



1. Application details

1.1. Permit application details

Permit application No.: 2307/1
 Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Apache Northwest Pty Ltd

1.3. Property details

Property: ROAD RESERVE (MARDIE 6714)
 Local Government Area: Shire Of Roebourne
 Colloquial name: North West Coastal Highway Road Reserve & Forty Mile Beach Road Reserve

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
5.5		Mechanical Removal	Road construction or maintenance

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 Association: 175 - Short bunch grassland	The area to be cleared consists of degraded hummock grasslands vegetation that has been historically cleared and degraded through pastoral land use and road maintenance (Apache, 2008)	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	Vegetation condition was determined from a flora survey conducted by Astron Environmental Services (2007) and Apache (2008).

3. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

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

The application is to clear 5.5 hectares of vegetation for road upgrading. The area to be cleared consists of Beard vegetation association 175 of which there is approximately 100% of the Pre-European extent remaining (Shepherd et al., 2006). The area to be cleared consists of degraded hummock grasslands and vegetation that has been historically cleared and degraded through pastoral land use and road maintenance (Apache, 2008). The condition of the vegetation is classified as degraded (Keighery, 1994).

There are a number of weeds common to the Pilbara region which could be introduced to site and surrounding areas as a result of this proposal. Strategies to reduce the risk of introduction and spread of weeds should be undertaken. Stockpiling of topsoil will also require management for weeds until it is required for rehabilitation activities.

Given the high extent of vegetation remaining, the application area is unlikely to represent an area of higher biodiversity value when compared to representative vegetation in a local and regional context.

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

Methodology Apache (2008)
 Keighery (1994)
 Shepherd et al. (2006)

(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**

Several species of conservation significance have been previously recorded within a 20km radius of the

application area. The fauna recorded include:

- * *Mormopterus loriae cobourgiana* (Little North-western Mastiff Bat) - Priority 1;
- * *Numenius madagascariensis* (Eastern Curlew) - Priority 4;
- * *Macroderma gigas* (Ghost Bat) - Priority 4;
- * *Lagostrophus conspicillatus* (Spectacled Hare-wallaby) - Priority 4;
- * *Leggadina Lakedownensis* (Lakeland Downs Mouse (Kerakengai)) - Priority 4;
- * *Falco Peregrinu* (Peregrine Falcon) - Other Specially Protected Fauna;
- * *Burhinus grallarius* (Bush Stonecurlew) - Priority 4;

The Little North-western Mastiff Bat and the Eastern Curlew (a migratory bird) are likely to occur in mangroves mudflats etc. close to the coast (DEWR, 2008). Given the vegetation within the habitat is not representative of mangroves, it is unlikely that the Little North-western Mastiff Bat and Eastern Curlew will require the use of vegetation within the application area.

The Ghost bat is likely to occur in the region, but as there are no known caves, abandoned mines or rocks containing deep cracks within the application areas, the likelihood of them roosting within the area is very low (AMO, 2007).

The Spectacled Hare-wallaby is now rare in the Pilbara region and land degradation through overstocking and changing fire regimes are seen as threatening processes to this species. The wallaby tends to spend the day in shallow burrows under grass tussocks or low shrubs (Ingleby, 2003). Although this type of vegetation is found within the application area, there is similar and abundant vegetation in the local and regional area.

The Lakeland Downs Mouse (Kerakengai) has a preference to gilgaied/cracked soils (Lakeland Downs Mouse, 2008). Given the vast region of cracked and gilgaied clays throughout the local area (20km radius), and the small application area within a road reserve, it is unlikely that the clearing will compromise Kerakenga habitats.

Peregrine Falcon is known to predominately live and nest on cliffs (Peregrine Falcon, 2008) and the Bush Stonecurlew's most threatening process is degradation of habitat (Bush Stonecurlew, 2008). Given the area is of low topography (10-20 AHD) with no cliffs and the application area is already 90% degraded (Apache, 2008) it is unlikely that both species would rely on the area for food and habitat.

