GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 3867/1
Permit Holder:	Karara Mining Limited
Duration of Permit:	23 October 2010 – 23 October 2015

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 constructing a water pipeline.

2. **Land on which clearing is to be done**
   Lot 118 on Deposited Plan 203646
   Lot 146 on Deposited Plan 203646
   Yandanooka South Road reserve
   Unnamed road reserve, Arrino (PIN11487929)
   Unnamed road reserve, Arrino (PIN11698939)
   Unnamed road reserve, Bundanoon (PIN11421324)
   Lot 106 on Plan 111621
   Lot 147 on Plan 202782
   Yandanooka West Road reserve
   Unnamed road reserve, Yandanooka (PIN11699427)
   Unnamed road reserve, Yandanooka (PIN11487948)
   Unnamed road reserve, Yandanooka (PIN11675213)
   Lot 46 on Plan 4518
   Lot 56 on Plan 4518
   Lot M 1318 on Diagram 5359
   Lot M 1786 on Diagram 8156
   Enokurra Road reserve
   Mount Scratch Road reserve
   Willis Road reserve
   Yandanooka North-East Road reserve
   The Midlands Road reserve
   Railway reserve, Yandanooka (PIN1322073)

3. **Area of Clearing**
   The Permit Holder must not clear more than 31.91 hectares of native vegetation within the areas shaded yellow on attached Plan 3867/1a and Plan 3867/1b and Plan 3867/1c and Plan 3867/1d.

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. **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

6. **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.

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

8. **Flora management**
(a) Prior to undertaking any clearing authorised under this Permit, the site shall be inspected by a *flora specialist* for the presence of rare flora listed in the *Wildlife Conservation (Rare Flora) Notice* 2010.

(b) Where rare flora are identified in relation to condition 8(a) of this Permit, the Permit Holder shall ensure that no clearing occurs within 50 metres of identified rare flora, unless approved by the CEO;

9. **Offsets**
If part or all of the clearing to be done is or may be at variance with one or more of the clearing principles, then the Permit Holder must implement an *offset* in accordance with conditions 9(a) and (b) of this Permit with respect to that clearing.

(a) Determination of *offsets*:
(i) in determining the *offset* to be implemented with respect to a particular area of native vegetation proposed to be cleared under this Permit, the Permit Holder must have regard to the *offset* principles contained in condition 9(b) of this Permit;
(ii) once the Permit Holder has developed an *offset proposal*, the Permit Holder must provide that *offset proposal* to the CEO for the CEO's approval prior to undertaking any clearing to which the *offset* relates, and prior to implementing the *offset*;
(iii) clearing may not commence until and unless the CEO has approved the *offset proposal* to which the clearing relates;
(iv) the Permit Holder shall implement the *offset proposal* approved under condition 9(a)(iii); and
(v) each *offset proposal* shall include a *direct offset*, timing for implementation of the *offset proposal* and may additionally include *contributing offsets*.

(b) For the purpose of this condition, the *offset* principles are as follows:
   (i) *direct offsets* should directly counterbalance the loss of the native vegetation;
   (ii) *contributing offsets* should complement and enhance the *direct offset*;
   (iii) *offsets* are implemented only once all avenues to avoid, minimise, rectify or reduce environmental impacts have been exhausted;
   (iv) the environmental values, habitat, species, *ecological community*, physical area, ecosystem, landscape, and hydrology of the *offset* should be the same as, or better than, that of the area of native vegetation being *offset*;
   (v) a ratio greater than 1:1 should be applied to the size of the area of native vegetation that is offset to compensate for the risk that the *offset* may fail;
   (vi) *offsets* must entail a robust and consistent assessment process;
   (vii) in determining an appropriate *offset*, consideration should be given to ecosystem function, rarity and type of *ecological community*, vegetation *condition*, habitat quality and area of native vegetation cleared;
   (viii) the *offset* should either result in no net loss of native vegetation, or lead to a net gain in native vegetation and improve the *condition* of the natural environment;
   (ix) *offsets* must satisfy all statutory requirements;
   (x) *offsets* must be clearly defined, documented and audited;
   (xi) *offsets* must ensure a long-term (10-30 year) benefit; and
   (xii) an *environmental specialist* must be involved in the design, assessment and monitoring of *offsets*.

