



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 4721/1
Permit Holder:	Boral Bricks Western Australia Pty Ltd
Duration of Permit:	13 February 2012 – 13 February 2022

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

PART I – CLEARING AUTHORISED

1. Purpose for which clearing may be done

Clearing for the purpose of clay exploration drill lines

2. Land on which clearing is to be done

Lot 3 on Diagram 38894, MORANGUP
Lot 4 on Diagram 38894, MORANGUP

3. Area of Clearing

The Permit Holder must not clear more than 4 hectares of native vegetation within the area hatched yellow on attached Plan 4721/1.

4. Application

This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

5. Period in which clearing is authorised

The Permit Holder shall not clear any native vegetation after 13 February 2017

6. Compliance with Assessment Sequence and Management Procedures

Prior to clearing any native vegetation under conditions 1, 2 and 3 of this Permit, the Permit Holder must comply with the Assessment Sequence and the Management Procedures set out in Part II of this Permit.

PART II – ASSESSMENT SEQUENCE AND MANAGEMENT PROCEDURES

7. Dieback and weed control

(a) When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds* and *dieback*:

- (i) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (ii) shall only move soils in *dry conditions*;
- (iii) ensure that no *dieback* or *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
- (iv) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

- (b) At least once in each 12 month period for the term of this Permit, the Permit Holder must remove or kill any *weeds* growing within areas cleared under this Permit.

8. Retain vegetative material and topsoil, revegetation and rehabilitation

The Permit Holder shall:

- (a) retain the vegetative material and topsoil removed by clearing authorised under this Permit and stockpile the vegetative material and topsoil in an area that has already been cleared.
- (b) within 12 months following clearing authorised under this permit, *revegetate* and *rehabilitate* the area(s) that are no longer required for the purpose for which they were cleared under this Permit by:
 - (i) ripping the ground on the contour to remove soil compaction; and
 - (ii) laying the vegetative material and topsoil retained under condition 8(a) on the cleared area(s).
- (c) within 18 months of laying the vegetative material and topsoil on the cleared area in accordance with condition 8(b) of this Permit:
 - (i) engage an *environmental specialist* to determine the species composition, structure and density of the area *revegetated* and *rehabilitated*; and
 - (ii) where, in the opinion of an *environmental specialist*, the composition structure and density determined under condition 8(c)(i) of this Permit will not result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, *revegetate* the area by deliberately *planting* and/or *direct seeding* native vegetation that will result in a similar species composition, structure and density of native vegetation to pre-clearing vegetation types in that area and ensuring only *local provenance* seeds and propagating material are used.
- (d) Where additional *planting* or *direct seeding* of native vegetation is undertaken in accordance with condition 8(c)(ii) of this permit, the Permit Holder shall repeat condition 8(c)(i) and 8(c)(ii) within 24 months of undertaking the additional *planting* or *direct seeding* of native vegetation.
- (e) Where a determination by an *environmental specialist* that the composition, structure and density within areas *revegetated* and *rehabilitated* will result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, as determined in condition 8(c)(i) and (ii) of this permit, that determination shall be submitted for the CEO's consideration. If the CEO does not agree with the determination made under condition 8(c)(ii), the CEO may require the Permit Holder to undertake additional *planting* and *direct seeding* in accordance with the requirements under condition 8(c)(ii).

PART III - RECORD KEEPING AND REPORTING

9. Records must be kept

The Permit Holder must maintain the following records for activities done pursuant to condition 8 of this Permit:

- (a) the location of any areas *revegetated* and *rehabilitated*, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
- (b) a description of the *revegetation* and *rehabilitation* activities undertaken;
- (c) the size of the area *revegetated* and *rehabilitated* (in hectares);
- (d) the species composition, structure and density of *revegetation* and *rehabilitation*, and
- (e) a copy of the environmental specialist's report.

10. Reporting

- (a) The Permit Holder must provide to the CEO on or before 30 June of each year, a written report:
 - (i) of records required under condition 9 of this Permit; and
 - (ii) concerning activities done by the Permit Holder under this Permit between 1 January and 31 December of the preceding year.

- (b) Prior to 13 November 2021 the Permit Holder must provide to the CEO a written report of records required under condition 9 of this Permit where these records have not already been provided under condition 10(a) of this Permit.

