



## CLEARING PERMIT

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

<b>Purpose Permit number:</b>	CPS 2963/1
<b>Permit Holder:</b>	City of Wanneroo
<b>Duration of Permit:</b>	7 June 2009 – 7 June 2014

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 the extension and upgrade of Ocean Reef Road.

#### **2. Land on which clearing is to be done**

LOT 3 ON DIAGRAM 35098 (GNANGARA ROAD, LANDSDALE 6065)  
LOT 15 ON PLAN 41328 (GNANGARA ROAD, GNANGARA 6065)  
LOT 300 ON PLAN 49646 (GNANGARA ROAD, GNANGARA 6065)  
LOT 800 ON DIAGRAM 97325 (GNANGARA ROAD, GNANGARA 6065)  
LOT 6 ON DIAGRAM 30763 (GNANGARA ROAD, WANGARA 6065)  
LOT 48 ON PLAN 8649 (GNANGARA ROAD, LANDSDALE 6065)

#### **3. Area of Clearing**

The Permit Holder must not clear more than 10.51 hectares of native vegetation within the area hatched yellow on attached Plan 2963/1.

#### **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. Type of clearing authorised**

This Permit authorises the Permit Holder to clear native vegetation for activities to the extent that the Permit Holder has the power to clear native vegetation for those activities under the *Local Government Act 1995* or any other written law.

## 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. 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.

### 8. 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 not move soils in wet 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.

### 9. Offsets

If part or all of the clearing to be done is or may be at variance with one or more of the clearing principles, then the Permit Holder must implement an *offset* in accordance with conditions 9(a) and 9(b) of this Permit with respect to that clearing.

#### (a) Determination of offsets

- (i) If part or all of the clearing to be done is or may be at variance with one or more of the clearing principles, then the permit holder must implement an *offset* in accordance with Conditions 9(a) and 9(b) of this Permit with respect to that native vegetation.
- (ii) In determining the *offset* to be implemented with respect to a particular area of native vegetation proposed to be cleared under this Permit, the permit holder must have regard to the offset principles contained in condition 9(b) of this Permit.
- (iii) Once the permit holder has developed an offset proposal, the permit holder must provide that offset proposal to the CEO for the CEO's approval prior to undertaking any clearing to which the offset relates, and prior to implementing the offset.
- (iv) Clearing may not commence until and unless the CEO has approved the offset proposal.
- (v) The permit holder shall implement the offset proposal approved under condition 9(a)(iii).
- (vi) Each offset proposal shall include a *direct offset*, timing for implementation of the offset proposal and may additionally include *contributing offsets*.

#### (b) Offset principles

For the purpose of this Part, the offset principles are as follows:

- (i) *direct offsets* should directly counterbalance the loss of the native vegetation;
- (ii) *contributing offsets* should complement and enhance the *direct offset*;

- (iii) *offsets* are implemented only once all avenues to avoid, minimise, rectify or reduce environmental impacts have been exhausted;
- (iv) the environmental values, habitat, species, ecological community, physical area, ecosystem, landscape, and hydrology of the *offset* should be the same as, or better than, that of the area of native vegetation being *offset*;
- (v) a ratio greater than 1:1 should be applied to the size of the area of native vegetation that is *offset* to compensate for the risk that the *offset* may fail;
- (vi) *offsets* must entail a robust and consistent assessment process;
- (vii) in determining an appropriate *offset*, consideration should be given to ecosystem function, rarity and type of *ecological community*, *vegetation condition*, habitat quality and area of native vegetation cleared;
- (viii) the *offset* should either result in no net loss of native vegetation, or lead to a net gain in native vegetation and improve the condition of the natural environment;
- (ix) *offsets* must satisfy all statutory requirements;
- (x) *offsets* must be clearly defined, documented and audited;
- (xi) *offsets* must ensure a long-term (10-30 year) benefit; and
- (xii) an *environmental specialist* must be involved in the design, assessment and monitoring of *offsets*.

