



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 5845/1
Permit Holder:	Alinta Energy Transmission (Roy Hill) Pty Ltd
Duration of Permit:	18 January 2014 – 18 January 2019

ADVICE NOTE:

This Permit does not confer upon the Permit Holder authorisation to access the land to which the Permit relates.

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 transmission line infrastructure, access tracks and laydown area.

2. Land on which clearing is to be done

Lot 87 on Deposited Plan 30401 (Newman 6753)
Lot 104 on Deposited Plan 30401 (Newman 6753)
Lot 1580 on Deposited Plan 72910 (Newman 6753)
Lot 99 on Deposited Plan 220355 (Newman 6753)
Lot 19 on Deposited Plan 48921 (Newman 6753)
Lot 351 on Deposited Plan 74327 (Newman 6753)
Lot 300 on Deposited Plan 44340 (Newman 6753)
Lot 353 on Deposited Plan 74327 (Newman 6753)
Lot 349 on Deposited Plan 74327 (Newman 6753)
Lot 352 on Deposited Plan 74327 (Newman 6753)
Lot 163 on Deposited Plan 216869 (Newman 6753)
Lot 71 on Deposited Plan 216352 (Newman 6753)
Lot 154 on Deposited Plan 192801 (Newman 6753)
Lot 174 on Deposited Plan 219293 (Newman 6753)
Lot 175 on Deposited Plan 219293 (Newman 6753)
Lot 223 on Deposited Plan 216869 (Newman 6753)
Lot 176 on Deposited Plan 219293 (Newman 6753)
Lot 201 on Deposited Plan 219293 (Newman 6753)
Lot 17 on Deposited Plan 241430 (Newman 6753)
Lot 400 on Deposited Plan 71872 (Newman 6753)
Marble Bar Road reserve, PIN 11734468, PIN 11734467, PIN 11735082, PIN 11735083 and PIN 11735084 (Newman 6753)
Noreena Roy Hill Road reserve, PIN 11734465 (Newman 6753)

3. Area of Clearing

The Permit Holder must not clear more than 161 hectares of native vegetation within the area shaded yellow on attached Plan 5845/1.

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.

PART II – MANAGEMENT CONDITIONS

5. 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.

6. 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* following clearing authorised under this Permit *revegetate* and *rehabilitate* area(s) that are no longer required for the purpose for which they were cleared under this Permit.
 - (i) ripping the ground on the contour to remove soil compaction; and
 - (ii) laying the vegetative material and topsoil retained under condition 6(a) on the area(s) that are no longer required for the purpose for which they were cleared under this Permit.

DEFINITIONS

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

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

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;

optimal time means the period from November to December for undertaking *direct seeding*.

regenerate/ed/ion means re-establishment of vegetation from in situ seed banks and propagating material (such as lignotubers, bulbs, rhizomes) contained either within the topsoil or seed-bearing *mulch*;

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 natural *regeneration*, *direct seeding* and/or *planting*, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area; and

weed/s means any plant -

- (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or
- (b) published in the former Department of Environment and Conservation Regional Weed Assessments, regardless of ranking; or
- (c) not indigenous to the area concerned.



