



1. Application details

1.1. Permit application details

Permit application No.: 2540/1
 Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Rocla Quarry Products

1.3. Property details

Property: LOT 21 ON PLAN 8420 (House No. 392 SIXTY EIGHT BALDIVIS 6171)
 Local Government Area: City Of Rockingham
 Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
8.33		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 Association 998: Medium woodland of Tuart (Shepherd 2001).	The proposal is to clear up to 8.33 hectares of native vegetation from within Lot 21 for the purpose of sand extraction.	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	The vegetation clearing description is based on a site inspection by DEC officers on 27 June 2008 and a flora survey conducted by Weston (2008).
Heddlie: Karrakatta Complex Central and South: Predominantly open forest of E. gomphocephala - E. marginata - E. calophylla and woodland of E. marginata - Banksia species Heddlie et al 1980).	There is a track on the western border of the area under application leading to a building envelope with a house in the middle of the property. There is also an unused horse ring in the south-western portion of the area under application.		
	The vegetation in the southern portion under application contains approximately 1.4 hectares of native vegetation comprising Eucalyptus marginata over an understorey of Macrozamia riedlei, Xylomelum occidentale, Hibbertia hypericoides, Conostylis species and the orchid species Pterostylis sanguinea (Coastal Banded Greenhood). The vegetation within this area is considered to be in good condition.		
	The vegetation in the northern portion of the area under application (approximately 4.4 hectares) has previously been parkland cleared and predominantly comprises Eucalyptus gomphocephala	Completely Degraded: No longer intact; completely/almost completely without native species (Keighery 1994)	

and *Banksia* species over *Macrozamia riedlei* and invasive non-native grass species.

The vegetation in the central portion of the area under application contains approximately 2.5 hectares of native vegetation in good to very good condition and comprises *Eucalyptus gomphocephala*, *E. marginata*, *Allocasuarina fraseriana* and *Banksia* species over a diverse understorey. Completely degraded areas were confined to two access tracks which traverse the applied area along the western boundary and in an east-west direction; and a building envelope to the north and a disused horse ring in the west.

Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)

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 may be at variance to this Principle**

During the flora survey Weston (2008) recorded a total of 74 flora taxa (including 55 native species and 19 weed species) within the area under application. However, given that the flora survey was not conducted at an optimal time of the year for detecting flora species and that the flora list may comprise less than 50% of the native flora species found within the applied area (Weston 2008), the species richness may be much higher.

Weston (2008) identified the vegetation under application as being most similar to Floristic Community Types (FCT) 24 (Northern Spearwood shrublands and woodlands) and 28 (Spearwood *Banksia attenuata* or *B. attenuata* - *Eucalyptus* woodlands). Furthermore, Weston (2008) noted that the vegetation within Lot 21 may also have comprised Floristic Community Types 21a (Central *Banksia attenuata* - *Eucalyptus marginata* woodlands) and 25 (Southern *Eucalyptus gomphocephala* - *Agonis flexuosa* woodlands) when the vegetation within the applied area had been in better condition. Both Floristic Community Types 24 and 25 are identified as Priority Ecological Communities (PEC).

Gibson et al. (2004) recorded a respective mean species richness of 41.8 and 52.8 within a 10 x 10 metre plot for Floristic Community Types 24 and 25. Given that the vegetation under application is representative of a PEC and that 55 native species were identified on site (Weston 2008), this is considered to have a high level of biodiversity.

The vegetation within the applied area comprises open Tuart and Jarrah woodland and is considered to be in good condition overall. The upper storey predominantly consists of *Eucalyptus gomphocephala*, *E. marginata*, *Banksia attenuata*, *Banksia attenuata*, *B. menziesii*, *B. grandis*, *B. sessilis* and *Allocasuarina fraseriana* over an understorey comprising *Adenanthos* spp, *Macrozamia riedlei*, *Xanthorrhoea preissii*, *Jacksonia furcellata*, , *Acacia pulchella*, *Hardenbergia* spp, *Stirlingia* spp, *Burchardia* spp, *Hardenbergia* spp, *Hovea trisperma*, *Mesomelaena* spp, *Drosera erythrorhiza*, *Drosera macrantha*, *Petrophile* spp, *Calectasia* spp, *Lepidosperma* spp, *Daviesia* spp, *Dasyogon* spp, *Conostylis* species and the orchid species *Pterostylis sanguinea*, with degraded areas predominantly confined to areas of disturbance at the edges of vegetated areas.

