



1. Application details

1.1. Permit application details

Permit application No.: 1453/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: SHIRE OF ROEBOURNE
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1.3. Property details

Property: ROAD RESERVE (BURRUP 6714)
KARRATHA TOWNSITE LOT 2322 (Lot No. 2322 STRICKLAND MILLARS WELL 6714)
KARRATHA TOWNSITE LOT 1478 (Lot No. 1478 BALMORAL PEGS CREEK 6714)
LOT 538 ON PLAN 221364 (BURRUP 6714)
Colloquial name: Hearson Cove Road

1.4. Application

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

1.5. Existing environment and information

1.5.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
Beard Vegetation Association 157: Hummock grasslands, grass steppe; hard spinifex <i>Triodia wiseana</i> (Hopkins et al., 2001).	The area under application on Lot 1478 Reserve 36458 (Hillview Rd) comprises of <i>Acacia bivenosa</i> and <i>Ranji Bush</i> (<i>A. pyrifolia</i>) over mixed grasses and shrubs. The area is heavily infested with two weed species Buffel Grass (<i>Cenchrus ciliaris</i>) and <i>Kapok</i> (<i>Aerva javanica</i>) and has been previously disturbed by pedestrian and vehicle tracks.	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	The description was determined by a desktop study using GIS databases and verified via a site visit by a DEC officer (DEC Site Visit, 28/08/2006).
Beard Vegetation Association 589: Mosaic Short bunch grassland - savanna / grass plain (Pilbara) / Hummock grasslands, grass steppe; soft spinifex (Hopkins et al., 2001).	The area under application on Lot 2322 Reserve 400800 (Broadhurst Rd) is comprised of <i>Acacia bivenosa</i> over mixed grasses and shrubs. The area is heavily infested with tow weed species Buffel Grass (<i>Cenchrus ciliaris</i>) and <i>Prickly Saltwort</i> (<i>Salsola kali</i>) and has been previously disturbed by pedestrian and bicycle tracks.	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	The description was determined by a desktop study using GIS databases and verified via a site visit by a DEC officer (DEC Site Visit, 28/08/2006).
Beard Vegetation Association 117: Hummock grasslands, grass steppe; soft spinifex.	The area under application on the Hearson Cove Rd road reserve comprises of <i>Acacia bivenosa</i> over soft spinifex (<i>Triodia pungens</i>) and mixed shrubs. The area has been previously disturbed by vehicle tracks and is infested by the weed Buffel Grass(<i>Cenchrus ciliaris</i>).	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	The description was determined by a desktop study using GIS databases and verified via a site visit by a DEC officer (DEC Site Visit, 28/08/2006).

2. 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 proposal will result in the clearing of vegetation within three vegetation communities: Hummock grassland, grass steppe (both hard spinifex and soft spinifex) and Mosaic Short bunch grassland - savanna / grass plain (Pilbara) / Hummock grasslands, grass steppe (Hopkins et al., 2001). Such communities are widespread in the Pilbara region (Shepherd et. al., 2001).

The Interim Biogeographic Regionalisation for Australia (IBRA) recognises 53 subregions in Western Australia. The area proposed for clearing is located within the Pilbara 4 (Roebourne) IBRA subregion. Kendrick and Stanley (2001) assessed biodiversity within the Roebourne IBRA subregion in relation to landscape, ecosystem, species and genetic values. High species and ecosystem diversity as well as a centre of endemism are cited for the Burrup Peninsula, through which this proposal to clear intersects in the southwest extremity Kendrick and Stanley, 2001). Given previous disturbance from the tracks through the area under application

and the infestation of Buffel Grass, it is unlikely the area under application has a higher level of biodiversity than other similar vegetation associations in the region.

The areas applied to be cleared near Hillview Rd and Broadhurst Rd are within existing residential areas, have been heavily disturbed by pedestrians, bicycles and vehicles and are heavily infested with weed species (DEC Site Visit, 28/08/2006). Therefore it is unlikely that these areas under application have a higher level of biodiversity than other similar vegetation associations in the region.

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

Methodology DEC Site Visit (28/08/2006);
Hopkins et al (2001);
Kendrick and Stanley (2001);
Shepherd et al (2001).

(a) 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

A desktop survey found there were no specially protected fauna within the area proposed to be cleared. However, several species of conservation significance have been recorded within a 10km radius of the area under application.

The Pilbara Olive Python (*Morelia olivacea barroni*), listed as vulnerable (schedule 1), was recorded approximately 2.5 kilometres to the south of the area applied to be cleared on Hearson Cove Road. Kendrick and McKenzie (2001) regard the Pilbara Olive Python as common, widespread and not declining. This species is likely to occur near watercourses and is usually associated with permanent pools in rocky gorges. This habitat type is not within the area under application, therefore the proposed clearing is unlikely to impact upon the Pilbara Olive Python.

