



1. Application details

1.1. Permit application details

Permit application No.: 2195/1
 Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Water Corporation

1.3. Property details

Property: LOT 2259 ON PLAN 213090 (Lot No. 2259 DIXON EAST ROCKINGHAM 6168)
 LOT 52 ON DIAGRAM 63447 (Lot No. 52 MANDURAH EAST ROCKINGHAM 6168)
 Local Government Area: City Of Rockingham
 Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
14.779		Mechanical Removal	Building or Structure

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 14.779 hectares of native vegetation on Lot 52 and Lot 2259 Mandurah Road, East Rockingham for the purpose of an industrial development. The vegetation under application comprises <i>Eucalyptus gomphocephala</i> open woodland over <i>Acacia rostellifera</i> open to closed heath with weed species common throughout including Bridal Creeper and Geraldton Carnation Weed (ATA Environmental 2007).	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	Vegetation clearing description based on a site visit conducted by DEC officers on 12 December 2007 and a Flora and Vegetation survey conducted by ATA Environmental in October 2006 over Lots 1, 2 and 52 Mandurah Road, Lot 2259 Dixon Road, and Lot 14 Lodge Drive, East Rockingham.
Beard Vegetation Association 3048: Shrublands; scrub-heath on the Swan Coastal Plain			

(Shepherd 2006)

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

During the spring flora survey 20 native flora species and 25 introduced species were recorded within Lot 2259 and Lot 52 Mandurah Road, which includes the area under application; the vegetation was described to be in good to very good condition (ATA Environmental 2007).

The applied area comprises Tuart woodland in good to very good condition and is therefore considered to be of conservation value. Although Tuart as a species seems well represented in parks and reserves, its conservation status is less clear when considering the presently described six structural Tuart ecosystems and the composition of flora associated with the Tuart (Tuart Response Group, 2002). In addition Tuart dominated communities have been significantly impacted by grazing, frequent fire, weed invasion and other threatening processes that result in the vegetation being more disturbed than surrounding vegetation types. As stated in Morgan (2005) for the above reasons Keighery et al. (2002) argued that any Tuart dominated vegetation in

good or better condition should be a priority for retention and protection.

The vegetation under application is in very good condition, and includes a dense understorey that has the potential to provide habitat suitable for ground-dwelling fauna such as the Quenda. 'Quenda is generally found in dense scrubby, vegetation with dense cover...often associated with wetlands on the Swan Coastal Plain' (DEC 2007a).

The vegetation under application also includes mature *Eucalyptus gomphocephala* trees that may contain hollows with the potential to be utilised for habitat by birds such as Baudin's Black Cockatoo and Carnaby's Black Cockatoo; and also by mammals such as possums.

Although the vegetation under application has a low species diversity and a high proportion of weed species, it is considered that the vegetation under application may comprise a high level of biodiversity.

Methodology ATA Environmental (2007)
DEC (2007a)
DEC (2007b)
DEC site visit 7/12/07
Gibson et al. (1994)
Keighery et al. (2002)
Tuart Response Group (2002)

(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

Within the local area (5km radius) there are nine recorded occurrences of significant fauna including the following that have the potential to utilise the vegetation under application:

- Quenda - *Isodon obesulus fusciventer* (P5),
- Western Brush Wallaby - *Macropus irma* (P4),
- Baudin's Black Cockatoo - *Calyptorhynchus baudinii* (Threatened), and
- Carpet Python - *Morelia spilota imbricata* (P4).

The vegetation under application is in very good condition, and includes a dense understorey that has the potential to provide habitat suitable for ground-dwelling fauna such as the Quenda. 'Quenda is generally found in dense scrubby, vegetation with dense cover...often associated with wetlands on the Swan Coastal Plain' (DEC 2007a).

The vegetation under application also includes mature *Eucalyptus gomphocephala* trees that may contain hollows with the potential to be utilised for habitat by birds such as Baudin's Black Cockatoo and Carnaby's Black Cockatoo; and also by mammals such as possums.