### **PART III - RECORD KEEPING AND REPORTING**

#### **10. Records must be kept**

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

- (a) In relation to the clearing of native vegetation authorised under this Permit:
  - (i) the species composition, structure and density of the cleared area;
  - (ii) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings;
  - (iii) the date that the area was cleared; and
  - (iv) the size of the area cleared (in hectares).
- (b) In relation to the *offset* of areas pursuant to condition 9 - *offsets*:
  - (i) the location of any area of *offsets* recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings;
  - (ii) a description of the *offset* activities undertaken; and
  - (iii) the size of the *offset* area (in hectares).

#### **11. Reporting**

- (a) The Permit Holder must provide to the CEO, on or before 30 June of each year, a written report of records required under condition 10 of this Permit and activities done by the Permit Holder under this Permit between 1 January and 31 December of the preceding year.
- (b) Prior to 7 March 2014, the Permit Holder must provide to the CEO a written report of records required under condition 10 of this Permit where these records have not already been provided under condition 11(a) of this Permit.

## Definitions

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

*condition* means the rating given to native vegetation using the *Keighery scale* and refers to the degree of change in the structure, density and species present in the particular vegetation in comparison to undisturbed vegetation of the same type;

*contributing offsets* has the same meaning as is given to that term in the Environmental Protection Authority's *Position Statement No.9 Environmental Offsets*, January 2006;

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

*direct offsets* has the same meaning as is given to that term in the Environmental Protection Authority's *Position Statement No.9 Environmental Offsets*, January 2006;

*ecological community/ies* means a naturally occurring biological assemblage that occurs in a particular type of habitat (English and Blythe, 1997; 1999);

*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;

*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;

*offset/s* means an offset required to be implemented under condition [9] of this Permit

*weed/s* 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 *Agricultural and Related Resources Protection Act 1976*.



Keith Claymore  
A/ASSISTANT DIRECTOR  
NATURE CONSERVATION DIVISION

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

7 May 2009

# Plan 2963/1



## LEGEND

- Clearing Instruments**
- Areas Approved to Clear
  - Road Centrelines
  - Cadastre

Swan Coastal Plain North  
20cm Orthomosaic -  
Landgate 2006



0 ————— 250 m

Scale 1:9000

(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.

*Kevin Claymore*  
Claymore Date: 7 May 2009

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.



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Environment and Conservation

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## 1. Application details

### 1.1. Permit application details

Permit application No.: 2963/1  
 Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Chief Executive Officer City of Wanneroo

### 1.3. Property details

Property: LOT 3 ON DIAGRAM 35098 (LANDSDALE 6065)  
 LOT 15 ON PLAN 41328 (GNANGARA 6065)  
 LOT 300 ON PLAN 49646 (GNANGARA 6065)  
 LOT 800 ON DIAGRAM 97325 (GNANGARA 6065)  
 LOT 6 ON DIAGRAM 30763 (WANGARA 6065)  
 LOT 48 ON PLAN 869 (LANDSDALE 6065)

Local Government Area: City Of Wanneroo

Colloquial name:

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
10.51		Mechanical Removal	Road construction or maintenance

## 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: 6 - Medium woodland; tuart & jarrah. (Shepherd 2007; SAC Bio datasets 6/3/2009).	The proposal is to clear up to 10.51 hectares of native vegetation for the upgrade and extension of Ocean Reef Road from Gnangara Road East to 500 metres west of Alexandra Drive, Sydney Road between Gnangara Road East and Gnangara Road West/Ocean Reef Road and Gnangara Road West to 500 metres west of Madeley Street.	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	The vegetation clearing description is based on a site inspection by DEC officers on 9 March 2009 and a flora and vegetation survey conducted by SMEC (2008).
1001 - Medium very sparse woodland; jarrah, with low woodland; banksia & casuarina. (Shepherd 2007; SAC Bio datasets 6/3/2009).			
Hedde Complex: Bassendean Complex : Central and South - Vegetation ranges from woodland of E. marginata - C. fraseriana - Banksia spp. to low woodland of Melaleuca species, and sedgelands on the moister sites. This area includes the transition of E. marginata to E. todtiana in the vicinity of Perth. (Hedde et al 1980).	The vegetation under application ranged from completely degraded to excellent condition, with an overall average of good condition.		
Karrakatta Complex : Central and South: Predominantly open forest of E. gomphocephala - E. marginata - E. calophylla and woodland of E.			

marginata - Banksia species. (Hedde et al 1980).

