



## 1. Application details

### 1.1. Permit application details

Permit application No.: 1852/1  
 Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Rinker Australia Pty Limited

### 1.3. Property details

Property: LOT 518 ON PLAN 50784 ( STAKE HILL 6210)  
 Local Government Area: Shire Of Murray  
 Colloquial name:

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
4.1		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
Hedde Vegetation Complex: Karrakatta Complex - Central and South - Predominantly open forest of E. gomphocephala - E. marginata - E. calophylla and woodland of E. marginata - Banksia species.	The proposal is to clear 4.1 hectares of native vegetation for the purpose of sand extraction.  Mattiske Consulting (2007) describes the vegetation under application as 'woodland of Allocasuarina fraseriana, Banksia attenuata and B. menziesii with emergent Eucalyptus marginata over Hibbertia hypericoides, with patches of Kunzea ericifolia'.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	Vegetation clearing description is based on a flora and vegetation survey conducted by Mattiske Consulting in January 2007 over all the vegetation contained on Lot 518. Mattiske also conducted a search targeted at <i>Drakaea elastica</i> during June 2007.  A site visit was also conducted by DEC officers on 14 June 2007. A Level 1 fauna survey was conducted by Bamford Consulting Ecologists (2007) over all the vegetation on Lot 518.
Beard Vegetation Association 998: Medium woodland, tuart			The vegetation under application is described by Mattiske Consulting (2007) to be in very good to excellent condition.
(Adapted from: Shepherd et al. 2001)	The vegetation under application comprises mixed Banksia woodland with Eucalyptus spp., <i>Allocasuarina fraseriana</i> over an understorey dominated by <i>Hibbertia hypericoides</i> and with patches of <i>Kunzea glabrescens</i> .		

## 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**  
 The vegetation under application is considered to be in very good to excellent condition, forms part of a corridor linking the adjacent Bush Forever site to the north and remnant vegetation to the south, and is considered to comprise part of significant habitat for indigenous fauna.

During a flora survey of all the vegetation on Lot 518 Mattiske Consulting (2007) identified 49 indigenous flora species, including one species that may be *Acacia benthamii* (P2) located within the north of the applied area, and three weed species.

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

To mitigate the loss of vegetation under application, a condition has been imposed to revegetate the areas to be cleared.

**Methodology** DEC site visit 14/6/07  
Mattiske Consulting (2007)

**(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 at variance to this Principle**

During a fauna assessment Bamford Consulting Ecologists (2007) recorded sightings and evidence of 10 bird species, two reptile species, and three (one introduced) mammal species. These included species of conservation significance such as the Quenda and the Forest Red-tailed Black Cockatoo.

The vegetation under application is in very good to excellent condition with an intact understorey that would provide suitable habitat for ground-dwelling fauna such as Quenda. Bamford Consulting Ecologists (2007) report that the habitat present within the vegetation on Lot 518 is well suited to Quenda, and Quenda diggings were observed during their fauna assessment, however the diggings were not considered to be fresh. Quenda have also been recorded in Paganoni Swamp, which is located approximately 900m to the west.

The Jarrah and Banksia woodland on site has the potential to provide nesting and feeding habitat for Black Cockatoos. Bamford Consulting Ecologists (2007) observed evidence of recent feeding activity by the Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) on Jarrah fruits in the northwest corner of the applied area, and report that the habitat on site is most suited to this species. The large Jarrah present on site have the potential to support hollows suitable for nesting by Black Cockatoos, with one hollow observed by Bamford Consulting Ecologists (2007) on Lot 518. During the DEC site visit Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) was observed to be active in similar vegetation on the adjacent property.

The vegetation under application is part of a large vegetated remnant that includes the Bush Forever site, Paganoni Swamp and the Serpentine River to the north and forms part of an ecological link between these sites and vegetation to the south.

Given the potential for the vegetation under application to provide habitat for a range of fauna species, including species of conservation significance, and its location within a large vegetated remnant, it is considered that the vegetation under application comprises part of a significant habitat for indigenous fauna.