DEFINITIONS

The following meanings are given to terms used in this Permit:

dieback means the effect of *Phytophthora* species on native vegetation;

direct seeding means a method of re-establishing vegetation through the establishment of a seed bed and the introduction of seeds of the desired plant species;

dry conditions means when soils (not dust) do not freely adhere to rubber tyres, tracks, vehicle chassis or wheel arches;

environmental specialist means a person who is engaged by the Permit Holder for the purpose of providing environmental advice, who holds a tertiary qualification in environmental science or equivalent, and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit;

fill means material used to increase the ground level, or fill a hollow;

local provenance means native vegetation seeds and propagating material from natural sources within 50 kilometres of the area cleared.

mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

planting means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species;

regenerate/ed/ion means re-establishment of vegetation from in situ seed banks and propagating material (such as lignotubers, bulbs, rhizomes) contained either within the topsoil or seed-bearing mulch;

rehabilitate/ed/ion means actively managing an area containing native vegetation in order to improve the ecological function of that area;

revegetate/ed/ion means the re-establishment of a cover of *local provenance* native vegetation in an area using methods such as natural *regeneration*, *direct seeding* and/or *planting*, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area.

weeds means a species listed in Appendix 3 of the "Environmental Weed Strategy" published by the Department of Conservation and Land Management (1999), and plants declared under section 37 of the *Agriculture and Related Resources Protection Act 1976*.

