



1. Application details

1.1. Permit application details

Permit application No.: 2165/1
 Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Shire of Ngaanyatjarraku

1.3. Property details

Property: LOT 1 ON PLAN 41094 (GIBSON DESERT SOUTH 0872)
 LOT 10 ON PLAN 93163 (GIBSON DESERT SOUTH 0872)
 LOT 9 ON PLAN 91722 (NGAANYATJARRA-GILES 0872)
 LOT 9 ON PLAN 91722 (NGAANYATJARRA-GILES 0872)
 LOT 9 ON PLAN 91722 (NGAANYATJARRA-GILES 0872)

Local Government Area: Shire Of Ngaanyatjarraku
 Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
80		Mechanical Removal	Extractive Industry

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 types: 19: Low woodland; mulga between sand ridges. 139: Hummock grasslands, patchy shrub steppe; mulga over hard spinifex on laterite. (Hopkins et al, 2001; Shepherd, 2006).	The seven areas under application are located near existing roads, Great Central Road (one area) and the Tjirrkarrli Community access road (six areas), and are for the purpose of gravel extraction for resurfacing local roads. The gravel extraction comprises of seven gravel pits, which will be up to 200m radius for each pit (approximately 12ha) with a total area of up to 80ha. The vegetation proposed to be cleared is described as predominantly Spinifex (<i>Triodia</i> species) and Mulga (<i>Acacia aneura</i>) with some other associated species such as <i>Cassia</i> sp. (Shire of Ngaanyatjarraku, 2008).	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	The vegetation under application is considered to be very good as the areas under application are adjacent to existing roads, Great Central Road and the Tjirrkarrli Community access road and are therefore likely to have been subject to some disturbance.

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**
 One of the areas under application is located within Ranges of the Western Desert (Lot 9 or Aboriginal Reserve 17614 and also identified as a System 12 area); an area listed on the Register of the National Estate. The Ranges, which extend over 8,000,000ha, are registered for natural values and are recognised as having 'Indigenous values of National Estate significance'. Two of the areas under application are located within Lot 10, an area that extends over 900,000ha and four of the areas under application are located within Lot 1, an area that extends over 900,000ha.

Given the size of the seven areas under application (200m radius for each gravel pit; total area up to 80ha) relative to the surrounding areas (Lot 9, Lot 10 and Lot 1), it is unlikely that the clearing as proposed would have a significant impact on the natural values of the wider area. In addition, the areas under application are adjacent to existing roads, Great Central Road and the Tjirrkarli Community access road and are therefore likely to have been subject to some disturbance.

Given the existing road and associated infrastructure, it is considered unlikely the areas under application comprise a higher level of biological diversity than that of other less disturbed areas in the local area.

Methodology GIS databases:
- Cadastre - DLI 1/12/05
- Register of National Estate - EA 28/01/03
- System 1 to 5 and 7 to 12 Areas - DEP 06/95

(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

One of the areas under application is located within Aboriginal Reserve 17614, an area covering approximately 8,000,000ha, with extensive, well-represented habitat that will offset habitat loss arising from the proposed clearing. Two of the areas under application are located within Lot 10, an area that extends over 900,000ha and four of the areas under application are located within Lot 1, an area that extends over 900,000ha.

The vegetation proposed to be cleared for seven gravel pits is adjacent to the existing roads, Great Central Road and the Tjirrkarli Community access road, within areas previously disturbed. It is therefore considered that the vegetation in these areas is not likely to be necessary for the maintenance of significant habitat for fauna indigenous to Western Australia.

For previous clearing applications within the Shire, Biodiversity Coordination Section, DEC (2006) has advised that there are few fauna records in the local area however comparable habitat is likely to be found in the surrounding areas. The clearing under application is not likely to be significant habitat and therefore not likely to be at variance to this Principle.

Methodology Reference:
- Biodiversity Coordination Section, DEC (2006)
GIS database:
- Cadastre - DLI 1/12/05

(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

There are no records of Declared Rare Flora (DRF) in the local area (100km radius). The nearest recorded DRF (*Acacia denticulosa*) is located approximately 240km south from the areas under application.

The following 15 Priority species is known to occur in the local area (100km radius):
Abutilon sp. Warburton (A.S. George 8164), *Acacia calcicola*, *Calotis latiuscula*, *Calytrix warburtonensis*, *Eremophila revoluta*, *Eremophila viscimarginata*, *Goodenia gibbosa*, *Korthalsella leucothrix*, *Microcorys macredleana*, *Micromyrtus helmsii*, *Neurachne lanigera*, *Philotheca eremicola*, *Sauropus ramosissimus*, *Verticordia jamiesonii*, *Verticordia mirabilis*.