There is approximately 1ha of vegetation in excellent condition, which is restricted to two small areas in the western and central portions and one larger area in the northern portion of the area under application.

Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994)

The vegetation in these areas is best described as comprising Eucalyptus spp, Banksia attenuata, B. menziesii, B. illicifolia and Melaleuca preissiana, over an understorey of Calytrix spp, Jacksonia spp, Hibbertia hypericoides and a dense herb and sedge layer.

The majority of the vegetation within the western, central and northern areas under application ranged from good to very good condition. The vegetation is best described as an Open Woodland of Eucalyptus marginata over Low Woodland of Banksia attenuata and Banksia menziesii with Allocasuarina spp. over a diverse dense shrub layer including Jacksonia furcellata, Hibbertia hypericoides, Synaphea spinulosa, Gompholobium tomentosum, Patersonia occidentalis, Stirlingia latifolia, Mesomelaena pseudostygia, Xanthorrhoea preissii, Macrozamia riedlei, Adenanthos cygnorum, Lomandra spp and Desmodcladus flexuosa.

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

Degraded areas of non-native grasses were predominantly confined to areas of disturbance, particularly at the edges of the vegetated areas.

The degraded areas were largely confined to sections in the central and western areas of the applied area and at the edges of vegetated areas.

Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)

The dominant species in these localities were Adenanthos cygnorum, Acacia species, Chamelaucium uncinatum and invasive non-native grasses.

Completely degraded areas were restricted to access tracks and road verges adjacent to sealed roadways. Completely Degraded: No longer intact; completely/almost completely without native species (Keighery 1994)

### 3. Assessment of application against clearing principles

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

##### Comments **Proposal is at variance to this Principle**

A spring flora survey of the areas under application conducted by SMEC (2009) identified a total of 220 flora taxa (including 161 native species and 59 weed species). No rare flora species were recorded within the applied areas. One priority flora species (*Jacksonia sericea*, P4), one regionally significant taxa (*Conospermum triplinervium*) and one population disjunct from their known geographic range (*Eremaea purpurea*) were recorded on site.

The vegetation under application consists of 10.51 hectares of vegetation that ranged in condition from completely degraded to degraded (~44%), good to very good (~46%) and excellent condition (~10%), with an overall condition rating of good (DEC, 2009). Areas of vegetation in good or better condition, particularly within the north, west and central areas under application, have the potential to support a range of indigenous fauna species, including species of conservation significance such as the Quenda (P5) and Carnaby's Black-Cockatoo (EPBC Act, Endangered).

In addition, the vegetation found within the northern portion of the area under application was inferred as Floristic Community Type 20a: *Banksia attenuata* woodlands over species rich dense shrublands, which is listed as a Threatened Ecological Community (EPBC Endangered) (Natural Area Management & Services, 2008; DEC, 2009b).

Given the vegetation under application includes priority flora, regionally significant taxa and that a portion of the applied vegetation is considered to comprise a TEC; and has the potential to support a range of native fauna species; it is considered that the vegetation applied to be cleared comprises a high level of biological diversity.

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

An offset condition has been placed on the permit to mitigate the proposed impacts on the Threatened Ecological Community.

**Methodology** References:  
- DEC (2009a)  
- DEC (2009b)  
- Government of Western Australia (2000)  
- Natural Area Management & Services (2008)  
- Williams, M. (2008)  
- SMEC (2008)  
GIS Databases:  
- SAC BIO datasets accessed 6/03/2009

#### (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**

There are five fauna species of conservation significance which have been recorded within the local area (5km radius) including the Carnaby's Black-Cockatoo (*Calyptorhynchus latirostris*, Endangered), Graceful Sun Moth (*Synemon gratioiosa*, Endangered), Quenda (*Isodon obesulus fusciventer*, P5), Black-striped snake (*Neelaps calonotos*, P3) and the Western Brush Wallaby (*Macropus irma*, P4), the closest being the Quenda which was recorded 200m south of the applied area.

The area under application is located within the distribution range of the Carnaby's Black-Cockatoo (*Calyptorhynchus Latirostris*) (EPBC Act, Endangered). These birds inhabit uncleared or remnant Eucalyptus and *Banksia* woodlands and coastal scrub foraging on the seeds and nectar from the flowers of Eucalyptus, *Banksia*, *Grevillea* and *Hakea* species (Burbidge 2004). Although the trees under application are unlikely to provide suitable nesting hollows, the vegetation under application includes suitable feeding habitat which may be utilised by foraging Carnaby's Black-Cockatoo and other local foraging bird species.

