



GOVERNMENT OF  
WESTERN AUSTRALIA

## CLEARING PERMIT

*Granted under section 51E of the Environmental Protection Act 1986*

### PERMIT DETAILS

Area Permit Number: 6343/1

File Number: DER2014/002704-1

Duration of Permit: From 7 May 2016 to 26 July 2019

### PERMIT HOLDERS

SAGH Pty Ltd

### LAND ON WHICH CLEARING IS TO BE DONE

Lot 102 on Diagram 93545, Oldbury.

### AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 3.52 hectares of native vegetation within the area cross hatched yellow on the attached Plan 6343/1.

### CONDITIONS

**1. Avoid, minimise etc clearing**

In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:

- (a) avoid the clearing of native vegetation;
- (b) minimise the amount of native vegetation to be cleared; and
- (c) reduce the impact of clearing on any environmental value.

**2. Type of clearing authorised**

Clearing shall be conducted in a slow, progressive manner from north to south.

**3. Dieback and weed control**

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*:

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) ensure that no *dieback* or *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
- (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

**4. Offsets – conservation covenant**

Prior to undertaking any clearing authorised under this Permit, and no later than 7 April 2017 the Permit Holder shall:

- (a) give a conservation covenant under section 30B of the *Soil and Land Conservation Act 1945* setting aside the *covenant area* for the protection and management of vegetation in perpetuity; and
- (b) provide to the CEO a copy of the executed conservation covenant.

## DEFINITIONS

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

*covenant area* means the area of land shaded red on attached Plan 6343/1(b);

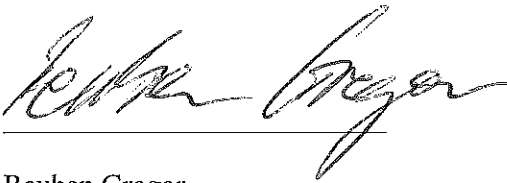
*dieback* means the effect of *Phytophthora* species on native vegetation;

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

*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;

*weed/s* means any plant -

- (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or
- (b) published in a Department of Parks and Wildlife Regional Weed Rankings Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



Reuben Gregor  
A/SENIOR MANAGER  
CLEARING REGULATION

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

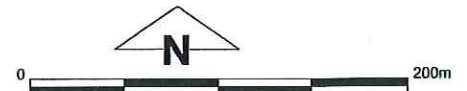
7 April 2016

# Plan 6343/1 (a)



## Legend

-  Roads
-  Imagery
-  Clearing Instruments Activities
-  Local Government Authority
-  Cadastre



