



## 1. Application details

### 1.1. Permit application details

Permit application No.: 2757/1  
 Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Rocla Quarry Products

### 1.3. Property details

Property: LOT 300 ON DIAGRAM 75682 (House No. 391 BOOMERANG OLDBURY 6121)  
 LOT 301 ON DIAGRAM 75682 (House No. 375 BOOMERANG OLDBURY 6121)  
 LOT 6 ON DIAGRAM 47557 (Lot No. 194 BANKSIA OLDBURY 6121)  
 Local Government Area: Shire Of Serpentine-Jarrahdale & Town Of Kwinana  
 Colloquial name:

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
24.78		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: Bassendean Complex Central & South - Transition Vegetation Complex - Woodland of E. marginata - E. calophylla with well defined second storey of Allocasuarina fraseriana and B. grandis on the deeper soils and a closed scrub on the moister sites. The understorey species reflect similarities with the adjacent vegetation complexes.	The proposal is to clear 24.78 hectares of native vegetation for the purpose of sand extraction.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	The vegetation condition was obtained from DEC site inspection conducted on 10 November 2008 and two flora reports prepared for Lot 6 Banksia Road (GHD 2006).
Serpentine River Complex - Closed scrub of Melaleuca species and fringing woodland of E. rudis - M. raphiophylla along streams.	The area under application comprises three adjoining properties. GHD (2006) conducted a spring flora and fauna survey of Lot 6 for the previous property owner and recorded a total of 134 flora species (comprising 81 native species and 53 weed species) and described the vegetation within Lot 6 as being in good to very good condition overall.		
Beard Vegetation Complex: 968 - Medium woodland; jarrah, marri & wandoo.  1001 - Medium very sparse woodland; jarrah, with low woodland; banksia & casuarina	The majority of the vegetation within the areas under application include Eucalyptus spp, Banksia	Good: Structure significantly altered by multiple disturbance; retains basic	

<p>attenuata, B littoralis, B. menziesii, B. grandis, Allocasuarina fraseriana, Nuytsia floribunda and Xylomelum occidentale over Melaleuca species, Adenanthos cygnorum, Jacksonia spp, Macrozamia riedlei, Xanthorrhoea preissii, Kunzea spp, Dampiera spp, Dasypogon bromellifolius, Patersonia occidentalis, Hibbertia hypericoides, Anigozanthos manglesii, Conostylis aculeata and grasses; and is considered to be in very good condition overall.</p> <p>The southern portion of the area under application comprised wetland dependant species such as Eucalyptus spp, Banksia illicifolia, Kunzea spp, and vast tracks of Bracken Fern, particularly in the southwest corner of the applied area. The vegetation within this area is considered to be in degraded to good condition.</p> <p>The vegetation in the central portion of Lot 301 has been extensively cleared for a motor cross race track and comprises individual Eucalyptus trees and is considered to be in completely degraded condition.</p>	<p>structure/ability to regenerate (Keighery 1994)</p> <p>Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)</p> <p>Completely Degraded: No longer intact; completely/almost completely without native species (Keighery 1994)</p>
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### 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 at variance to this Principle**

The area under application comprises three properties, with the majority of the vegetation within the applied area being in very good (Keighery, 1994) condition. Degraded to completely degraded (Keighery, 1994) areas are limited to areas of disturbance including access tracks and a motor cross track which is located in the central portion of Lot 301.

Appropriately timed flora and fauna surveys were conducted by GHD and RPS consultancies (GHD, 2006; RPS, 2009) within the applied areas. Both surveys identified a diversity of flora occurring within the applied area however no rare flora or priority flora species were recorded.

During the fauna survey for Lot 6, GHD (2006) identified a total of 23 bird species, one mammal and one reptile species within Lot 6, including the EPBC Act (Migratory) listed Rainbow Bee-eater (*Merops ornatus*) and three bird species listed as Regionally Significant birds on the Swan Coastal Plain (Government of Western Australia, 2000). In addition, areas of dense vegetation and woody debris are likely to provide suitable habitat for ground dwelling fauna species such as the Quenda.