To mitigate any loss of habitat within the area under application a condition will be imposed on the permit to ensure a survey is undertaken by a fauna specialist to identify trees that may be suitable as habitat for specially protected fauna under the Wildlife Conservation Act and, where applicable, translocation of fauna is undertaken. A condition will also be imposed requiring that clearing be conducted from west to east to allow movement of fauna.

**Methodology** DEC Site visit 14/6/07  
Bamford Consulting Ecologists (2007)  
GIS Databases: SAC Bio datasets accessed 05/06/07

**(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**

Within the local area (5km radius) there are two known populations of the Declared Rare Flora (DRF) *Drakaea elastica*, the closest of which is located approximately 230m to the south of the applied area.

*D. elastica* is described as a tuberous, perennial herb, 0.12-0.3 m high with flowers red, green, yellow during Oct-Nov in white or grey sand, low-lying situations adjoining winter-wet swamps (Western Australian Herbarium 1994). The nearby population of *D. elastica* is located within the same soil association and vegetation complex, and is at the same elevation, as the vegetation to the south of the applied area, which includes winter-wet depressions. DEC Conservation Officers advised that 'although *D. elastica* is predominantly found in Banksia woodland, particularly under thickets of *Kunzea glabrescens* above winter-wet areas, it is not confined to those areas and has occasionally been found near the tops of sandy rises'.

During the January flora survey by Mattiske Consulting (2007) no DRF species were observed within the vegetation on Lot 518, however the flora survey was not conducted at the appropriate time of year for observing *D. elastica*. In subsequent discussions Mattiske Consulting advised that a targeted survey of the lower areas of Lot 518 would be appropriate given the location of the new record of *D. elastica* on the adjacent lot. During June Mattiske Consulting (2007) conducted a targeted flora survey and did not observe any *D. elastica* within vegetation on Lot 518. Mattiske Consulting (2007) did recommend that a secondary targeted survey be conducted in spring within the mid and lower slopes (below 18m elevation) and this area has since been

excised from this application.

There are also four known populations of Priority listed flora in the local area, with the closest being *Dillwynia dillwynioides* (P3) located 500m to the east. This species is generally found in winter-wet depressions and is therefore not considered likely to be found within the area under application (Western Australian Herbarium 1996).

During the flora survey a single plant with the potential of being *Acacia benthamii* (P2) was recorded within the northern portion of the applied area, but as no reproductive structures were present a positive identification could not be made (Mattiske Consulting 2007).

Although the vegetation under application is not considered likely to include the DRF *Drakaea elastica*, given that the *Acacia* spp. was not positively identified, it is considered that the vegetation under application may include this Priority species and therefore the proposal may be at variance to this Principle.

Rinker (URS 2007) has committed to avoiding *Acacia benthamii* if possible, however if clearing of this species cannot be avoided Rinker has also committed to seed collection and propagation if possible.

**Methodology** DEC Site visit 14/6/07  
Mattiske Consulting (2007)  
URS (2007)  
Western Australian Herbarium (1994)  
GIS Databases:  
SAC Bio datasets accessed 06/06/07  
Topographic Contours, Statewide - DOLA 12/09/02

**(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**  
Within the local area (5km radius) there are three known occurrences of a Threatened Ecological Community (TEC) that has been identified as Floristic Community Type 19b - Woodlands over sedgeland in Holocene dune swales of the southern Swan Coastal Plain (Government of Western Australia 2000).

The vegetation under application is described by Mattiske Consulting (2007) as corresponding with Floristic Community Type 28, which is not identified as a TEC (Government of Western Australia 2000).

Given that the vegetation under application was not identified as a TEC during the flora survey, and given the distance to the nearest known occurrences, it is not considered likely that the vegetation under application comprises or is necessary for the maintenance of a TEC.

**Methodology** Government of Western Australia (2000)  
Mattiske Consulting (2007)  
GIS Databases:  
SAC Bio datasets accessed 06/06/07

**(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 may be at variance to this Principle**  
Heddlie et al (1980) defines the vegetation under application as 'Karrakatta Complex - Central and South'. This has a pre-European representation of 29.5% and is classified as being of 'vulnerable' status for biodiversity conservation (Department of Natural Resources and Environment 2002; EPA 2006).