Of the 15 Priority species in the local area *Sauropus ramosissimus* (P3), *Neurachne lanigera* (P1) and *Calytrix warburtonensis* (P2) are on the same soils and within the same vegetation type as the six areas under application adjacent to the Tjirrkarli Community access road; and *Neurachne lanigera* (P1) is on the same soils and within the same vegetation type as the area under application adjacent to Great Central Road.

The areas under application are adjacent to existing roads, Great Central Road and the Tjirrkarli Community access road and are therefore likely to have been subject to some disturbance. Given that the nearest Declared Rare Flora is located approximately 240km from the areas under application, it is considered unlikely that the vegetation proposed to be cleared includes or is necessary for the continued existence of rare flora.

Methodology GIS Database:
- SAC Bio Datasets 31/12/2007

(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 records of Threatened Ecological Communities (TECs) within close proximity of the areas under application with the nearest recorded TEC located over 600km from the proposed areas. It is therefore

considered unlikely that the vegetation proposed to be cleared comprises the whole or part of or is necessary for the maintenance of a TEC.

Methodology GIS Database:
- SAC Bio Datasets 31/12/2007

(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 the clearance of ecological communities with an extent below 30% of that present Pre-European settlement (Commonwealth of Australia, 2001). The Vegetation Complexes within the areas under application are above the recommended minimum of 30% representation.

Given the proposed clearing of up to 80ha is relatively small compared to the area of remnant vegetation remaining within the Bioregions and there is 100% (Beard vegetation types 19 and 139) (Shepherd, 2006) of native vegetation remaining, the vegetation proposed to be cleared is considered not likely to be significant as a remnant of native vegetation in the surrounding area.

	Pre-European (ha)	Current extent (ha)	Remaining (%)	In secure tenure (%)
IBRA Bioregions*				
- Central Ranges	4 701 517	4 700 202	100	
- Gibson Desert	15 628 965	15 628 965	100	
Shire of Ngaanyatjarraku	No information available			
Beard Vegetation types*				
- 19	4 385 296	4 384 255	100	0.5
- 139	7 101 372	7 101 372	100	16.0

* (Shepherd, 2006)

Methodology References:
- Commonwealth of Australia (2001)
- Hopkins et al (2001)
- Shepherd (2006)
GIS Databases:
- Pre-European Vegetation - DA 01/01
- 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**

There are no drainage lines or any watercourses within the areas under application with the closest minor non-perennial watercourse located approximately 250m to two of the areas under application. Therefore the vegetation within the areas under application is not considered to be growing in, or in association with a watercourse.

Methodology GIS Database:
- Hydrography, linear - DOE 01/02/04

(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 landscape of the six areas under application adjacent to Tjirrkarli Community access road and surrounds can be described as dissected lateritic upland of flat to hilly topography; there are also low escarpments of breccia and laterite; lateritic mesas and buttes; and stone-strewn ridges with stone and gravel pavements are common (Northcote et al, 1960). The chief soils are shallow stony and/or gravelly sands and sandy loams and may be underlain by large amounts of ironstone gravel and boulder beds of mixed materials (Northcote et al, 1960). These soils are not considered to be at risk of wind erosion and may be at risk to water erosion.

The landscape of the area under application adjacent to Great Central Road and surrounds can be described as extensive plains with numerous dunes which are often short and of irregular shape and orientation (Northcote et al, 1960). The chief soils are neutral red earths and red earthy sands (Northcote et al, 1960).

These soils are considered to be may be at risk of wind erosion and risk of water erosion.

The proposed clearing for gravel extraction may cause some short term land degradation issues related to soil erosion during works. To mitigate the potential impact from wind and water erosion revegetation conditions requiring revegetation on completion of the extraction will be imposed on a clearing permit if granted.

Methodology Reference:
- Northcote et al (1960)
GIS Database:
- Soils, Statewide - DA 11/99

(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

One of the areas under application is located within Ranges of the Western Desert (Aboriginal Reserve 17614; also identified as a System 12 area), an area listed on the Register of the National Estate. The Ranges, which extend over 8,000,000ha, are registered for natural values and are recognised as having 'Indigenous values of National Estate significance' (Australian Heritage Council, 2008). In addition, the Baker Lake Area, an area listed on the Register of National Estate (also identified as a System 12 area), is located approximately 34km south of two of the areas under application that are located within Lot 10. The Baker Lake Area, which extends over 1,000,000ha, is also registered for natural values and is recognised as having 'Indigenous values of National Estate significance' (Australian Heritage Council, 2008).