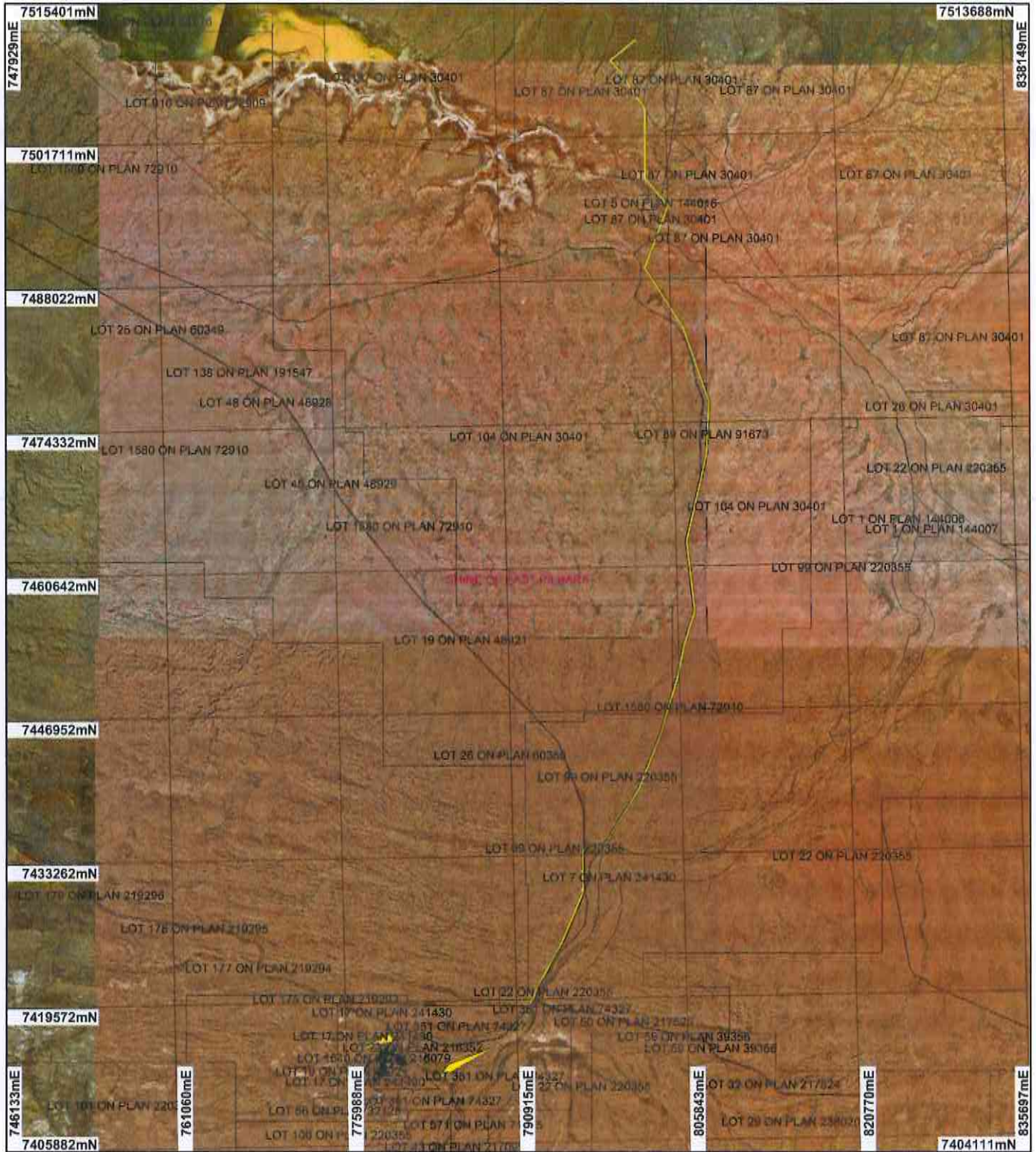
M Warnock
MANAGER

NATIVE VEGETATION CONSERVATION BRANCH

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

19 December 2013

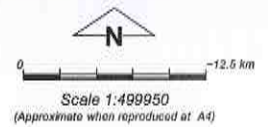
Plan 5845/1



LEGEND

- Local Government Authorities
 - Cadastre for labelling Clearing Instruments
 - Areas Approved to Clear
- Western Australia Landsat Mosaic 25m - AGO 2008
- Murramunda 1.4m Orthomosaic - Landgate 2003
- Ethel Creek 50cm Orthomosaic - Landgate 2004

- Koy Hill 50cm Orthomosaic - Landgate 2004
- Newman 1.4m Orthomosaic - Landgate 2003



Geocentric Datum Australia 1994

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

M Warnock Date 19/12/13

M Warnock

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 acknowledged by the agency acronym in the legend.