The vegetation under application is considered to comprise suitable habitat for a number of local ground-dwelling fauna species, including the Quenda. Furthermore, during the site inspection (DEC 2008) kangaroo scats were seen and the Western Grey Kangaroo was observed grazing on the vegetation within the central area under application.

In addition, a number of passerine bird species were observed within the area under application during the site inspection (DEC 2008), including the Australian Ringneck Parrot (*Barnardius zonarius*) and Magpie Lark (*Grallina cyanoleuca*). The vegetation within the applied area comprises mature *Eucalyptus* trees of hollow bearing age which may provide suitable nesting habitat for a range of bird species from small insectivores through to larger birds, such as the Australian Ringneck and the Carnaby's Black-Cockatoo.

Given all of the above, it is considered that the vegetation under application may comprise a high level of biodiversity.

Methodology References:
- DEC (2008)

- Weston (2008)
- Gibson et al. (1994)
- Government of Western Australia (2000)
- GIS Datasets:
- SAC BIO datasets - accessed on 27/08/2008

(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 may be at variance to this Principle

There is one species of conservation significance recorded in the local area (~5km radius). The Eastern Curlew (*Numenius madagascariensis*, P4) inhabits coastal and estuarine localities and has been recorded at Lake Cooloongup, which is located approximately 4.3km northwest of the area under application. Given that the area under application comprises upland vegetation, the vegetation under application would not provide suitable habitat for the identified bird species.

The area under application is located within the distribution range of the Carnaby's Black-Cockatoo (*Calyptorhynchus latirostris*) which nest in large hollows of Eucalyptus trees and forage on the seeds and nectar from the flowers of *Banksia* spp, *Eucalyptus* spp and *Hakea* species (Burbidge 2004). The vegetation under application includes these species and has the potential to provide suitable feeding habitat for the Carnaby's Black-Cockatoo.

In addition, a number of passerine bird species were observed within the area under application during the site inspection (DEC 2008), including the Australian Ringneck Parrot (*Platycercus zonarius*) and Magpie Lark (*Gralina cyanoleuca*). Some of the mature Eucalyptus trees within the applied area are of hollow bearing age and may contain hollows, which could potentially be used as nesting habitat by fauna species such as the Carnaby's Black-Cockatoo and the Australian Ringneck Parrot.

The vegetation under application is also considered to comprise suitable habitat for a number of local ground-dwelling fauna, including species of conservation significance such as the Quenda. During the DEC site inspection Kangaroo skats were seen within the applied area and kangaroos were observed grazing in vegetation in the central portion under application (DEC 2008).

Given the above, it is therefore considered likely that the area under application may comprise significant habitat for fauna indigenous to Western Australia.

- Methodology** References:
- Burbidge (2004)
 - DEC 2008
 - Simpson & Day (2004)
- GIS Databases:
- SAC BIO Datasets - accessed 7/08/2008

(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 is one known record of the rare flora species *Drakaea elastica* within the local area (~5km radius), which is located to the northeast of the area under application. *D. elastica* is generally found in low-lying situations adjoining winter-wet swamps (Western Australian Herbarium 1998). Given that the vegetation under application is located on a sandy rise, and is located within a different vegetation complex and soil type to *D. elastica*, it is not considered likely that the vegetation under application would provide suitable habitat for the identified rare flora species.

A flora survey conducted in April 2008 did not identify any rare flora or priority species within the area under application (Weston 2008).

In addition, there are also three known records of Priority listed flora in the local area, the closest being *Acacia benthamii* (P2) which is located southwest of the area under application. *A. benthamii* is a shrub generally found on limestone breakaways and is found within a different vegetation complex and soil type to the area under application.

Given that the rare flora species *Drakaea elastica* and the priority flora species *Acacia benthamii* are found within a different vegetation complex and soil type to the area under application; and given the distance to these identified flora species, it is not considered likely that the vegetation under application would provide suitable habitat for the identified flora species.