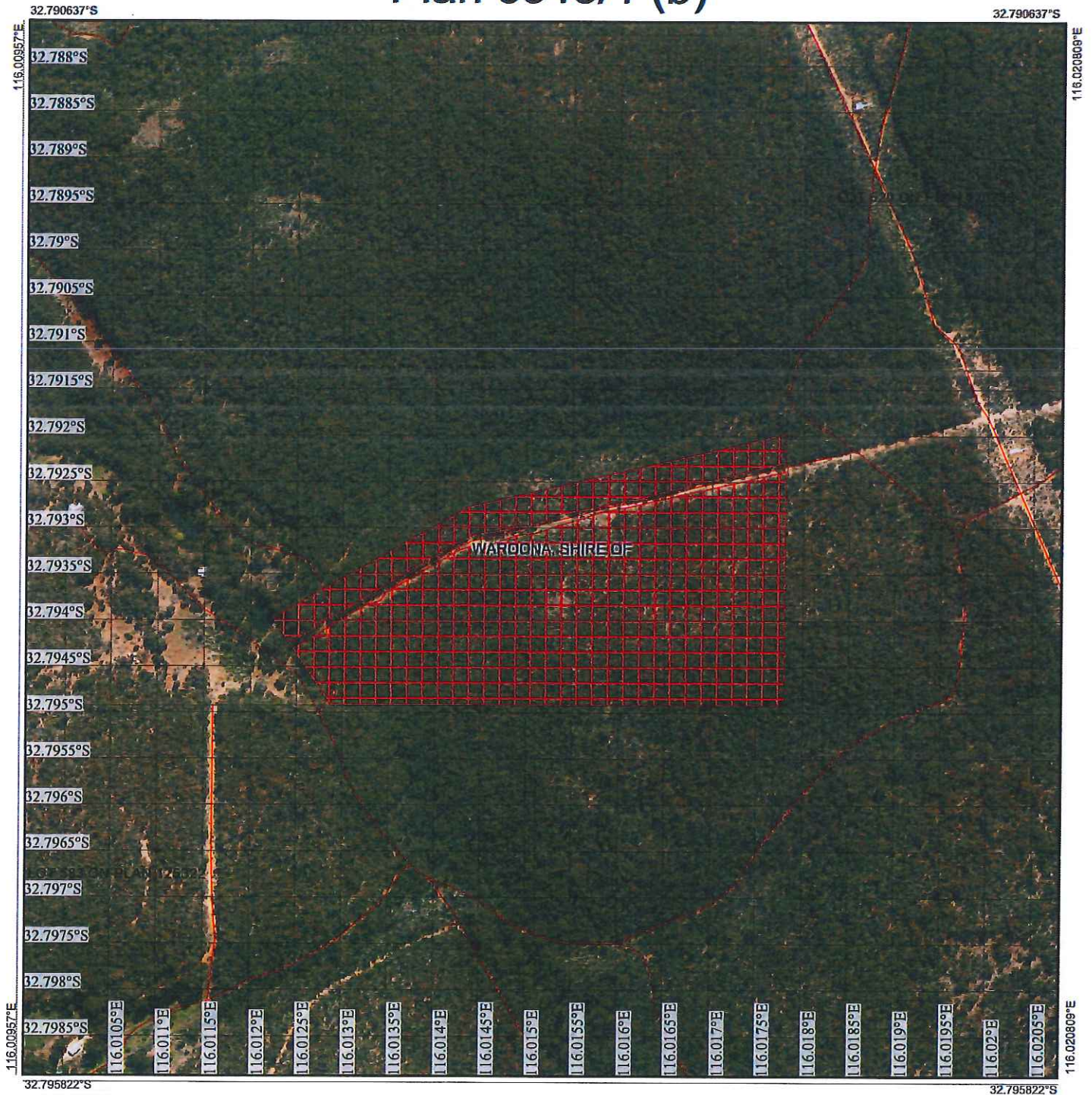
1:3,840

(Approximate when reproduced at A4)  
GDA 94 (Lat/Long)  
Geocentric Datum of Australia 1994

*Reuben Gregor*  
Date 7 Apr 16

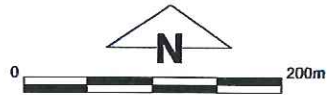
Officer with delegated authority under Section 20 of the Environmental Protection Act 1986

# Plan 6343/1 (b)



## Legend

-  Cadastre (Search)
-  Roads
-  Imagery
-  Local Government Authority
-  Clearing Instruments Conditions



1:5,576

(Approximate when reproduced at A4)

GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

*Reuben Gregor* Date *7 Apr 16*

Reuben Gregor

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



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## 1. Application details

### 1.1. Permit application details

Permit application No.: 6343/1  
Permit type: Area Permit

### 1.2. Applicant details

Applicant's name: SAGH Pty Ltd

### 1.3. Property details

Property: ROAD RESERVE - 11751811, OLDBURY  
LOT 102 ON DIAGRAM 93545, OLDBURY  
SERPENTINE-JARRAHDALE, SHIRE OF  
Local Government Authority: Greater Swan  
DER Region: SWAN COASTAL  
DPaW District: SERPENTINE - JARRAHDALE  
LCDC: OLDBURY  
Localities: OLDBURY

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
3.52		Mechanical Removal	Extractive industry

### 1.5. Decision on application

Decision on Permit Application: Grant.  
Decision Date: 7 April 2016  
Reasons for Decision: The clearing application has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the Environmental Protection Act 1986, and has concluded that the proposed clearing is at variance to principle (b), and is not likely to be at variance to the remaining clearing principles.