PART III - RECORD KEEPING AND REPORTING

10. 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 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;
   (ii) the date that the area was cleared; and
   (iii) the size of the area cleared (in hectares).

(b) In relation to flora management pursuant to condition 8 of this Permit:
   (i) the location of each rare 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; and
   (ii) the species name of each rare flora species identified.

(c) In relation to the offset of areas pursuant to condition 9 of this permit:
   (i) the location of any area of *offsets* recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings;
   (ii) a description of the *offset* activities undertaken; and
   (iii) the size of the *offset* area (in hectares).

11. Reporting

(a) The Permit Holder must provide to the CEO on or before 30 June of each year, a written report:
   (i) of records required under condition 10 of this Permit; and
   (ii) concerning activities done by the Permit Holder under this Permit between 1 January and 31 December of the preceding year.

(b) Prior to 9 July 2015, the Permit Holder must provide to the CEO a written report of records required under condition 10 of this Permit where these records have not already been provided under condition 11(a) of this Permit.

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

condition means the rating given to native vegetation using the *Keighery scale* and refers to the degree of change in the structure, density and species present in the particular vegetation in comparison to undisturbed vegetation of the same type;

contributing offset/s has the same meaning as is given to that term in the Environmental Protection Authority's *Position Statement No.9: Environmental Offsets*, January 2006;

direct offset/s has the same meaning as is given to that term in the Environmental Protection Authority's *Position Statement No.9: Environmental Offsets*, January 2006;

ecological community/ies means a naturally occurring biological assemblage that occurs in a particular type of habitat (English and Blythe, 1997; 1999);

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;

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

Keighery scale means the vegetation condition scale described in *Bushland Plant Survey: A Guide to Plant Community Survey for the Community (1994)* as developed by B.J. Keighery and published by the Wildflower Society of WA (Inc). Nedlands, Western Australia;

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;

offset/s means an offset required to be implemented under condition 9 of this Permit;

offset proposal means an *offset* determined by the Permit Holder in accordance with condition 9 of this Permit;

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*.



Kelly Faulkner
MANAGER
NATIVE VEGETATION CONSERVATION BRANCH

Officer delegated under Section 20
of the Environmental Protection Act 1986

23 September 2010

Plan 3867/1a



LEGEND

Clearing Instruments

- Areas Approved to Clear
- Road Centrelines
- Cadastre for labelling
- Local Government Authorities

Yandanooka 50cm Orthomosaic - Landgate 2005

N

0 ~625 m

Scale 1:20896
(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.

K Faulkner ..... Date 23/9/10

Officer with delegated authority under Section 20 of the Environmental Protection Act 1986