- Methodology** References:
- DEC (2008)
 - Western Australian Herbarium (1998)

- GIS Databases:
 - Heddle Vegetation Complexes
 - Soils, Statewide - DA 11/99
 - SAC Bio datasets - accessed 04/07/2008

(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 five known occurrences of Threatened Ecological Communities (TEC) within the local area (5km radius), with the closest located approximately 4.3km to the northwest of the applied area.

These TECs have been identified as Floristic Community Types 19a (Sedgelands in Holocene dune swales of the southern Swan Coastal Plain) and 19b (Woodlands over Sedgelands in Holocene dune swales of the southern Swan Coastal Plain), which are associated with seasonal wetlands (Government of Western Australia 2000).

Given that the vegetation under application is located on a sandy rise and was not identified as a TEC during the flora survey (Weston 2008) and that the TECs in the local area are associated with Holocene dune swales, the vegetation under application is not considered likely to include, or be necessary for the maintenance of, a TEC.

Methodology

References:

- DEC (2008)
- Government of Western Australia (2000)
- Weston (2008)

GIS Databases:

- Heddle Vegetation Complexes
- Soils Statewide
- SAC BIO Datasets - accessed on 4/07/2008

(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

Heddle et al. (1980) defines the vegetation under application as Karrakatta Complex Central and South of which there is 29.5% of pre-European extent remaining (EPA 2006). The vegetation under application is also described as Beard vegetation association 998 of which there is 41.5% of pre-European extent remaining (Shepherd 2006).

The area under application is located within the City of Rockingham, within which there is 31.4% of pre-European extent remaining.

The Environmental Protection Authority (EPA) supports a 30% threshold level as recommended in the National Objectives Targets for Biodiversity Conservation; below which species loss appears to accelerate exponentially at an ecosystem level (EPA, 2000). However, the EPA (2006) recognises the Perth Metropolitan Region as a 'constrained area', providing for the reduction of vegetation complexes to a minimum of 10% of the Pre-European extent.

Given the current representation levels of the vegetation under application and the fact that there are large conservation reserves located within the local area which are comprised of the same vegetation types, it is not considered likely that the vegetation under application is significant as a remnant.

	Pre-European (ha)	Pre-European (ha)	Current extent (%)	Remaining (%)	In secure tenure
IBRA Bioregion*					
Swan Coastal Plain [^]	1,501,456	571,758	38.1		
City of Rockingham*	26,503	7,695	31.4		
Heddle Vegetation complex***					
Karrakatta Complex Central and South	49,912	14,695	29.5	2.5	
Beard Vegetation complex* 998	51,017	21,178	41.5	35.2	

* (Shepherd, 2006)

** (Shepherd et al, 2001)

*** (EPA, 2006)

^ Area within Intensive Land Use Zone

- Methodology** **References:**
- Commonwealth of Australia (2001)
 - EPA (2006)
 - Shepherd (2006)
 - Shepherd et al. (2001)
- GIS Databases:**
- Heddl Vegetation Complexes
 - Interim Biogeographic Regionalisation of Australia
 - SAC Bio datasets - accessed on 4/07/2008

(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 numerous wetlands located within a 5km radius of the area under application, the closest a Multiple Use Wetland, is located approximately 790m east of the applied area. In addition, the nearest Conservation Category Wetland (CCW) is located approximately 1.9km southwest of the area under application.

The nearest watercourses are the Peel Main Drain which is located approximately 1.1km east of the area under application and the Serpentine River which is located approximately 2.1km southeast of the applied area.

Given the distance to these wetlands and watercourses and given that no wetland vegetation was observed during the site inspection, the vegetation under application is not considered likely to include vegetation growing in, or in association with, an environment associated with a watercourse or wetland.

- Methodology** **References:**
- DEC (2008)
- GIS Databases:**
- Geomorphic wetlands (Mgt Categories) - Swan Coastal Plain - DEC
 - Hydrography, linear (hierarchy)
 - SAC BIO datasets - accessed on 4/07/2008

(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

The soils within the area under application area described as well-drained Spearwood sands which generally have a low risk of land degradation from water erosion and waterlogging (Department of Agriculture 2005), and a nil to low risk of salinity and a nil to low risk of acid sulphate soils.