There are 13 known recorded occurrences of the Graceful Sun Moth within the local area (5km radius), the



closest of which, is located approximately 3.4km south of the applied area. The Graceful Sun Moth is currently only known from a limited number of sites between Mandurah and Neerabup (William, 2008) and is considered to be threatened by land clearing for urban development (Burbidge, 2004). All of the recorded occurrences of the Graceful Sun Moth have been at sites which had a minimum 50% of vegetation; in 'very good' or better condition (William, 2008).

The Graceful Sun Moth has two major habitat requirements which are:

- A sufficient number of Lomandra host plants to sustain a population, in particular Lomandra hermaphrodita, although other Lomandra species may be used; and
- Suitable habitat in 'very good' or better condition. (Williams, 2008).

Although Lomandra hermaphrodita, L. caespitosa, L. odora, L. preissii, L. sericea and L. suaveolens were identified on site during the flora survey (SMEC, 2008) and portions of the applied vegetation are deemed to be in very good or better condition, the applied clearing area does not meet the 50% threshold requirement for the Graceful Sun Moth. Furthermore, three strategically timed surveys conducted by DEC officers during the Graceful Sun Moths optimal flight period in March, did not observe the identified moth on site. Therefore, given the above, it is not considered likely that the vegetation under application would provide suitable habitat for the Graceful Sun Moth.

The majority of the vegetation under application comprises has a dense understorey that provides suitable habitat for a range of ground dwelling fauna species including the Quenda, snakes, lizards and kangaroos. During the DEC site inspection numerous Quenda diggings were observed and kangaroo scats were found throughout the applied area (DEC, 2009a).

Given the potential for the vegetation under application to provide suitable habitat for a range of fauna species, including species of conservation significance, it is considered that the vegetation under application comprises part of a significant habitat for indigenous fauna.

#### Methodology

##### References:

- Burbidge, A (2004)
- DEC (2009a)
- SMEC (2008)
- Williams, M. (2008)

##### GIS databases:

- Bushforever - MFP 07/01
- SAC Bio datasets accessed 6/03/2009
- Swan Coastal Plain North 20cm Orthomosaic - DLI06

#### **(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 (5km radius) there is one known occurrences of rare flora, Caladenia huegelii, which is located approximately 1.2km from the area under application and is found within the same vegetation complex and soil type to that found on site.

An appropriately timed spring flora survey did not identify C. huegelii or any other rare flora species within the area under application (SMEC, 2008; Natural Area Management & Services, 2008).

Given that no rare flora were identified during the appropriately timed flora survey of the applied area, it is not considered likely that the vegetation under application includes, or is necessary for the continued existence of, rare flora.

#### Methodology

##### References:

- DEC (2009a)
- Natural Area Management & Services, 2008)
- SMEC (2008)

##### GIS Databases:

- Hedde Vegetation Complexes
- Soils, Statewide - DA 11/99
- SAC BIO Datasets accessed 6/03/2009

#### **(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 at variance to this Principle**

There are 28 known occurrences of Threatened Ecological Communities (TEC) within a 5km radius of the area under application, which have been identified as Floristic Community Type - FCT20a: Banksia attenuata woodlands over species rich dense shrublands; the closest located approximately 700m east from the area

under application is found within the same vegetation complex and soil type to that found on site.

During the flora survey, Natural Area Management & Services (2008) identified a portion of the vegetation in the northern area under application as possessing characteristics of a TEC - FCT20a: Banksia attenuata woodlands over species rich dense shrublands. This TEC is listed as 'Endangered' under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999.

DEC (2009b) advise that the vegetation in the northern portion of the applied area shows a close affinity to FCT20a; and that the bushland in this location (~1 hectare) is appropriate habitat for the occurrence of this TEC.

Given that a portion of the vegetation has been inferred as FCT20a, which is considered 'Endangered,' it is considered that the proposed clearing is at variance to this Principle.

An offset condition has been placed on the permit to mitigate the proposed impacts on the Threatened Ecological Community within the area under application.