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

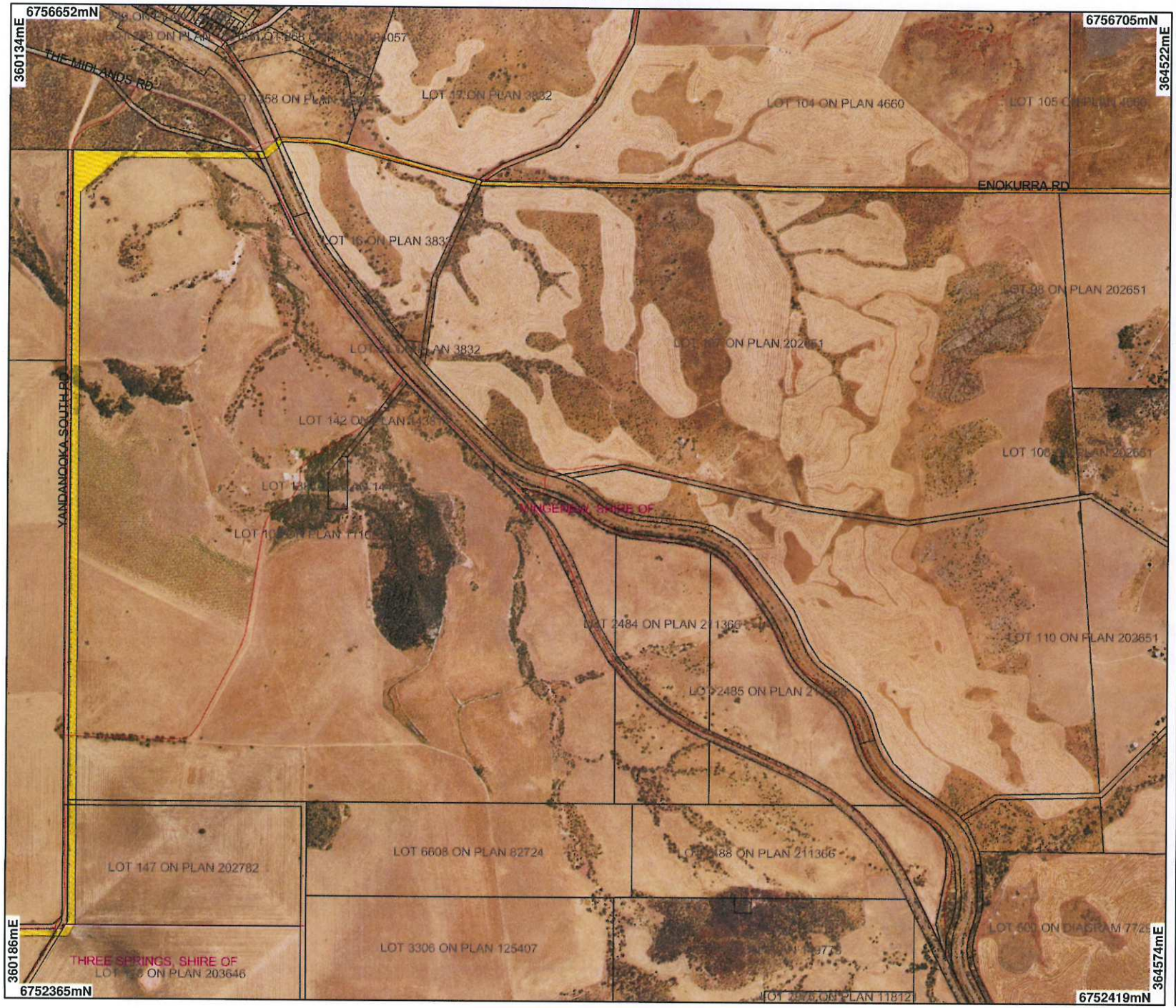
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** Project Data is denoted by asterisk. This data has not been quality assured. Please contact map author for details.*

Plan 3837/1b



LEGEND

Clearing Instruments

- Areas Approved to Clear
- Road Centrelines
- Cadastre for labelling
- Local Government Authorities
- Yandanooka 50cm Orthomosaic - Landgate 2005

** Project Data is denoted by asterisk.*
This data has not been quality assured.
Please contact map author for details.

N

0 ~625 m

Scale 1:20899
(Approximate when reproduced at A4)

Geocentric Datum Australia 1994

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K Faulkner ..... Date 23/9/10

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Plan 3867/1c



LEGEND

Clearing Instruments

- Areas Approved to Clear
- Road Centrelines
  Cadastre for labelling
- Local Government Authorities
  Yandanooka 50cm Orthomosaic - Landgate 2005

** Project Data is denoted by asterisk.*
This data has not been quality assured.
Please contact map author for details.

N

0 ~625 m

Scale 1:20902
(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.

K Faulkner Date 23/9/10

Officer with delegated authority under Section 20 of the Environmental Protection Act 1986

