes to clear 40 hectares of native vegetation within a total boundary of approximately 996 hectares for the purposes of investigating a rail corridor alignment identified as part of the Central Pilbara Rail Study. The project is situated approximately 130 kilometres east south east of Tom Price in the Shire of East Pilbara. |
| Vegetation Condition | Pristine: Pristine or nearly so, no obvious signs of disturbance (Keighery 1994); to Very Good: Vegetation structure altered, obvious signs of disturbance (Keighery 1994). |
| Comment | Vegetation condition in the application area was assessed using the condition scale implemented by (Keighery 1994). |

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 application area is situated within the Hamersley subregion of the Pilbara bioregion as defined within the Interim Biogeographic Regionalisation of Australia (IBRA) (GIS Database). This subregion is described as consisting of mountainous areas of Proterozoic sedimentary ranges and plateaux, dissected by gorges (Department of Conservation and Land Management, 2002). Mulga low woodland occurs over bunch grasses on fine textured soils on valley floors, while *Eucalyptus leucophloia* occurs over *Triodia brizoides* on the skeletal soils of the ranges (Department of Conservation and Land Management, 2002).

A two-phase Level 2 flora and vegetation survey of the application area was undertaken by Biota between 2011 and 2012 (Biologic Environmental Pty Ltd, 2013). No conservation significant flora species were recorded in the application area (BHP Billiton Iron Ore Pty Ltd, 2014). However, the following conservation significant flora species have been previously recorded within the surrounding environment during past survey work undertaken in the Pilbara region (BHP Billiton Iron Ore Pty Ltd, 2014) (GIS Database):

- *Eremophila magnifica* subsp. *magnifica* (Priority 4);
- *Goodenia lyrata* (Priority 3);
- *Grevillea* sp. Turee (J. Bull & G. Hopkinson ONS JJ 01.01) (Priority 1);
- *Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (Priority 2);
- *Lepidium catapycnon* (Threatened);
- *Ptilotus mollis* (Priority 4); and
- *Spartothamnella puberula* (Priority 2).

A review of the Western Australian Herbarium database determined that none of the above species are confined to the disturbance area (Western Australian Herbarium, 2014). When the distribution of the above species is considered alongside the knowledge that no conservation significant flora species were recorded within the application area during the survey, despite above average rainfall in the Pilbara region preceding the survey phases (Biologic Environmental Pty Ltd, 2013), it is not likely the application area constitutes significant habitat for any conservation significant flora species. In addition, while occurrences of *Lepidium catapycnon* have been recorded less than a kilometre to the south of the application areas eastern extent, these recordings appear to occur on hill slope and foot slope habitats which are not present within the application area (GIS Database). Therefore, *Lepidium catapycnon* is not expected to occur within the application area.

Thirteen introduced flora species were identified within the application area; *Acetosa vesicaria*, *Bidens bipinnata*, *Cenchrus ciliaris*, *Cenchrus setiger*, *Chloris virgata*, *Datura liechhardtii*, *Flaveria trinervia*, *Malvastrum americanum*, *Portulaca oleracea*, *Setaria verticillata*, *Sigesbackia orientalis*, *Sonchus oleraceus* and *Vachellia farnesiana* (Biologic Environmental Pty Ltd, 2013). None of these taxa are listed as Declared Organisms under the Western Australian *Biosecurity and Agriculture Management Act 2007* (Department of Agriculture and Food, 2014). To minimise the impact of clearing on the areas biodiversity, a weed management condition has been placed on the permit.

Eighteen vegetation associations were identified within the application area (BHP Billiton Iron Ore Pty Ltd, 2014). The majority of the vegetation within the application area was assigned condition ratings of pristine or excellent (BHP Billiton Iron Ore Pty Ltd, 2014). However, the vegetation on the floodplains and major creek line running through the centre of the application area was assigned a condition rating of very good as a result of grazing by domestic livestock (BHP Billiton Iron Ore Pty Ltd, 2014). The vegetation communities mapped within the application area are generally considered to be widespread and representative of this part of the Hamersley Ranges (Biologic Environmental Pty Ltd, 2013). None of the vegetation communities mapped within the application area were considered to have a particularly high conservation value (Biologic Environmental Pty Ltd, 2013).