The applicant originally applied to clear 4.98 hectares of native vegetation and has subsequently revised the application area down to 3.52 hectares in order to avoid and minimise environmental impacts.

Through assessment it has been determined that the clearing will lead to the loss of 2.18 hectares of native vegetation in good (Keighery, 1994) condition that provides significant foraging habitat for Carnaby's cockatoo (*Calyptorhynchus latirostris*) and suitable habitat for ground dwelling indigenous fauna.

To offset the residual impacts to fauna, the applicant has committed to placing a conservation covenant over an 11.6 hectare area of remnant vegetation that is in better condition than the application area and provides suitable breeding and foraging habitat for Carnaby's cockatoo.

The delegated officer considers that the offset proposed is appropriate to address the residual environmental impacts of the proposed clearing.

## 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 1001: Medium to very sparse woodland consisting of jarrah with low woodland consisting of banksia and casuarina (Shepherd et al., 2001).	The clearing of 3.52 hectares of native vegetation within Lot 102 on Diagram 93545, Oldbury, is for the purpose of establishing a sand quarry.	Good; Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).	The condition and description of the vegetation was determined via a site inspection undertaken by Department of Environment Regulation officers and a Level 2 Flora Survey and Fauna Habitat Assessment (Enviro Works Consulting, 2014).
Beard vegetation association 968: Medium woodland comprising jarrah, marri and wandoo (Shepherd et al., 2001).	The initial area applied to clear was 4.98 hectares, however the applicant has since reduced the area of proposed clearing to 3.52 hectares to minimise environmental impact.	To	One native vegetation community type was identified within the study area this being, low woodlands of <i>Allocasuarina fraseriana</i> , <i>Banksia menziesii</i> and <i>Banksia attenuata</i> on well drained grey and cream sands (Enviro Works Consulting, 2014).
Bassendean Complex - central and south: Vegetation ranges from woodland of <i>Eucalyptus marginata</i> (Jarrah), <i>Allocasuarina fraseriana</i> (Sheoak) and banksia		Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	

species to low woodland of melaleuca species, and sedgelands on the moister sites. This area includes the transition of *Eucalyptus marginata* (Jarrah) to *Eucalyptus tottiana* (Pricklybark) in the vicinity of Perth (Heddle et al., 1980).

Other species identified on site include *Adenanthos cygnorum*, *Jacksonia* sp., *Hibbertia hypericoides*, *Kunzea glabrescens*, *Acacia pulchella* and *Xanthorrhoea preissii* (DER, 2015).

Approximately 2.18 hectares of the application area is considered to be in a good (Keighery, 1994) condition, with the remaining vegetation in a degraded (Keighery, 1994) condition.

### 3. Assessment of application against clearing principles

#### (a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

##### Comments

##### **Proposed clearing is not likely to be at variance to this Principle**

The clearing of 3.52 hectares of native vegetation within Lot 102 on Diagram 93545, Oldbury, is for the purpose of establishing a sand quarry. The initial area applied to clear was 4.98 hectares, however the applicant has since reduced the area of proposed clearing to 3.52 hectares.

The vegetation under application is in a good to degraded (Keighery, 1994) condition, with approximately 2.18 hectares of the vegetation considered to be in a good (Keighery, 1994) condition (DER, 2015 & Enviro Works Consulting, 2014).