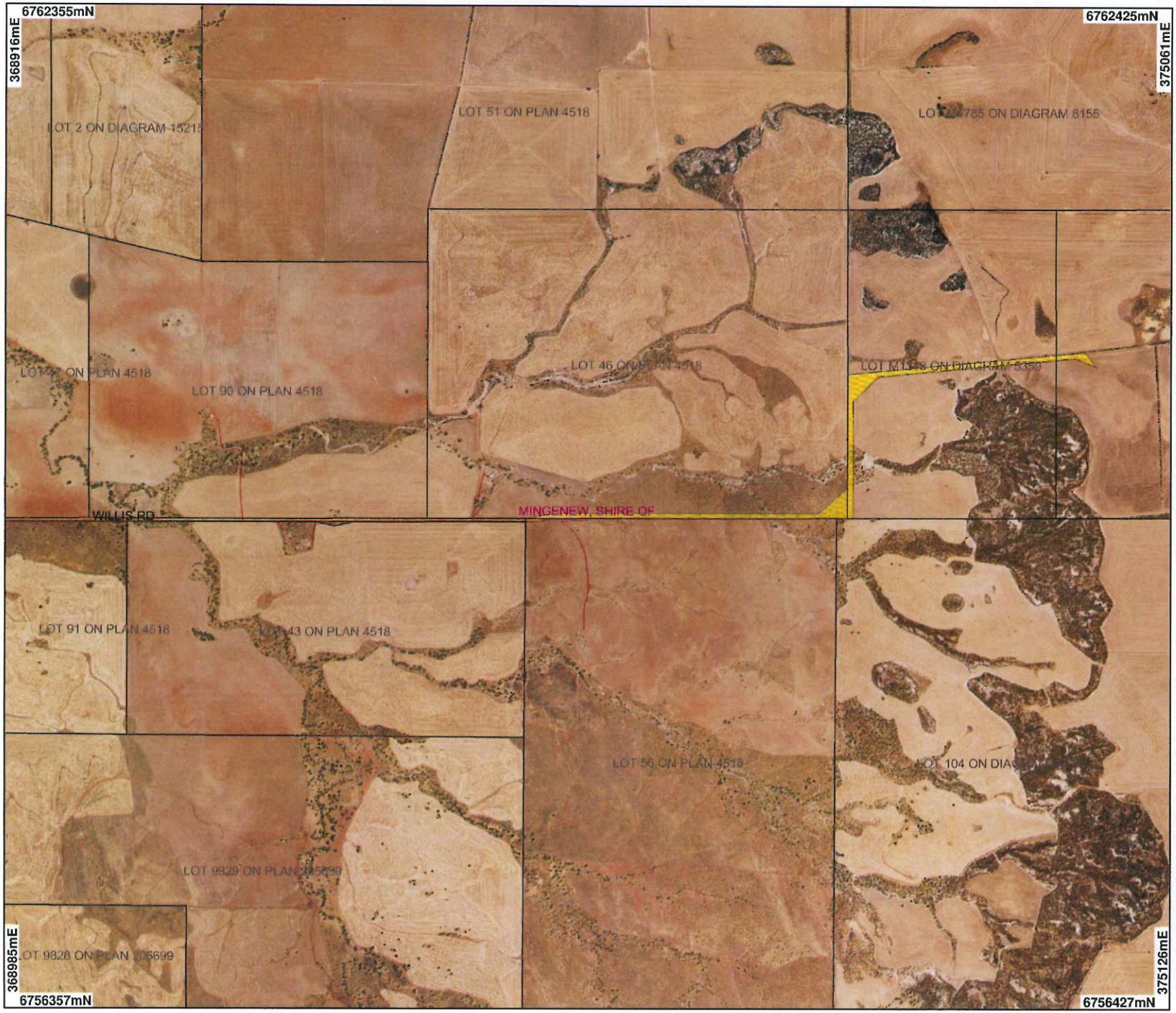
Information derived from this map should be confirmed with the data custodian acknowleged by the agency acronym in the legend.

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Plan 3867/1d



LEGEND

Clearing Instruments

- Areas Approved to Clear
- Road Centrelines
  Cadastre for labelling
- Local Government Authorities
  Yandanooka 50cm Orthomosaic - Landgate 2005

** Project Data is denoted by asterisk.*
This data has not been quality assured.
Please contact map author for details.

N

0 ~750 m

Scale 1:29252
(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 23/9/10

K Faulkner

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

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Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3867/1

Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Karara Mining Limited**

1.3. Property details

Property:

LOT 146 ON PLAN 203646 (ARRINO 6519)
LOT 146 ON PLAN 203646 (ARRINO 6519)
LOT 118 ON PLAN 203646 (ARRINO 6519)
LOT 147 ON PLAN 202782 (BUNDANOON 6522)
LOT 106 ON PLAN 111621 (House No. 20901 MIDLANDS BUNDANOON 6522)
ROAD RESERVE (YANDANOOKA 6522)
ROAD RESERVE (YANDANOOKA 6522)
ROAD RESERVE (YANDANOOKA 6522)
ROAD RESERVE (YANDANOOKA 6522)
ROAD RESERVE (YANDANOOKA 6522)
LOT 56 ON PLAN 4518 (YANDANOOKA 6522)
LOT 56 ON PLAN 4518 (YANDANOOKA 6522)
LOT 46 ON PLAN 4518 (House No. 385 WILLIS YANDANOOKA 6522)
LOT M1786 ON DIAGRAM 8156 (House No. 751 COLGATE YANDANOOKA 6522)
LOT M1318 ON DIAGRAM 5359 (YANDANOOKA 6522)

Local Government Area:

Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
31.91		Mechanical Removal	Water/gas pipeline installation

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
Beard Vegetation Association: 379 - Shrublands; scrub-heath on lateritic sandplain in the central Geraldton Sandplain Region 352 - Medium woodland; York gum 354 - Shrublands; jam and Acacia rostellifera (+ hakea) scrub with scattered York gum 380 - Shrublands; scrub-heath on sandplain	The application to clear 31.91ha of native vegetation is for the purpose of constructing the Yandanooka water pipeline. The construction footprint for the area will range from 20m (in road reserves) to 30m (in private property). The project footprint area is 75.98ha. The area under application includes areas for which the current land use is agricultural paddocks. These areas are considered to be in a completely degraded (Keighery, 1994) condition. Some vegetation under application has been subject to severe disturbance (Karara Mining, 2010), these areas are	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	The vegetation condition was determined through aerial photography and a Flora and Fauna survey (Karara, 2010).

	considered to be in degraded (Keighery, 1994) condition. The proposal intersects some pockets of remnant vegetation in good (Keighery, 1994) condition (Karara Mining, 2010).		
As above	As above	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	As above

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 31.91ha of native vegetation (within a 75.98ha project area) in completely degraded to good (Keighery, 1994) condition for the purpose of constructing the Yandonaooka pipeline.

The area applied to clear is predominately within the Avon Wheatbelt IBRA bioregion, with the western portion within the Geraldton Sandplains IBRA bioregion.

Sixty eight vascular plants were recorded within the application area, of these, 45 were native and 23 were weed species (Karara, 2010). Two declared plants were recorded, Saffron Thistle and Paterson's Curse (Karara, 2010). No taxa of conservation significance were recorded during the survey, however the survey was conducted outside the optimal time for surveying in the region (South-West province) (Karara, 2010).

Schoenia filifolia subsp. subulifolia and Wurmbea turbulosa (rare flora) have the potential to occur within the project area given the area contains likely habitat for these species. As the flora survey undertaken by the applicant was in March and not the flowering time for these species, they would not have been observed during the survey.

Verticordia spicata (rare flora) is known from a population 4km from the eastern end of the application area an may not have been surveyed for within the flora survey as it was not listed as a conservation significant taxa known to the area and may be located within the project area.

A fauna survey of the project area identified potential habitat for the Gilled Slender Bluetongue, Western Spiny-tailed Skink and Carnaby's Black Cockatoo (Karara, 2010). While the majority of the vegetation under application is in a 'degraded' (Keighery, 1994) condition, given the highly altered landscape, this vegetation acts as foraging habitat, potential roosting habitat and a fauna corridors, providing linkages between vegetation remnants.

The local area (30km radius) retains approximately 30% native vegetation cover with most of the vegetation in similar condition as the vegetation under application. The vegetation under application comprises a mosaic of remnant vegetation along a linear area (including roadside vegetation) and is therefore likely to provide an ecological linkage between areas of remnant vegetation in the local area.

Given the extent of native vegetation in the local area and as the application area includes mapped records of rare flora and active habitat for conservation listed fauna the proposed clearing may be at variance to this Principle. Weed conditions may mitigate the impact clearing may have on biodiversity.