Given that the vegetation under application is likely to be utilised by a number of fauna species, including avifauna and species of conservation significance and given the similar composition and structure of the vegetation within the applied area to that of the vegetation surveyed within Lot 6 which is in good to very good condition, it is considered that the vegetation under application comprises a high level of biological diversity in a local context.

##### Methodology

##### References:

- DEC (2008)
- GHD (2006)
- RPS (2009)

##### GIS Databases:

- SAC Bio Datasets, Date accessed 20/11/2008

**(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 is at variance to this Principle**

The area under application is located in a rural landscape that has been extensively cleared to the south and to the east. The Western Australian Planning Commission has recognised the significance of the vegetation within the local area and has identified the vegetation under application as forming part of an important "Regional Ecological Linkage" in the Jandakot Structure Plan (2007).

There are eleven records of conservation significant indigenous fauna within the local area (5 km radius), including the Western Brush Wallaby (*Macropus irma*, P4), the Quenda (*Isodon obesulus fusciventer*, P5), and the Carnaby's Black-Cockatoo (*Calyptoorhynchus latirostris*) (EPBC Act, Endangered).

The area under application is located within the distribution range of the Carnaby's Black-Cockatoo, 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). Although the trees under application are unlikely to provide suitable nesting hollows, the vegetation under application is suitable feeding habitat for the Carnaby's Black-Cockatoo.

The vegetation under application comprises *Eucalyptus* species, *Banksia attenuata*, *B. menziesii* and *Allocasuarina fraseriana* over an understorey dominated by *Adenanthos cygnorum*, *Xanthorrhoea preissii*, *Macrozamia riedlei*, *Melaleuca* spp, *Kunzea* spp, *Jacksonia* spp, *Hibbertia hypericoides*, *Dampiera* spp, *Conostylis* spp and grasses. During a site inspection (DEC, 2008), numerous Quenda diggings were observed and it is considered that the vegetation in good (Keighery, 1994) or better condition provides habitat for ground dwelling species including the Quenda and Western Grey Kangaroo, and may provide habitat for the Western Brush Wallaby.

During the field survey of Lot 6 Banksia Road, a total of 23 bird species, one mammal (Western Grey Kangaroo) and one reptile species were observed within this locality, including the EPBC Act (Migratory) listed Rainbow Bee-eater (*Merops ornatus*) (GHD 2006) which was observed on site during the fauna survey. The Rainbow Bee-eater is protected under the Environmental Protection Biodiversity Conservation Act 1999. This migratory species nests in burrows excavated in sandy ground during the spring and summer months. Given that this species was observed on site during the fauna survey, and the area under application comprises sandy soils and vegetated areas suitable for nesting, it is considered likely that the area under application provides significant local habitat for this protected species. Any clearing of vegetation during the months of September to February is likely to destroy any burrows that may be present on site.

GHD (2006) advised that of the identified local bird species, the Scarlett Robin (*Petroica multicolor*), Common Bronzewing (*Phaps chalcoptera*) and the New Holland Honeyeater (*Phylidonyris novaehollandiae*) are species listed as Regionally Significant birds on the Swan Coastal Plain (Government of Western Australia 2000). These species have a limited distribution range and are particularly sensitive to habitat loss (Bamford 2006).

The vegetation under application includes individual mature *Eucalyptus* trees which may have the potential to contain smaller hollows suitable to be utilised for habitat by a range of bird species from small insectivores to the large parrot species, such as Australian Ringneck Parrot (*Barnadius zonarius*), which were observed during the fauna survey (GHD 2008) and also during a site inspection (DEC, 2008).

Given the vegetation under application is likely to be utilised by a number of indigenous fauna species, including species of conservation significance, in an extensively cleared landscape, the vegetation under application is considered to comprise significant habitat for fauna indigenous to Western Australia.