No Threatened Ecological Communities were recorded within the application area (BHP Billiton Iron Ore Pty Ltd, 2014). However, one of the Priority 1 Weeli Wollie Spring Community Priority Ecological Community (PEC) buffer zones overlaps the eastern end of the application area (BHP Billiton Iron Ore Pty Ltd, 2014). This buffer is associated with the recent extension of the PEC to include Ben's Oasis (BHP Billiton Iron Ore Pty Ltd, 2014). Ben's Oasis is situated approximately 5 kilometres to the southeast of the application area (BHP Billiton Iron Ore Pty Ltd, 2014). The other buffer for this PEC, which is associated with the mapping of the Weeli Wollie Spring, is located approximately 4 kilometres to the north east of the application area (BHP Billiton Iron Ore Pty Ltd, 2014). Consequently, no impact to the environmental values associated with the Priority 1 Weeli Wollie Spring Community PEC are expected to result from the proposed activities.

A Level 2 fauna survey of the application area recorded 124 species comprising; 17 mammals, 60 birds, 45 reptiles and two amphibians (Biologic Environmental Pty Ltd, 2013). One species of conservation significance was recorded within the application area; the Australian Bustard (*Ardeotis australis*) (Priority 4) (Biologic Environmental Pty Ltd, 2013). Five fauna habitat types were identified within the application area (BHP Billiton Iron Ore Pty Ltd, 2014). These habitats are considered to be common in the surrounding region (BHP Billiton Iron Ore Pty Ltd, 2014).

Twelve conservation significant fauna species have been recorded within 10 kilometres of the application area (Biologic Environmental Pty Ltd, 2013). These species could potentially occur within the application area. However, the proposed clearing activities are expected to be low impact in nature and will only impact approximately four percent of the application area. Therefore, whilst the application area may provide suitable habitat for conservation significant fauna species, it is not anticipated that the clearing activities will result in a significant reduction in the availability of suitable habitat for conservation significant fauna species.

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

Methodology Biologic Environmental Pty Ltd, 2013 (2013)
BHP Billiton Iron Ore Pty Ltd (2014)
Department of Agriculture and Food (2014)
Department of Conservation and Land Management (2002)
Western Australian Herbarium (2014)
GIS Database
-IBRA WA (Regions – Subregions)
-Ophthalmia 50cm Orthomosaic
-Weeli Wollo 50cm Orthomosaic

(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

Biota undertook a two phase Level 2 fauna survey over the application area between 2011 and 2012 (Biologic Environmental Pty Ltd, 2013). During this survey a total of 124 species comprising; 17 mammals, 60 birds, 45 reptiles and two amphibians was recorded within the application area (Biologic Environmental Pty Ltd, 2013).

One species of conservation significance was recorded during this survey; the Australian Bustard (*Ardeotis australis*) (Priority 4) (Biologic Environmental Pty Ltd, 2013).

The following conservation significant fauna species have been recorded within 10 kilometres of the application area during other fauna surveys in the region (Biologic Environmental Pty Ltd, 2013):

- Australian Bustard (*Ardeotis australis*) (Priority 4);
- Ghost Bat (*Macroderma gigas*) (Priority 4);
- Northern Quoll (*Dasyurus hallucatus*) (Schedule 1, Endangered);
- Pilbara Barking Gecko (*Underwoodisaurus seorsus*) (Priority 1);
- Pilbara Olive Python (*Liasis olivaceus barroni*) (Schedule 1, Vulnerable);
- Pilbara Leaf-nosed Bat (*Rhinonictis aurentius*) (Schedule 1, Vulnerable);
- Rainbow Bee-eater (*Merops ornatus*) (Schedule 3, Migratory);
- Fork-tailed Swift (*Apus pacificus*) (Schedule 3, Migratory);
- Peregrine Falcon (*Falco peregrinus*) (Schedule 4);
- Grey Falcon (*Falco hypoleucos*) (Schedule 1);
- Ramphotyphlops ganei (Priority 1); and
- Western Pebble-mound Mouse (*Pseudomys chapmani*) (Priority 4).

Five fauna habitats have been identified within the application area (BHP Billiton Iron Ore Pty Ltd, 2014);

- Creeks with riparian shrubland and/or hummock grasslands;
- Hilly areas;
- Major creeks with Eucalypt woodland;
- Mulga plains; and
- Stony and loamy plains.