Given the size of the areas under application (200m radius for each gravel pit) relative to the two areas on the Register, it is unlikely that the clearing as proposed would have a significant impact on the natural values of the wider area.

There is one DEC managed land, Gibson Desert Nature Reserve, located within the local area (100km radius), which is located approximately 70km north of the proposed clearing. Given the distance between the areas under application and the DEC managed land the proposed clearing is not likely to have an impact on the environmental values of the surrounding conservation area.

Methodology Reference:
- Australian Heritage Council (2008)
GIS databases:
- DEC Managed Lands and Water - CALM 01/07/05
- Register of National Estate - EA 28/01/03
- System 1 to 5 and 7 to 12 Areas - DEP 06/95

(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

With an average annual rainfall of approximately 200-250mm and an annual evaporation rate of 3,400mm-3,600mm there is likely to be little surface flow during normal seasonal rains. In addition, there are no drainage lines or any watercourses within the areas under application with the closest minor non-perennial watercourse located approximately 250m to two of the areas under application.

With high annual evaporation rates and low annual rainfall there is little recharge into regional groundwater table, which at this site is between 1,000 mg/l and 3,000 mg/l and is considered to be marginal to brackish. The proposed clearing of up to 80ha of native vegetation for this proposal is unlikely to have an impact on regional groundwater considering the relatively small size and isolation of the proposal and the magnitude of the Musgrave (3,240,400ha) and Officer (19,146,100ha) Groundwater Provinces.

Given the above it is considered unlikely that the clearing as proposed is likely to cause deterioration in the quality of surface or ground water.

Methodology GIS Databases:
- Evaporation Isoleths - BOM 09/98
- Isohyets - BOM 09/98
- Groundwater Salinity, Statewide - 22/02/00
- Hydrography, linear - DOE 01/02/04
- Groundwater Provinces - WRC 98

(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

With an average annual rainfall of approximately 200-250mm and an annual evaporation rate of 3,400mm-

3,600mm there is little surface flow during normal seasonal rains. Given there is no surface drainage within the areas under application the rainfall infiltration rates will be high, therefore the proposed clearing is not likely to cause or increase the incidence or intensity of flooding.

- Methodology** GIS Databases:
- Evaporation Isopleths - BOM 09/98
 - Isohyets - BOM 09/98
 - Hydrography, linear - DOE 01/02/04
 - Geodata, Lakes

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

Comments

The areas under application are within the Proclaimed Groundwater Area of East Murchison. Therefore any abstraction of groundwater would require a licence. However, considering this application is only for Gravel Extraction, no licence will be necessary.

There is no other RIWI Act Licence, Works Approval or EPA Act Licence that affects the area under application.

There are no Aboriginal Sites of Significance listed within the areas under application.

Heritage clearance surveys were undertaken for the areas of the seven proposed gravel pits within the Shire of Ngaanyatjarraku. As such, it was confirmed that there were no heritage sites or concerns that will be affected by the proposed works (Shire of Ngaanyatjarraku, 2007).

There is one Native Title Claim over the area under application. 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.

- Methodology** Reference:
- Shire of Ngaanyatjarraku (2007)
 - GIS databases:
 - Aboriginal Sites of Significance - DIA 28/02/03
 - Cadastre - DLI 1/12/05
 - Native Title Claims - DLI 7/11/05
 - RIWI Act, Groundwater Areas - WRC 13/06/00
 - RIWI Act, Surface Water Areas - WRC 18/10/02

4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comment
Extractive Industry	Mechanical Removal	80	The assessable criteria have been addressed and the clearing as proposed is not likely to be at variance to the Principles.

5. References

Australian Heritage Council (2008) Australian Heritage Database. Australian Heritage Council. <http://www.environment.gov.au/cgi-bin/ahdb/search.pl> (Accessed 15/01/2008).

Biodiversity Coordination Section, DEC (2006) Clearing Assessment Unit's biodiversity advice for land clearing application. Advice to Director General, Department of Environment and Conservation (DEC), Western Australia. TRIM Ref ED1170

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

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. (2006). 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. Includes subsequent updates for 2006 from Vegetation Extent dataset ANZWA1050000124.

Shire of Ngaanyatjarraku (2007) Application for a clearing permit (purpose permit) and supporting information, Shire of Ngaanyatjarraku. TRIM Ref DOC37083

Shire of Ngaanyatjarraku (2008) Additional information (Email), Shire of Ngaanyatjarraku. TRIM Ref DOC45331

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)