Government of Western Australia
Department of Environment Regulation

WA Crown Copyright 2002

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



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 5845/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Alinta Energy Transmission (Roy Hill) Pty Ltd

1.3. Property details

Property:
 LOT 87 ON PLAN 30401 (NEWMAN 6753)
 ROAD RESERVE (NEWMAN 6753)
 LOT 104 ON PLAN 30401 (NEWMAN 6753)
 ROAD RESERVE (NEWMAN 6753)
 ROAD RESERVE (NEWMAN 6753)
 LOT 1580 ON PLAN 72910 (NEWMAN 6753)
 ROAD RESERVE (NEWMAN 6753)
 LOT 99 ON PLAN 220355 (NEWMAN 6753)
 LOT 19 ON PLAN 48921 (NEWMAN 6753)
 LOT 351 ON PLAN 74327 (NEWMAN 6753)
 LOT 300 ON PLAN 44340 (NEWMAN 6753)
 LOT 353 ON PLAN 74327 (NEWMAN 6753)
 LOT 349 ON PLAN 74327 (NEWMAN 6753)
 LOT 352 ON PLAN 74327 (NEWMAN 6753)
 LOT 163 ON PLAN 216869 (NEWMAN 6753)
 LOT 71 ON PLAN 216352 (Lot No. 71 GREAT NORTHERN NEWMAN 6753)
 LOT 154 ON PLAN 192801 (NEWMAN 6753)
 LOT 174 ON PLAN 219293 (NEWMAN 6753)
 LOT 175 ON PLAN 219293 (NEWMAN 6753)
 LOT 223 ON PLAN 216869 (NEWMAN 6753)
 LOT 176 ON PLAN 219293 (NEWMAN 6753)
 LOT 201 ON PLAN 219293 (NEWMAN 6753)
 LOT 17 ON PLAN 241430 (NEWMAN 6753)
 LOT 400 ON PLAN 71872 (NEWMAN 6753)

Local Government Area: Shire of Roebourne
 Colloquial name: Marble Bar Road and Noreena-Roh Hill Road reserves

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
1		Mechanical Removal	Building or Structure
160		Mechanical Removal	Building or Structure
		Mechanical Removal	Water/gas/cable/pipeline/power installation

1.5. Decision on application

Decision on Permit Application: Grant
 Decision Date: 19 December 2013

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
Mapped Beard vegetation association 29 is described as sparse low woodland; mulga, discontinuous in scattered groups.	Newman to Roy Hill Transmission Line Construction and Operation.	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management	The condition of the native vegetation under application was determined by digital imagery and a flora survey undertaken by
Mapped Beard vegetation association 197 is described as			

sedgeland; sedges with scattered medium trees; coolabah over various sedges & forbes .

(Keighery 1994)

Ecoscape (2013).

Mapped Beard vegetation association 676 is described as succulent steppe; samphire.

To

The clearing of 161 hectares of native vegetation is for the construction of transmission line infrastructure, access tracks and a laydown area.

Mapped Beard vegetation association 111 is described as hummock grasslands, shrub steppe; Eucalyptus gamophylla over hard spinifex.

Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994)

Mapped Beard vegetation association 82 is described as hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana*.

Mapped Beard vegetation association 18 is described as low woodland; mulga (*Acacia aneura*).

(Shepherd et al 2001).

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 maybe at variance to this Principle

The application proposes to clear 161 hectares of native vegetation for the purpose of constructing transmission line infrastructure, access tracks and a laydown area. The transmission line will run approximately 123 kilometres and will be largely adjacent to Marble Bar Road.

Approximately 88 per cent of the area under application is considered to be in a very good to excellent (Keighery 1994) condition (Ecoscape 2013). Small areas of the Fortescue River floodplain were noted to be heavily grazed and contain little native vegetation (Ecoscape 2013).