A review of both aerial photography of the application area and the application areas topographic profile determined that this area does not contain any rocky areas or gorges (GIS Database). These landform features comprise critical habitat for a number of conservation significant fauna species listed under the *Environment Protection and Biodiversity Conservation Act 1999* and the *Wildlife Conservation Act 1950* including the Pilbara Olive Python, Northern Quoll and Pilbara Leaf-nosed Bat which have been recorded in the surrounding region. While these species may occur in the application area, the clearing activities are expected to result only in the loss of limited areas of foraging habitat for these species.

The proposed clearing activities will result in the disturbance of approximately 4 percent of the application area and therefore whilst the application area may provide suitable habitat for a number of conservation significant fauna species, the clearing activities will not result in a significant loss of habitat for conservation significant fauna species. In addition, the habitats contained within the application area are not confined to the application area (BHP Billiton Iron Ore Pty Ltd, 2014) and consequently it is unlikely any conservation significant fauna species would be dependent on the habitats present within the application area. Therefore, the proposed activities are not expected to result in adverse impacts to the conservation status or distribution of any conservation significant fauna species.

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

Methodology Biologic Environmental Pty Ltd (2013)
BHP Billiton Iron Ore Pty Ltd (2014)
GIS Database
-Ophthalmia 50cm Orthomosaic
-Weeli Wolli 50cm Orthomosaic

(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 three Threatened flora species known to occur within the Pilbara region; *Aluta quadrata*, *Lepidium catapycnon* and *Thryptomene wittweri* (Western Australian Herbarium, 2014). None of these species were identified in the application area during the flora and vegetation survey (Biologic Environmental Pty Ltd, 2013).

Florabase states that *Lepidium catapycnon* occurs on skeletal soils on hillsides; *Thryptomene wittweri* appears to be associated with steep slopes, cliff faces, the edges of cliffs, breakways, rock crevices, skeletal soils and appears to occur high in the landscape and *Aluta quadrata* appears to occur on steep slopes, gorges, near the crests of ridges, areas high in the landscape and gully's on the side of hills (Western Australian Herbarium, 2014).

Occurrences of *Lepidium catapycnon* have been recorded less than 1 kilometre to the south of the application areas eastern extent (BHP Billiton Iron Ore Pty Ltd, 2014; GIS Database). However, it should be noted that these occurrences of *Lepidium catapycnon* appear to have been recorded in slope or footslope environments which do not occur within the application area based on a review of aerial photography and the topographic

profiles of the application area (GIS Database). The application area is situated in a flat plain – like environment between two mesa’s and therefore habitats comparable to those where the nearby occurrences of *Lepidium catapycnon* were recorded do not occur in the application area (GIS Database). In addition, above average rainfall was recorded in the Pilbara prior to both phases of the flora and vegetation survey undertaken over the application area (Biologic Environmental Pty Ltd, 2013) and it is anticipated that these favourable survey conditions would have increased the likelihood of Threatened flora species being recorded in the application area if they occurred.

As detailed above, no suitable habitat for *Thryptomene wittveri* or *Aluta quadrata* occurs within the application area, therefore neither of these species is expected to occur within the application area.

Based on the above, the proposed activities are not likely to be at variance to this Principle.

Methodology Biologic Environmental Pty Ltd (2013)
Western Australian Herbarium (2014)
GIS Database
-Threatened and Priority Flora
-Topographic Contours, Statewide Properties
-Ophthalmia 50cm Orthomosaic
-Weeli Woilli 50cm Orthomosaic

(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

The application area is situated approximately 70 kilometres to the northwest of the nearest Threatened Ecological Community (TEC) (GIS Database), the Ethel Gorge aquifer stygobiont community (Department of Environment and Conservation, 2013). When the distances between the application area and TEC’s are considered, it is not likely the clearing activities will result in adverse impacts to any Threatened Ecological Communities.

