



## 1. Application details

### 1.1. Permit application details

Permit application No.: 1984/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Department of Environment and Conservation, Jurien

### 1.3. Property details

Property: UNALLOCATED CROWN LAND ( CERVANTES 6511)  
Local Government Area: Shire Of Dandaragan  
Colloquial name: UCL PIN no 578808. Road Re-alignment.

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
0.05		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 type 1026: Mosaic: Shrublands; Acacia rostellifera, A. cyclops (in the south) & Melaleuca cardiophylla (in the north) thicket / Shrublands; Acacia lasiocarpa & Melaleuca acerosa heath	Vegetation to be cleared is representative of a dune-shrub landscape system, showing little disturbance. There is a dense shrub layer with an obvious herb understorey and some native grasses throughout the area.	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994)	Condition of vegetation was obtained from site visit photos taken on the 10th August 2007.

## 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 area proposed to be cleared is considered to be in 'very good - excellent' condition (Keighery, 1994). Site photos show that the area is representative of a diverse dune - shrubland system showing very little disturbance. Faunal diversity is also expected to be rich, with numerous small mammals, reptiles and bird species likely to utilise this habitat.

The nearby conservation areas of Nambung National Park and Southern Beekeepers Nature Reserve contain areas of habitat of similar type and diversity to the notified area. As the proposed clearing area is small and there are large secure tenure sites containing areas of high biological diversity it is considered that clearing of vegetation within the notified area will not affect biological diversity within the local and greater region.

#### Methodology

Site visit, 2007  
Keighery, 1994  
SAC Biodatasets, 15th October 2007  
GIS Databases:  
- Jurien Bay Marine Park 50cm Orthomosaic - DLI 04  
- Cadastre - DLI  
- CALM Managed Lands and Waters - CALM 1/07/05

### (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 not likely to be at variance to this Principle

The following species of native fauna have been recorded within the local area (10km radius):

Woylie - Bettongia penicillata ogilbyi - P5



Tammar Wallaby - *Macropus eugenii* *derbianus* - P5  
 Australian bustard - *Ardeotis australis* - P4  
 Quenda - *Isodon obesulus fusciventer* - P5  
 Leatherback turtle - *Dermochelys coriacea* - VU  
 Dugong - *Dugong dugon* - other specially protected  
 Humpback whale - *Megaptera novaeangliae* - VU

Three of these species, the leatherback turtle, Dugong and the Humpback whale are marine animals and will not be addressed in relation to this application.

The records for the Australian bustard are approximately 30 years old, which, although, does not prevent the possibility of occurrence, lack of other recorded sightings during this time does limit the likelihood. Additionally, the habitat preference of the bustard for open to lightly wooded grasslands indicates that the species is unlikely to significantly utilise the proposed area.

The woylie, tammar wallaby and quenda were all recorded in this area as they were released by DEC into Nambung National Park in the last 2-3 years. All three species are likely to utilise the habitat found within the proposed clearing area and may forage or pass through this area from time to time. However, as the proposed area is small within a larger vegetated area of secured tenure it is unlikely that the notified area would provide significant habitat for these species.

**Methodology** SAC Biodatasets, 15th October 2007  
 Site Photos, 2007  
 GIS Databases:  
 - Cadastre - DLI  
 - Jurien Bay Marine Park 50cm Orthomosaic - DLI 04

**(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 is no known or recorded Declared Rare Flora (DRF), within the local area (10km radius). Two species of Priority flora have been recorded:

- \* *Stylidium Maritimum* - P3
- \* *Haloragis foliosa* - P3

Site visit photos indicate that the condition of the vegetation is in 'very good - excellent' condition (Keighery, 1994) and is part of a large continuous tract of similar vegetation. The habitat found here is similar to that of the required habitat for both priority species listed above.

Given that there are no records of DRF and the proposed clearing is small within a larger area of similar vegetation it is unlikely that DRF would be found here or that the habitat would be necessary for existence of DRF or other priority flora.