Methodology

References:
Karara (2010)
Keighery (1994)

GIS Database
Interim Biogeographic Regionalisation of Australia
SAC Bio Datasets accessed 16 March 2010

(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 at variance to this Principle

Although only one vegetation community within the project area has been identified as being in good (Keighery, 1994) condition the remaining disturbed vegetation communities that will be impacted should be considered as

being of value for fauna habitat based on the highly altered landscape in which they occur.

Despite the disturbed nature of these areas many function as important corridors for fauna movement and provide linkages between vegetation remnants. In a landscape that is predominantly cleared of vegetation, road reserve vegetation is highly valuable in preserving remaining biodiversity values.

There may be suitable habitat for the Gilled Slender Bluetongue (Cyclodomorphus branchialis) within the project area. Although the vegetation under application is predominately in a 'degraded' (Keighery, 1994) condition, this habitat may still be adequate to support this species.

While the eucalypt woodland occurring in the project area has been identified as being 'patchy and degraded' (Karara, 2010) the areas may potentially support Western Spiny-tailed Skink (Ergonia stokesii badia) colonies. The species is known to be relatively adaptable and will inhabit piles of timber, corrugated iron and other materials in an urban setting in places such as Three Springs. It is also noted that no systematic searches for scats were undertaken as part of the field survey and therefore it is difficult to determine the level of risk posed to the species as result of the proposed clearing within Eucalypt woodlands.

Large eucalypts within the application area may provide suitable breeding hollows for Carnaby's Black-cockatoo (Calyptorynchus latirostris) given that records exist of Carnaby's breeding within 50km of this site The shrubland vegetation identified by the proponent will provide suitable foraging habitat in the area. Impacts on shrubland remnants containing suitable foraging habitat should also be avoided during the planning and design process given that the area is largely cleared of vegetation and any remaining remnants are considered valuable in this highly altered landscape.

The Shield-backed Trapdoor Spider (idiosoma nigrum) is found within Acacia acuminata woodlands on granitic soils and eucalypt woodlands on heavy soils (Burbridge, 2004). This species may occur within the Acacia and eucalypt woodlands within that application area, however, the vegetation has been highly disturbed (Karara, 2010).

Surveys for Malleefowl mounds ('Vulnerable' under the Environment Protection and Biodiversity Conservation (EPBC) Act 1999 and Wildlife Conservation Act 1999) have been undertaken within the applied area; however no mounds were recorded (Karara, 2010).

The local area (30km radius) retains approximately 20% native vegetation cover with most of the vegetation in similar condition as that within the project area. The vegetation under application comprises a mosaic of remnant vegetation along a linear area and is therefore likely to provide an ecological linkage between areas of remnant vegetation in the local area.

Given the above the application to clear is likely to contain vegetation that is significant fauna habitat and therefore is at variance to this principle. Offset conditions would mitigate the loss of habitat in a highly cleared landscape.

Methodology References:
Karara Mining (2010)
Keighery (1994)

GIS Database:
SAC Bio Datasets accessed 16 March 2010

(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

Schoenia filifolia subsp. subulifolia and Wurmbea tubulosa (rare flora species) potentially occur within the project area. The proposed route of the pipeline contains potential habitat for these species. Both species have been previously recorded in predominantly cleared and disturbed areas. These are annual species and would not have been identifiable during the month of March when the flora survey was undertaken.

There is a known population of Verticordia spicata subsp. squamosa (rare flora) approximately 4km from eastern end of proposed pipeline and given it's proximity to the project area, may occur within the application area.

Based on the above the proposed clearing may be at variance to this Principle. Flora management conditions will manage the direct impacts to rare flora.

Methodology GIS Database:
SAC Bio Datasets accessed 16 March 2010

(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 threatened ecological communities occur within or are adjacent to the vegetation under application (Karara, 2010). Additionally the applied vegetation structure and composition, as described by Karara (2010), are not representative of any known TEC.