**Methodology** References:  
- Bamford (2006)  
- GHD (2006)  
- Ironbark Environmental (2008)  
- Western Australian Planning Commission (2007)  
GIS Databases:  
- SAC BIO datasets - accessed on 20/11/2008

**(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**

Within the local area (10km radius) there are four recorded species of rare flora, being *Caladenia huegellii*, *Diuris purdiei*, *Drakaea elastica* and *Verticordia plumosa* var. *pleiobotrya*, the closest *D. purdiei* is located approximately 5km from the area under application. Of the identified rare flora species, *C. huegellii*, *D. purdiei* and *Drakaea elastica* are found within the same vegetation complex and soil type as that found within the area under application.

There are also eighteen species of priority flora within a 10km radius of the area under application, the closest *Boronia juncea* (P1) is located approximately 940 metres from the applied area. *B. juncea* is found within the

same vegetation complex and soil type as the area under application.

An appropriately timed flora survey conducted within the applied area did not identify any rare flora or priority species growing within the site (GHD 2006; RPS, 2009).

Given the above, the clearing as proposed is not likely to be at variance to this principle.

- Methodology**
- References**
- DEC (2008)
  - GHD (2006)
  - RPS (2009)
  - Western Australian Herbarium (1998)
- GIS Databases:**
- Heddle Vegetation Complex
  - SAC BIO Datasets - accessed 10/11/2008
  - Soils , Statewide - DA 11/99

**(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, there are three Threatened Ecological Communities (TEC), the closest located approximately 2.3km south of the applied area is identified as Floristic Community Type 3a (FCT 3a) - Eucalyptus calophylla - Xanthorrhoea preissii woodlands and shrublands. This TEC is found within a different vegetation complex and soil type to that found in the area under application and is associated with heavy clay soils on the Pinjarra Plain.

During two appropriately timed flora surveys of the applied area (GHD, 2006; RPS, 2009) the vegetation under application was identified as comprising FCT 21a -Central Banksia attenuata - Eucalyptus marginata woodlands and FCT 23a - central Banksia attenuata - Banksia menziesii woodlands, neither of which are identified as a TEC.

Given the distance to the closest TEC and that no TEC's were identified during site surveys (GHD, 2006; RPS, 2009) and that the area under application is located on Bassendean Dunes, it is not likely that the vegetation under application comprises, or is necessary for the maintenance of a TEC.

- Methodology**
- References:**
- DEC (2008)
  - GHD (2006)
  - RPS (2009)
- GIS Databases:**
- SAC BIO Datasets - accessed 21/11/2008
  - Soils, Statewide - DA 11/99

**(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**

Pre-European	Current extent (ha)	Remaining (ha)	In secure tenure (%)	
IBRA Bioregion* Swan Coastal Plain^	1,501,208	583,140	38.84	32.55
Shire of Serpentine-Jarrahdale*	114,496	71,624	62.56	88.30
Beard vegetation type*				
968	301,120	103,386	34.33	56.55
1001	57,410	14,545	25.34	5.13
Beard vegetation type in bioregion*				
968	136,188	8,637	6.34	14.17
1001	57,410	14,545	25.34	5.13
Heddle vegetation complex** Bassendean-Central & South	87,477	23,624	27.0	0.7

Serpentine River complex	19,855	2,103	10.6	2.8
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\* (Shepherd, 2007)

\*\* (Hedde et al., 1980)

^ Area within Intensive Land Use Zone

The EPA (2006) recognises that the Perth Metropolitan Region is a 'constrained area,' and that reduction of vegetation complexes should not exceed 10% of the pre-European extent. The vegetation units mapped within the applied area are considered to represent a remnant of the Serpentine River vegetation complex and Beard vegetation unit 968, most of which has been cleared within the Swan Coastal Plain Bioregion. However a Flora and Vegetation Survey (RPS, 2009) identified that the vegetation on site was not representative of the Serpentine River Vegetation complex.