**Methodology** References:  
 - DEC (2009a)  
 - DEC (2009b)  
 - Natural Area Management & Services (2008)  
 - SMEC (2008)  
 GIS Databases:  
 - SAC BIO Datasets - accessed 13/03/2009

**(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**

Hedde et al. (1980) defines the vegetation under application as Bassendean Central and South and Karrakatta Central; and South of which there is 27.0% and 29.5% respectively of pre-European extent remaining (EPA 2006). The vegetation under application is also described as Beard vegetation association 6 and 1001 of which there is 70.3% and 25.34% respectively of pre-European extent remaining (Shepherd 2007). The Hedde vegetation complexes are identified as respectively having 0.7ha and 2.5ha representation within secure tenure (EPA 2006).

The area under application is located within the City of Wanneroo, within which there is 49.69% of pre-European extent remaining.

The State Government is committed to the National Objectives and Targets for Biodiversity Conservation which includes a target that prevents the clearance of ecological communities with an extent below 30% of that present of Pre-European settlement (Commonwealth of Australia 2001). However, the EPA (2006) recognises the Perth Metropolitan Region as a "constrained area", providing for the reduction of vegetation complexes to a minimum of 10% of the Pre-European extent.

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

	Pre-European (ha)	Current extent (ha)	Remaining (%)	In secure tenure (%)
IBRA Bioregion*				
Swan Coastal Plain^	1,501,208	583,140	38.84	
City of Wanneroo**	67,697	33,633	49.69	
Beard vegetation type*				
6	2,661,405	1,863,719	70.3	79.98
1001	57,410	14,545	25.34	5.13
Hedde vegetation complex**				
Bassendean-Central & South	87,477	23,624	27.0	0.7
Karrakatta ? Central & South	49,912	14,729	29.5	2.5

\* (Shepherd, 2007)

\*\* (EPA, 2006)

^ Area within Intensive Land Use Zone

- Methodology**    **References:**
- Commonwealth of Australia (2001)
  - EPA (2006)
  - Government of Western Australia (2000)
  - Shepherd et al (2007)
- GIS Databases:**
- Pre-European Vegetation
  - Heddle Vegetation Complexes
  - Interim Biogeographic Regionalisation of Australia
  - SAC BIO Datasets accessed 9/03/09

**(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 within a 5km radius of the area under application, including a Conservation Category Wetland (Gnangara Lake) and a Multiple Use Wetland (Sydney Road Sumpland) which are respectively located approximately 50m north-east and 30 metres north-west of the applied area. In addition there are six EPP Lakes within the local area, including Little Badgerup Lake (~1.5km), Gnangara Lake (~50m), Badgerup Lake (~1.9km), Lake Goollelal (~3.7km) and the western portion of Sydney Road (~170m) from the area under application. There are also 14 EPP wetlands and a further 13 perennial swamps in the local area.

The closest watercourses are Lake Goollelal which is located approximately 3.7km south-west of the area under application and Bennet Brook which is located approximately 4.6km south-east of the applied area.

The northern central portion of the area under application (~0.2ha) is located within a mapped Multiple Use Wetland which is identified as Leach Way Sumpland. In addition, the western portion of the applied area is within 30 metres of the eastern side of Sydney Road Wetland. The proposed clearing is within the minimum 50m buffer which is recommended to ensure ecological processes of the wetland area are maintained and to protect wetlands from other detrimental effects.

During the DEC site inspection (DEC, 2009) *Melaleuca preissiana*, *Dasypogon bromeliifolius* and *Lepidosperma* species were observed on site and are considered to be wetland dependant vegetation. In addition, a spring flora survey identified a considerable population of *Eremaea purpurea* located in the damp area associated with Sydney Road Wetland (SMEC, 2008). This is a species identified as being "populations disjunct from their known geographical range." (Govt. of WA, 2000).

Given that a area under application includes wetland dependant vegetation, it is considered that the vegetation under application is growing in, or in association with, an environment associated with a watercourse or wetland. The proposed clearing is considered to be at variance to this Principle.

