



## CLEARING PERMIT

*Granted under section 51E of the Environmental Protection Act 1986*

<b>Purpose Permit number:</b>	CPS 4614/1
<b>Permit Holder:</b>	Hamersley Iron Pty Ltd
<b>Duration of Permit:</b>	26 December 2011 – 26 December 2021

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

### **PART I – CLEARING AUTHORISED**

**1. Purpose for which clearing may be done**

Clearing for the purpose of geotechnical investigations, sterilisation drilling, access roads and associated activities.

**2. Land on which clearing is to be done**

Lot 95 on Deposited Plan 220269 (Juna Downs 6751)  
unallocated Crown land (Juna Downs 6751)  
Lot 302 on Deposited Plan 41097 (Newman 6753)

**3. Area of Clearing**

The Permit Holder must not clear more than 275 hectares of native vegetation within the area hatched yellow on attached Plan 4614/1.

**4. Application**

This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

**5. Period in which clearing is authorised**

The Permit Holder shall not clear any native vegetation after 26 December 2016.

**6. Type of clearing authorised**

This Permit authorises the Permit Holder to clear native vegetation for activities to the extent that the Permit Holder has the power to clear native vegetation for those activities under the, *Land Administration Act 1997* or any other written law.

**7. Compliance with Assessment Sequence and Management Procedures**

Prior to clearing any native vegetation under conditions 1, 2 and 3 of this Permit, the Permit Holder must comply with the Assessment Sequence and the Management Procedures set out in Part II of this Permit.

## PART II – ASSESSMENT SEQUENCE AND MANAGEMENT PROCEDURES

### **8. Avoid, minimise etc clearing**

In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:

- (a) avoid the clearing of native vegetation;
- (b) minimise the amount of native vegetation to be cleared; and
- (c) reduce the impact of clearing on any environmental value.

### **9. Weed control**

(a) When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds*:

- (i) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (ii) ensure that no *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
- (iii) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

(b) At least once in each 12 month period for the term of this Permit, the Permit Holder must remove or kill any *weeds* growing within areas cleared under this Permit.

### **10. Flora management**

(a) Prior to undertaking any clearing authorised under this Permit, the Permit Holder shall engage a *botanist* to inspect that area for the presence of rare flora listed in the *Wildlife Conservation (Rare Flora) Notice* and *priority flora*.

(b) Where rare flora or *priority flora* are identified in relation to condition 10(a) of this Permit, the Permit Holder shall ensure that:

- (i) no clearing occurs within 50 metres of identified rare flora, unless approved by the CEO; and
- (ii) no clearing of identified rare flora occurs unless approved under section 23F(2) of the *Wildlife Conservation Act 1950*.
- (iii) no clearing of identified *priority flora* occurs, unless approved by the CEO; and
- (iv) no clearing occurs within 10 metres of identified *priority flora*, unless approved by the CEO.

### **11. Retain vegetative material and topsoil, revegetation and rehabilitation**

The Permit Holder shall:

(a) Retain the vegetative material and topsoil removed by clearing authorised under this Permit and stockpile the vegetative material and topsoil in an area that has already been cleared.

(b) At an optimal time within 12 months following completion of geotechnical investigations, *revegetate* and *rehabilitate* areas not required for future scheduled and approved development, by:

- (i) ripping the ground on the contour to remove soil compaction; and
- (ii) laying the vegetative material and topsoil retained under condition 11(a) on the cleared area(s).

(c) Within 24 months of laying the vegetative material and topsoil on the cleared area in accordance with condition 11(b) of this Permit:

- (i) engage an *environmental specialist* to determine the species composition, structure and density of the area *revegetated* and *rehabilitated*; and
- (ii) where, in the opinion of an *environmental specialist*, the composition structure and density determined under condition 11(c)(i) of this Permit will not result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, *revegetate* the area by deliberately *planting* and/or *direct seeding* native vegetation that will result in a similar species composition, structure and density of native vegetation

to pre-clearing vegetation types in that area and ensuring only *local provenance* seeds and propagating material are used.