Although generally there is a low salinity risk associated with the identified sandy soils, salinity risk mapping has identified small pockets of high salinity risk areas in the southern portion of the applied area. However, given the limited size (0.03ha) of the area identified as being at risk, it is not considered likely that the proposed clearing would result in any significant increase in salinity.

The main land degradation risk associated with the removal of vegetation on the identified soil type is considered to be nutrient export and wind erosion. However, given that the proposed land use is for sand extraction purposes, nutrient levels should not be significantly increased, therefore the risk of eutrophication is minimised. The high wind erosion potential is due to the sandy nature of the topsoil and without appropriate ground cover, windbreaks or adequate dust suppression on exposed surfaces the proposal would be likely to cause land degradation.

Given that the proposed land use of the area under application is for sand extraction and that the applied area has a high risk of wind erosion, the proposal may be at variance to this Principle. However, if the land clearing and sand extraction is completed in a cell clearing manner over a period of time and is subsequently rehabilitated, it is considered likely that the wind erosion risk would be reduced. The proposal therefore may be at variance to this Principle.

- Methodology** **References:**
- DEC (2008)
 - Department of Agriculture (2005)
 - State of Western Australia (2005)
- GIS Databases:**
- Acid Sulfate Soil Risk Map, Swan Coastal Plain
 - Salinity Risk LM 25m - DOLA 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**
The nearest conservation reserves are Bush Forever sites 376 (Baldivis Road Bushland) and Bush Forever site 419 (Maramanup Pool) which are respectively located approximately 650 metres southeast and 1.3 km northeast of the area under application.

The area under application has been isolated from conservation reserves in the local area with limited connectivity to the surrounding vegetation and the Bush Forever sites. Therefore the vegetation under application is considered to have limited value as an ecological corridor to facilitate the movement of fauna.

Given the distance to conservation reserves in the local area, it is not considered likely that the proposed clearing would have a direct or indirect impact on the environmental values of any adjacent or nearby conservation reserves.

Methodology **References:**
- DEC (2008)
GIS Databases:
- Bushforever - MF 07/01
- DEC Managed Lands and Waters ? CALM 1/07/05
- Geomorphic Wetlands (Classification), Swan Coastal Plain ? DEC

(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 closest watercourses are a Multiple Use Wetland which is located approximately 790m east of the area under application and the Peel Main Drain which is located approximately 1.1km east of the applied area. The area under application is within the Peel Estuary Serpentine River Catchment Area, but is not located within a Public Drinking Water Source Area.

Given the high infiltration rates of the sandy soils identified within the area under application, and the distance to the nearest wetland and watercourse, it is not considered likely that the proposed clearing would cause water erosion resulting in a deterioration in surface water quality.

The area under application has a nil to low risk of acid sulphate soils and is generally associated with a low risk of salinity. However, salinity risk mapping has identified a small portion (0.03ha) within the applied area as having a high salinity risk due to its position lower in the landscape. Given that groundwater salinity in the local area is between 1000-3000 mg/L (moderate salinity level) and given the limited size (0.03ha) of the area identified as being at risk, it is not considered likely that the proposed clearing would cause a deterioration in the quality of the underground water.

Given the above, it is therefore not considered likely that the proposed clearing would cause deterioration in the quality of surface or underground water.

Methodology **GIS Databases:**
- Groundwater Salinity, Statewide
- Hydrographic Catchments - Catchments
- Hydrography, linear (hierarchy) - DOE 13/4/05
- Public Drinking Water Source Areas (PDWSA's) - DOE 09/08/05
- Salinity Risk LM 25m - DOLA 00
- Topographic Contours, Statewide - DOLA 12/09/02

(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 area under application is located approximately 790 metres west of a Multiple Use Wetland and approximately 1.1km west of the Peel Main Drain, at an elevation of 15-30 metres.

Given the distance to the nearest wetland and watercourse and the high infiltration of the soils on site, it is not considered likely that the proposed removal of vegetation would impact on peak flood height or duration.