The vegetation under application forms part of a vegetated remnant that is considered to provide a greenway link (Bush Forever 2007) facilitating movement of fauna between the Bush Forever site to the east and vegetation to the south that includes Rockingham Lakes Regional Park. This ecological corridor is considered to be significant given its location between the railway line and cleared land to the north.

Given that the vegetation under application has the potential to be utilised for habitat by a range of fauna species, and provides an ecological linkage between remnant vegetation, it is considered that the vegetation under application comprises significant habitat for indigenous fauna.

Methodology Bush Forever (2007)
DEC (2007a)
DEC site visit 7/12/07
GIS Database: SAC Bio datasets accessed 5/12/07

(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

Within the local area (5km radius) there is one known population of the rare flora *Diuris micrantha* located approximately 4.3km to the northeast of the applied area. There are also four known populations of the priority flora *Dodonaea hackettiana* (P4) and *Jacksonia sericea* (P4) in the local area.

D. micrantha is a tuberous, perennial, herb to 0.3-0.6 m high with yellow, brown flowers in Sep-Oct on brown loamy clay, in winter-wet swamps and in shallow water (Western Australian Herbarium 1998-). The area under application does not include any winter-wet areas that would provide suitable habitat for *D. micrantha*.

During the survey in October 2006 ATA Environmental (2007) did not record any rare or priority flora species

within the survey area, which included the area under application.

Given that no rare or priority flora were identified during the spring flora survey, and given the distance to the nearest known population of rare flora, it is not considered likely that the vegetation under application includes, or is necessary for the continued existence of, rare flora.

Methodology ATA Environmental (2007)
DEC site visit 7/12/07
Western Australian Herbarium (1998-)
GIS Database: SAC Bio datasets accessed 4/12/07

(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

There are 18 known occurrences of the threatened ecological community (TEC) 19b (woodlands over sedgeland in Holocene dune swales of the southern Swan Coastal Plain) within the local area (5km radius) with the closest being located approximately 550m to the west of the applied area.

ATA Environmental (2007) inferred the vegetation floristic community type (FCT) of the vegetation under application as 30c2 (woodlands and shrublands on Holocene dunes), which has not been identified as a TEC, however no information was provided by ATA Environmental as to the methods used to make these inferences.

Given that the vegetation under application is not located within a dune swale, it is not considered likely to comprise the nearby TEC 19b. In addition, the vegetation under application has been inferred as FCT 30c2, which is not listed as a TEC. Therefore it is not considered likely that the vegetation under application comprises, or is necessary for the maintenance of, a TEC.

Methodology ATA Environmental (2007)
Gibson et al. (1994)
GIS Database: SAC Bio datasets accessed 4/12/07

(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

The vegetation under application is identified by Heddl et al. (1980) as 'Quindalup Complex' of which there is 47.1% of pre-European vegetation remaining (EPA 2006). The vegetation under application is also part of Beard vegetation association 3048 of which there is 29.3% remaining (Shepherd 2006).

The State Government is committed to the National Objectives Targets for Biodiversity Conservation which includes a target that prevents clearance of ecological communities with an extent below 30% of that present pre-1750 (Commonwealth of Australia 2001).

The remaining Beard vegetation community is below the minimum 30% vegetation present pre-1750 target within the National Objectives for Biodiversity Conservation. There is approximately 60% of pre-European vegetation remaining in the local area (10km radius).

Although the vegetation complexes identified on site have less than the recommended 30% threshold remaining the applied area is considered to be within a constrained area. The EPA (2003) recognises the Perth Metropolitan Region as a 'constrained area', providing for the variation of the minimum % of vegetation complexes remaining to 10% of the pre-European extent. Therefore the proposal is not considered likely to be at variance to this Principle.