- (d) Where additional *planting* or *direct seeding* of native vegetation is undertaken in accordance with condition 11(c)(ii) of this permit, the Permit Holder shall repeat condition 11(c)(i) and 11(c)(ii) within 24 months of undertaking the additional *planting* or *direct seeding* of native vegetation.
- (e) Where a determination by an *environmental specialist* that the composition, structure and density within areas *revegetated* and *rehabilitated* will result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, as determined in condition 11(c)(i) and (ii) of this permit, that determination shall be submitted for the CEO's consideration. If the CEO does not agree with the determination made under condition 11(c)(ii), the CEO may require the Permit Holder to undertake additional *planting* and *direct seeding* in accordance with the requirements under condition 11(c)(ii).

### **PART III - RECORD KEEPING AND REPORTING**

#### **12. Records must be kept**

The Permit Holder must maintain the following records for activities done pursuant to this Permit:

- (a) In relation to the clearing of native vegetation authorised under this Permit:
  - (i) the species composition, structure and density of the cleared area;
  - (ii) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings;
  - (iii) the date that the area was cleared; and
  - (iv) the size of the area cleared (in hectares).
- (b) In relation to flora management pursuant to condition 10 of this Permit:
  - (i) the location of each rare and *priority flora* species recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
  - (ii) the species name of each rare or priority flora species identified; and
  - (iii) a copy of the botanists flora survey report.
- (c) In relation to the *revegetation* and *rehabilitation* of areas pursuant to condition 12 of this Permit:
  - (i) the location of any areas *revegetated* and *rehabilitated*, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
  - (ii) a description of the *revegetation* and *rehabilitation* activities undertaken;
  - (iii) the size of the area *revegetated* and *rehabilitated* (in hectares);
  - (iv) the species composition, structure and density of *revegetation* and *rehabilitation*, and
  - (v) a copy of the environmental specialist's report.

#### **13. Reporting**

- (a) The Permit Holder must provide to the CEO on or before 31 July of each year, a written report:
  - (i) of records required under condition 12 of this Permit; and
  - (ii) of activities done by the Permit Holder under this Permit between 1 January and 31 December of the preceding year; and
- (b) Prior to 26 September 2016, the Permit Holder must provide to the CEO a written report of records required under condition 12 of this Permit where these records have not already been provided under condition 13(a) of this Permit.

## DEFINITIONS

The following meanings are given to terms used in this Permit:

**botanist** means a person with specific training and/or experience in the ecology and taxonomy of Western Australian flora;

**direct seeding** means a method of re-establishing vegetation through the establishment of a seed bed and the introduction of seeds of the desired plant species;

**environmental specialist** means a person who is engaged by the Permit Holder for the purpose of providing environmental advice, who holds a tertiary qualification in environmental science or equivalent, and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit;

**fill** means material used to increase the ground level, or fill a hollow;

**impacts** means any impact of clearing on environmental values;

**local provenance** means native vegetation seeds and propagating material from natural sources within 50 kilometres of the area cleared;

**mulch** means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

**planting** means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species;

**priority flora** means those plant taxa described as priority flora classes 1, 2, 3 or 4 in the *Department's Declared Rare and Priority Flora List for Western Australia* (as amended);

**rehabilitate/ed/ion** means actively managing an area containing native vegetation in order to improve the ecological function of that area;

**revegetate/ed/ion** means the re-establishment of a cover of *local provenance* native vegetation in an area using methods such as *regeneration*, *direct seeding* and/or *planting*, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area;

**riparian vegetation** has the meaning given to it in Regulation 3 of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004;

**weed/s** means a species listed in Appendix 3 of the "Environmental Weed Strategy" published by the Department of Conservation and Land Management (1999), and plants declared under section 37 of the *Agriculture and Related Resources Protection Act 1976*.

**Wildlife Conservation (Rare Flora) Notice** means those plant taxa gazetted as rare flora pursuant to section 23F(2) of the *Wildlife Conservation Act 1950* (as amended).