A Level 2 Flora Survey and Fauna Habitat Assessment identified 102 native and 39 exotic plant species within the application area (Enviro Works Consulting, 2014). The perennial native flora composition is dominated by species from the families Proteaceae, Myrtaceae and Fabaceae, with weeds recorded throughout the site (Enviro Works Consulting, 2014). One native vegetation community type was identified within the study area, this being, low woodlands of *Allocasuarina fraseriana*, *Banksia menziesii* and *Banksia attenuata* on well drained grey and cream sands (Enviro Works Consulting, 2014). Other species identified on site include *Adenanthos cygnorum*, *Jacksonia* sp., *Hibbertia hypericoides*, *Kunzea glabrescens*, *Acacia pulchella* and *Xanthorrhoea preissii* (DER, 2015).

No rare or priority flora taxa or threatened or priority ecological communities have been recorded within the application area and none were identified within the flora survey (Enviro Works Consulting, 2014).

There is approximately 25 per cent native vegetation remaining within the local area and 55 per cent vegetation remaining within the Shire of Serpentine – Jarrahdale (Government of Western Australia, 2014). The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001). Within constrained areas (areas of urban development in cities and major towns) on the Swan Coastal Plain, the threshold for representation of the pre-clearing extent of a particular native vegetation complex is 10 per cent (EPA, 2006). The area under application is classified as a constrained area.

The application area includes vegetation that is suitable as foraging habitat for Carnaby's cockatoo (*Calyptorhynchus latirostris*), which is classified as rare or likely to become extinct and declared to be in need of special protection under the Wildlife Conservation Act 1950. Ecological theory, expert opinion and recent evidence, suggests that the remaining native and pine plantation foraging habitat on the Swan Coastal Plain is just sufficient to support the current population of Carnaby's cockatoo. Therefore, it is considered that any reduction in foraging habitat will result in a reduction in the carrying capacity of the region and a decline in the population of this species (Saunders and Ingram, 1998; Johnstone and Storr, 1998). A recent study involving population analysis modelling suggests that if clearing continues to occur at its current rate without effective habitat restoration, the species is likely to decline to extinction in less than 20 years (Cockerill et al., 2013). Therefore, it is considered that the 2.18 hectares of fauna habitat in good (Keighery, 1994) condition is significant (Enviro Works Consulting, 2014).

The area of proposed clearing may also provide suitable habitat for small ground dwelling indigenous fauna such as quenda (*Isoodon obesulus* subsp. *fusciventer*) and the lined skink (*Lerista lineata*). These species are listed as a priority 5 and priority 3 species by the Department of Parks and Wildlife respectively.

The vegetation under application provides significant habitat for conservation significant fauna, however given the frequent occurrence of weeds and absence of any rare or priority flora or threatened or priority ecological communities on site, the proposed clearing is not likely to comprise a high level of biological diversity and is therefore not likely to be at variance to this Principle.

##### Methodology

References:  
Cockerill et al. (2013)  
Commonwealth of Australia (2001)  
DER (2015)  
Enviro Works Consulting (2014)

EPA (2006)  
Government of Western Australia (2014)  
Keighery (1994)  
GIS Databases:  
SAC Bio Datasets (Accessed March 2016)

**(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 Proposed clearing is at variance to this Principle**

There are numerous fauna species of conservation significance that have been recorded within the local area (10 kilometre radius). Those with several recent records include, forest red-tailed black-cockatoo (*Calyptorhynchus banksii* subsp. *naso*), Baudin's cockatoo (*Calyptorhynchus baudinii*), Carnaby's cockatoo (*Calyptorhynchus latirostris*), quenda (*Isodon obesulus* subsp. *fusciventer*), western ringtail possum (*Pseudocheirus occidentalis*) and chuditch (*Dasyurus geoffroii*) (Parks and Wildlife, 2007- ).

One native vegetation community type was identified within the study area, this being, low woodlands of *Allocasuarina fraseriana*, *Banksia menziesii* and *Banksia attenuata* on well drained grey and cream sands (Enviro Works Consulting, 2014).

The flora species identified within the application area are not considered to be preferred habitat for western ringtail possums, therefore the proposed clearing is unlikely to impact on this species.

