



## 1. Application details

### 1.1. Permit application details

Permit application No.: 1803/1  
 Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Shire of Sandstone

### 1.3. Property details

Property: LOT 72 ON PLAN 238053 ( SANDSTONE 6639)  
 LOT 77 ON PLAN 238141 ( SANDSTONE 6639)  
 LOT 18 ON PLAN 193955 ( SANDSTONE 6639)  
 PART LOT 75 ON PLAN 30223 ( SANDSTONE 6639)  
 LOT 11 ON PLAN 221357 ( SANDSTONE 6639)  
 LOT 27 ON PLAN 193755 ( SANDSTONE 6639)  
 LOT 4260 ON PLAN 220701 ( SANDSTONE 6639)  
 LOT 4275 ON PLAN 220390 ( SANDSTONE 6639)  
 CROWN RESERVE 10022 ( SANDSTONE 6639)  
 CROWN RESERVE 9959 ( SANDSTONE 6639)  
 LOT 61 ON PLAN 238007 ( SANDSTONE 6639)  
 LOT 58 ON PLAN 220352 ( SANDSTONE 6639)  
 LOT 63 ON PLAN 238566 ( SANDSTONE 6639)  
 LOT 138 ON PLAN 238120 ( SANDSTONE 6639)

Local Government Area: Shire Of Mount Magnet & Shire Of Sandstone

Colloquial name:

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
104		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 Vegetation Associations:  18: Low woodland; mulga (Acacia aneura)	The proposal includes the clearing of 23 gravel pits, located across the Shire of Sandstone, most being extensions of existing pits.	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	Vegetation clearing description based upon information and photographs provided by the applicant (TRIM Ref: DOC17348).
39: Shrublands; mulga scrub	Vegetation within the areas under application appears to consist primarily of low open woodlands of Acacia aneura (mulga), with very sparse understorey species.		
107: Hummock grasslands, shrub steppe; mulga and Eucalyptus kingsmillii over hard spinifex			
533: Low woodland; mulga & cypress pine	Due to the historical use of most of the applied areas for gravel extraction, and the areas generally being subject to grazing activities, vegetation structure and composition is likely to be altered. It is therefore considered that vegetation present within the applied areas is likely to be overall in good condition, but		
2121: Mosaic: Open low woodland; mulga / Succulent steppe; saltbush & bluebush on greenstone (Shepherd 2006)			

containing areas of localised disturbance, which would result in vegetation condition ranging from good to completely degraded.

### 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 clearing as proposed primarily consists of the expansion of existing gravel pits within the Shire of Sandstone, with the majority of proposed locations having already been subject to historical extraction activities and grazing activities.

As such, it is considered that impacts associated with prior clearing and gravel extraction, in addition to grazing activities, have likely altered vegetation structure and composition. It is therefore considered that vegetation present within the applied areas is likely to be overall in good condition, but containing areas of localised disturbance, which would result in vegetation condition ranging from good to completely degraded.

As all vegetation associations within the areas under application are well represented (all at 100% Pre-European extent remaining) (Shepherd 2006) it is considered unlikely that the vegetation under application represents a higher biological diversity than that of surrounding vegetation which has likely been subject to fewer impacts.

**Methodology**      References:  
- Shepherd (2006)  
- Hopkins et al. (2001)

#### (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**

The areas under application are within the Murchison IBRA Region, an area covering approximately 28,000,000ha of which 100% of the native vegetation remains (Shepherd 2006, Hopkins et al. 2001).

Fauna mapping within a 50km radius of the applied areas identifies specially protected fauna such as *Macroderma gigas* (Ghost Bat), *Idiosoma nigrum* (Shield-backed Trapdoor Spider), *Leipoa ocellata* (Mallee Fowl), *Macrotis lagotis* (Bilby) and *Ardeotis australis* (Australian Bustard).

While it is possible that these and other fauna species utilise the habitat within the areas under application, the proposed clearing is within areas that have been historically disturbed, being along already established transport routes and adjacent to isolated, relatively small areas for gravel pits. Given that the surrounding areas have large tracts of remnant vegetation remaining, it is unlikely that vegetation applied to be cleared comprises significant habitat for indigenous fauna.

**Methodology**      GIS Databases:  
- Interim Biogeographic Regionalisation of Australia (subregions) - EA 18/10/00  
- SAC Bio datasets 29/06/07

#### (c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

**Comments**      **Proposal may be at variance to this Principle**

Declared Rare Flora (DRF) mapping of the Shire of Sandstone does not identify any known DRF species within close proximity to areas under application. The known nearest occurrences include *Eremophila rostrata*, located approximately 118km west of the northern most site on Meekatharra-Sandstone Road, and *Eucalyptus crucis* subsp. *praecipua* and *Hybanthus cymulosa*, which are located approximated 50km and 70km south-west of the southern most site on Payne's Find-Sandstone Road, respectively.