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

Methodology Department of Environment and Conservation (2013)
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 is situated within the Hamersley sub-region of the Pilbara bioregion as defined in the IBRA and contained within Beard vegetation association 18 (GIS Database). This Beard vegetation association retains almost 100% of its pre-European extent (see table below). Hence, the application areas vegetation does not represent a significant remnant of vegetation within an extensively cleared area.

| | Pre-European area (ha)* | Current extent (ha)* | Remaining %* | Conservation Status** | Pre-European % in DEC Managed Land |
|------------------------------|-------------------------|----------------------|--------------|-----------------------|------------------------------------|
| IBRA Bioregion – Hamersley | 5,634,726.8 | 5,610,205 | ~99.6 | Least Concern | ~12.9 |
| Beard veg assoc. – State | | | | | |
| 18 | 19,890,664.9 | 19,843,409.7 | ~99.8 | Least Concern | ~2.1 |
| Beard veg assoc. – Bioregion | | | | | |
| 18 | 581,246.1 | 577,122.7 | ~99.3 | Least Concern | ~19.5 |

* Government of Western Australia (2013)

** Department of Natural Resources and Environment (2002).

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

Methodology Government of Western Australia (2013)
Department of Natural Resources and Environment (2002)
GIS Database
-IBRA WA (Regions – Sub Regions)

(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**

A review of available databases determined that no permanent watercourses or wetlands exist within the application area (GIS Database). However, a number of ephemeral watercourses exist within the application area and it is anticipated that some of these watercourses and the vegetation communities associated with these watercourses will be intercepted by the clearing activities. Based on the above, the proposed clearing is at variance to this Principle.

Eighteen vegetation communities were identified within the application area during the flora and vegetation survey, of which 10 were associated with surface water features (BHP Billiton Iron Ore Pty Ltd, 2014). In addition, vegetation association 3a was identified as being of moderate conservation significance due to its association with a major ephemeral watercourse (Biologic Environmental Pty Ltd, 2013). Major ephemeral watercourses in the Hamersley subregion were described as an Ecosystem at Risk in Kendrick (2001) (Biologic Environmental Pty Ltd, 2013). The watercourse associated with vegetation association 3a is a tributary of Weeli Wolli Creek, which is located approximately 6 kilometres to the east of the application area (Biologic Environmental Pty Ltd, 2013).

The clearing will be undertaken to facilitate investigations for the Central Pilbara Rail Study and consequently the cleared areas are expected to be distributed throughout the permit area due to the nature of the activities proposed rather than concentrated in a small number of locations. In addition, while 40 hectares of clearing is proposed under this permit, this clearing will result in disturbance to only approximately 4 percent of the 996 hectare permit boundary. Furthermore, none of the vegetation communities identified within the application area are confined to this area (Biologic Environmental Pty Ltd, 2013). Consequently, when the above is considered, it is unlikely the proposed activities will result in adverse impacts to the regional representation of any vegetation community associated with watercourses.

Methodology Biologic Environmental Pty Ltd (2013)
BHP Billiton Iron Ore Pty Ltd (2014)
Kendrick (2001)
GIS Database
-Hydrography, Linear Properties

(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 application area is situated within the Platform and Pindering land systems (GIS Database). The Platform land system is described as consisting of dissected slopes and raised plains supporting hard spinifex grasslands (van Vreeswyk et al, 2004). The Pindering land system is described as consisting of gravelly hardpan plains supporting groved mulga shrublands with hard and soft spinifex (van Vreeswyk et al, 2004). At the time of the land system survey, neither of the above land systems had experienced any erosion (van Vreeswyk et al, 2004).

When the application areas inherent resistance to erosion is considered it is not likely the clearing will result in erosion impacts in the surrounding environment. In addition, the 40 hectares of proposed clearing will be distributed within an application area of approximately 996 hectares. Consequently, it is anticipated that the cleared areas will be surrounded by undisturbed vegetation which should act to slow the movement of wind and surface water over the cleared areas, reducing the incidence of erosion within the cleared areas. Furthermore, at the completion of the drilling programme the proponent will be required to rehabilitate the cleared areas to achieve a stable landform and therefore any erosion impacts which have occurred in the application area as a result of the clearing activities will be rehabilitated.

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

Methodology van Vreeswyk et al (2004)
GIS Database
-Rangeland Land System Mapping

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

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

The application area is situated approximately 38 kilometres to the east of the nearest conservation area, Karijini National Park (GIS Database). When the distances between the application area and conservation areas are considered, it is not anticipated that the clearing activities will result in adverse impacts to the environmental values of any conservation area.