- Methodology**    **References:**
- DEC (2009)
  - Govt. of WA (2000)
  - SMEC (2008)
- GIS Databases:**
- EPP, Lakes
  - EPP, Wetlands 2004 (DRAFT)
  - Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain
  - 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 area under application is associated with subdued dune-swale terrain and the chief soils are described as leached sands (Northcote et al. 1968). Generally, these soils have a high risk of wind erosion and a low risk of water erosion due to the high infiltration rates associated with sands.

Although generally there is a low salinity risk associated with the identified sandy soils (Department of Agriculture, 2005), salinity risk mapping has identified small pockets of high salinity risk areas in the western and central portions of the applied area. Given that the proposed clearing is limited to a narrow, linear road reserve over approximately 4 km and the area of salinity risk is limited to ~0.25 hectares, it is not considered

likely that the proposed clearing would result in any significant increase in salinity on or off site.

The area under application is associated with a Class 3 Acid Sulphate Soils (ASS) risk. A Class 3 ASS risk is defined as having no known risk of ASS occurring within 3m of natural surface (or deeper) that could be disturbed by most land development activities. It is noted, areas adjacent to the proposed Ocean Reef Road extension have been identified as areas having a high risk of ASS occurring within 3m from the surface (SMEC, 2008).

It is noted that the road extension requires cuts to a depth of one (1) metre to occur within three hundred (300) metres of areas marked as having a high risk of acid sulphate soils (SMEC, 2007). Given the ASS risk associated with disturbance below 3m, it is not considered likely that the proposed clearing would result in disturbance to Acid Sulphate Soils.

The main land degradation risk associated with the removal of vegetation on the identified soil type is considered to be nutrient export and wind erosion (Department of Agriculture, 2005), however, given the proposed land use is for the extension of Ocean Reef Road, nutrient levels should not be artificially elevated therefore minimising the risk of eutrophication. Furthermore, the thin, linear nature of the proposed clearing and appropriate management practices such as dust suppression and the bituminised sealing of exposed surfaces would minimise the risk of wind erosion.

Given the above, it is therefore not considered likely that the proposed clearing would result in appreciable land degradation.

**Methodology**    References:  
- DEC (2009)  
- Department of Agriculture (2005)  
- Northcote et al (1960-1968)  
- SMEC (2008)  
GIS Databases:  
Acid Sulfate Soil Risk Map, Swan Coastal Plain  
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 may be 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 193 (Gnangara Lake and Adjacent Bushland) which is located adjacent to the eastern side of the applied area and Bush Forever site 463 (Starlight Grove Bushland) is located approximately 245m to the north-west.

The proposed clearing has the potential to indirectly impact the environmental values of the adjacent reserve through the spread or introduction of weed species, by machinery. The consequences associated with the spread of exotic species into areas reserved for conservation, include the potential decline or local extinction of species.

A condition will be placed on the permit to ensure wash down of vehicles and machinery, and to ensure construction material is weed and dieback free. In addition, an offset condition and conditions will be imposed requiring weed control within the road reserve and additional cleared areas.

**Methodology**    References:  
- DEC (2009)  
GIS Databases:  
- Bushforever - MF 07/01  
- CALM Managed Lands and Waters - CALM 1/07/05  
- CALM Regional Parks - CALM 12/04/02  
- Register of National Estate  
- Swan Coastal Plain North 20cm Orthomosaic - Landgate 2006

**(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 eastern extremity of the applied area (~ 185m) is located within a Priority 2 Public Drinking Water Source Area (PDWSA). Priority 2 PDWSA cover land where there is low risk development, such as low intensity rural areas, or where development with conditions (ie. major transport infrastructure) is allowed so risk of pollution to the water source is minimised. Given the small size (~0.9ha) and linear nature of the proposed area to be cleared within the PDWSA, it is not considered likely to impact on the quality of surface or underground water.

The northern central portion of the area under application is located within a mapped Multiple Use Wetland (Leach Way Sumpland) and the western portion of the applied area is located within the buffer of a Multiple Use Wetland, identified as Sydney Road Sumpland. In addition, a Conservation Category Wetland (CCW) identified as Gngangara Lake is located approximately 50 metres to the north-east.

The closest watercourses are Lake Goolelal which is located approximately 3.7km to the south-west and Bennett Brook which is located approximately 4.6km south-east of the applied area.