Numerous priority flora species have been recorded within the local area (30 kilometre radius). A flora survey undertaken by Ecoscape (2013) within August 2012 identified four priority flora species within the area under application.

A Priority 1 flora species appears to be relatively common in the area along Marble Bar Road and the two corridor study areas surveyed by Ecoscape (2013) to the east. The habitat adjacent to the survey area appears to be consistent and therefore it is likely that habitat for this species will be located in vegetation adjacent to the application area. Given the narrow linear nature of the application, and that only four per cent of the surveyed area is proposed to be cleared, the taking of a small number of individuals from the proposed clearing is unlikely to have a significant impact on the conservation status of this species (DPaW 2013a). It is recommended that impacts to this species be avoided where possible.

One Priority 4 and three Priority 3 flora species were also recorded within the area under application. These species occur at numerous locations and have a broad distribution. Given the narrow linear nature of the application area and the fact that these species have a broad distribution, the taking of a small number of individuals from the proposed clearing area is unlikely to have a significant impact on the conservation status of these species (DPaW 2013a).

Numerous fauna species listed as rare or likely to become extinct under the Wildlife Conservation Act 1950 have been recorded within a 40 kilometre radius including: *Falco hypoleucos* (Grey Falcon), *Rostratula benghalensis* subsp. *australis* (Australian Painted Snipe), *Calidris ferruginea* (Curlew Sandpiper), *Liasis olivaceus* subsp. *barroni* (Pilbara Olive Python) and *Petrogale lateralis* subsp. *lateralis* (Black-flanked Rock-wallaby) (DPaW 2007-). Given the linear nature of the area under application the clearing proposed is not likely to have a significant impact on fauna. 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 clearing proposed will comprise of many small areas which will be surrounded by extensive and continuous areas of undisturbed native vegetation (Alinta Energy 2013). The proposed clearing may cause weeds to spread into adjacent vegetation. *Parkinsonia aculeata* (*Parksonia*) is a declared plant listed under the Biosecurity and Agricultural Management Act 1999 and is listed as a Weed of National Significance by the Commonwealth. This species is known to occur within the application area particularly near the Roy Hill Homestead on the Roy Hill Pastoral Lease (DPaW 2013c). It is recommended the area nearby the Roy Hill Homestead is surveyed for weeds prior to clearing to ensure *Parksonia* is not spread into adjacent vegetation (DPaW 2013c). Weed management practices will help mitigate this risk.

The local area (30 kilometres) is highly vegetated with approximately 90 per cent vegetation cover remaining.

The vegetation proposed to be cleared is well represented within the local and regional area, the application area is not likely to contain high biological diversity when compared to the surrounding vegetation.

Given the above the clearing proposed maybe at variance to this principle.

Methodology

References:

- Alinta Energy (2013)
- DPaW (2007-)
- DPaW (2013a)
- DPaW (2013c)
- Ecoscape (2013)
- Keighery (1994)

GIS Databases:

- SAC Biodatasets - accessed November 2013

(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 listed as rare or likely to become extinct under the Wildlife Conservation Act 1950 (WC Act) have been recorded within a 40 kilometre radius including: *Falco hypoleucos* (Grey Falcon), *Rostratula benghalensis* subsp. *australis* (Australian Painted Snipe), *Calidris ferruginea* (Curlew Sandpiper), *Liasis olivaceus* subsp. *barroni* (Pilbara Olive Python) and *Petrogale lateralis* subsp. *lateralis* (Black-flanked Rock-wallaby) (DPaW 2007-).

A level 1 fauna survey was completed by Ecoscape (2013) in August 2012 and May 2013. Five fauna species of conservation significance were recorded within or adjacent to the area proposed to be cleared being: *Dasyercus* sp. (*Mulgara*) (Vulnerable, Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and WC Act), *Ardeotis australis* (Australian Bustard)(Priority 4, WC Act), *Burhinus grallarius* (Bush stone-Curlew) (Priority 4, WC Act), *Pseudomys chapmani* (Western Pebble-mound Mouse) (Priority 4 WC Act) and *Merops ornatus* (Rainbow Bee-eater) (Migratory, EPBC Act).