Methodology **GIS Databases:**
- Geomorphic wetlands (Mgt Categories) - Swan Coastal Plain - DEC
- Hydrography, linear (hierarchy)

- Soils, Statewide
- Topographic Contours, Statewide - DOLA 12/09/02

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

Comments

The area under application is located within Lot 21 on Plan 8420. The property owner Yellenday Pty Ltd have given permission for the applicant (Rocla Pty Ltd) to clear vegetation on the identified property for the purpose of sand extraction (TRIM ref: DOC55988).

Lot 21 on Plan 8420 is zoned 'Urban Deferred' under the Metropolitan Regional Scheme and Development under the City of Rockingham's Town Planning Scheme No 2.

In a letter Rocla Quarry Products have provided written authority for Vern Newton to apply for a clearing permit for Lot 21 Sixty Eight Road, Baldivis.

In a submission, the City of Rockingham advise that all development, including a change in land use, requires prior approval of the Council and to date, no Council approval has been sought. (TRIM ref: DOC56278).

The City of Rockingham advise that the applicant has not put in an application for Development Approval and cannot undertake any work on the property until Development Approval has been obtained (TRIM ref: DOC62734).

The City of Rockingham advise that the applicant (Rocla Quarry Products) will need to obtain a separate Extractive Licence for the proposed extraction of sand from area under application (Lot 21 Sixty Eight Road, Baldivis) and cannot use the Extractive Licence that Rocla currently have for the adjoining property. In addition, the City of Rockingham advise that a 20 metre setback buffer is required from any boundary unless written approval from the City of Rockingham to the contrary. To date, the applicant does not have a Extractive Licence or approval to change the mandatory 20 metre buffer for the area under application. (TRIM ref: 62737).

An Aboriginal Site of Significance (id. 4347) which has been listed on the Aboriginal Register as Archived Data is located in the southern portion of the area under application is Given the location of this Aboriginal site, it is considered that consultation should be considered for the area under application.

Methodology Aboriginal Sites of Significance
Metropolitan Regional Scheme
Native Title Claims
Town Planning Scheme Zones

4. Assessor's comments

Comment

The assessable criteria have been addressed and the proposed clearing may be at variance to Principles (a), (b) and (g).

5. References

- Weston, A.S. (2008) Rare Flora Search and Vegetation Survey for Lot 21 Sixty Eight Road Baldivis. Unpublished report prepared for RPS Environmental (2008).
- Burbidge, A. (2004) Threatened Animals of Western Australia, Department of Conservation and Land Management, Perth, Western Australia.
- City of Rockingham (2008) Advise on Development Approval for Lot 21 Sixty Eight Road, Baldivis, City of Rockingham. TRIM ref: DOC62734.
- City of Rockingham (2008) Advise on Extractive Licence and buffer setback requirements for Lot 21 Sixty Eight Road, Baldivis, City of Rockingham. TRIM ref: DOC62737.
- Commonwealth of Australia (2001) National Targets and Objectives for Biodiversity Conservation 2001-2005, AGPS, Canberra.
- DEC (2007) DEC Fauna habitat notes.xls February 2007, Department of Environment and Conservation, Western Australia
- DEC (2008) Site Inspection Report for Clearing Permit Application CPS 2540/1, sand extraction, Rocla Quarry Products. Site inspection undertaken 27/06/2008. Department of Environment and Conservation, Western Australia (TRIM Ref. DOC xxxxx).
- Department of Agriculture (2005) AgMaps Land Manager CD-ROM for the Shires of Serpentine-Jarrahdale, Kwinana, Rockingham, Mandurah, Murray, Boddington, Waroona and Harvey. Department of Agriculture, Western Australia. ISSN: 1448-235X.
- 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.
- EPA (2006) Guidance for the Assessment of Environmental Factors ? level of assessment of proposals affecting natural areas within the System 6 region and Swan Coastal Plain portion of the System 1 Region. Report by the EPA under the Environmental Protection Act 1986. No 10 WA.
- Gibson N., Keighery B., Keighery G., Burbidge A. and Lyons M. (1994). A Floristic Survey of the Southern Swan Coastal Plain. Western Australian Department of Conservation and Land Management and the Western Australian Conservation

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- 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 on 4/07/2008.

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)