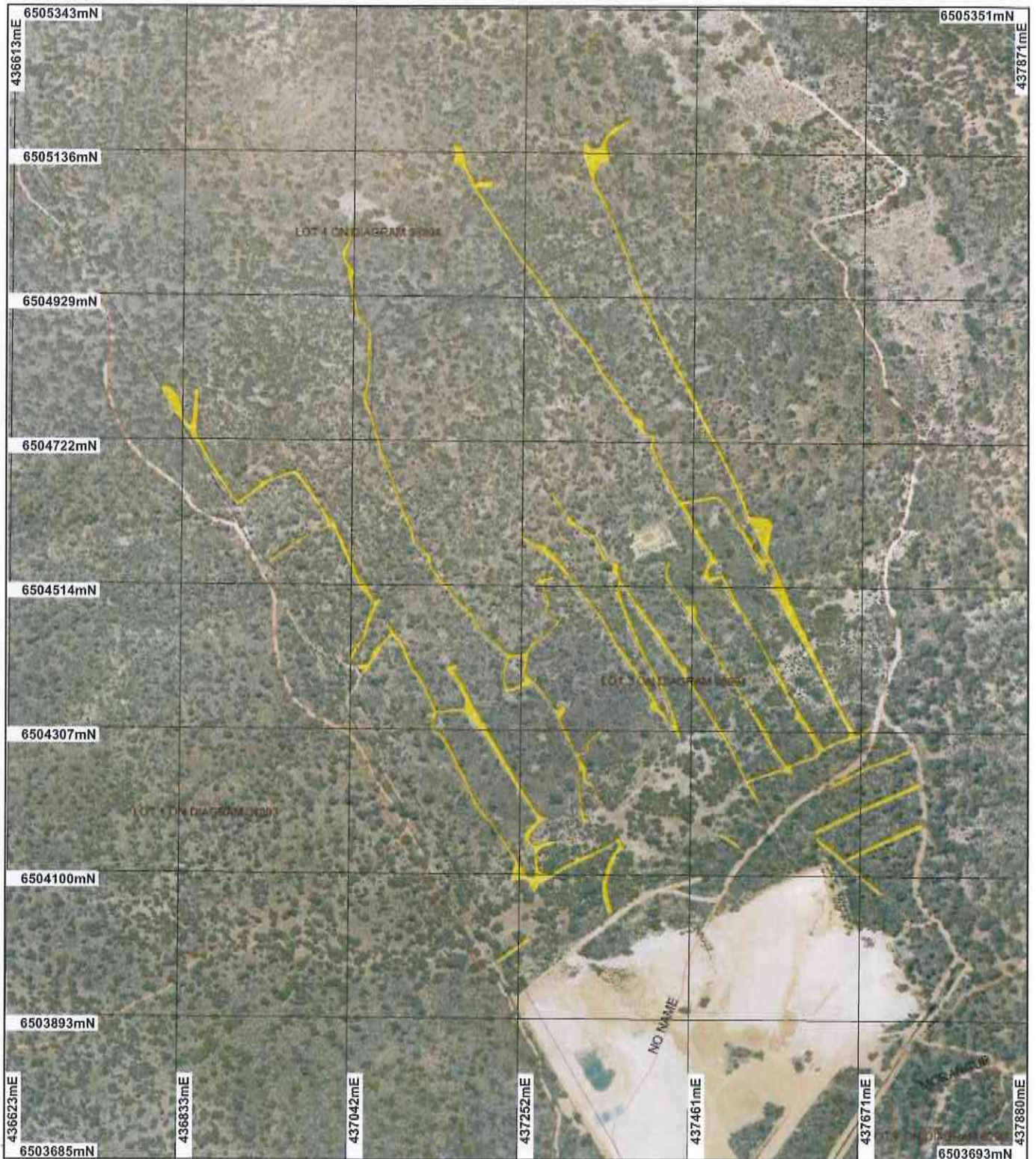


Kelly Faulkner
MANAGER
NATIVE VEGETATION CONSERVATION BRANCH

*Officer delegated under Section 20
of the Environmental Protection Act 1986*

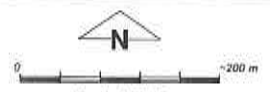
19 January 2012

Plan 4721/1



LEGEND

- | | | |
|---|---|---|
| Road Centrelines | <input type="checkbox"/> Marine Park | <input type="checkbox"/> Water |
| Cadastral for labelling | <input type="checkbox"/> Crown Lease | <input type="checkbox"/> Clearing Instruments |
| <input type="checkbox"/> Freehold | <input type="checkbox"/> Lease / Reserve | Areas Approved to Clear |
| <input type="checkbox"/> Crown Reserve | <input type="checkbox"/> Lease on State Forest / Timber Reserve | Perth Metropolitan North |
| <input type="checkbox"/> State Forest / Timber Reserve (cont) | <input type="checkbox"/> Public Roads | East 40cm Orthomosaic - |
| | <input type="checkbox"/> Unallocated Crown Land (cont) | Landgate 2005 |



Scale 1:7346
(Approximate when reproduced at A4)

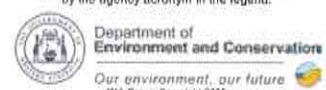
Geocentric Datum Australia 1994

Note: the data in this map have not been projected. This may result in geometric distortion or measurement inaccuracies.

[Signature] Date 19/1/12
K. Faulkner

Officer with delegated authority under Section 20 of the Environmental Protection Act 1986

Information derived from this map should be confirmed with the data custodian acknowledged by the agency acronym in the legend.



* Project Data is denoted by asterisk. This data has not been quality assured. Please contact map author for details.



1. Application details

1.1. Permit application details

Permit application No.: 4721/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Boral Bricks Western Australia Pty Ltd

1.3. Property details

Property: LOT 3 ON DIAGRAM 38894 (House No. 1115 MORANGUP MORANGUP 6083)
LOT 4 ON DIAGRAM 38894 (House No. 1117 MORANGUP MORANGUP 6083)
Local Government Area: Shire of Toodyay
Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
4		Mechanical Removal	Mineral Exploration