The fauna habitats within the proposed area to be cleared are well represented elsewhere within the local and regional area. The area to be cleared does not represent a fauna corridor 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 Apache (2008)
AMO (2007)
DEWR (2008)
Ingleby (2003)
Lakeland Downs Mouse (2008)
GIS Layers:
Sac Bio Datasets 220108

(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

One known record of priority flora is located within a 20km radius of the application area. *Goodenia pallida* was recorded 11.3km north east of the application area on loamy and sandy soils and within annual grasslands consisting of acacia scrub-steppe. There are no known threatening processes, as not much is known about the species (Pilbara 2, 2001, pg562). The application area consists of shallow stony earth loams, vastly different to the soils where the *G. pallida* was recorded.

Given that the closest recorded priority flora is over 10kms from the application area it is unlikely that the application is at variance to this principle.

Methodology Pilbara 2 (2001)
GIS Layer:
Sac Bio datasets 220108

(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

There are no known threatened ecological communities within a 20km radius of the application area.

Given the above it is unlikely that the application area is necessary for the maintenance of a threatened ecological community.

Methodology GIS Layer:
- Sac Bio Datasets 220108

(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				
	Pre-European	Current extent		Remaining	% Extent in IUCN
		(ha)	(ha)	(%)	1 - 4
IBRA Bioregions*					
Pilbara		17,804,193	17,794,650	99.9	6.3
Sub bioregion					
Roebourne 1,844,158		1,834,869	99.5	3.1	
Shire*					
Roebourne 1,513,581		1,501,974	99.2	0.2	
Beard Vegetation Complex*					
175		526,204	524,859	99.7	4.2

* (Shepherd et al. 2006)

Approximately 99.9% and 99.5% of the Pre-European vegetation remains in the IBRA Pilbara bioregion and Roebourne IBRA sub-region respectively, within which this proposal is located (Shepherd et al., 2006).

The vegetation applied to be cleared is part of Beard Vegetation association 175, which has approximately 99.7% of the Pre-European extent remaining and therefore the 5.5 ha area proposed to be cleared is not considered to be a significant remnant of native vegetation within an extensively cleared area.

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

Methodology Shepherd et al. (2006)
GIS Layers:
- Pre European vegetation
- Interim Biogeographic Regionalisation of Australia (subregions) - EA 18/10/00.
- Interim Biogeographic Regionalisation of Australia - EA 18/10/00.

(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**
The application area is 200m west of Devils Creek and within vegetation associated with Horseflat Landform Systems (Apache, 2008).

The application is within the road reserve of two roads that already exist. Due to the vegetation under application being contained in road reserves and not within River Landform Systems, the proposal is not likely to be at variance.

Methodology Apache (2008)
GIS Layer:
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**
Rainfall and evapotranspiration rate for the local area (20km radius) are both 400mm, suggesting that there is a low risk of water logging within the proposed clearing area.

The topography within the region is of low relief with very shallow gradients. The purpose of the clearing is for road upgrades, on roads that are already established. The road side vegetation under application is not considered to be in an area associated with high salinity risk.

The proposal may cause some short term land degradation issues in terms of flooding and soil erosion during works. However these issues should be minimal as Apache have proposed to install 'a new table drain,...during the road upgrades' (Apache, 2008).

Given the small and linear nature of the application area, it is unlikely that the proposed clearing of native vegetation would cause appreciable land degradation.

Methodology Apache (2007)
GIS Layers:
- Evapotranspiration rate
- Groundwater Salinity
- Hydrogeology (statewide)
- Rainfall - mean annual
- Topography

(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**
There is one conservation area within a 20km radius of the application area. It is an island off the Pilbara coast (north of the application area) and is registered as a conservation reserve on the Register of National Estate.

Given the proximity of the conservation reserve to the application area (separated by sea), it is unlikely that the clearing of 5.5ha of native vegetation will have an impact on the environmental values of any nature conservation areas.

Methodology GIS Layer:
- Register of National Estate

(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**
Clearing of 5.5 hectares of vegetation is unlikely to have a significant impact on groundwater in the proposed area given the average annual rainfall of the site is 400mm, with most rainfall occurring over the summer months (BoM, 2008), and an evapotranspiration rate of 400mm per annum. Groundwater salinity is rated as low being 1000-3000mg/L.