The closest known Threatened Fauna to Lot 1478 (Hillview Road) and Lot 2322 (Broadhurst Road) was two recorded day sightings of a Priority 4 mammal species approximately 3 kilometres and 5 kilometres to the east of the areas applied to clear respectively. The habitat type that supports this species is not limited to the site proposed for clearing and is extensively represented in the local and wider area. Given these areas under application are within a residential area, the vegetation is unlikely to support significant habitat for fauna populations.

The clearing of 0.2 ha within Lot 1478, 0.2 ha within Lot 2322 and 4.1 ha of within the Hearson Cove Road reserve is not likely to significantly impact on the fauna species of the area due to the small areas to be cleared. Therefore, the proposal is not likely to be at variance to this principle.

Methodology DEC Site Visit (28/08/2006);
Kendrick and McKenzie (2001);
GIS Database
~ Aerial Photograph;
~ Threatened Fauna - CALM 30/9/05.

(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

No known Declared Rare Flora species were identified within the areas proposed to be cleared (DEC Site Visit, 28/08/2006). However, a desktop survey found three Priority species, *Acacia glaucochaesia* (Priority 3), *Terminalia supranitifolia* (Priority 1) and *Themeda* sp. Hamersley Station (M.E. Trudgeon) (Priority 3), have been recorded by CALM within a 10km radius of the areas under application.

Acacia glaucochaesia (Priority 3) is a glaucous shrub known to occur close to salt stockpiles near Dampier (Main Roads WA, 2003). This species has not been identified this species within or adjacent to the areas under application (DEC Site Visit, 28/08/2006).

Terminalia supranitifolia (Priority 1) is a small tree that has been recorded in the Burrup peninsula area but was not identified during a site visit to the areas under application (DEC Site Visit, 28/08/2006).

Themeda sp. Hamersley Station (M.E. Trudgeon) (Priority 3) was not identified during a site visit to the areas under application (DEC Site Visit, 28/08/2006). Consultation with CALM indicated that this species was not of high concern locally (Main Roads WA, 2003).

The vegetation in the areas under application has been significantly degraded by vehicle and pedestrian tracks, and the infestation of buffel grass and kapok (DEC Site Visit, 28/08/2006). It is therefore unlikely that the areas include or are necessary for the continued existence of significant flora.

Methodology DEC Site Visit (28/08/2006);
Main Roads WA (2003);
GIS Database:
~ Declared Rare and Priority Flora List - CALM 01/07/05

(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 recorded within a 50km radius of the area under application. However, Kendrick and Stanley (2001) have identified a number of ecosystems at risk in the IBRA Roebourne subregion including the Roebourne Plains coastal grasslands and the rock pile communities on the Burrup Peninsula.

The threatening processes affecting the Roebourne Plains coastal grasslands ecosystem are grazing pressure and exotic weed invasion particularly of buffel grass, kapok bush and Parkinsonia (Kendrick and Stanley, 2001). It is unlikely that the proposed clearing for the realignment of Hearson Cove Road will increase the current impacts upon the Roebuck Plains coastal grasslands as the area is already highly disturbed by vehicle tracks and invasion by Buffel grass and Kapok bush (DEC Site Visit, 28/08/2006). It is unlikely that the proposal will alter grazing pressure.

The Rock Pile communities on the Burrup Peninsula are threatened by increasing fragmentation, exotic weeds (buffel grass), and industrial pollution (Kendrick and Stanley, 2001). The location of the proposed clearing for the realignment of Hearson Cove Road passes through an area already disturbed by tracks and by Buffel grass invasion and avoids the Rock Pile communities, therefore the proposal is not likely to impact upon these communities

It is not likely that the clearing proposed at the Lot 1478 (Hillview Road) and Lot 2322 (Broadhurst Road) sites will impact upon either of these ecological communities as both sites are located within the highly developed townsite of Karratha.

Therefore, the site under application is unlikely to be necessary for the maintenance of a threatened ecological community.

Methodology DEC Site Visit (28/08/2006);
Kendrick and Stanley (2001);
GIS Database:
~ Threatened Ecological Communities - CALM 15/7/03

(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 State Government is committed to the National Objectives and Targets for Biodiversity Conservation which includes a target that prevents clearance of ecological communities with an extent below 30% of that present pre-European settlement (Department of Natural Resources and Environment, 2002).