The fauna survey undertaken by Ecoscape (2013) determined that suitable habitat for *Pezoporus occidentalis* (Night Parrot), *Dasyurus hallucatus* (Northern Quoll) (Endangered, EPBC Act), *Macrotis lagotis* (Greater Bilby) (Vulnerable, EPBC Act), *Liasis olivaceus barroni* (Pilbara Olive Python) (Vulnerable, EPBC Act) and *Rhinonicteris aurantia* (Pilbara Leaf-nosed Bat)(Vulnerable, EPBC Act) is likely to be located within the application area.

Two *Mulgara* burrows were identified within the survey area, however they were recorded approximately 350 metres east of the application area (Ecoscape 2013). The *Mulgara* inhabits arid sandy regions that supports spinifex grasslands (DPaW 2013b). *Mulgaras* dig complex burrows on flats between sand dunes (DPaW 2013b). The clearing proposed will not impact upon the identified burrows and therefore the clearing proposed will not have impact on significant habitat for this species.

The clearing proposed will comprise of many small areas of clearing which will be surrounded by extensive and continuous areas of undisturbed native vegetation (Alinta Energy 2013) which will provide habitat for fauna. 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.

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

The applicant has advised that to minimise the vegetation clearing required they will use existing roads and tracks to access the application area wherever possible (Alinta Energy 2013).

Methodology

References:

- DPaW (2007-)
- DPaW (2013b)
- Ecoscape (2013)
- Keighery (1994)

GIS Databases:

- SAC Biodatasets - accessed November 2013

(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

Numerous rare flora species have been recorded within the local area (30 kilometre radius). The closest being recorded approximately 5.3 kilometres west of the area under application. This species typically grows on steep stony slopes, in skeletal red brown gritty soil, with an overstorey of snappy gum (*Eucalyptus leucophloia*)

(Brown et al 1998).

A flora survey undertaken by Ecoscape (2013) in August 2012 did not record any rare flora within the area under application. The above species flowers between August to January (DotE 2013) therefore it is unlikely this species occurs within the area under application.

Given the above the clearing as proposed is not likely to be at variance to this principle.

Methodology

References:

- Brown et al (1998)
- DotE (2013)
- Ecoscape (2013)

GIS Databases:

- SAC Biodatasets - accessed November 2013

(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

Threatened ecological community (TEC) 'Ethel Gorge aquifer stygobiont community' is mapped within the area under application. This TEC occurs within the groundwater.

The area proposed to be cleared within the mapped TEC boundary and buffer area is likely to be for the construction area of 4-6 transmission towers and access tracks. The only identified threatening process for this TEC is groundwater drawdown (Alinta Energy 2013). The project will not intersect groundwater and therefore will not impact on this TEC (Alinta Energy 2013).

A flora and vegetation survey was undertaken by Ecoscape (2013) and no other TEC's were recorded within the area under application.

Given the above the clearing as proposed is not likely to be at variance to this principle.

Methodology

References:

- Alinta Energy (2013)
- Ecoscape (2013)

GIS Databases:

- SAC Biodatasets - accessed November 2013

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

Comments

Proposal is not at variance to this Principle

The area under application is located within the Gascoyne and Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregions. These IBRA bioregions have approximately 99 per cent of their pre European vegetation extent remaining (Government of Western Australia 2013).

The vegetation under application is mapped as Beard Vegetation Associations 29, 197, 676, 111, 82 and 18 which all have approximately 99 per cent of their Pre-European extent remaining in the Pilbara and Gascoyne bioregions (Government of Western Australia 2013).

Digital imagery (Roy Hill 50cm Orthomosaic - Landgate 2004) indicates that the local area (30 kilometre radius) surrounding the area under application retains approximately 90 per cent vegetation cover.

Given the vegetation representation within the local area the vegetation under application is not significant as a remnant in an extensively cleared landscape.