The Jandakot Structure Plan (2007) and the Shire of Serpentine-Jarrahdale Local Biodiversity Strategy (2008) has identified the applied area as a "Regional Ecological Linkage" and clearing of the vegetation under application may impact on the ecological values of this linkage within the local landscape.

Given the above and that the local area has been extensively cleared, it is considered that the vegetation under application may be significant as a remnant of native vegetation within the Swan Coastal Plain bioregion.

**Methodology**    References:  
 DEC (2008)  
 EPA (2006)  
 Hedde et al. (1980)  
 Jandakot Structure Plan (2007)  
 Keighery (1994)  
 Local Biodiversity Strategy (2008)  
 RPS (2009)  
 Shepherd (2007)  
 Western Australian Planning Commission (2007)  
 GIS Databases:  
 - Hedde Vegetation Complexes - DEP 21/06/95  
 - Interim Biogeographic regionalisation of Australia

**(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 at variance to this Principle**  
 There are numerous wetlands located within a 5km radius of the area under application, the closest Banksia Road, is a Resource Enhancement Wetland and is located approximately 35 metres south of the area under application. Furthermore, a Conservation Category Wetland (CCW) identified as Braddock Road, is located approximately 300 metres to the southwest and an EPP Lake is located approximately 100m south of the applied area.

In addition, the nearest watercourses are the Birriga Main Drain and Manjedal Brook which are respectively located approximately 815 metres southeast and 1.8km south of the area under application.

The vegetation within the southern portion of the area under application comprises, Banksia littoralis, Bracken Ferns and sedges, which are associated with damp areas and watercourses. Although there are not any mapped wetlands within the area under application, the Shire of Serpentine-Jarrahdale (2008) advice that there are permanent springs within the area, which maintains the wetlands to the north and south of the applied area. Therefore, the proposed removal of vegetation from the sandy ridge may result in adverse impacts on the wetlands, through the modification of hydrology.

Given the presence of wetland vegetation and the close proximity to the closest wetland, it is considered that the vegetation is growing in, or in association with, an environment associated with a watercourse or wetland.

The applicant has supplied a Groundwater Modelling Assessment prepared by RPS (2009), which proposed mitigation actions. It is considered that if these actions were to be undertaken impacts to nearby wetlands would be minimal (DoW, 2009).

**Methodology**    References:  
 - DEC (2008)  
 - DoW (2009)  
 - GHD (2006)

- Shire of Serpentine-Jarrahdale (2008)
- GIS Databases:
  - EPP, Lakes
  - Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain
  - Hydrography, linear (hierarchy)

**(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 area of vegetation under application is identified as containing two main soil types. The majority of the soils within the area under application are described as low-lying, poorly drained black and grey cracking clays (Northcote et al, 1960-68) which have a high risk of water logging.

The soils within the northern applied area are defined as well-drained Bassendean sands. Land degradation risks associated with the removal of vegetation from these sandy soils are nutrient export and wind erosion (State of Western Australia, 2005) however given the varied soil types under application the proposed clearing of native vegetation is not considered likely to result in the export of nutrients offsite.

The high wind erosion potential is due to the sandy nature of the soil and removal of native vegetation may result in appreciable land degradation.

Given that the proposed land use of the area under application is for sand extraction and has a high risk of wind erosion, the proposal may be at variance to this Principle.

**Methodology References:**

- Northcote et al. (1960-68)
- Department of Agriculture (2005)
- GIS Databases:
  - Salinity Risk LM 25m - DOLA 00
  - 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 at variance to this Principle**

There are numerous areas reserved for conservation purposes within a 5km radius of the area under application, the closest being Bush Forever site 70 which is located approximately 570 metres south of the applied area and Bush Forever site 68 which is situated approximately 580 metres to the southeast. In addition, Banksia Nature Reserve which is also part of the Jandakot Regional Park and is listed on the Register of National Estate and identified as a System 6 Reserve, is located approximately 800 metres to the north of the applied area.