Kelly Faulkner  
MANAGER  
NATIVE VEGETATION CONSERVATION BRANCH

*Officer delegated under Section 20  
of the Environmental Protection Act 1986*  
1 December 2011

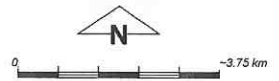
# Plan 4614/1



## LEGEND

- Road Centrelines
- Clearing Instruments
- Areas Applied to Clear
- Areas Subject to Conditions
- Areas Approved to Clear

- Cadastre for labelling
- Weeli Wooli 50cm Orthomosaic - Landgate 2004
- Munjina 50cm Orthomosaic - Landgate 2004



Scale 1:135513  
(Approximate when reproduced at A4)

Geocentric Datum Australia 1994

Note: the data in this map have not been projected. This may result in geometric distortion or measurement inaccuracies.

Date: 1/12/11  
K Faulkner

Information derived from this map should be confirmed with the data custodian acknowledged by the agency acronym in the legend.



Department of Environment and Conservation

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## 1. Application details

### 1.1. Permit application details

Permit application No.: 4614/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Hamersley Iron Pty Ltd

### 1.3. Property details

Property: UNALLOCATED CROWN LAND ( JUNA DOWNS 6751)  
LOT 302 ON PLAN 41097 ( NEWMAN 6753)  
UNALLOCATED CROWN LAND ( JUNA DOWNS 6751)  
LOT 95 ON PLAN 220269 (Lot No. 95 GREAT NORTHERN JUNA DOWNS 6751)  
LOT 95 ON PLAN 220269 (Lot No. 95 GREAT NORTHERN JUNA DOWNS 6751)

Local Government Area: Shire of Ashburton  
Colloquial name:

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
275		Mechanical Removal	Geotechnical investigations

### 1.5. Decision on application

Decision on Permit Application: Grant  
Decision Date: 1 December 2011

## 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
Two Beard vegetation types are mapped within the applied area:	This application proposes to clear 275 ha of native vegetation for the purpose of geotechnical investigation and sterilization drilling.	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994)	The description and condition of the vegetation under application was determined via the use of aerial imagery, supporting information supplied by the applicant (Hamersley Iron Pty Ltd 2011) and Native Vegetation Clearing Permit Report prepared by Biota Environmental Services (2011)
Mapped Beard vegetation association 18 is described as ' Low woodland; mulga (Acacia aneura)' (Shepherd, 2009).			
Mapped Beard vegetation association 82 is described as ' Hummock grasslands, low tree steppe; snappy gum over Triodia wiseana' (Shepherd, 2009).			

## 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 may be at variance to this Principle

The proposal is to clear up to 275 ha (within a larger footprint area of 7 928ha) of native vegetation within Lot 95 on Plan 220269, and unallocated Crown land, Juna Downs and Lot 302 on Plan 41097, Newman, for the purpose of geotechnical investigation, sterilization drilling and access roads and associated activities.

Biota Environmental Services (2011) conducted a Koodaideri Southern Infrastructure Corridor: Native Vegetation Clearing Report, including a flora survey over the application area. A total of 452 native taxa, from 179 genera belonging to 52 families were recorded within the application, including 7 priority flora species; *Isotropis parviflora*, *Acacia subtiliformis*, *Goodenia* sp. East Pilbara, *Oldenlandia* sp Hamersley Station, *Themeda* sp. Hamersley Station, *Goodenia nuda* and *Rhynchosia bungarensis*.

The Phase 1, Native Vegetation Clearing Permit Report indicates that no targeted surveys have been undertaken for Priority flora and therefore the majority of the number of individuals for each species recorded reflects only what occurred within a quadrat sampled (Biota Environmental Services, 2011). The full extent of populations and hence potential impacts cannot be determined based on this information and therefore a further survey would be required to determine the significance of the impacts under this application. (DEC 2011).

Although, no rare flora was recorded within the application area, the Phase 1 assessment did identify suitable habitat for *Lepidium catapycnon*. Targeted surveys (Phase 2) will be necessary to determine whether or not this rare species occurs within the clearing area.

Biota Environmental Services (2011) has advised that further targeted searches will be conducted during a Phase 2 Survey. The results of the Phase 2 Survey will assist in determining the significance of the impacts to the recorded priority flora.

Numerous fauna species have been recorded within the local area (40 km radius), including *Ardeotis australis* (Australian Bustard), *Burhinus grallarius* (Bush-Stone-curlew), *Falco hypoleucos* (Grey Falcon) and *Leggadina lakedownensis* (Short-tailed Mouse) (DEC, 2007-). The majority of the fauna habitats within the area proposed to be cleared are well represented elsewhere within the local and regional area, and no significant loss of habitat for fauna indigenous to Western Australia is expected.