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

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in DEC Managed Lands (%)
IBRA Bioregion*				
Gascoyne	18,075,219	18,067,441.43	99	10
Pilbara	17,808,658	17,733,583.95	99	8
Shire*				
Shire of East Pilbara	37,183,050	37,155,254.30	99	4
Beard Vegetation Association in Bioregion*				
29	4,935,679	4,932,575	99	6
197	56,490	56,470	99	0
676	805,941	805,870	99	16
111	762,753	762,115	99	6
82	2,565,901	2,553,217	99	10
18	3,950,136	3,943,763	99	11

* Government of Western Australia (2013)

Methodology

References:

Government of Western Australia (2013)

GIS Database:

- IBRA Australia
- Local Government Authority
- Pre-European vegetation
- Roy Hill 50cm Orthomosaic - Landgate 2004
- SAC Biodatasets - accessed November 2013

(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

Numerous watercourses intersect the application area including the major watercourse 'Fortescue River'.

ANCA Wetland 'Fortescue Marsh' is mapped approximately one kilometre west of the application area.

The applicant has advised the infrastructure proposed to be constructed does not follow watercourses and the locations are located to avoid watercourses (Alinta Energy 2013). Therefore the proposed clearing areas will avoid impacts on vegetation within the watercourses intersecting the application area where possible. Access to all tower locations will generally be along the shortest practicable route between the closest existing vehicle access and the tower location and therefore the impacts on vegetation associated with watercourses will be minimised (Alinta Energy 2013).

Given the presence of watercourses within the application area the clearing proposed is at variance to this principle.

Methodology

References:

- Alinta Energy (2013).

GIS Databases:

- ANCA, wetlands
- Hydrology, 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

Six soils types have been mapped within the application area which Northcote et al (1960 - 1968) describes as:

Mz25: Plains associated with the Fortescue valley; there is a surface cover of stony gravels close to the ranges and hills; chief soils are acid red earths with some neutral red earths red-brown hardpan is absent.

Oc71: Outwash plains with much coarse surface gravel: chief soils are hard alkaline red soils.

Lb12: Valley flats along major drainage lines, associated with limestone and calcareous gravels (kunkar): chief soils are highly calcareous earths with minor areas of shallow calcareous loams.

BE6: Extensive flat and gently sloping plains, which sometimes have a surface cover of gravels and on which redbrown hardpan frequently outcrops: chief soils are shallow earthy loams.

Oc64: Low stony hills and dissected pediments on granite with occasional basic dykes: chief soils are hard, alkaline red.

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 along with some soils on the steeper slopes.

The clearing proposed will comprise of many small areas of clearing which will be surrounded by extensive and continuous areas of undisturbed native vegetation (Alinta Energy 2013).

Approximately 23 per cent of the application area covers sheet flow areas. Clearing, in particular for access tracks may interfere with drainage patterns and contribute to water erosion. The applicant has advised this risk will be managed by ensuring that vegetation clearing is completed without earthmoving to minimise the disruption to surface flows (Alinta Energy 2013).

The project requires approximately 240 towers to be installed at approximately 500 metre intervals along the project area. The area proposed to be cleared around each tower is minimal being approximately 0.25 metres squared. The area cleared around each tower will be rehabilitated which will minimise soil erosion within these areas (Alinta Energy 2013). Revegetation management practices for temporary landuse will help mitigate soil erosion risks.

The clearing 161 hectares over a 123 kilometre area is not likely to cause appreciable land degradation.

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

Methodology

References:

- Alinta Energy (2013)
- Northcote et al (1960 -1968)

GIS Databases:

- 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 at variance to this Principle

There are no conservation areas located within the area under application. The closest conservation area is Karijini National Park located approximately 130 kilometres west of the application area.

Given the distance to the closest conservation area, the proposed clearing will not have an impact on the environmental values of a conservation area.