Given the distances to the above species, and their habitat preferences (Western Australian Herbarium 1998), it is considered unlikely that DRF would be impacted through the proposed clearing.

However, flora mapping does indicate four species of Priority flora which are located within relatively close proximity to applied areas. These include:

Populations of *Grevillea inconspicua* (P4) which are located within relatively close proximity to two proposed sites, approximately 70 kilometres north-east of the Sandstone townsite along the Booylgoo Springs Road.

*Baeckea* sp. London Bridge (P3), *Eurymyrtus patrickiae* (P3), and *Eurymyrtus recurva* (P3) are also located

within relatively close proximity to three proposed sites, which are approximately 80km south-west of Sandstone along the Payne's Find - Sandstone Road.

Given the proximity and habitat preferences of the above Priority species, it is considered that *Baeckea* sp. London Bridge, *Eurymytus patrickiae*, and *Eurymytus recurva* may be present within the some of the areas under application. It is therefore recommended that prior to clearing, flora surveys of gravel pits near these species be undertaken to determine their presence.

**Methodology** Reference:  
 - Western Australian Herbarium (1998)  
 GIS Database:  
 - SAC Bio datasets 13/06/07

**(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**  
 The nearest known TEC are located approximately 25 - 30 kilometres south-east of three proposed gravel pits located adjacent to the Booylgoo Springs Roads, and are representative of the Depot Springs stygofauna communities. Given the distance to these TEC, the proposed clearing is considered not likely to be at variance to this Principle.

**Methodology** GIS Database:  
 - SAC Bio datasets 13/06/07

**(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**  
 Native vegetation of the areas under application is identified as crossing 5 Beard Vegetation Associations, all of which are identified as having representations of 100%.

The State Government is committed to the National Objective Targets for Biodiversity Conservation, which includes targets that prevent the clearing of ecological communities with an extent below 30% of that present pre-1750 (Department of Natural Resources and Environment 2002; EPA 2000).

	Pre-European (ha)*	Current Extent (ha)	Remaining (%)	Conservation Status***	% In reserves / DEC managed land
IBRA Bioregion					
- Murchison*	28,206,195	28,206,195	100.0	Least concern	
Shire of Sandstone*	-	-	-	-	-
Beard Vegetation Associations					
- 18**	19892436.97	19892436.97	100.0	Least concern	5.8
- 39**	6613602.164	6613602.164	100.0	Least concern	11.8
- 107**	2815399.115	2815399.115	100.0	Least concern	11.5
- 533**	172395.709	172395.709	100.0	Least concern	14.9
- 2121**	124420.004	124420.004	100.0	Least concern	0.0

\* (Shepherd et al. 2001)

\*\* (Shepherd 2006)

\*\*\* (Department of Natural Resources and Environment 2002)

Given the area proposed for clearing is relatively small compared to the area of remnant vegetation remaining within the Region, the vegetation proposed to be cleared is not likely to be significant as a remnant of native vegetation in the surrounding area.

**Methodology** References:  
 - Department of Natural Resources and Environment (2002)  
 - EPA (2000)  
 - Shepherd et al. (2001)  
 - Shepherd (2006)  
 GIS Database:  
 - Pre-European Vegetation - DA01/01

**(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 major watercourses or wetlands within the areas under application, with the nearest wetlands being Lake Noondie, located approximately 13 kilometres south-east of a proposed site on the Panes Find - Sandstone Road, and Lake Mason, located approximately 15 kilometres from northern site located on Panes Find - Sandstone Road.

While there are no major watercourses within the areas under application, almost all areas proposed for gravel extraction do contain, or are relatively close to, minor non-perennial watercourses.

As the areas under application are associated with an arid environment, it is considered that minor non-perennial watercourses are utilised for drainage flow during significant rainfall events, and thus are not likely to contain wetland dependant vegetation.

It is therefore considered unlikely that the clearing as proposed will have a significant impact on any associated watercourse or wetland.

**Methodology** GIS Databases:  
- ANCA wetlands - CALM 08/01  
- 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 may be at variance to this Principle**

Soil landscape within the Shire of Sandstone transitions between numerous soils types, with soil mapping of the areas under application identifying soils as primarily shallow earthy loams and shallow soils, sometimes containing ironstone gravel, and being underlain by a red-brown hardpan (Northcote et al. 1960-68).