Chuditch have a preference for eucalypt forest (especially *Eucalyptus marginata*), dry woodland and mallee shrublands and utilise horizontal hollow logs or earth burrows as dens or refuge. To be suitable as den sites, logs must have a diameter of at least 30 centimetres but usually greater than 50 centimetres, a hollow diameter of 7 to 20 centimetres and generally one metre long (DotE, 2014). Suitable den sites were not found on site, therefore the application area is not likely to provide significant habitat for this species.

In relation to black cockatoo species, 'Breeding habitat' is defined as trees of species known to support breeding within the range of the species which either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow. For most tree species, suitable DBH is 500 millimetres (Commonwealth of Australia, 2012). For Carnaby's cockatoos the entrance to hollows must have a minimum diameter of at least 100 millimetres to be suitable (DEC 2010).

There were no trees with significant hollows identified on site, therefore the vegetation does not contain suitable breeding habitat for Carnaby's cockatoo, Baudin's cockatoo or forest red-tailed black-cockatoo (DER, 2015 & Enviro Works Consulting, 2014).

Baudin's cockatoo feed within eucalypt woodlands and forest and within proteaceous woodland and heath (Commonwealth of Australia, 2012). Marri seeds, flowers, nectar and buds provide the primary food source for this species (Johnstone & Kirkby, 2008). Forest red-tailed black cockatoo feed primarily on Marri and Jarrah seeds, whereby ninety per cent of the total diet consists of these seeds (Johnstone & Kirkby 1999). The vegetation under application is largely comprised of low woodland of *Allocasuarina fraseriana*, *Banksia menziesii* and *Banksia attenuata*, and is therefore unlikely to provide significant foraging habitat for Baudin's cockatoo or forest red-tailed black cockatoo.

Native feeding records on the Swan Coastal Plain for Carnaby's cockatoo reveal that banksia species account for nearly 50 per cent of their diet, with *Banksia attenuata* and *Banksia menziesii* an essential component of the native food source (Shah, 2006). Ecological theory, expert opinion and recent evidence suggests that the remaining native and pine plantation foraging habitat on the Swan Coastal Plain is just sufficient to support the current population of Carnaby's cockatoo. Therefore, it is considered that any reduction in foraging habitat will result in a reduction in the carrying capacity of the region and a decline in the population of this species (Saunders and Ingram, 1998; Johnstone and Storr, 1998). A recent study involving population analysis modelling suggests that if clearing continues to occur at its current rate without effective habitat restoration, the species is likely to decline to extinction in less than 20 years (Cockerill et al, 2013).

The application area comprises *Banksia attenuata* and *Banksia menziesii* woodland, and it is considered that the portion that is in a good (Keighery, 1994) condition (2.18 hectares), provides significant foraging habitat for Carnaby's cockatoos.

Quenda have a preference for wet or dry sclerophyll forest through to scrubby vegetation on sandy soils. Dense undergrowth and low ground cover are particularly important in providing cover for quenda (DEC, 2010a). The 2.18 hectares of vegetation under application in a good (Keighery, 1994) condition provides suitable habitat for this species and may provide habitat for other ground dwelling indigenous fauna. Impacts to terrestrial fauna are minimised by conditioning the applicant to undertake clearing in a slow, progressive manner from north to south, thereby enabling fauna dispersal into the remnant vegetation within the southern portion of Lot 102.

The vegetation under application contributes towards a north south regional ecological linkage. This linkage was identified and mapped by the Perth Biodiversity Project in 2003 and connects Modong Nature Reserve to Bush Forever Site 68 (located 400 metres south).

Bush Forever Site 68 is largely mapped as a resource enhancement wetland and is known as 'Jackson Road Bushland, Peel Estate'. Regional ecological linkages are a network of natural areas that provide stepping stones for fauna, facilitating fauna movement across the landscape. The proposed clearing may reduce the effectiveness of the abovementioned linkage, however given the presence of a minimum 20 metre buffer around the application area (including the eastern boundary), retention of 2.7 hectares of native vegetation within the southern portion of Lot 102 and the presence of a small (five hectare) area of remnant vegetation adjacent on the eastern side, the proposed clearing will not sever the linkage.