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 19 January 2012

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
The vegetation under application is mapped as Beard vegetation associations: 4 - Medium woodland; marri and wandoo 1006 - Mosaic; medium woodland; jarrah, wandoo and powderbark. (Shepherd 2009)	The proposal is to clear 4 ha of native vegetation within a 76 ha area for the purpose of drill lines for mineral exploration. The application area is of previously cleared drill lines cleared in 2000/2001 and so contain juvenile trees and a reduction in species diversity occurs (Land Insights 2011). However, from photos provided weed invasion is low and the drill lines have a high level of regeneration capability. The applied area is predominantly jarrah-marri open forest over dense <i>Banksia sessilis</i> and <i>Banksia squarrosa</i> on laterite soils. The native vegetation included <i>Xanthorrhoea preissii</i> and <i>Hakea</i> sp. This area was considered to be in Good to Very Good (Keighery 1994) condition (Land Insights 2011 and DEC 2011). The application area also includes wandoo/powderbark woodland on clayey soils (weathered laterite). The native vegetation included <i>E. wandoo</i> , <i>E. accedens</i> and <i>Xanthorrhoea drummondii</i> . This area was considered to be in a very good (Keighery 1994) condition (Land Insights 2011 and DEC 2011).	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994) To Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	The description and condition of the native vegetation under application was sourced from the site inspection conducted on 13 April 2011 (DEC 2011) and photos and site description provided by Land Insights (2011) and from aerial imagery (Perth Metropolitan North East 40cm Orthomosaic - Landgate 2005).
Mattiske Vegetation Complexes: Coolakin (CK) - Woodland of <i>Eucalyptus wandoo</i> with mixtures of <i>Eucalyptus patens</i> , <i>Eucalyptus marginata</i> subsp. <i>thalassica</i> and <i>Corymbia calophylla</i> on the valley slopes in arid and perarid zones. Yalanbee (Y6) - Woodland of <i>Eucalyptus wandoo</i> - <i>Eucalyptus accedens</i> , less consistently open forest of <i>Eucalyptus marginata</i> fs24 subsp. <i>thalassica</i> - <i>Corymbia calophylla</i> on lateritic uplands and breakaway landscapes in arid and perarid zones. (Mattiske Consulting 1998)			

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 proposal is to clear 4 ha of native vegetation within a 76 ha area for the purpose of drill lines for mineral exploration.

The western section of the applied area is predominantly jarrah-marri open forest over dense *Banksia sessilis* and *Banksia squarrosa* on laterite soils. The vegetation also includes *Xanthorrhoea preissii* and *Hakea* sp. (Land Insights 2011 and DEC 2011). This area was considered to be in Good to Very Good (Keighery 1994) condition (Land Insights 2011 and DEC 2011).

The application area also includes wandoo/powderbark woodland on clayey soils (weathered laterite), *E. wandoo*, *E. accedens* and *Xanthorrhoea drummondii* in a very good (Keighery 1994) condition (Land Insights 2011 and DEC 2011).

The application area consists of previously cleared drill lines cleared in 2000/2001 and contains juvenile trees and a reduction in species diversity (Land Insights 2011). However, from photos provided weed invasion appear to be low and the drill lines have a high level of regeneration capability.

There are seven species of threatened and priority fauna recorded within the local area, including Carnaby's black cockatoo and Western brush wallaby. The vegetation under application occurs in a remnant of vegetation that is considered significant fauna habitat for threatened fauna species including black cockatoos. It is considered that the surrounding vegetation comprises significant habitat for fauna and as such the 4 ha area to be cleared is part of significant habitat. The proposed clearing of 4 ha within the 76 ha footprint area may disturb the 76 ha footprint area through the introduction of weeds and potentially increase the access for feral animals; resulting in the significant habitat being more susceptible to further disturbances and decline in value and function over time.

Considering that the area under application has previously been disturbed it is not likely to contain a high level of biodiversity when compared to the surrounding area. However, given that the application area may comprise of significant habitat for fauna indigenous to Western Australia the proposed clearing may be at variance with this Principle. Revegetation and weed management practices would assist in mitigating these identified impacts.

Methodology

References:

- DEC (2011)
- Keighery (1994)
- Land Insights (2011)

GIS Database:

- SAC Bio Datasets 12/12/2011

(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 are seven fauna species of conservation significance that have been recorded within the local area (10 km radius), including Chuditch (*Dasyurus geoffroi*; Rare or likely to become extinct under the Wildlife Conservation Act 1950), Shield-backed Trapdoor Spider (*Idiosoma nigrum*; Rare or likely to become extinct) under the Wildlife Conservation Act 1950), Carnaby's black cockatoo (*Calyptorhynchus latirostris*; Rare or likely to become extinct) and Baudin's black cockatoo (*Calyptorhynchus baudinii*; Rare or likely to become extinct under the Wildlife Conservation Act 1950) (DEC 2011a).

The nearest recorded fauna species, Shield-backed Trapdoor Spider, was recorded approximately 500 m north-east of the area under application and are found within open York gum (*Eucalyptus loxophleba*), salmon gum (*E. salmonophloia*), and wheatbelt Wandoo (*E. capillosa*) woodland, where Jam (*Acacia acuminata*) forms a sparse understorey in heavy clay soils (Avon Catchment Council 2007). Given the habitat requirements, the applied area is not likely to comprise significant habitat for this species.

