



## 1. Application details

### 1.1. Permit application details

Permit application No.: 2140/1

Permit type: Area Permit

### 1.2. Proponent details

Proponent's name: City of Rockingham

### 1.3. Property details

Property: LOT 2730 ON PLAN 215879 (Lot No. 2730 ELANORA COOLOONGUP 6168)

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Local Government Area: City Of Rockingham

Colloquial name:

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
0.2		Mechanical Removal	Recreation

## 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
Heddlle Vegetation Complex: Quindalup Complex - Coastal dune complex consisting mainly of two alliances - the strand and fore-dune alliance and the mobile and stable dune alliance. Local variations include the low closed forest of <i>M. lanceolata</i> - <i>Callitris preissii</i> and the closed scrub of <i>Acacia rostellifera</i> .	The proposal is to clear 0.2 ha for the purpose of relocating the Practice Fairway to the Nine Fairway within the Rockingham Golf Course. The conversion of the existing Practice Fairway to the Nine Fairway is considered by the City of Rockingham as the best option to resolve safety issues concerns for adjacent residential housing.	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	Vegetation description based on a spring flora survey produced by 360 Environmental Pty Ltd (2006) and a DEC site visit on 17/10/07. The DEC site visit identified that the vegetation under application has previously been parkland cleared and comprises <i>Acacia Rostellifera</i> over introduced grasses in the southern portion of the applied area and was considered to be in a degraded condition.
Beard Vegetation Association: 3048 - Shrublands; scrub-heath on Swan Coastal Plain	A flora survey was conducted of all the vegetation on Lot 2730 on Plan 215879 for clearing permit 1541/1 by 360 Environmental Pty Ltd (2006). This survey identified the vegetation under application as <i>Acacia rostellifera</i> closed scrub over <i>Austrostipa flavescens</i> and grassland of introduced species in sandy soil and was described by 360 Environmental (2006) as being in completely degraded 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** **Proposal is not likely to be at variance to this Principle**  
The vegetation under application is situated within an established golf course, which is also located within a mapped Bush Forever site. The vegetation under application is degraded (DEC Site Visit, 2007) with the understorey vegetation predominantly limited to invasive non-native grass species and an overstorey of *Acacia rostellifera*, which was restricted to the southern portion under application.

A flora survey conducted by 360 Environmental Pty Ltd (2006) identified that the area under application is not likely to contain any Declared Rare Flora or Threatened Ecological Communities. Given that the vegetation under application is in completely degraded condition with low species diversity and has extensive weed infestation, it is not considered likely to comprise a high level of biodiversity.

**Methodology** DEC Site visit- 17/10/07  
360 Environmental Pty Ltd (2006)  
GIS Database:  
Bushforever - MFP 07/01

#### (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**  
Within the local area (5km radius) there have been eight recorded occurrences of significant fauna species including the following:

- Baudin's Black Cockatoo (*Calyptorhynchus baudinii*, Endangered)
- Quenda (*Isodon obesulus fusciventer*, P5)
- Western Bush Wallaby (*Macropus irma*, P4)
- Hooded Plover (*Charadrius rubricollis*, P4)
- Eastern Curlew (*Numenius madagascariensis*, P4)

The vegetation under application is limited to 0.2ha contained within a golf course and is in degraded to completely degraded condition. There is a lack of understorey within the areas under application which would limit the habitat potential in this locality for ground dwelling fauna species, such as the Quenda and Western Bush Wallaby.

According to Simpson and Day (2004), the Hooded Plover and Eastern Curlew inhabit coastal and estuarine localities and the Baudin's Black Cockatoo inhabit jarrah, marri and karri forests (Burbidge, 2004). During the DEC site visit no hollows were observed that could potentially be utilised as nesting habitat for the Baudin's Black Cockatoo and given the vegetation under application comprises *Acacia rostellifera* and grass species, the vegetation would not provide suitable habitat for these identified bird species.

Given the low species diversity and the mostly degraded condition of the vegetation under application, it is not considered likely to comprise significant habitat for indigenous fauna.

**Methodology** DEC Site visit - 17/10/07  
Burbidge (2004)  
Simpson and Day (2004)  
GIS Databases:  
SAC BIO Datasets - accessed 26/11/07

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

**Comments** **Proposal is not likely to be at variance to this Principle**  
There are no known occurrences of Declared Rare Flora (DRF) or Priority flora within a 5km radius of the area under application, with the closest DRF *Diuris micrantha* located approximately 9.4km to the northeast of the applied area.

*D. micrantha* is generally found in brown, loamy clay soils in low lying areas associated with winter wet swamps (Western Australian Herbarium, 1998) and amongst dense native sedges and *Melaleuca* spp. (Brown et al. 1998). This is not found on site, with the soils under application comprising calcareous sands which are part of the Quindalup Dune System.

A flora survey conducted in September 2006, did not identify any DRF or Priority species on site (360 Environmental Pty Ltd 2006).