Furthermore, the existing vegetation is shallow rooted grass and shrub species and thus the proposed clearing is unlikely to have a significantly impact the level or quality of the groundwater table.

The application area lies within The Pilbara Groundwater Area as proclaimed under the Rights in Water and Irrigation Act 1914. Any groundwater extraction and/or taking or diversion of surface water for the purposes other than domestic and/or stock watering is subject to licence by the Department of Water.

The proposed clearing for roadworks may cause some short term water quality issues in terms of localised surface water sedimentation during works. However these issues should be minimal as Apache have proposed to install 'a new table drain,...during the road upgrades' (Apache, 2008).

Due to the small, degraded and linear nature of the areas proposed to be cleared, it is unlikely that the clearing of native vegetation for roadworks will cause deterioration in the quality of surface water or groundwater within the local area.

Methodology Apache (2008)
BoM (2008)
EPA (2004)
GIS Layers:
Evapotranspiration rate
Groundwater salinity
Hydrology - linear
RIWI Act - Groundwater
Topography

(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 limited amount of clearing proposed (5.5 hectares) in comparison with the extent of the Port Hedland

coastal catchment area (which is approximately 744,300 hectares) is unlikely to result in an increase in peak flood height or flood peak duration.

Clearing of 5.5ha is unlikely to have a significant impact on quality or quantity of groundwater given the mean annual rainfall for the site is 400 millimetres with most rainfall occurring around the summer months (BoM, 2008), and an evapotranspiration rate of 400 millimetres per annum.

Given the above, it is unlikely that the proposed clearing will cause or exacerbate the incidence or intensity of flooding.

Methodology BoM (2008)
GIS Layers:
Groundwater salinity
Evapotranspiration
Hydrographic Catchments
Rainfall - mean annual

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

Comments

The proposed area lies within The Pilbara Groundwater Area as proclaimed under the Rights in Water and Irrigation Act 1914. Any groundwater extraction and/or taking or diversion of surface water for the purposes other than domestic and/or stock watering is subject to licence by the Department of Water.

Forty Mile Beach road reserve is vested in Shire of Roebourne. The Shire has consented to the vegetation clearing application provided by Apache.

North West Coastal Highway is vested in Main Roads. Main Roads has consented to the vegetation clearing application provided by Apache.

There are two Native Title claims over the area under application. Section 24MD of the Native Title Act provides that any registered native title claimants have the same procedural rights as they would have in relation to the granting of a purpose permit as they would if they held ordinary title to the land concerned.

DEC considers that an owner has a direct interest in the subject matter of the application and accordingly has invited the native title claimants under section 51E(4) to comment on the application and by section 51E(5) to take those comments into account when deciding whether to grant or refuse Apache's purpose permit. Notification was made to the representatives of the claimants (Yamatji Land and Sea Council). No response was received from the representative body. However, letters have been received from the claimants stating that they have no objection to the proposed clearing.

Methodology GIS Layers:
Native Title
RIWI Act - Groundwater

4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comment
Road construction or maintenance	Mechanical Removal	5.5	The application area is not likely to be at variance to any of the principles.

5. References

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- BoM 2008. Bureau of Meteorology - Rainfall of Karratha 2007. Sited on 1/1/2008 at <http://www.bom.gov.au/climate/dwo/IDCJDW6064.latest.shtml>
- DEWR, 2008. *Numenius madagascariensis* (Eastern Curlew) and *Mormopterus loriae cobourgiana* (Little North-western Mastiff Bat). Department of the Environment and Water Resources. Australian Government. Sited on 15/2/08 at www.environment.gov.au.
- EPA, 2004. Guidance for the Assessment of Environmental Factors - terrestrial flora and vegetation surveys for Environmental Impact Assessment in Western Australia. Report by the EPA under the Environmental Protection Act 1986. No 51 WA.
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- 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, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.
- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001a) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia (updated 2005).

6. 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)