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

Methodology GIS Database
-DEC Tenure

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

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

The application area is situated approximately 43 kilometres to the northwest of the nearest Public Drinking Water Source Area, the Priority 1 Newman Water Reserve (GIS Database). Due to the surficial nature of the clearing activities, no adverse impact to the quality of groundwater sources underlying the application area is expected.

The only likely impact to surface water quality which would be expected to result from the clearing activities is the contribution of additional sediment from the cleared areas to surface water flows. The application area is situated within the Platform and Pindering land systems which are inherently resilient to erosion (van Vreeswyk et al, 2004) and therefore it is not anticipated that the clearing activities will result in a significant contribution of sediment to surface water flows. In addition, the proponent will be required to rehabilitate the cleared areas after the completion of the Central Pilbara Rail Study investigations and consequently, any contribution of additional sediment to surface water flows from the cleared areas would be temporary in nature.

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

Methodology van Vreeswyk et al (2004)
GIS Database
-Rangeland Land System Mapping

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

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

The application area is situated within the upper Fortescue River catchment which has a total area of approximately 2,975,192 hectares (GIS Database). When the Pilbara regions natural propensity for flooding is considered alongside the catchment areas size and the knowledge that only 4 percent of the application area will experience disturbance, it is not anticipated that the clearing activities will alter the incidence or intensity of flooding within the surrounding region.

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

Methodology GIS Database
-Hydrographic Catchments

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

Comments There is a Native Title Claim (WC2013/003) 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 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 is one registered site of Aboriginal heritage significance in the vicinity of the application area. It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no sites of Aboriginal heritage significance are damaged through the clearing process.

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

The clearing permit application was advertised on 17 February 2014 by DMP inviting submissions from interested parties. One submission was received in relation to this application with an objection to the proposed clearing. The Department has liaised with the submission party and will continue to do so in order to resolve the issues raised.

Methodology GIS Database
-Aboriginal Sites of Significance
-Native Title Claims – Registered with the NNTT
-Native Title Claims – Filed at the Federal Court

4. References

- Biologic Environmental Pty Ltd (2013) South flank to Jinidi rail option area of interest – summary letter report for Native Vegetation Clearing Permit Application. Prepared for BHP Billiton Iron Ore Pty Ltd.
- BHP Billiton Iron Ore Pty Ltd (2014) Central Pilbara Rail Study Native Vegetation Clearing (Purpose) Permit Application - Supporting document for geotechnical and sterilisation drilling investigations.
- Department of Agriculture and Food (2014) BAMA Declared Organisms search. Department of Agriculture and Food. <https://www.agric.wa.gov.au/organisms> (Accessed March 2014).
- Department of Conservation and Land Management (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions.
- Department of Environment and Conservation (2013) List of Threatened Ecological Communities endorsed by the Western Australian Minister for the Environment. Prepared by the Species & Communities Branch.
- 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.
- Government of Western Australia (2013) 2012 state wide vegetation statistics incorporating the CAR Reserve Analysis (Full Report). Current as of October 2012. WA Department of Environment and Conservation, Perth.
- Keighery, B.J. (1994) Bushland plant survey: a guide to plant community survey for the community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
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5. Glossary

Acronyms:

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

Definitions:

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

- P1** **Priority One - Poorly Known taxa:** taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
- P2** **Priority Two - Poorly Known taxa:** taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
- P3** **Priority Three - Poorly Known taxa:** taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under

consideration for declaration as 'rare flora', but are in need of further survey.

- P4 Priority Four – Rare taxa:** taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5–10 years.
- R Declared Rare Flora – Extant taxa (= Threatened Flora = Endangered + Vulnerable):** taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.
- X Declared Rare Flora - Presumed Extinct taxa:** taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

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

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

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

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

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

- EX Extinct:** A native species for which there is no reasonable doubt that the last member of the species has died.
- EX(W) Extinct in the wild:** A native species which:
(a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
(b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
- CR Critically Endangered:** A native species which is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
- EN Endangered:** A native species which:
(a) is not critically endangered; and
(b) is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
- VU Vulnerable:** A native species which:
(a) is not critically endangered or endangered; and
(b) is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.

CD

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