The vegetation under application is also classified as Beard vegetation association 998, which has 41.5% of the pre-European extent remaining and which is classified as depleted (Shepherd 2006).

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

The 'Karrakatta Complex - Central and South' has less than the recommended minimum of 30% vegetation remaining. The vegetation under application is 4.1 hectares considered to be in very good to excellent condition and is part of a large remnant of vegetation which is considered to be significant in the local area, which has been historically extensively cleared for agriculture and urban development. The vegetation under application therefore may be considered significant as a remnant.

Pre-European (ha)	Current (ha)	Remaining %	Conservation status***	% reserves
Swan Coastal Plain	1,501,456	571,758	38.1*	Depleted

Shire of Murray	181,526	98,552	54.3*	Least concern	
Hedde vegetation complex					
Karrakatta Complex - Central and South 2.5		49,912	14,729	29.5***	Vulnerable
Beard vegetation association 998		51,017	21,178	41.5**	Depleted 17.3

\* (Shepherd et al. 2001)  
\*\* (Shepherd 2006)  
\*\*\*(EPA, 2006)  
\*\*\*(Department of Natural Resources and Environment 2002)

**Methodology** DEC Site visit 14/6/07  
Department of Natural Resources and Environment, 2002  
EPA (2006)  
Hedde et al. (1980)  
Shepherd (2006)

**(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 is a Conservation Category Wetland (CCW) located approximately 320m to the east of the applied area, and Paganoni Swamp, also a CCW and an EPP Lake, is located 720m to the west. The Serpentine River is also located 450m to the east of the area under application.

Given the distance to the nearest wetland, and that no winter-wet depressions were observed during the site visit, it is not considered likely that the vegetation under application is growing in, or association with, an environment associated with a watercourse or wetland.

**Methodology** DEC Site visit 14/6/07  
GIS Databases:  
Geomorphic Wetlands (Classification), Swan Coastal Plain - DEC  
Hydrography, linear (hierarchy) - DOW

**(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**  
Soils within the applied area are part of the Spearwood S1b Phase, comprising deep siliceous yellow brown sands or pale sands with yellow-brown subsoil. These soils have a high phosphorus export risk and a very high wind erosion risk (State of Western Australia 2005).

There is a nil salinity risk within the area under application, however the easternmost portion has a moderate to low risk of acid sulphate soils.

The removal of vegetation as proposed will the expose soils to and is likely to result in appreciable land degradation in the form of wind erosion. The proposed clearing will also remove deep-rooted perennials, reducing the phosphorus retention ability of the soil, which may cause an increase in nutrient export and the risk of eutrophication.

Given that there is the potential for the proposed clearing to result in wind erosion and phosphorus export, it is considered that the proposal may be at variance to this Principle.

In order to minimise the risk of wind erosion, conditions will be imposed requiring clearing in stages and revegetation.

**Methodology** State of Western Australia (2005)  
GIS Databases:  
Acid Sulfate Soil Risk Map, Swan Coastal Plain - DEC  
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 may be at variance to this Principle**  
The area under application is located approximately 20m to the south of Bush Forever site 395. There are also Conservation Category Wetlands located approximately 320m to the east and 720m to the west.

Given the 20m buffer between the applied area and the Bush Forever site, it is not considered likely that the

clearing would directly impact on its environmental values. However the vegetation under application is part of a continuous vegetated remnant that forms an ecological corridor for the movement of fauna between Bush Forever site 395 and the vegetation to the south. The proposed clearing will reduce the width of this corridor, reducing its effectiveness, and therefore will likely impact on the environmental values of the adjacent Bush Forever site.

Given that the vegetation under application forms part of a vegetated remnant linking Bush Forever site 395 and vegetation to the south, it is considered that the proposed clearing may indirectly impact the environmental values of this reserve. The proposal therefore may be at variance to this Principle.

To mitigate the potential impacts of the clearing on adjacent conservation reserves a condition will be imposed requiring revegetation of the areas cleared.