	Pre-European area (ha) *	Current extent (ha) *	Remaining %*	Conservation Status**	% in reserves/ CALM-managed land
IBRA Bioregion - Pilbara	17,944,694	17,944,694	~100%	Least concern	
IBRA Sub-region - PIL 4	2,008,983	2,008,983	~100%	Least concern	13.6
Shire of Roebourne	No information available				
Beard vegetation association					
- 117	917,087	917,087	~100%	Least concern	14.3
- 157	542,861	542,861	~100%	Least concern	17.6
- 589	848,201	848,201	~100%	Least concern	1.6

* Shepherd et al. (2001)

** Department of Natural Resources and Environment (2002)

Vegetation complexes within this application are above 30% representation (Hopkins et al, 2001). The vegetation of the site is a component of Beard Vegetation Associations 117, 157 and 589 (Hopkins et al, 2001), of which there is ~100% of the pre-European extent still remaining (Shepherd et al, 2001). The vegetation type is therefore of 'least concern' for biodiversity conservation (Department of Natural Resources and Environment, 2002).

Clearing of 0.2ha of association 117 at Lot 1478 (Hillview Road), 0.2ha of association 157 at Lot 2322 (Broadhurst Road) and 4.1 ha of association 589 at Hearson Cove Road will not significantly reduce the remaining extent of these vegetation associations. Therefore the proposal is not likely to be at variance to this principle.

Methodology Hopkins et al (2001);
Shepherd et al (2001);
Department of Natural Resources and Environment (2002);
GIS Database:
~ Pre-European Vegetation - DA 01/01;
~ Interim Biogeographic Regionalisation of Australia - EA 18/10/00;
~ Interim Biogeographic Regionalisation of Australia (subregions) - 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 area under application at Hearson Cove Rd is adjacent to a saline coastal flat that connects King Bay with Hearson Cove. During periods of extreme spring tides and storm surge associated with cyclonic events, these flats are periodically inundated with seawater for up to several hours. Given that the area has been previously disturbed by vehicle tracks, it is unlikely that the clearing of vegetation will significantly impact on the environmental values of the flats.

The areas under application at Lot 2322 (Broadhurst Road) and Lot 1478 (Hillview Road) will cross constructed drainage lines and are not in association with a natural watercourse.

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

Methodology Aerial Photograph;
DEC Site Visit (28/08/2006);
GIS Database:
~ Geodata, Lakes - GA 28/06/02
~ Hydrology, linear - DOE 1/02/04;
~ Lakes 250K - GA;
~ Rivers 250K - GA

(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 removal of existing vegetation in the areas under application would not directly contribute to a salinity problem due to low vegetation density (DEC Site Visit, 28/08/2006). The sites currently possess low density, shallow rooted trees and their removal would not significantly affect the mobilisation of salts in the ground water.

The Shire of Roebourne will minimise wind erosion in accordance with provisions of "Land Development Sites and Impacts on Air Quality - A Guideline for the prevention of dust and smoke pollution from land development sites in Western Australia" published by the Department of Environmental Protection (1996). Such measures are likely to include close control of works, watering of the site and providing wind fencing materials (Michael Coppins, Shire of Roebourne, pers comm, 16/08/2006).

Water erosion from runoff will be controlled by the installation of runoff drains comprising concrete kerbing and rock spalling at the Lot 1478 (Hillview Road) and Lot 2322 (Broadhurst Road) sites (Michael Coppins, Shire of Roebourne, pers comm, 16/08/2006). Culverts will have concrete headwall structures and also include rock spalling to both adjoining banks and base. At the Hearson Cove Road site, water erosion will be controlled with roadside drains that will connect with natural drainage lines enabling the water to naturally drain away or infiltrate.

Therefore it is unlikely that the proposed clearing will cause appreciable land degradation.

Methodology DEC Site visit (28/08/2006);
Department of Environmental Protection (1996);
Michael Coppins, Shire of Roebourne (pers comm, 16/08/2006);
GIS Database:
~ Soils, Statewide - DA 11/99;
~ Groundwater Salinity, Statewide - 22/02/00

(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 are no reserves or conservation areas within or adjacent to the area under application. The nearest conservation reserves are East Lewis Island (~10km from Hearson Cove Rd), and the proposed Burrup

Peninsula Conservation Area (~ 1km from Hearson Cove Rd). It is not likely that the Lot 1478 (Hillview Road) or Lot 2322 (Broadhurst Road) clearing will increase the impacts upon these conservation areas as they are located within the highly developed townsite of Karratha. The Hearson Cove Road clearing is not likely to impact upon the conservation reserves due to the distances to the reserves, the body of water between the site and East Lewis Island and the current levels of disturbance already being experienced in this area from vehicle tracks and weed infestation.

Methodology GIS Database: CALM Managed Land and Waters - 1/06/04

(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 proposed clearing area is not in a Public Drinking Water Source Area.