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

Methodology

GIS Databases:

- DPaW, tenure

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

Comments Proposal may be at variance to this Principle

Numerous watercourses intersect the application area including the major watercourse 'Fortescue River'.

ANCA Wetland 'Fortescue Marsh' is mapped approximately one kilometre west of the application area.

The applicant has advised there may be minor changes to localised surface drainage through the clearing of vegetation (Alinta Energy 2013). The proposed clearing may cause sedimentation of watercourses that intersect the area under application. However the clearing of 161 hectares is over a 123 kilometre stretch and sedimentation is considered to be short term and minimal and not likely to cause deterioration in the quality of surface water in the long term.

In addition the applicant has advised the infrastructure proposed to be constructed does not follow watercourses and the locations are located to avoid watercourses (Alinta Energy 2013). Access to all tower locations will generally be along the shortest practicable route between the closest existing vehicle access and the tower location and therefore the impacts to surface water quality will be minimised (Alinta Energy 2013).

Groundwater Salinity ranges from 500 to more than 35000 milligrams per litre of Total Dissolved Solids (TDS) which is considered Marginal to Brine. The clearing of 161 hectares of native vegetation over 123 kilometre stretch that is highly vegetated is not likely to cause the deterioration in the quality of underground water.

Given the above the clearing as proposed may be at variance to this principle.

Methodology GIS Databases:
- ANCA wetlands.
- Groundwater salinity
- Hydrology, linear

(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 may occur in the Pilbara region following cyclonic activity. The clearing proposed will comprise of many small areas of clearing which will be surrounded by extensive and continuous areas of undisturbed native vegetation (Alinta Energy 2013). The proposed clearing of 161 hectares over a 123 kilometre stretch is not likely cause or exacerbate the incidence or intensity of flooding.

The clearing as proposed 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
The Department of Water (DoW 2013) has advised that the application area occurs within the Pilbara Surface Water Area proclaimed under the Rights in Water and Irrigation Act 1914. A permit is required to disturb bed and banks within the proclaimed area. A permit may be required where the infrastructure corridor access tracks cross over the identified waterways. DoW has not received an application for a bed and banks permit from the applicant.

The construction and operation of the transmission line from the existing Newman Power Station north to the Roy Hill Iron Pre mine site was referred to the Environmental Protection Authority for assessment. The Environmental Protection Authority has confirmed that formal assessment is not required under Part IV of Environmental Protection Act 1984 (Alinta Energy 2013).

Methodology References:
- Alinta Energy (2013)
- DoW (2013)

4. References

- Alinta Energy (2013) Native Vegetation Clearing Permit Application. Newman to Roy Hill Transmission Line Construction and Operation. Western Australia. DER Ref: A686884.
- Brown A., Thomson-Dans C. and Marchant N. (1998). Western Australia's Threatened Flora, Department of Conservation and Land Management, Western Australia.
- DotE (2013) Approved conservation advice for *Lepidium catapynon* (Hamersly *Lepidium*). Department of the Environment. Australia. <http://www.environment.gov.au/biodiversity/threatened/species/pubs/9397-conservation-advice.pdf> accessed December 2013.
- DPaW (2007 -) NatureMap: Mapping Western Australia's Biodiversity. Department of Parks and Wildlife. URL: <http://naturemap.dpaw.wa.gov.au/>. Accessed November 2013
- DPaW (2013a) Species and Communities Advice (Flora) for CPS 5845/1. Department of Parks and Wildlife. Western Australia. DER Ref: A704659
- DPaW (2013b) Mulgara, *Dasyercus* sp. Fauna Profile. Department of Park and Wildlife. Western Australia.
- DPaW (2013c) Regional Advice for Clearing Permit CPS 5845/1. Department of Parks and Wildlife. Western Australia. DER Ref: A706623
- Ecoscope (2013) Newman - Roy Hill Transmission Line Survey - Version 11. Western Australia. DER Ref: A686966.
- Government of Western Australia (2013) 2012 Statewide 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.
- 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.
- 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.