The Western Australian Planning Commission has identified the vegetation under application as forming part of a significant 'Regional Ecological Linkage' within the local area (Jandakot Structure Plan, 2007). This linkage was established to ensure the retention and enhancement of ecological values within the local area and to facilitate the movement of fauna species between areas of remnant vegetation.

The vegetation under application is likely to provide significant habitat for local avian fauna species and provide an ecological linkage to other limited patches of remnant vegetation on privately owned land in the local area.

Given the above, it is considered that the proposed clearing will reduce the ability of this remnant to act as a stepping stone for avian fauna species and will fragment the identified corridor linkages area from local conservation reserves.

It is therefore considered that the proposal is at variance to this Principle.

**Methodology References:**

- DEC (2008)
- Ironbark Environmental (2008)
- Western Australian Planning Commission (2007)
- GIS Databases:
  - Bushforever - MFP 07/01
  - CALM Managed Lands and Waters
  - CALM Regional Parks - CALM 12/04/02
  - Register of National Estate
  - System 6 Conservation Reserves

**(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 area under application has a low to nil risk of salinity and is not located within a Public Drinking Water Source Area (PDWSA). The nearest watercourses are the Birriga Main Drain and Manjedal Brook which are respectively located approximately 815 metres southeast and 1.8km south of the area under application.

There is also a Conservation Category Wetland located approximately 300 metres to the southwest and a Resource Enhancement Wetland which is located approximately 35 metres to the south of the area under application. In addition, an EPP Lake is located approximately 100 metres to the south of the applied area.

The proposed clearing of native vegetation from a sandy rise may result in adverse impacts on the wetlands, including increase in recharge, water logging and more extreme fluctuations in water levels which may result in the deterioration in surface water quality (DoW, 2008). The applicant has submitted a Groundwater Modelling Assessment prepared by RPS (2009), providing further site specific information on the hydrology of the applied area. Given the information within the Groundwater Modelling Assessment, the likelihood of the clearing causing deterioration in surface or groundwater quality within the local area is considered minimal (DoW, 2009).

Given the above the clearing as proposed is not likely to be at variance to this principle.

**Methodology References:**

- DEC (2008)
- DoW (2008)
- DoW (2009)
- GHD (2006)

**GIS Databases:**

- Acid Sulfate Soil Risk Map, Swan Coastal Plain - DEC
- EPP, Lakes
- Geomorphic Wetlands (Classification), Swan Coastal Plain
- Hydrography, linear (hierarchy) - DOW
- Public Drinking Source Areas (PDWAs) - DOW
- Salinity Mapping LM 25m - DOLA
- Soils, Statewide - DA 11/99

**(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 1.8km north of Manjedal Brook and approximately 35 metres north of a Resource Enhancement Wetland, at an elevation of 20-40 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 comprises three separate adjacent properties. Lot 6 Banksia Road, Oldbury is owned by Rocla Pty Ltd, Lot 300 Boomerang Road, Oldbury is owned by Raymond Tilbury and Lot 301 Boomerang Road, Oldbury is owned by Kenneth and Loretta Ditchfield.

The property owners Raymond Tilbury (Lot 300) and Kenneth and Loretta Ditchfield (Lot 301) have given permission for Rocla Quarry Products (Applicant) to clear vegetation for the purpose of sand extraction on the identified property (TRIM ref: DOC63322).

The area under application is zoned rural under the Town Planning Scheme. The applied clearing area is not within a priority resource location or a key extraction area as mapped within the Basic Raw Materials Statement of Planning Policy No. 10 (WAPC, 2000).

Extractive industry in Rural Zoned Land requires WAPC approval.

The Shire of Serpentine-Jarrahdale advised that Rocla Quarry Products do not have Development Approval or an Extractive Industries Licence for the area under application.

The Shire of Serpentine-Jarrahdale have previously refused a development application for an Extractive Industry (Sand Mining) for Lot 6 Banksia Road, Oldbury. (TRM Ref: DOC69821).