The area under application generally has a nil to low risk of salinity; however, salinity risk mapping has identified a small portion (~0.25ha) within the applied area as having a high salinity risk due to its position lower in the landscape. Given that groundwater salinity in the local area is less than 500 mg/L (low salinity level) and given the limited size (0.25ha) of the area identified as being at risk, it is not considered likely that the proposed clearing would cause deterioration in the quality of the underground water.

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

**Methodology** References:  
- DEC (2009)  
GIS Databases:  
- Geomorphic Wetlands (Classification), Swan Coastal Plain  
- Hydrographic Catchments - Catchments - DOW  
- Hydrography, linear (hierarchy) - DOW  
- Public Drinking Source Areas (PDWAs) - DOW  
- Groundwater Salinity, Statewide  
- Salinity Risk LM 25m- DOLA 00  
- Topographic Contours, Statewide- DOLA 12/09/02

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

**Comments** **Proposal is not likely to be at variance to this Principle**  
The area under application is located at an elevation of between 45-55 metres within an undulating landscape. The sandy soils identified on site have a low risk of water logging due to their poor water holding capacity (State of Western Australia, 2005).

Given that there is low risk of water logging associated with the identified soil type on site (State of Western Australia 2005) and the high permeability of these sandy soils, it is not considered likely that the proposal would have an impact on peak flood height or duration.

**Methodology** References:  
- DEC (2009)  
GIS Databases:  
- Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain - DEC  
- Hydrography, linear (hierarchy) - DOW  
- Topographic Contours, Statewide - DOLA

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

**Comments**  
The majority of the area under application (~8.0ha) is zoned Other Regional Roads under the Metropolitan Regional Scheme (MRS). The western portion of the area under application comprises (~0.6ha) zoned Rural, (~1.0ha) zoned Industrial, (~0.4ha) zoned Urban Deferred and (~0.2ha) zoned Urban under the MRS and Rural under the Town Planning Scheme.

The land owners of Lot 3 and Lot 6 have provided written consent for the City of Wanneroo to apply for a clearing permit for the construction and expansion of Ocean Reef Road (TRIM ref: DOC75248).

The Western Australian Planning Commission (WAPC) has provided written authorisation for the City of Wanneroo to apply for a clearing permit for Lot 15 and Lot 800 (TRIM ref: DOC41328).

The City of Wanneroo need to install a sump on Lot 48 Gngangara Road as part of the Ocean Reef Road extension to collect road runoff. The City is in the process of negotiating consent from the land owner. To date, written consent has not yet been obtained.

There are no Aboriginal sites of Significance associated with the area under application.

No submissions were received.

**Methodology** GIS Databases:

- Aboriginal Sites of Significance - DIA
- Town Planning Scheme Zones
- Metropolitan Regional Scheme

#### 4. Assessor's comments

##### Comment

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

#### 5. References

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.

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

DEC (2009a) Site Inspection Report for Clearing Permit Application CPS 2963/1, Ocean Reef Road Extension. Site inspection undertaken 9/03/2009. Department of Environment and Conservation, Western Australia (TRIM Ref. DOC78916).

DEC (2009b) TEC advice for land clearing application. Advice to Assessing Officer, Native Vegetation Assessment Branch, received 28/04/2009. Biodiversity Coordination Section, Department of Environment and Conservation, Western Australia. (TRIM ref: DOC83078).

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.

Gibson N., Keighery B., Keighery G., Burbidge A. and Lyons M. (1994). A Floristic Survey of the Southern Swan Coastal Plain. Western Australian Department of Conservation and Land Management and the Western Australian Conservation Council.

Government of Western Australia (2000) Bush Forever Volumes 1 and 2. Western Australian Planning Commission, Perth WA  
Heddle, 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.

Natural Area Management & Services (2008) Flora Survey: Ocean Reef Road Extension Stage 2 (Sydney Road to Alexander Drive) - unpublished report. (TRIM ref: DOC82152).

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.

SMEC Australia Ltd (2008) Environmental Report and Flora Survey for Stage 2 - Ocean Reef Road Extension - unpublished report. (TRIM ref: DOC75250)

Williams, M. (2008). Graceful Sun Moth habitat preferences. Senior Research Scientist - Department of Environment and Conservation. (TRIM Ref: DOC 57572)

#### 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)