Given that the application area contains significant foraging habitat for Carnaby's cockatoo, and provides suitable habitat for quenda, the proposed clearing is at variance to this Principle.

To offset residual impacts to the 2.18 hectares of significant fauna habitat, the applicant has committed to placing a conservation covenant over 11.6 hectares of native vegetation that is in a better condition than the application area and provides suitable breeding and foraging habitat for Carnaby's cockatoo.

**Methodology**   References:  
Cockerill. et al (2013)  
Commonwealth of Australia (2012)  
DEC (2010)  
DER (2015)  
DotE (2014)  
Enviro Works Consulting (2014)  
Keighery (1994)  
Johnstone & Kirkby (1999)  
Johnstone & Kirkby (2008)  
Parks and Wildlife (2007 - )  
Saunders and Ingram (1998)  
Shah (2006)

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

**Comments   Proposed clearing is not likely to be at variance to this Principle**

The closest recorded rare flora species to the application area is located approximately 4.4 kilometres south west within a different mapped soil and vegetation association.

A Level 2 Flora Survey and Fauna Habitat Assessment did not record any rare or priority flora within the application area (Enviro Works Consulting, 2014).

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

**Methodology**   References:  
Enviro Works Consulting (2014)

GIS Databases:  
SAC Bio Datasets (Accessed March 2016)

**(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   Proposed clearing is not likely to be at variance to this Principle**

The closest mapped threatened ecological community (TEC) is approximately 1.8 kilometres south west of the application area. This TEC is known as "Communities of Tumulus Springs (Organic Mound Springs, Swan Coastal Plain)".

The habitat of this community is characterised by continuous discharge of groundwater in raised areas of peat. The peat and surrounds provide a stable, permanently moist series of microhabitats and are associated with a rich healthy suite of fauna (CALM, 2006). Typical and common native vascular plant species associated with the tumulus springs may include *Banksia littoralis*, *Melaleuca preissiana*, *Eucalyptus rudis*, *Agonis linearifolia*, *Pteridium esculentum*, *Astartea fascicularis* and *Cyclosorus interruptus* (CALM, 2006).

These well-defined characteristics were not present on site, and the vegetation under application differs markedly to the vegetation associated with the tumulus springs. Furthermore, given the distance to this TEC, and location relative to local flow of groundwater discharge (from north to south) the proposed clearing is unlikely to impact on the conservation of this community.

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

**Methodology**   References:  
CALM (2006)

GIS Databases:  
SAC Bio Datasets (Accessed March 2016)



**(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**

**Proposed clearing is not likely to be at variance to this Principle**

There is approximately 25 per cent native vegetation remaining within the local area (10 kilometre radius).

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001). Within constrained areas (areas of urban development in cities and major towns) on the Swan Coastal Plain, the threshold for representation of the pre-clearing extent of a particular native vegetation complex is 10 per cent (EPA, 2006). The area under application is classified as a constrained area.

The Swan Coastal Plain Bioregion and Shire of Serpentine - Jarrahdale retain approximately 39 and 55 per cent of their pre-European vegetation extents respectively (Government of Western Australia, 2014).

The application area is mapped as Beard vegetation associations (BVA) 1001 and 968 and Heddle vegetation complex Bassendean central and south which retain 23, 7 and 26 per cent of their pre-European vegetation extents within the Swan Coastal Plain respectively (Government of Western Australia 2014).

BVA 968 is described as medium woodland comprising jarrah, marri and wandoo. This description is not consistent with the vegetation found on site and the application area is not considered to be representative of BVA 968.