The Western Australian Planning Commission in the Jandakot Structure Plan (2007), defines the area under application as a prominent landform (sand ridges), which is identified as Land Form/Landscape Protection within Clause 7.2.10 of the Jandakot Structure Plan (TRIM ref: DOC 68811).

The vegetation under application has been identified as an important Regional Ecological Corridor linkage in both the Western Australian Planning Commissions Jandakot Structure Plan (2007) and in the Shire of Serpentine-Jarrahdale Local Biodiversity Strategy (2008).

In two submissions an objection to the proposed clearing application was lodged, the issues raised in this submission have been addressed under the clearing principles where appropriate.

#### Methodology

#### References:

- DEC (2008)
- GHD (2006)
- Local Biodiversity Strategy (2008)
- Submission, Direct Interest Submission, 6/11/2008, TRIM DOC 68741 (Private Landowner Submission)
- Submission, Direct Interest Submission, 20/11/2001, TRIM DOC 68810 (Shire of Serpentine-Jarrahdale)
- Shire of Serpentine-Jarrahdale, Notice of Refusal to Commence Development, 25/06/2007. TRIM DOC69821.
- Western Australian Planning Commission (2007)

## 4. Assessor's comments

#### Comment

The assessable criteria have been addressed and the proposed clearing is at variance to Principles (a), (b), (f) and (h), may be at variance to Principles (e) and (g) and is not likely to be at variance to Principles (c), (d), (i) and (j).

## 5. References

- Department of Water, pers. comm. (5/12/2008).
- Ironbark Environmental (2008) Shire of Serpentine-Jarrahdale Local Biodiversity Strategy, Final version 8 July 2008. report prepared for the Shire of Serpentine-Jarrahdale, Perth, Western Australia.
- Bamford Consulting Ecologists (2006) Jindalee Fauna Assessment CPS 1694/1. Unpublished report prepared for RPS Bowman Bishaw Gorham.
- Commonwealth of Australia (2001) National Targets and Objectives for Biodiversity Conservation 2001-2005, AGPS, Canberra.
- DEC (2008) Site Inspection Report for Clearing Permit Application CPS 2705/1, road construction, Shire of Waroona. Site inspection undertaken 12/10/2008. Department of Environment and Conservation, Western Australia (TRIM Ref. DOC 69864).
- 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 (2006) Guidance for the Assessment of Environmental Factors - Level of Assessment for Proposals Affecting Natural Areas Within the System 6 Region and Swan Coastal Plain Portion of the System 1 Region. Guidance Statement No 10. Environmental Protection Authority, Western Australia.
- GHD (2006) Flora and Fauna Assessment Report for the Lot 6 Banksia Road, Oldbury, unpublished report prepared for Peter Piercy.
- GHD (2006) Report for Lot 6, Banksia Road, Oldbury, unpublished updated Spring Flora Survey: Addendum to March 2006 Flora Survey prepared for Peter Piercy.
- 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.
- 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.
- RPS (2009) Groundwater Modeling Assessment Lot 6 Banksia Road and Lot 300 and 301 Boomerang Road, Oldbury, TRIM Ref DOC82275
- RPS (2009) Level 1 Flora and Vegetation Survey Lots 6, 300 and 301 Boomerang Road, Oldbury, prepared by RPS Environment and Planning Pty Ltd for Rocla Quarry Products CEO191/09
- Shepherd, D.P. (2007). 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.
- Submission, Direct Interest Submission, 20/11/2001, TRIM DOC 68810 (Shire of Serpentine-Jarrahdale)
- Submission, Direct Interest Submission, 6/11/2008, TRIM DOC 68741 (Private Landowner Submission)



Western Australian Herbarium (1998-). FloraBase - The Western Australian Flora. Department of Environment and Conservation. <http://florabase.calm.wa.gov.au/> Accessed on 10/11/2008.

Western Australian Planning Commission (2007) Jandakot Structure Plan: Final Report August 2007. Government of WesternAustralia, Perth, Western Australia.

## 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)