The local area (40 km radius) is well vegetated containing approximately 90 per cent vegetation cover. The application area is unlikely to represent an area of higher biodiversity value when compared to representative vegetation in a local and regional context.

There are a number of priority ecological communities (PECs) located in the local area; the application is within the buffer zone for the PEC Fortescue Marsh which is approximately 15 km from the application area. A flora survey conducted by Biota Environmental Services (2011) has been carried out over the application area and no PECs were observed.

The vegetation under application is in an excellent condition, contains priority flora, may contain rare flora and therefore may contain a high level of biodiversity.

The clearing as proposed may be at variance to this principle.

**Methodology**    References:  
Biota Environmental Services (2011)  
DEC (2007 -)

GIS Database:  
- SAC Biodatasets - Accessed 7 October 2011  
- Pre European Vegetation

**(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**  
Numerous fauna species considered rare or likely to become extinct have been recorded within the local area (40 km radius) of the application area, including *Dasyurus hallucatus* (Northern Quoll), *Liasis olicaceus* subsp. *Barroni*, *Malurus leucopterus* subsp. *Leucopterus*, *Pogona minor* subsp. *Minima* (Dwarf Bearded Dragon) and *Rhinonictes aurantius* (Orange Leafnosed-bat) (DEC 2007-)

The fauna habitats within the area proposed to be cleared are well represented elsewhere within the local and regional area, and no significant loss of habitat for fauna indigenous to Western Australia is expected. The proposed clearing will not sever any wildlife corridors and therefore the clearing will not remove an ecological linkage that is necessary for the maintenance of fauna.

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

**Methodology**    Reference:  
DEC (2007-)

GIS Databases:  
- Munjina 50cm Orthomosaic - Landgate 2004  
- Pre-European vegetation  
- SAC Biodatasets - accessed 7 October 2011

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

**Comments Proposal may be at variance to this Principle**

A DEC database search did not identify any records of rare flora within the local area (20km radius).

In addition, Biota Environmental Services (2011) conducted Phase 1 of a Level 2 vegetation, flora and fauna assessment over the application area and did not identify any rare flora. However, suitable habitat for *Lepidium catapycnon* was identified within the application area and therefore may occur (Biota Environmental Services 2011)

A number of records of this species were recorded approximately 3 km north of the application area during a vegetation and flora survey undertaken for the proposed Koodaideri Mine in 2010 (Biota Environmental Services 2011).

Biota Environmental Services (2011) has advised that further targeted searches for this species will be conducted during the Phase 2 Survey. The results of the Phase 2 Survey will assist in determining if this species will be significantly impacted by the proposed clearing.

It is noted that no systematic targeted rare flora searches were performed as part of the Phase 1 survey, therefore, until the Phase 2 Survey is submitted to DEC it is considered that the proposed clearing may be at variance to this principle.

**Methodology**

References:

Biota Environmental Services (2011)

GIS Databases:

- Munjina 50cm Orthomosaic - Landgate 2004

- Pre-European vegetation

- SAC Biodatasets - accessed 7 October 2011

**(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**

No known threatened ecological communities (TECs) have been recorded within the local area (20km radius).

A flora and vegetation survey Biota Environmental Services (2011) has been carried out over the application area and no TECs were observed.

Therefore, the clearing as proposed is not likely to be at variance to this principle.

**Methodology**

References:

Biota Environmental Services (2011)

GIS Databases:

- Munjina 50cm Orthomosaic - Landgate 2004

- Pre-European vegetation

- SAC Biodatasets - accessed 7 October 2011

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

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

The area under application is located within the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion. This IBRA bioregion has approximately 100 per cent of its Pre European vegetation extent remaining (Shepherd, 2009).

The vegetation under application is mapped as Beard Vegetation Associations 18 and 82, both of which have approximately 100 per cent of their Pre European extent remaining in the Pilbara bioregion (Shepherd, 2009).

Digital imagery (Munjina 50cm Orthomosaic – Landgate 2004) indicates that the local area (20km radius) surrounding the area under application retains approximately 90 per cent vegetation cover.