**Methodology** Keighery, 1994  
 SAC Biodatasets, 15th October 2007  
 Site Visit, 2007  
 GIS Databases  
 - Jurien Bay Marine Park 50cm Orthomosaic - DLI 04

**(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 is one TEC with two known occurrences within the local area (10km radius). This TEC is known as 'Thetis-microbialite' - A diverse assemblage of benthic microbial communities each producing a distinctive mat confined to specific zones in the central basin, and in some cases associated with lithified stromatolites on the littoral zone.

These occurrences are located within the ANCA wetland, Lake Thetis, and known threats include recreational disturbances and factors affecting groundwater levels.

The proposed clearing area is within the buffer of this TEC and situated approximately 400m to the west. Given that the proposed clearing is for a small amount of vegetation that is predominantly shallow-rooted shrubs and herbs, groundwater levels are unlikely to be impacted by the clearing.

As this TEC type is so specific it can confidently be stated that it is unlikely to occur within the proposed clearing area. It is unlikely that the proposed clearing would be at variance to this proposal.

Methodology SAC Biodatasets, 15th October 2007  
 GIS Databases:  
 - Clearing Regulations - Environmentally Sensitive Areas - DOE 30/5/05

**(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					
	Pre-European	Current extent (ha)	Remaining (ha)	Conservation** (%)	% In reserves status	DEC Managed Land
Shire*						
Dandaragan		668,507	326,283	48.8	Least Concern	N/A
Beard Vegetation Complex****						
1026		70,704.86	63,068.98	89.2	Least Concern	52.4

\* (Shepherd et al. 2006)

\*\* (Department of Natural Resources and Environment 2002)

\*\*\*\* (Shepherd et al. 2001)

The vegetation proposed to be cleared is considered to be in a 'very good - excellent' condition (Keighery, 1994) and is composed of dune vegetation of mainly shrubs, herbs and grasses. Given the reasonably high level of vegetation type representation and the small area of proposed clearing the proposed clearing is not considered to be a significant remnant of native vegetation.

Methodology Shepherd et al. 2001  
 Department of Natural Resources and Environment 2002  
 Site Visit, 2007  
 GIS Databases:  
 - Pre-European Vegetation - DA 01/01

**(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.**

**Comments** **Proposal is not likely to be at variance to this Principle**  
 Within approximately 400m of the proposed clearing is the ANCA listed wetland of Lake Thetis. This wetland was included on the directory of important wetlands due its good representation of a wetland type occurring within a biogeographic region in Australia and because it has outstanding historical or cultural significance (DEWR, 2007). The wetland is described as being a permanent saline/brackish lake which is isolated from major surface drainage and fed by groundwater flow & direct rainfall (DEWR, 2007).  
 The lake is mapped and aerial photography also shows quite clear boundaries which are outside the proposed clearing area. Site visit photographs indicate that the vegetation within the proposed clearing area does not appear to be of a kind associated with the wetland.  
 As the lake is dependent upon groundwater, activities which affect this will have an impact upon the wetland. The vegetation within the proposed clearing area is predominantly shallow-rooted shrubs and herbs and the amount to be cleared is small. It is unlikely that the clearing will have a noticeable affect on groundwater levels.  
 There are no other known wetlands or watercourses within or nearby to the proposed clearing area therefore this proposal is not likely to be at variance to this principle.

Methodology Site visit, 2007  
 DEWR, 2007  
 GIS Databases:  
 - ANCA, Wetlands - CALM 08/01  
 - Hydrography, linear - DOE 1/2/04  
 - Jurien Bay Marine Park 50cm Orthomosaic - DLI 04



**(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 proposed to be cleared is described as being coastal dune formations backed by the low-lying deposits of inlets and estuaries. The chief soils are calcareous sands on the dunes. Local lithology is found to be of limestone and calcrete.

Elevation within the area is relatively flat and groundwater salinity levels have been mapped as ranging from 500-1000TDS (Total Dissolved Salts). There is no available Acid Sulfate Mapping for this area.