Given that the area under application is unlikely to include habitat that is suitable for the identified DRF species

and that no DRF or Priority 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** DEC site visit - 17/10/07  
Brown et al (1998)  
360 Environmental Pty Ltd (2006)  
Western Australian Herbarium (1998)  
GIS Databases:  
SAC BIO Datasets - accessed 26/11/07

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

**Comments** **Proposal is not likely to be at variance to this Principle**  
Within the local area (5km radius) of the application there are 23 known occurrences of Threatened Ecological Communities (TEC), the closest of which is located approximately 2.2km to the northeast of the applied area. This TEC has been described as:

- Floristic Community Type (FCT 19b) - Woodlands over sedgelands in Holocene dune swales.

During the flora survey, 360 Environmental (2006) identified the vegetation under application as being most similar to Floristic Community Types 29a and 29b, neither of which are identified as a TEC.

Given that the applied vegetation was not identified as a TEC during the flora survey, and given the distance to the nearest known occurrence, the vegetation under application is not considered likely to comprise, or be necessary for the maintenance of, a TEC.

**Methodology** DEC site visit - 17/10/07  
360 Environmental Pty Ltd (2006)  
GIS Database:  
SAC Bio datasets - accessed 26/11/07

**(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 'Quindalup Complex' which has a pre-European representation of 41.7% (EPA 2006).

The vegetation under application is also described as Beard vegetation association 3048, which has 28.9% of the pre-European extent remaining (Shepherd 2006). The vegetation under application is also within the Swan Coastal Plain Bioregion of which there is 38.1% of pre-European extent remaining in the local area.

Although the identified Beard vegetation association has less than the recommended 30% minimum of pre-European extent remaining, the applied area is considered to be within a constrained area. 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 that there is 35.1% of pre-European extent remaining in the City of Rockingham, the proposal is not considered likely to be at variance to this Principle.

	Pre-European area (ha)	Current extent (ha)	Remaining %
	% in reserves/DEC- managed land		
Swan Coastal Plain	1,501,456	571,758	38.1%**
City of Rockingham	24,326	8,534	35.1%*
Hedde vegetation complex			
Quindalup Complex	38,238	18,000	47.1%***
Beard vegetation association			
3048			
12,101			
3,499			
28.9%**			
8.6%			

\* (Shepherd et al. 2001)  
\*\* (Shepherd 2006)  
\*\*\* (EPA, 2006)

**Methodology** EPA (2006)

Shepherd (2006)  
GIS Databases:  
Hedde Vegetation Complexes - DEP 21/06/95  
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**

The closest wetland, Coo loongup Lake, is a Conservation Category Wetland (CCW) and is located approximately 630m to the east of the area under application. The nearest watercourse is a drain which feeds into Lake Richmond which is located approximately 2.5km to the west of the applied area.

Given the distance to the nearest wetland, and that no wetland dependent vegetation was identified during the flora survey, the vegetation under application is not considered likely to be growing in, or in association with, an environment associated with a watercourse or wetland.

**Methodology** DEC site visit - 17/10/07  
360 Environmental (2006)  
GIS Databases:  
Geomorphologic Wetlands (Mgt Categories), Swan Coastal Plain  
Hydrography, linear (hierarchy) - DOW

**(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 soils within the area under application are part of the Quindalup Dune System, comprising calcareous sands which have a nil to low risk of acid sulphate soils (State of Western Australia 2005). Given that the clearing as proposed does not involve deep excavation of the soils, it is therefore not considered likely that it would have an impact on acid sulphate soils.

Although generally there is a low salinity risk associated with these soils (State of Western Australia 2005), salinity risk mapping has identified the southern area under application as having a high salinity risk. Given that the proposed clearing is limited to 0.2ha within an existing golf course, it is not considered likely that it would result in any significant increase in salinity.

The main land degradation risk associated with the Quindalup soil type is considered to be phosphorous export and wind erosion (State of Western Australia 2005). The clearing of 0.2ha of native vegetation is unlikely to significantly impact on the export of phosphorous.

The high wind erosion potential is due to the sandy nature of the soils and without appropriate vegetation cover, the proposed clearing may result in wind erosion. Given that the proposed land use is for a practice fairway, the area under application will have adequate ground cover and irrigation therefore minimising the potential for wind erosion. It is therefore not considered likely that the proposed clearing would result in appreciable land degradation.

**Methodology** DEC site visit - 17/10/07  
State of Western Australia (2005)  
GIS Databases:  
Acid Sulphate Soil Risk Map, Swan Coastal Plain - DEC  
Salinity Mapping 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**

The area under application is located within Bush Forever site 356 and is part of the Rockingham Lakes Regional Park. In addition, the applied area is also situated within an area listed on the Register of National Estate, which is identified as being significant for conservation due to its representation of ecological communities and in providing habitat for JAMBA/CAMBA bird species (AHC 2007).

Given that the applied area is limited to 0.2 hectares of vegetation in degraded condition, it is not considered likely that the proposed clearing would have a direct impact on the environmental values of Bush Forever site 356.

The proposed clearing may however have indirect impacts on the environmental values of Bush Forever site 356 through the spread or introduction of dieback or weed species by machinery. There are serious

consequences associated with the spread of such diseases and exotic species into an area reserved for conservation, including the potential local extinction of species.