Given the vegetation representation within the local area it is unlikely that the vegetation under application is significant as a remnant in an extensively cleared landscape.

Therefore, the clearing as proposed is not likely to be at variance to this principle.



	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in DEC Managed Lands (%)
<b>IBRA Bioregion*</b>				
Pilbara	17,804,193	17,785,000	99.89	8.32
<b>Shire*</b>				
Shire of Ashburton	10,086,658	10,050,099	99.64	15.54
Shire of East Pilbara	37,183,293	37,182,808	100	4.04
<b>Beard Vegetation Association in Bioregion*</b>				
18	676,556	676,556	100	17.18
82	2,563,583	2,563,583	100	10.5

\* Shepherd 2009

**Methodology**

References:  
Shepherd (2009)

GIS Database:

- Local Government Authority
- Munjina 50cm Orthomosaic - Landgate 2004
- Pre-European vegetation
- SAC Biodatasets - accessed 7 October 2011

**(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**

There are numerous non-perennial watercourses mapped within the application area.

Furthermore, a flora survey undertaken by Biota Environmental Services (2011) recorded numerous watercourses within the application area. A gorge system is located in the northernmost section of the application area which is considered seasonal, subject to periodic flooding and rapid inflow and discharge. The other creek lines and drainage features recorded within the application area only flow during seasonal flood events.

Nineteen vegetation units were recorded within the application area (Biota Environmental Services, 2011) characterised as growing in or in association with a watercourse, although seven of these represent major drainage lines. One known major watercourse, Marillana Creek, is mapped within the application area. Project planning should ensure that the project layout is designed to avoid and minimise disturbance to creek line vegetation where possible.

Considering the above, the proposed clearing is at variance to principle (f).

**Methodology**

Reference:  
Biota Environmental Services (2011)

GIS Databases:

- Hydrography, linear

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

**Comments**

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

There are four types of soils within the application area which Northcote (1960-68) describes as:

Fa13 : Ranges of banded jaspilite and chert along with shales, dolomites, and iron ore formations; some areas of ferruginous duricrust as well as occasional narrow winding valley plains and steeply dissected pediments. This unit is largely associated with the Hamersley and Ophthalmia Ranges. The soils are frequently stony and shallow and there are extensive areas without soil cover: chief soils are shallow stony earthy loams (Um5.51) along with some (Uc5.11) soils on the steeper slopes. Associated are (Dr2.33 and Dr2.32) soils on the limited areas of dissected pediments, while (Um5.52) and (Uf6.71) soils occur on the valley plains.

Fb3: High-level valley plains set in extensive areas of unit Fa13. There are extensive areas of pisolitic limonite deposits: principal soils are deep earthy loams (Um5.52) along with small areas of (Gn2.12) soils.

Ja2: This unit occupies the central position within the high-level valley plains represented by unit Fb3: chief soils are earthy clays (Uf6.71) along with extensive areas of (Ug5.38) soils. Occurs on sheet(s): 6

My55: Gently sloping outwash plains generally flanking the northern face of the Hamersley Range; coarse surface gravels are extensive: chief soils are neutral red earths (Gn2.12) with some (Gn2.11) and (Dr2.33) soils.

The topography of the site is relatively flat and rainfall is low (400mm) therefore water erosion is not likely to an issue.

The proposed clearing is not likely to cause appreciable land degradation and is therefore not likely to be at variance to this clearing principle.

**Methodology** References:  
Northcote et al. (1960 - 1968)

GIS Database:  
- Rainfall, Mean Annual  
- Soils, Statewide

**(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 closest recorded conservation reserve is Karajini National park which is located approximately 22km west of the area under application.

A large proportion of the vegetation in the Pilbara bioregion remains uncleared, approximately 100 per cent (Shepherd, 2009). Therefore, It is unlikely that the application area provides an important buffer or ecological linkage to Karajini National Park.

Therefore, the clearing as proposed is not likely to be at variance to this principle.