	Pre-European (ha)		Current (ha)	Remaining %	% in
reserves/DEC- managed land					
Swan Coastal Plain	1,501,211	579,227	38.6**	15.9	
City of Rockingham	24,326	8,534	35.1*		
Local Area (~10km radius)	19,350	11,900	~60		
Heddl vegetation complex			***		
Quindalup Complex	38,238	18,000	47.1	5.2	
Beard vegetation association 3048	12,100	3,549	29.3	8.5	

* (Shepherd et al. 2001)

** (Shepherd 2006)

***(EPA, 2006)

Methodology Commonwealth of Australia (2001)

DEC Site visit 7/12/07
EPA (2006)
Shepherd (2006)
GIS Databases:
Heddl 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

There are no mapped wetlands or watercourses within the area under application. A Conservation Category Wetland (CCW) is located approximately 300m to the north-east and a series of CCWs are located approximately 290m to the west of the area under application. There are no watercourses in the local area.

In addition, DEC Wetlands Program (2008) identified two unmapped wetland areas within the adjacent lot (application CPS 2200/1), located approximately 150m to the north-west of the applied area.

ATA Environmental (2007) did not identify any wetland obligate vegetation within the area under application, and none was observed during the DEC site visit.

Given the distance to the nearest wetland or watercourse, and that no wetland dependent vegetation was identified on site, it is not considered likely that the vegetation under application is growing in, or in association with, a watercourse or wetland.

Methodology ATA Environmental (2007)
DEC (2008)
GIS Databases:
Geomorphic Wetlands (Classification), Swan Coastal Plain
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 may be at variance to this Principle

The soils within the area under application are part of the Quindalup Qf2 phase, comprising deep uniform calcareous sand, which have a very high and extreme risk of wind erosion, but a low risk of other land degradation such as salinity and water logging (State of Western Australia 2005).

The area under application has no known risk of acid sulphate soils.

Given the sandy soils present on site and the high risk of wind erosion, without appropriate management, it is considered that the proposed clearing may result in appreciable land degradation through wind erosion. The proposal therefore may be at variance to this Principle.

Methodology State of Western Australia (2005)
GIS Databases:
Acid Sulfate Soil Risk Map, Swan Coastal Plain
Salinity Risk LM 25m - DOLA 00

(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 approximately 70m to the west of Bush Forever site 349, which includes Leda Nature Reserve; and 530m to the north of Bush Forever site 356, which includes Cooloongup Lake and Rockingham Lakes Regional Park.

The vegetation under application forms part of a vegetated remnant that is likely to provide an ecological corridor facilitating movement of fauna between Bush Forever site 349 and Bush Forever site 356. The Bush Forever office (2007) has advised that although outside the Bush Forever site 349, the area under application forms an "important greenway link for biodiversity". This ecological corridor is considered to be significant given its location between the railway line and cleared land to the north. The proposed loss of this vegetation may contribute to the cumulative impacts of clearing in the local area, including reduction of ecological corridors for fauna between conservation areas.

While it is not considered likely that the proposed clearing would have a direct impact on the environmental values of the nearby Bush Forever sites and Regional Park, it is considered that the clearing may have an indirect impact on the environmental values of these conservation areas through restricting the movement of

fauna. The proposed clearing therefore may be at variance to this Principle.

Methodology Bush Forever (2007)
GIS Databases:
Bushforever
CALM Managed Lands and Waters
CALM Regional Parks
Swan Coastal Plain Central 20cm Orthomosaic - DLI06

(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 mapped wetland is located 300m to the northeast of the applied area and there are no watercourses mapped in the local area.

The area under application has a low salinity risk and no known acid sulphate soil risk and therefore it is not considered likely that the proposed clearing would cause in a deterioration in groundwater quality through acid sulphate soils or salinity.

The Quindalup sands within the applied area have a low risk of water erosion due to high infiltration rates, and also the low gradient on site. It is therefore not considered likely that the proposed clearing would result in water erosion causing a deterioration in the quality of surface water.

Methodology State of Western Australia (2005)
GIS Database:
Geomorphic Wetlands (Classification), Swan Coastal Plain - DEC
Salinity Risk LM 25m - DOLA 00

(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 300m from the nearest mapped wetland, at an elevation of 5-6 metres. The sandy soils on site have a low risk of water logging (State of Western Australia 2005).