The application area contains significant foraging habitat for Carnaby's cockatoos, provides suitable habitat for ground dwelling indigenous fauna, and contributes towards a north south regional ecological linkage that connects Modong Nature Reserve to Bush Forever Site 68 (located 400 metres south). Therefore the vegetation on site is considered to be a significant remnant. However, given that the local area, Shire and two represented vegetation types retain greater than the abovementioned 10 per cent vegetation threshold, the proposed clearing is not likely to be at variance to this Principle.

Pre-European	Current Extent Remaining Extent in Parks and Wildlife Managed Lands			
	(ha)	(ha)	(%)	(%)
<b>IBRA Bioregion*</b>				
Swan Coastal Plain	1,501,222	580,697	39	37
<b>Shire*</b>				
Shire of Serpentine – Jarrahdale	90,049	47,610	53	85
<b>Beard Vegetation Association*</b>				
1001	57,410	13,240	23	13
968	136,188	9,143	7	18
<b>Heddle Vegetation Complex **</b>				
Bassendean central and south	87,476	22,869	26	5

**Methodology**

References:  
 Commonwealth of Australia (2001)  
 EPA (2006)  
 \*Government of Western Australia (2014)  
 \*\*Parks and Wildlife (2015)

GIS Databases:  
 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**

**Proposed clearing is not likely to be at variance to this Principle**

The closest wetland or watercourse to the application area is a multiple use wetland mapped approximately 70 metres north east. A separate multiple use wetland and resource enhancement wetland are both mapped approximately 350 metres south east of the application area.

There were no visible signs of a wetland or watercourse on site (DER, 2015) and the abovementioned wetlands are separated from the application area by firebreaks, roads and existing cleared areas. Therefore, the vegetation under application is not likely to be growing in, or in association with, an environment associated with a watercourse or wetland.

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

**Methodology**

References:  
 DER (2015)

GIS Databases:  
Hydrography, linear  
Hydrography, hierarchy  
Geomorphic Wetlands, Swan Coastal Plain

**(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.**

**Comments Proposed clearing is not likely to be at variance to this Principle**

The soils on site have been mapped by Northcote et al. (1960-1968) as subdued dune-swale terrain with chief soils of leached sands. Associated are small areas of other sand soils. The Level 2 Flora Survey and Fauna Habitat Assessment identified the soils as grey and cream sands (Enviro Works Consulting, 2014).

Sandy soils are highly permeable, therefore water erosion or waterlogging resulting from the proposed clearing is unlikely, particularly given the absence of wetlands or watercourses on site.

Leached sands are light and highly susceptible to wind erosion. Given that the majority of the vegetation is in a good (Keighery, 1994) condition (Enviro Works Consulting, 2014), there is the potential for some wind erosion to occur as a result of clearing.

Prior to the commencement of works, the applicant is required to implement a dust management plan under condition of the extractive industry licence issued by the Shire of Serpentine-Jarrahdale. There will also be at least a 20 metre vegetative buffer surrounding the area of proposed clearing, which would further minimise the potential for wind erosion.

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

**Methodology** References:  
Enviro Works Consulting (2014)  
Keighery (1994)  
Northcote et al., (1960-68)

**(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 Proposed clearing is not likely to be at variance to this Principle**

The closest conservation area to the proposed clearing is Bush Forever Site 68 known as 'Jackson Road Bushland, Peel Estate' located 400 metres south. This Bush Forever Site is largely mapped as a resource enhancement wetland. Banksia Nature Reserve is located approximately 1.7 kilometres north west of the application area and Modong Nature Reserve is located approximately 2.8 kilometres north west.

The application area contributes towards a north south regional ecological linkage that connects Modong Nature Reserve to Bush Forever Site 68. This linkage was identified and mapped by the Perth Biodiversity Project in 2003 and provides a stepping stone for fauna, facilitating fauna movement across the landscape between dryland and wetland vegetation. The application area also contributes towards a linkage between a 20 hectare remnant located on a Crown Reserve managed by the Shire of Serpentine – Jarrahdale immediately north and Bush Forever Site 68. The Crown Reserve has been identified as a significant natural area through the Shire's biodiversity strategy and is currently managed to protect its conservation values (Shire of Serpentine – Jarrahdale, 2014).