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

Methodology

References:
Karara(2010)

GIS Database
SAC Bio Datasets accessed 16 March 2010

(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 at variance to this Principle

	Pre-European (ha)	Current extent	Remaining (ha)(%)	% In reserves DEC Managed Land
IBRA Bioregion*				
Avon Wheatbelt	9,517,109	1,736,214	18.24	6.95
Geraldton Sandplains	3,136,025	1,410,755	44.99	34.03
Shire*				
Three Springs	265,740	59,190	22.27	8.29
Mingenew	193,481	21,769	11.25	4.77
Beard Vegetation Association*				
352	724,272	144,969	20.02	2.07
354	91,918	10,901	11.86	7.64
379	547,736	130,484	23.82	21.13
380	580,374	355,648	61.28	28.56
Beard Vegetation Association within Avon Wheatbelt Bioregion*				
352	630,581	111,029	17.61	1.35
354	91,254	10,783	11.82	7.64
380	23,170	3,523	15.21	7.46
Beard Vegetation Association within Geraldton Sandplains*				
379	546,507	130,247	23.83	21.17

* (Shepherd, 2009)

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia 2001).

Both the Shire of Three Springs and Mingenew retain less than 30% native vegetation, similarly as does the Avon Wheatbelt bioregion. Within both the Avon Wheatbelt and Geraldton Sandplains bioregions all vegetation units proposed to be clear retain less than the recommend 30% of pre-European vegetation extent.

The local area (30km radius) retains approximately 20% native vegetation and therefore has been extensively cleared with the vegetation under application ranging from being in a 'degraded' to 'good' (Keighery, 1994) condition.

Given that the vegetation is not well represented locally or regionally the vegetation under application is likely to be significant as a remnant in a highly cleared landscape and serve as a corridor for native fauna dispersal throughout this highly fragmented landscape, the clearing as proposed is at variance to this principle. Offset conditions would mitigate the loss of vegetation in a highly cleared landscape.

Methodology

References:
Commonwealth of Australia (2001)
Keighery (1994)
Shepherd (2009)

GIS Database

Interim Biogeographic Regionalisation of Australia - EA 18/10/00
Local Government Authorities - DLI 8/07/04
Pre European Vegetation - DA 01/01
NLWRA, Current Extent of Native Vegetation 20 Jan 2001

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

Comments

Proposal is not likely to be at variance to this Principle

There are eight minor, non perennial watercourses intersecting the application area.

The removal of limited vegetation associated with small non-perennial watercourses is unlikely to significantly impact on this watercourse network as a whole throughout the landscape. Karara (2010) have advised that no vegetation in the project area is associated with a watercourse or a wetland.

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

Methodology

References:
Karara Mining (2010)

GIS Database:
Hydrography linear DOW 13/7/06

(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 applicant has advised that upon completion of the pipeline construction, areas disturbed by the construction will be returned to their natural state (arable land, road reserve or native vegetation) (Karara, 2010).

Rehabilitation of vegetation will be undertaken in accordance with the Environmental Procedure - Land rehabilitation including landscaping and erosion management, ripping and topsoil and vegetation return (Karara, 2010).

Soils within the project area are not highly susceptible to wind erosion however throughout the rangelands region water erosion through linear clearing of the landscape has often resulted in significant erosional damage.

Given the nature of the clearing application, localised land degradation may occur during the construction period however this will be short term and these issues should be minimal with proper infrastructure put in place to prevent land degradation. The proposed clearing is not likely to be at variance to this principle.

Methodology

References:
- Karara (2010)

GIS Database
Average Annual Rainfall Isohyets - WRC 29/09/98
Annual Evaporation Contours (Isopleths) - WRC 29/09/98
Hydrogeology, statewide DOW 13/07/06
Hydrographic catchments, catchments - DoW 01/06/07
Hydrography, linear - DOW 13/7/06
Salinity Risk LM 25m - DOLA 00
Soils, Statewide DA 11/99
Topographic contours statewide - DOLA and ARMY 12/09/02

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

Comments

Proposal may be at variance to this Principle

The closest conservation reserve is an unnamed Nature Reserve located 13.4km NW of the project area.