**Methodology** DEC Site visit 14/6/07  
GIS Databases:  
Bushforever - MFP 07/01  
CALM Managed Lands and Waters - CALM 1/07/05  
Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain - DOE 15/9/04

**(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 may be at variance to this Principle**

A Conservation Category Wetland (CCW) is located approximately 320m to the east of the applied area. Due to the high infiltration rates of the sandy soils identified within the area under application, and the distance to the wetland it is not considered likely that the proposed clearing would cause water erosion resulting in a deterioration in surface water quality in the CCW.

The area under application has a moderate to low risk of acid sulphate soils and a low salinity risk. However, the soils on site have a high risk of phosphorus export and the proposed clearing will remove deep-rooted perennials that are important for the uptake of nutrients throughout the year. This may increase the risk of phosphorus export from the applied area through drainage, contributing to a deterioration in groundwater quality.

Given the high risk of phosphorus export associated with the identified soil types, it is considered that the proposed clearing of 4.1 hectares may cause a deterioration in the quality of ground water.

In order to minimise the nutrient export from the site conditions have been imposed requiring clearing in stages and revegetation.

**Methodology** State of Western Australia (2005)  
GIS Databases:  
Acid Sulfate Soil Risk Map, Swan Coastal Plain - DEC  
Geomorphic Wetlands (Classification), Swan Coastal Plain - DEC  
Salinity Risk LM 25m - DOLA 00

**(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 at an elevation of 15-30 metres and the sandy soils identified on site have a low risk of water logging (State of Western Australia 2005).

Due to the high infiltration rates associated with the sandy soils and the slight relief within the area under application, the proposed clearing of vegetation is not likely to cause or exacerbate the incidence of flooding.

**Methodology** DEC Site visit 14/6/07  
State of Western Australia (2005)  
GIS Databases:  
Topographic Contours, Statewide - DOLA 12/09/02

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

**Comments**

The land proposed to be cleared is part of a Native Title Claim however, since it is privately owned the Native Title has been extinguished under the Native Title Act. Therefore the clearing as proposed should not fall under the future acts process of the Native Title Act 1993.

Rinker Australia Pty Ltd has a current Planning Approval and Excavation Licence from the Shire of Murray, and a current Licence to Take Water from the Department of Water.

Lot 518 is zoned urban under the Peel Regional Scheme.

A submission was received opposing to the proposed clearing on the grounds that the vegetation within Lot 518 is part of a remnant of vegetation in a highly cleared landscape, the DRF found nearby, and that the proposed clearing will impact on the adjacent Bush Forever site.

#### Methodology

### 4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comment
Extractive Industry	Mechanical Removal	4.1	The assessable criteria have been addressed and the proposed clearing is at variance to Principle b and may be at variance to Principles a, c, e, g, h and i.

### 5. References

- Bamford Consulting Ecologists (2007) Black Cockatoo and Quenda Fauna Assessment, Stock Road Quarry. DEC TRIM ref. DOC21328.
- 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 (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.
- Government of Western Australia (2000) Bush Forever Volumes 1 and 2. Western Australian Planning Commission, Perth WA.
- Hedde, E. M., Loneragan, O. W., and Havel, J. J. (1980) Vegetation Complexes of the Darling System, Western Australia. In Department of Conservation and Environment, Atlas of Natural Resources, Darling System, Western Australia.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Mattiske Consulting Pty Ltd (2007) Flora and Vegetation Survey of Stock Road Quarry Expansion Area. DEC TRIM ref. DOC21328.
- Shepherd (2006) 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.
- State of Western Australia (2005) Agmaps Land Manager CD Rom.
- URS (2007) Final Report - Supporting documentation for the Clearing Permit Application, Stock Road Quarry. DEC TRIM ref. DOC21328.
- Western Australian Herbarium (1994) Department of Environment and Conservation. Text used with permission (<http://florabase.calm.wa.gov.au/help/copyright>). Accessed on Monday, 11 June 2007.
- Western Australian Herbarium (1996) Department of Environment and Conservation. Text used with permission (<http://florabase.calm.wa.gov.au/help/copyright>). Accessed on Thursday, 5 July 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)