The proposed clearing will not sever either of the abovementioned linkages as there is an area (five hectares) of remnant vegetation to the east which connects the vegetation north. Further, the entirety of Lot 102 comprises approximately nine hectares of native vegetation, whereby more than five hectares of remnant vegetation would remain on the property post clearing. Therefore it is not likely that the proposed clearing will impact on the environmental values of the nearby conservation areas.

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

**Methodology** References:  
Shire of Serpentine – Jarrahdale (2014)

GIS Databases:  
Parks and Wildlife Tenure  
Bush Forever Sites

**(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 Proposed clearing is not likely to be at variance to this Principle**

The closest wetland or watercourse to the application area is a multiple use wetland mapped approximately 70 metres north east. A separate multiple use wetland and resource enhancement wetland are mapped approximately 350 metres south east of the application area.

Given the distance to mapped wetlands and lack of connectivity between the application area and the vegetation associated with the closest wetlands, the proposed clearing is not likely to impact on the quality of surface water.

Groundwater salinity mapped within the application area is between 500 and 1000 milligrams total dissolved solids per litre (marginal). Given this low salinity level it is considered that the proposed clearing will not lead to a perceptible rise in the watertable and thus an increase in groundwater salinity levels.

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

**Methodology** GIS Databases:  
Geomorphic Wetlands, Swan Coastal Plain  
Groundwater Salinity, Statewide  
Hydrography, linear  
Hydrography, hierarchy

**(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.**

**Comments** **Proposed clearing is not likely to be at variance to this Principle**  
Given that there are no wetlands or watercourses mapped on site, and that the application area is comprised of highly permeable sandy soils (Northcote et al., 1960-1968), the proposed clearing is not likely to cause, or exacerbate, the incidence or intensity of flooding.

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

**Methodology** References:  
Northcote et al., (1960-1968)  
  
GIS Databases:  
Hydrography, linear  
Hydrography, hierarchy  
Geomorphic Wetlands, Swan Coastal Plain  
Groundwater Salinity, Statewide

**Planning instruments and other relevant matters.**

**Comments** The clearing of 3.52 hectares of native vegetation within Lot 102 on Diagram 93545, Oldbury, is for the purpose of establishing a sand quarry.

The initial application was to clear 4.98 hectares. In a letter dated 27 February 2015 DER advised the applicant that the proposed clearing would result in significant environmental impacts. To minimise environmental impacts the applicant reduced the size of the application area to 3.52 hectares and proposed an offset, committing to place a conservation covenant over 11.6 hectares of native vegetation that is in a better condition than the application area and provides suitable breeding and foraging habitat for Carnaby's cockatoo.

The applicant referred the proposed clearing to the Department of the Environment (DotE) for assessment under the Environment Protection Biodiversity and Conservation Act 1999 (EPBC Act). DotE determined that the proposed clearing is not a controlled action and requires no further assessment under the EPBC Act.

The applicant has obtained an extractive industry licence (EIL) from the Shire of Serpentine – Jarrahdale (2015) for the proposed works. The EIL requires that the applicant prepare a Landscape Rehabilitation Plan including measures to prevent adverse environmental impacts such as dust, erosion, silt deposition and turbidity. The EIL requires that a portion (approximately 0.52 hectares) of the extraction area is rehabilitated within two years of the cessation of extraction. The EIL expires on 26 July 2019.

There are no Aboriginal Sites of Significance mapped within the local area.

There have been no submissions received from the public for the proposed clearing.

**Methodology** References:  
Shire of Serpentine – Jarrahdale (2015)  
  
GIS Databases:  
-Town Planning Scheme Zones  
-Aboriginal Sites of Significance

**4. References**

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