Runoff from the cleared areas of Lot 1478 (Hillview Road) and Lot 2322 (Broadhurst Road) will be controlled by the installation of runoff drains comprising concrete kerbing and rock spalling (Michael Coppins, Shire of Roebourne, pers comm, 16/08/2006). Culverts will have concrete headwall structures and also include rock spalling to both adjoining banks and base.

At the Hearson Cove Road site, water erosion will be controlled with roadside drains that will connect with natural drainage lines enabling the water to naturally drain away or infiltrate.

Therefore, the clearing of vegetation is unlikely to significantly impact on surface water quality or groundwater resources in the area.

Methodology DEC Site visit (28/08/2006);
Michael Coppins, Shire of Roebourne (pers comm, 16/08/2006);
GIS Database:
~ Public Drinking Water source Areas (PDWSA's) -DOE 29/11/04;
~ Hydrography, linear (hierachy) - DOE 13/4/05;

(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 average annual rainfall of the site is 400mm, with most rainfall occurring during the summer months, and an evaporation rate of 400mm per annum.

The area under application at Hearson Cove Rd is adjacent to a saline coastal flat that connects King Bay with Hearson Cove. During periods of extreme spring tides and storm surge associated with cyclonic events, these flats are periodically inundated with seawater for up to several hours. Given that the area has been previously disturbed by vehicle tracks, it is unlikely that the clearing of 4.1 ha vegetation within the Hearson Cove Road reserve will significantly impact on the incidence or intensity of these naturally occurring flood events.

Therefore it is unlikely that the clearing of vegetation is likely to cause or exacerbate the incidence of flooding.

Methodology DEC Site Visit (28/08/2006);
GIS Database: Rainfall, Mean Annual - BOM 30/09/01

Planning instrument, Native Title, RIWI Act Licence, EP Act Licence, Works Approval, Previous EPA decision or other matter.

Comments

No objections have been raised to the proposed clearing.

Lot 1478 Reserve 36458 (Hillview Rd) is currently zoned as park; recreation. Lot 2322 Reserve 400800 (Broadhurst Rd) is currently zoned as drainage; parklands. It is the responsibility of the proponent to have these zonings amended for the proposed land use of roads prior to construction. The Shire of Roebourne is currently in the process of having these areas redesignated as Road Reserves (Michael Coppins, Shire of Roebourne, pers comm, 16/08/2006).

The area under application has been subject to two referrals to the Environmental Protection Authority. None of these referrals is related to the proposal under assessment (CRN 81681; CRN 105638).

The proposed activity does not require a Works Approval or Licence under the Environmental Protection Act 1986.

No Water Licenses under the Rights in Water and Irrigation Act 1914 are required for this project.

The area under application lies within three Native Title Claims.

The Department of Environment and Conservation's advertising of the application in the West Australian newspaper constitutes legal notification of the native title representative body for the purpose of the future act procedures under the Native Title Act 1993. No response was received from the representative body.

The Burrup Peninsula contains one of the world's largest and most important collections of petroglyphs. Several Aboriginal Heritage Sites of Significance listed on the Permanent and Interim Registers are located within or adjacent to the area under application for Hearson Cove Road. It is the responsibility of the Shire of Roebourne to manage Aboriginal heritage in accordance with the Department of Indigenous Affairs and the Aboriginal Heritage Act 1972 requirements.

No sites listed on the Register of Heritage Places or the Register of National Estate are located within or in the vicinity of the area under application.

Methodology Michael Coppins, Shire of Roebourne (pers comm, 16/08/2006);

GIS Database:

- ~ Aboriginal Sites of Significance - DIA;
- ~ Cadastre - DLI;
- ~ Environmental Impact Assessments - DOE 24/02/06
- ~ Native Title Claims - DLI 7/11/05;
- ~ Register of Heritage Places - DPI;
- ~ Register of National Estate - EA 28/01/03.

3. Assessor's recommendations

Purpose	Method Applied	Decision	Comment / recommendation
Road construction or maintenance	Mechanical Removal area (ha)/ trees 4.5	Grant	Assessable criteria have been addressed and no objections were raised. The proposal was found not likely to be at variance to all principles. The Assessing Officer recommends that the permit should be granted.

4. References

Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.

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

Kendrick, P. and Stanley, F. (2001) Pilbara 4 (PIL4 - Roebourne synopsis). From "Bioregional Summary of the 2002 biodiversity Audit for Western Australia". Department of Conservation and Land Management.

O'Connor, R. (2005) Report on an Aboriginal Heritage Survey of the Proposed Hearson Cove Road Realignment. Report prepared for the Shire of Roebourne.

Report on an Archaeological and Ethnographic Survey of the Proposed Hearson Cove Road Re-alignment at the Burrup Peninsula, Western Australia. Prepared for the Shire of Roebourne.

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.