DEC (2007) fauna habitat notes indicate that Chuditch occupy large home ranges, is highly mobile and appears able to utilise bush remnants and corridors and that Western brush wallaby occurs in areas of forest and woodland supporting a dense shrub layer. It is considered for the application area to occur in an area of vegetation that contains habitat for these species. However, this habitat is not considered significant given the extensive vegetation in good or better condition occurring in the local area.

The applied area is located within the recorded distribution of Baudin's black cockatoo (Vulnerable under Environmental Protection and Biodiversity Conservation Act (EPBC) 1999) and Carnaby's black cockatoo (Endangered under EPBC Act), which breeds in the wheatbelt, nesting in large tree hollows of mostly *Eucalyptus wandoo* and *Eucalyptus salmonophloia*. Black cockatoos are known to feed on a large variety of

(Endangered under EPBC Act), which breeds in the wheatbelt, nesting in large tree hollows of mostly Eucalyptus wandoo and Eucalyptus salmonophloia. Black cockatoos are known to feed on a large variety of plants including proteaceous species (e.g. banksia and hakea), marri nuts (*Corymbia calophylla*) and jarrah (*Eucalyptus marginata*) (CALM 2005; Shah, 2006).

The proposed clearing consists of jarrah-marri open forest over dense *Banksia sessilis* and *Banksia squarrosa* on laterite soils in good to very good (Keighery 1994) condition and wandoo/powderbark woodland on clayey soils (weathered laterite) in very good (Keighery 1994) condition (DEC 2011, Land Insights 2011). As the application area has been previously cleared in 2000/2001, it is not considered to contain nesting habitat in the form of hollows for conservation significant fauna.

However, the presence of areas of Wandoo woodland and jarrah-marri open forest indicates that the applied area occurs within a footprint area that contains potential breeding and feeding habitat for Carnaby's black cockatoo and a feeding site for Baudin's black cockatoos.

The proposal is to clear 4 ha of native vegetation within a 76 ha footprint area. This area may contain foraging habitat for black cockatoos however the area under application has previously been disturbed and does not contain mature trees and therefore is not likely to provide breeding habitat. The clearing proposal may disturb the footprint area through the introduction of weeds and potentially increase the access for feral animals; resulting in the habitat being more susceptible to further disturbances and decline in value and function over time. Therefore it is considered that the proposed clearing may be at variance to this Principle. Revegetation and weed management practices will assist in mitigating some of these identified impacts.

Methodology

References

- Avon Catchment Council (2007)
 - CALM (2005)
 - DEC (2007)
 - DEC (2011)
 - DEC (2011a)
 - Shah (2006)
 - Land Insights (2011)
- GIS Databases:
- Perth Metropolitan North East 40cm Orthomosaic - Landgate 2005
 - SAC Bio Datasets 12/12/2011

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

Comments

Proposal is not likely to be at variance to this Principle

There are three species of rare flora recorded within in the local area (10 km radius), being, *Caladenia huegelii*, *Grevillea flexuosa* and *Thelymitra stellata*.

Grevillea flexuosa are found in low heath on hilltops, slopes and in gullies (Brown et al 1998) and *Caladenia huegelii* is found within deep sandy soil in mixed Jarrah and *Banksia* woodland (Brown et al 1998). The application area consists of Jarrah and Marri Woodland and Wandoo woodland on yellow mottled soils with ironstone gravel (DEC 2011 and Land Insights 2011) and therefore does not contain the preferred habitat for these two rare species. In addition, it is considered unlikely for *Thelymitra stellata* to occur as far east as the area under application.

A flora and vegetation assessment (Landform Research 2009) was undertaken in October 2008 within an area of approximately 6 ha, adjacent to the south-west section of the applied area. No rare flora and one priority flora species, *Calytrix sylvana*, was identified within the study area (Landform Research 2009). It is noted that *Calytrix sylvana* is no longer listed as priority flora.

Given the above, proposed clearing is not likely to be variance to this Principle.