Given the fine soil there is some potential for wind erosion resulting from the clearing, however as the area is small in size this is unlikely to be substantial.

Salinity and waterlogging are also unlikely given the substrate, known salinity levels and amount of clearing that will occur. The proposal is therefore unlikely to be at variance to this principle.

**Methodology Northcote et al 1960-68**

GIS Databases:

- Groundwater Salinity, Statewide - DOW
- Topographic Contours, Statewide - DOLA 12/09/02
- Soils, Statewide - DA 11/99
- Jurien Bay Marine Park 50cm Orthomosaic - DLI 04

**(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 following conservation areas have been recorded within the local area (10km radius):

Nambung National Park - 1km east  
Southern Beekeepers Nature Reserve - 2.1km east  
Jurien Bay Marine Park - 0.7km west  
ANCA wetland (Lake Thetis) - 400m east

The area proposed to be cleared is too small and too distant to provide buffering functions to any of the above conservation areas, and the notified areas location and size means that it does not significantly contribute to any local ecological linkages.

Although the vegetation proposed to be cleared is considered to be in 'very good - excellent' condition (Keighery, 1994) it is unlikely that this small area provides habitat not well represented within the conservation areas.

The ANCA wetland, Lake Thetis, is known to be predominantly groundwater dependent, therefore factors which affect the groundwater could threaten the environmental values of the wetland. Again, the size of the proposed clearing and removal of the shallow rooted shrubs and herbs is unlikely to have noticeable effects on groundwater levels.

**Methodology Keighery, 1994**

Site visit photos, 2007

SAC Biodatasets, 14 Oct 2007

GIS Databases:

- CALM Managed Lands and Waters - CALM 1/07/05
- Jurien Bay Marine Park 50cm Orthomosaic - DLI 04
- ANCA, Wetlands - CALM 08/01

**(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**

Groundwater salinity is mapped as being between 500-1000 TDS (Total dissolved salts). Clearing of native vegetation within the proposed area is unlikely to impact on pH or salinity levels due to the small size of the area to be cleared.

There is unlikely to be any impact on water within the Marine Park, again, due to the small scale of clearing, and additionally because the coastal dune systems are likely to prevent, or filter, any debris being transported to the ocean.

The nearby ANCA Wetland, Lake Thetis, is known to be dependent upon groundwater and activities which

affect this will have an impact upon the wetland. The vegetation within the proposed clearing area is predominantly shallow-rooted shrubs and herbs and the amount to be cleared is small. It is unlikely that the clearing will have a noticeable effect on groundwater levels.

**Methodology** Site Visit, 2007  
GIS Databases:  
- Hydrography, linear - DOE 1/2/04  
- Groundwater Salinity, Statewide - DOW  
- ANCA, Wetlands - CALM 08/01  
- Jurien Bay Marine Park 50cm Orthomosaic - DLI 04

**(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**  
Due to the size and scale of the proposed area, clearing is unlikely to affect flooding related matters within the area.

**Methodology**

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

**Comments**  
The purpose of the clearing is for a new road in response to the safety concerns for the existing road. Given the fine soils of the area there is some wind erosion concern for the clearing, however as the proposed area will then be filled in and compacted in the road works construction wind erosion is unlikely to have a noticeable effect.

**Methodology**

**4. Assessor's comments**

Purpose	Method	Applied area (ha)/ trees	Comment
Road construction or maintenance	Mechanical Removal	0.05	

**5. References**

Department of Environment and Water Resources, 2007, Australian Wetlands Database, <http://www.environment.gov.au/water/publications/environmental/wetlands/database/index.html> last updated 6 July 2007

Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68): 'Atlas of Australian Soils, Sheets 1 to 10, with explanatory data'. CSIRO and Melbourne University Press: Melbourne.

Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.

Site Visit Photos taken 10 August 2007 TRIM Ref: DOC37351

**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)