Given that the proposed clearing may have an indirect impact on its environmental values of Bush Forever site 356, it is considered that the proposal may be at variance to this Principle.

If a permit is granted, conditions will be imposed requiring dieback and weed prevention measures.

**Methodology** Bush Forever (2007) submission  
GIS Database:  
Bushforever - MFP 07/01\_1  
CALM Regional Parks - CALM 12/04/02  
EPP, Lakes - DEP 1/12/92  
Register of National Estate - EA 28/01/03

**(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 nearest wetland, Coo loongup Lake, is located 630m east of the applied area and the closest watercourses are the Peel Main Drain which is located approximately 5.9km to the east and an un-named drain that feeds into Lake Richmond, which is located approximately 2.4km to the west of the area under application.

The area under application is not located within a Public Drinking Water Course Area (PDWSA) and there is a nil risk of Acid Sulphate Soils. The applied area groundwater salinity is 500-1000 mg/L. Given the limited amount of vegetation contained within the area to be cleared, it is not considered likely that the proposed clearing would cause salinity or Acid Sulphate Soils resulting in the deterioration in the quality of the underground water.

Due to the high infiltration rates of the sandy soils identified within the area under application, and the distance to the nearest wetland it is not considered likely that the proposed clearing would cause water erosion resulting in a deterioration in surface water quality.

**Methodology** GIS Databases:  
Acid Sulfate Soil Risk Map, Swan Coastal Plain - DEC  
Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain  
Groundwater Salinity, Statewide - 22/02/00  
Public Drinking Water Source Areas (PDWSAs) - DOE 07/02/06  
Topographic Contours, Metropolitan Area - DLI

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

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

The area under application is located approximately 630m to the west of Coo loongup Lake, at an elevation of 5-10 metres. 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** State of Western Australia (2005)  
GIS Databases:  
Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain  
Topographic Contours, Metropolitan Area } DLI

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

**Comments**

The area under application is located within a Native Title Claim area. The applied area is contained within existing golf course site that is managed by, and vested with the Shire of Rockingham for this purpose. Therefore the clearing as proposed should not fall under the future acts process under the Native Title Act 1993.

The area under application is located approximately 4.5km southeast of Cockburn Sound and is immediately adjacent to the Cockburn Sound Catchment area, which has been identified as being a major source of nutrient export via groundwater into Cockburn Sound. Potential impacts of land use on the marine environment need to be considered in order to protect the environmental values of Cockburn Sound.

The City of Rockingham has Planning approval from the WAPC and have a License to Construct a Well from the Department of Water.

In a submission Bush Forever advise that they have no objections to the clearing but recommend that offsets of 2:1 revegetation ratio be applied planted with locally endemic species and that an Environmental Management Plan be prepared for the area prior to any clearing.

**Methodology** GIS Databases:  
Native Title Claims - DLI 7/11/05

#### 4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comment
Recreation	Mechanical Removal	0.2	The assessable criteria have been addressed and the proposed clearing may be at variance to principle (h).

#### 5. References

- 360 Environmental Pty Ltd (2006) Rockingham Golf Course Proposed Practice Fairway Area: Spring Flora Survey. DEC TRIM, DOC 12733.
- Australian Heritage Council - Australian Heritage Database - Reserve 17282, Mandurah Road, Coo loongup. <http://www.environment.gov.au/cgi-bin/ahdb/>. Accessed 29/11/07
- Brown, A., Thomson-Dans, C. and Marchant, N. (1998) Western Australia's Threatened Flora. Department of Conservation and Land Management. Perth, Western Australia.
- Burbidge, A. (2004) Threatened Animals of Western Australia, Department of Conservation and Land Management, Perth, Western Australia.
- Cockburn Sound Management Council (2004) Local Planning Policy For The Cockburn Sound Catchment, Western Australia.
- 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.
- EPA (2006) Guidance for the Assessment of Environmental Factors -level of assessment of proposals affecting natural areas within the System 6 region and Swan Coastal Plain portion of the System 1 Region. Report by the EPA under the Environmental Protection Act 1986. No 10 WA.
- Hedde, E. M., Loneragan, O. W., and Havel, J. J. (1980) Vegetation Complexes of the Darling System, Western Australia. In Department of Conservation and Environment, Atlas of Natural Resources, Darling System, Western Australia.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Shepherd (2006) Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth. Includes subsequent updates for 2006 from Vegetation Extent dataset ANZWA1050000124.
- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.
- Simpson, K. & Day, N. (2004) Field Guide to the Birds of Australia, Penguin Group (Australia), Camberwell, Victoria.
- Site Visit 17/10/2007, Department of Environment and Conservation (DEC), Western Australia. TRIM ref DOC40855.
- State of Western Australia (2005) AGMAPS Land Manager CD Rom.
- Western Australian Herbarium (1998-). FloraBase - The Western Australian Flora. Department of Environment and Conservation. <http://florabase.calm.wa.gov.au/> Accessed on 27/11/2007.

#### 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)