Methodology

Reference:

- Landform Research (2009)
 - DEC (2011)
 - Land Insights (2011)
 - Brown et al (1998)
- GIS Databases:
- Mattiske Vegetation
 - Pre-European Vegetation
 - SAC Bio Datasets 12/12/2011
 - Soils, Statewide

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Comments Proposal is not likely to be at variance to this Principle

There are no known occurrences of Threatened Ecological Communities (TEC) within the local area (10 km radius). The nearest recorded TEC is located approximately 28 km south-west of the area under application. This TEC has been identified as being Floristic Community Type (FCT) 20b: *Banksia attenuata* and/or *E. marginata* woodlands on the eastern side of the Swan Coastal Plain.

Given the area under application is located within the Jarrah Forest bioregion and not on the Swan Coastal Plain, the vegetation applied to be cleared is not likely to comprise FCT 20b or not likely to be necessary for the maintenance of a TEC. Therefore the clearing as proposed is not likely to be at variance to this Principle

Methodology GIS Databases:
- Interim Biogeographic Regionalisation of Australia
- SAC Bio Datasets 12/12/2011

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Comments Proposal is not likely to be at variance to this Principle

The vegetation under application is identified as Beard vegetation types 4 and 1006 and Matiske vegetation complexes Coolakin and Yalanbee, of which there is 30.3%, 52.6%, 41.9% and 51.1% of native vegetation remaining, respectively (Shepherd 2009; Matiske Consulting, 1998). In addition, the applied area is located within the Jarrah Forest Bioregion, of which there is 55.8% of native vegetation remaining.

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearing of ecological communities with an extent below 30% of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia 2001). The vegetation complexes mapped within the applied area are above the recommended minimum of 30% representation. Further, vegetation mapping of the local area (5 km radius) shows that approximately 62% remnant vegetation remains.

Given that the vegetation is well represented locally and regionally, the 4 ha of vegetation under application is not likely to be significant as a remnant and given the current extent remaining, the landscape is not highly cleared. Therefore, the clearing as proposed is not likely to be at variance to this Principle.

	Pre-European (ha)	Current extent (ha)	Remaining (%)	In secure tenure (%)
IBRA Bioregion				
Jarrah Forest*	4,506,656	2,514,549	55.8	NA
Shire of Toodyay*	169,248	92,139	54.4	NA
Local Area (5 km radius)	~7,850	~4,900	~62.0	
Beard vegetation types*				
4 (within JF)	1,022,712	310,603	30.3	20.7
1006 (within JF)	44,908	23,646	52.6	42.4
Matiske vegetation complexes in RFA**				
Bindoon (Bi)	26,674	8,010	30.0	2.5
Coolakin (Ck)	133,889	56,168	41.9	24.2
Yalanbee (Y6)	158,392	82,349	51.9	26.3

* (Shepherd, 2009) ** (Matiske Consulting, 1998)

Methodology References:
- Commonwealth of Australia (2001)
- Matiske Consulting (1998)
- Shepherd (2009)
GIS Databases:
- Matiske Vegetation
- Pre-European Vegetation
- Interim Biogeographic Regionalisation of Australia
- NLWRA, Current Extent of Native Vegetation

(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 may be at variance to this Principle

Mortigup Brook is mapped approximately 1.5 km from the applied area, and two minor tributaries intercept the application area.

Given that two minor non perennial watercourses occur within the application area, the proposed clearing may be associated with a watercourse and may be at variance to this Principle. It is not considered for the proposed clearing to cause significant environmental impact on the watercourse through sedimentation, erosion or eutrophication

Methodology GIS Databases:

- Hydrography, linear
- 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 is not likely to be at variance to this Principle

The landform of most of the applied area and its surrounds is mapped as Tf3, which is described as low hilly to hilly terrain with the chief soils being hard acidic yellow mottled soils along with sandy acidic yellow mottled soils, all of which contain moderate to large amounts of ironstone gravels in their surface horizons (Northcote et al 1960-68). These soils are not considered to be at risk of wind erosion and may be at risk to water erosion.

Contour mapping identifies gentle relief (approximately 5% gradient) within the area under application (located upper slope in the landscape) (Wells, 1988). The clearing as proposed may result in an increase in surface water runoff causing erosion gullies.