DAFWA (2007) advises that the proposed gravel pit sites located south of the Sandstone-Payne's Find Road are within the Violet land system. This land system is characterised by stony and gravelly mantles and low rises supporting mulga shrublands. These gravelly mantles provide protection against soil erosion except where disturbed. These disturbed surfaces may become moderately susceptible to water erosion if sufficient gradient is present.

DAFWA (2007) advises that the proposed clearing may be at variance with this Principle, and therefore recommends that on completion of gravel extraction, the pit floors be contour ripped and that access tracks be contour ripped and water shedding bunds be constructed should the gradient and length of slope dictate.

**Methodology** References:  
- DAFWA (2007) TRIM ref DOC25385  
- Northcote et al. (1960-68)  
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**

Nearby land parcels managed for the purpose of conservation include three former Stations to the north of the Sandstone townsite, being Black Range (~80 ha), Lake Mason (~150ha), and Kaluwiri (~104ha). Of the proposed gravel pits, the nearest is located at an approximate distance of 2.5 kilometres from these conservation areas.

Given the current vegetation representation of native vegetation within the Shire (~100%), and the relatively small areas proposed to be clearing, it is considered that the vegetation subject to this proposal is unlikely to contribute to the environmental values of these conservation areas, act as a buffer to these areas, or provide significant ecological linkages to these reserves.

**Methodology** Reference:  
- Shepherd (2006)  
GIS Databases:  
- CALM Managed Lands and Waters - CALM 1/07/05

**(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**

There are no major watercourses or wetlands within the areas under application, with the nearest wetlands being Lake Noondie, located approximately 13 kilometres south-east of a proposed site on the Panes Find - Sandstone Road, and Lake Mason, located approximately 15 kilometres from northern site located on Panes Find - Sandstone Road.

There are no groundwater protection zones in or adjacent the any of the applied areas. While there are no major watercourses or wetlands within the areas under application, almost all areas proposed for gravel extraction do contain, or are relatively close to, minor non-perennial watercourses. In addition, groundwater salinity is recognised as varying from 1,000 - 7,000mg/L over the extent of the applied areas.

Given this current groundwater salinity, and the relatively limited extent of clearing, it is considered unlikely that the proposed clearing will appreciably impact on ground or surface water quality.

**Methodology** GIS Databases:  
- ANCA wetlands - CALM 08/01  
- Groundwater Salinity, Statewide - DOW  
- Hydrography, linear - DOE 01/02/04

**(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 250mm-300mm and an annual evaporation rate of approximately 3,200mm-3,600mm there is little surface flow during normal seasonal rains. Given there are no major surface drainage lines within close proximity to areas under application, and that the rainfall infiltration rates will be high, it is considered unlikely that the proposed clearing would 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

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

**Comments**

It is noted that the purpose of clearing (gravel extraction) may cause some short term land degradation issues related to soil erosion during works. To minimise long term land degradation associated with gravel extraction a condition has been imposed requiring battering and revegetation on completion of the extraction.

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

None of the applied areas are located within Aboriginal Sites of Significance, however one proposed gravel pit is located with relatively close proximity to the Booylgoo Spring Site. The applicant will be advised of their obligations under the Aboriginal Heritage Act 1972.

There are two Native Title Claims over the areas 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** GIS Databases:  
- Aboriginal Sites of Significance - DIA  
- Native Title Claims - DLI

**4. Assessor's comments**

Purpose	Method	Applied area (ha)/ trees	Comment
Road construction or maintenance	Mechanical Removal	104	The application has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the Environmental Protection Act 1986, and the proposed clearing may be at variance to Principles (c) and (g) and is not likely to be at variance to the remaining principles.

## 5. References

- DAFWA (2007). Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food Western Australia. DEC TRIM ref DOC25385.
- 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.
- EPA (2000) Environmental protection of native vegetation in Western Australia. Clearing of native vegetation, with particular reference to the agricultural area. Position Statement No. 2. December 2000. Environmental Protection Authority.
- Hopkins, A.J.M., Beeston, G.R. and Harvey J.M. (2001) A database on the vegetation of Western Australia. Stage 1. CALMScience after J. S. Beard, late 1960's to early 1980's Vegetation Survey of Western Australia, UWA Press.
- 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. (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.
- 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.
- Western Australian Herbarium (1998). FloraBase - The Western Australian Flora. Department of Environment and Conservation. <http://florabase.calm.wa.gov.au/> (Accessed 14/06/2007)

## 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)