Given that the vegetation types found within the project area are not well represented locally or regionally and considering that the Shires of Mingenew and Three Springs retain less than 30% of there pre European vegetation extent the vegetation within the project area may serve as a corridor for native fauna dispersal throughout this highly fragmented landscape and between areas of conservation significance.

Twenty-three weed species were surveyed within the project area (Karara, 2010). Of this, two declared plants were recorded, Saffron Thistle and Paterson's Curse (Karara, 2010).

Twenty-three weed species were surveyed within the project area (Karara, 2010). Of this, two declared plants were recorded, Saffron Thistle and Paterson's Curse (Karara, 2010).

Given the above, the proposal as stated may be at variance to this principle. Weed conditions will manage impacts to vegetated corridors between conservation reserves.

Methodology

References:
Karara Mining (2010)

GIS Database
DEC Tenure
Register of National Estate - Environment Australia, Australian and world heritage division 12 Mar 02
System 1 to 5 and 7 to 12 areas DEC 11/7/06

(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 soils within the application area are not highly susceptible to wind erosion, however throughout the rangelands region water erosion through linear clearing of the landscape has resulted in significant erosional damage.

Groundwater salinity is mapped from 500-1000mg/L within the Geraldton sandplans and 7000 -14000 mg/L within the Avon Wheatbelt bioregion, further removal of deep rooted native vegetation may increase soil salinity within the local area (30km radius) and lead to a rise in salinity of groundwater.

The proposed clearing intersects eight minor, non perennial watercourses and minor tributaries.

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

Methodology

GIS Database
Evapotransporation Isopleths - WRC 29/09/98
Groundwater Salinity Statewide DoW 13/07/06
Hydrographic catchments, catchments - DoW 01/06/07
Hydrography, linear - DOW 13/7/06
Mean Annual Rainfall Isohytes (1975 - 2003) - DEC 02/08/05
Salinity Risk LM 25m - DOLA 00
Topographic Contours, Statewide - DOLA 12/09/02

(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 is for the proposed clearing of 31.91ha within a 75.98ha linear area stretching 25km.

The application area falls within the Irwin River Hydrographic catchment, with a medium relief (230 - 300m AHD). The applicant has proposed to rehabilitate disturbed areas back to pre clearing condition (Karara, 2010).

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

Methodology

References:
Karara (2010)

GIS Database
Evapotransporation Isopleths - WRC 29/09/98
Groundwater Salinity Statewide DoW 13/07/06
Hydrographic catchments, catchments - DoW 01/06/07
Hydrography, linear - DOW 13/7/06
Mean Annual Rainfall Isohytes (1975 - 2003) - DEC 02/08/05
Salinity Risk LM 25m - DOLA 00
Topographic Contours, Statewide - DOLA 12/09/02

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

Comments

This proposal is directly related to the Karara Iron Ore Project (KIOP) that has received approval under Part IV of the EP Act and is subject to Ministerial Statement 805. Statement 805 provides for fauna protection during pipeline construction activities at Condition 8. It is recommended that the proponent develop a Fauna Management Plan for the construction phase of the pipeline that addresses the potential direct and indirect

impacts on fauna particularly during the trenching phase. It is recommended that Condition 8 is applied to the proposal and any Fauna Management Plan should be consistent with these conditions given that this pipeline proposal will connect with the PER water pipeline route as approved under the EP Act.

The pipeline is located outside any gazetted surface water areas and crosses eight minor drainage lines (Karara, 2010). Additionally the pipeline will traverse the Arrowsmith and Gascoyne gazetted groundwater areas, however the construction of the water pipeline will not required any dewatering (Karara, 2010).

The Greater Karara Mining project has been formally assessed by the EPA under Bulletin Report 1321 (DOC117508) and given authorisation for implementation under Ministerial Statement 805. DEC has previously approved an offset proposal for the Greater Karara Iron Ore Project (CEOD5799).

Methodology

Reference:
Karara (2010)
GIS Database:
Aboriginal Sites of Significance
Native Title Claims

4. References

Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.

Karara (2010). Karara Iron Ore Project. Native Vegeation Clearing Permit application, Yandanooka pipeline July 2010.

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Shepherd, D.P. (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)