Given the gravel in the surface horizons and the associated water erosion risk, it is considered the clearing as proposed may cause land degradation. However, it is not considered to be appreciable as the clearing is limited to 4 ha and is linear in nature. Revegetation and staged clearing practices would minimise this impact.

The proposed clearing is not likely to be at variance to this Principle.

Methodology References:

- Northcote et al (1960-68)
 - Wells (1988)
- GIS Databases:
- Soils, Statewide
 - Topographic Contours, Statewide

(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 closest DEC managed reserve is Morangup Nature Reserve (also identified as a System 6 Conservation Reserve) located 5.2 km south-west of the applied area.

Given the distance of the area under application to the reserve, and the relatively small proposed to be cleared (4 ha) it is not likely that the clearing of the vegetation under application will impact on the environmental values of the conservation area.

Methodology GIS databases:

- DEC, Tenure
- 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 may be at variance to this Principle

Mortigup Brook is mapped approximately 1.5 km from the applied area, and two minor tributaries intercept the application area. The area under application is located upper slope in the landscape with topographic contours identifying Mortigup Brook as being down-gradient of the area under application.

The other land degradation risk associated with the removal of vegetation on the identified lateritic soils is considered to be water erosion. Given that sections within the applied area are located in the upper slopes in the landscape, (Wells 1988), it is considered that the proposed clearing may cause water erosion resulting in the deterioration in the surface water quality through sedimentation.

It is noted the clearing is limited to 4 ha therefore, the risk of water erosion is likely to be minimised.

Given the above, it is considered that the proposed clearing may be at variance to this Principle. Revegetation and staged clearing practices would minimise this impact.

Methodology Reference:
- Wells (1988)
GIS Databases:
- Hydrography, linear
- Hydrography, linear (hierarchy)
- Topographic Contours, Statewide

(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**
Mortigup Brook is mapped approximately 1.5 km from the applied area, and two minor tributaries intercept the application area.

Given the long and linear nature of the clearing for the drill lines the proposal is not likely to cause or increase the incidence or intensity of flooding.

Methodology GIS Databases:
- Hydrography, linear
- Hydrography, linear (hierarchy)

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

Comments
The area under application is within the Proclaimed Surface Water Area of Avon River Catchment. Therefore, a bed and banks permit from the Department of Water will be required if any interference with the bed or banks of a watercourse is to occur.

The Shire of Toodyay has approved an Excavation Licence and Planning Consent to Midland Brick Company Pty Ltd for current mining operations on Lot 3 Morangup Road, which expires 17 July 2018 (Land Insights 2011).

The Shire of Toodyay has advised that they do not have any objections to the proposed clearing provided that the clearing takes place along the previously cleared drill lines on Lot 3, condition is imposed on the clearing permit that once the drill samples have been obtained the drill lines are rehabilitated and that the provisions of the Avon Valley Special Control Area are taken into consideration in the assessment of the application (Shire of Toodyay 2011).

The Avon Valley Special Control Area has been identified for its landscape values and therefore any development within the area will only be looked upon favourably if the proposal does not negatively impact the visual amenity of the area. The proposed clearing is considered to be in accordance with this control area.

Application area is recognised as a Priority Clay Reserve in Statement of Planning Policy 2.4 - Basic Raw Materials (SPP 2.4) (Land Insights 2011).

Lot 3 on Plan 38894 is freehold land and is zoned rural under the Shire of Toodyay Town Planning Scheme

Methodology References:
- Land Insights (2011)
- Shire of Toodyay (2011)
GIS databases:
- RIVI Act, SurfaceWater Areas, Irrigation Districts
- Town Planning Scheme Zones

4. References

Avon Catchment Council (2007) Shield-backed Trapdoor Spider (*Idiosoma nigrum*) Conservation Plan 2008-2013, Avon Catchment Council, Western Australia. Online <http://www.wheatbeltnrm.org.au/resources/Final-draft-l--nigrum.pdf> (Accessed 9 May 2011)

Brown A., Thomson-Dans C. and Marchant N.(1998). Western Australia's Threatened Flora, Department of Conservation and Land Management, Western Australia.

CALM (2005) Fauna Note No 01/2005 Reducing Fruit Damage by Baudin's Cockatoo, Department of Conservation and Land Management, Western Australia.

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

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5. 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)