Given the low risk of water logging associated with the soil type, and the slight gradient on site, it is not considered likely that the proposed clearing 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 - DEC
Topographic Contours, Statewide - DOLA 12/09/02

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

Comments

Lot 52 and Lot 2259 Mandurah Road East Rockingham are part of a Native Title Claim however, since they are privately owned the Native Title has been extinguished under the Native Title Act. Therefore the clearing as proposed should not fall under the future acts process of the Native Title Act 1993.

Landcorp does not yet own the land under application and therefore a subdivision application has not been lodged.

The City of Rockingham advised that a development application has not been received for the site. The City considers the vegetation under application to be a good representation of Tuart woodland and given the States commitment to the Tuart conservation strategy they should be retained.

Lot 52 and Lot 2259 Mandurah Road are zoned Industrial in the Metropolitan Region Scheme and are within the East Rockingham IP14 Area. However, the the site does not contain any critical environmental assests.

The area under application is located within the Environmental Protection (Peel Inlet-Harvey Estuary) Policy 1992, an approved policy that aims to limit nutrient loads entering the Peel Harvey Estuary via changes in land use within the catchment. Although the current proposal for industrial development may be considered a change in land use, it is not considered likely to significantly increase the nutrient export from the site. The clearing of native vegetation is not explicitly protected within the EPP and it is not considered that the proposal will result in a significant increase in nutrient export from the site.

The area under application is across the road from application CPS 2200/1 submitted by the same applicant for industrial development.

In a submission Department of Planning and Infrastructure Strategic Biodiversity Planning (Bush Forever 2007) advised that although the area under application is outside Bush Forever site 349, it forms an important greenway link for biodiversity and may contain the Threatened Ecological Community (TEC) 19a. The Bush Forever office advise they have no objections to the clearing permit and would support any vegetation offsets, but recommend DEC Species and Communities Branch be consulted in relation to the potential for the TEC to occur on site.

Methodology Bush Forever (2007)
GIS Database: Native Title Claims

4. Assessor's comments

Comment

The assessable criteria have been addressed and the clearing as proposed is at variance to Principle b; and may be at variance to Principles a, g and h.

5. References

- ATA Environmental (2007) Flora and Vegetation Survey Lots 1, 2 and 52 Mandurah Road, Lot 2259 Dixon Road and Lot 14 Lodge Drive East Rockingham, Version 2. January 2007.
- Bush Forever (2007) Direct interest submission - DEC TRIM ref. DOC42250.
- Commonwealth of Australia (2001). National Targets and Objectives for Biodiversity Conservation 2001-2005, AGPS, Canberra.
- DEC (2007a) Nature Base Fauna Species Profiles - Quenda.http://www.naturebase.net/component/option,com_docman/task,cat_view/Itemid,1288/gid,372/orderby,dmd_atecounter/ascdesc,DESC/
- DEC (2007b) Advice for clearing permit application. Advice to Assessing Officer, Native Vegetation Assessment Branch, received 14 December 2007. Species and Communities Branch, Department of Environment and Conservation, Western Australia. DEC TRIM ref. DOC41732.
- DEC (2008) Advice for clearing permit application. Advice to Assessing Officer, Native Vegetation Assessment Branch, received 15 January 2008. Wetlands Program, Department of Environment and Conservation, Western Australia. DEC TRIM ref. DOC43348.
- 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.
- Gibson, N., Keighery, B., Keighery, G., Burbidge, A. and Lyons, M. (1994) A Floristic Survey of the southern Swan Coastal Plain. Department of Conservation and Land Management, Perth.
- Hedde, E. M., Loneragan, O. W., and Havel, J. J. (1980) Vegetation Complexes of the Darling System, Western Australia. 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.
- Site Visit 7 December 2007, Department of Environment and Conservation (DEC), Western Australia. TRIM ref DOC41520.
- 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 Wednesday 5 December 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)