**Methodology** GIS Databases:  
- DEC Tenure  
- Pre-European vegetation

**(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 groundwater salinity within the application area is approximately 500 - 1,000 milligrams/Litre Total Dissolved Solids (TDS) (GIS Database). Given the size of the area to be cleared (275 hectares) compared to the size of the Hamersley Groundwater Province (10 166 833 hectares), the proposed clearing is not likely to cause salinity levels to alter.

Clearing of riparian vegetation around the major drainage lines may pose problems to surface water from increased sedimentation and runoff. One known major watercourse, Marillana Creek, is mapped within the application area. The applicant has advised project planning will be undertaken to ensure the project layout is designed to avoid clearing creek line vegetation and therefore minimise impacts from increased sedimentation and runoff.

Department of Water (DOW 2011) is satisfied that the proposed clearing of 275 ha for the purpose of geotechnical investigations and sterilization drilling is unlikely to have a significant impact on the quality or quantity of ground water

The proposal to clear up to 275 hectares within a much larger footprint area where vegetation is largely intact is not likely to cause deterioration in the quality of surface or groundwater.

The clearing as proposed is not likely to be at variance to this principle.

**Methodology** GIS Databases:  
-Soils, Statewide  
-Pre-European vegetation  
-Rainfall, Mean Annual

**(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**

Natural flood events do occur in the Pilbara region following cyclonic activity. However, the proposed clearing is not expected to increase the incidence or intensity of such events.

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

**Methodology** GIS Database:  
- Rainfall, Mean Annual

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

**Comments**

Department of Regional Development and Lands (RDL 2011) have confirmed that Rio Tinto in the name of Hamersley Iron Pty Ltd has made an application for the following tenure in regards to the Koodaideri rail infrastructure corridor:

-A s.91 licence under the Land Administration Act 1997 (LAA) for the purpose of undertaking geotechnical, heritage and environmental investigations:

-A s.79 lease under the LAA for the purpose of rail, access road and associated infrastructure.

Department of Water (DOW 2011) is satisfied that the proposed clearing of 275 ha for the purpose of geotechnical investigations and sterilization drilling is unlikely to have a significant impact on the quality or quantity of ground water provided the following advice is followed:

-Surface Water - the application area lies within a proclaimed area under the Rights in Water and Irrigation Act 1914. Therefore, any taking or diversion of surface water for purposed other than domestic and/or stock watering is subject to licence DOW. Any interference with the bed or banks of a watercourse in the proclaimed area will require a permit from DOW.

-Groundwater - the application area is located within the Pilbara Groundwater Area as proclaimed under the Rights in Water and Irrigation Act 1914. Any groundwater abstraction in this proclaimed are is subject to licensing by DOW.

**Methodology** References:  
-DOW (2011)  
-RDL (2011)

#### 4. References

- Biota (2011) Koodaideri Southern Infrastructure Corridor: NVCP Report. Unpublished Report prepared for Rio Tinto Iron Ore (DEC Ref: A430873)
- DEC (2007 - ) NatureMap: Mapping Western Australia's Biodiversity. Department of Environment and Conservation. URL: <http://naturemap.dec.wa.gov.au/>. Accessed 7 October 2011
- DEC (2011) Species and Communities advice for clearing permit application CPS 4614/1. Department of Environment and Conservation, Western Australia. (DEC Ref: A452599)
- DOW (2011) Advice for clearing permit application CPS 4614/1. Department of Water, Pilbara Region, Western Australia. (DEC Ref: A441185)
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68): 'Atlas of Australian Soils, Sheets 1 to 10, with explanatory data'. CSIRO and Melbourne University Press: Melbourne.
- RDL (2011) Confirmation of a section 91 licence application from Rio Tinto Iron Ore. Department for Regional Development and Lands, Western Australia (DEC Ref: A430873)
- Shepherd, D.P. (2009) Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth.

#### 5. Glossary

Term	Meaning
BCS	Biodiversity Coordination Section of DEC
CALM	Department of Conservation and Land Management (now BCS)
DAFWA	Department of Agriculture and Food
DEC	Department of Environment and Conservation
DEP	Department of Environmental Protection (now DEC)
DoE	Department of Environment
DoIR	Department of Industry and Resources

DRF	Declared Rare Flora
EPP	Environmental Protection Policy
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
TEC	Threatened Ecological Community
WRC	Water and Rivers Commission (now DEC)