



1. Application details

1.1. Permit application details

Permit application No.: 1887/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: City of Bunbury

1.3. Property details

Property: BUNBURY TOWNSITE LOT 929 (COLLEGE GROVE 6230)
LOT 1053 ON PLAN 33287 (DAVENPORT 6230)
Local Government Area: City Of Bunbury
Colloquial name: Road Reserves - Robertson Dve & Somerville Dve

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
4.3		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 et al. 2001).	The proposal involves clearing approximately 4.3 hectares of native vegetation that varies in condition from degraded to excellent (Keighery, 1994).	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	The description of the clearing application area is based on a site inspection conducted by DEC officers on 28 August 2007.
Spearwood Dunes; Karrakatta Complex - Central And South: Open forest of tuart-jarrah-marri (Heddl et al. 1980).	The vegetation under application comprises a variety of banksia-jarrah woodland and wetland heath, with a notably thick under storey that has recovered well from a wildfire that swept through the area approximately 5 years ago (DEC Site Visit, 2007).		
	The area under application is not fenced and current uses (legal and otherwise) include horse riding, trailbikes, walking, rubbish dumping and firewood collection.		

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 proposed clearing of 4.3 hectares is for road construction within a parcel of land vested to the City of Bunbury for the purpose of public road.

The vegetation under application varies in condition between degraded and excellent (Keighery, 1994; DEC Site Visit, 2007). The area neighbours the Manea Park conservation reserve; one of the largest native vegetation remnants in the City of Bunbury. The area is known to contain significant biological values (e.g. wetlands, a threatened flora community, etc.) within a large urban setting (Anne Jennings and Associates, 1999).

The local area (10 km radius) is approximately 30% vegetated with approximately half of that vegetation managed as formal and informal reserves.

The proposed clearing will further fragment the Manea Park conservation area and will potentially interrupt fauna movement of small mammals (DEC 2007).

The proposed clearing may support priority flora and declared rare flora known to occur within the local area (10km radius) and associated with the same soils, hydrology and vegetation types.

The northern portion of the applied area is mapped within the buffer of an identified threatened ecological community 'dense shrublands on clay flats'.

Given the varying condition of the vegetation under application and its potential to maintain a threatened ecological community; fauna connectivity; and rare and priority flora, the area under application may comprise a high level of biological diversity.

Based on the above information, the proposal may be at variance to this Principle.

Methodology DEC (2007)
WAPC (2000);
EPA (2003);
Shepherd et al. (2001);
Keighery (1994);
DEC Site Visit (2007);
Anne Jennings and Associates (1999);
GIS Databases:
- CALM Managed Lands and Waters - CALM 1/6/04;
- Environmentally Sensitive Areas - DoE 30/5/05;
- TEC SAC Biodataset - DEC, 25/06/07;
- TEC Database - DEC
- Bunbury 50cm ORTHOMOSAIC - DLI04

(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 may be at variance to this Principle

The vegetation under application is considered to vary in condition between degraded and excellent (Keighery, 1994) and contains a high diversity of native flora species, with over storey species such as *Banksia attenuata* (Banksia), *Eucalyptus marginata* (Jarrah), *Agonis flexuosa* (Peppermint) and a relatively intact understorey (DEC Site Visit, 2007).

There are several records of threatened and priority fauna within the greater Manea Park (3 km radius) including *Calyptorhynchus baudinii* (Baudins Black Cockatoo; Threatened), *Pseudocheirus occidentalis* (Western Ringtail Possum; Threatened), *Calyptorhynchus banksii naso* (Naso Cockatoo; P3) and *Macropus irma* (Western Brush Wallaby; P4).

DEC Regional Advice (2007) recognises the area under application to be of a structure and composition favoured by Western Ringtail Possums for both drey and feeding habitat. Further advising that the proposed clearing will potentially break connectivity for fauna movement within Manea Park for small fauna species.

Given the significance of the area under application as potential habitat and the impact of fragmentation of the larger Manea Park, the proposed clearing may be significant for the maintenance of fauna and therefore maybe at variance to this clearing principle.

To manage potential impacts a Fauna Management condition will be imposed if clearing is permitted.

Methodology DEC (2007)
Keighery (1994);
DEC Site Visit (2007);
GIS Databases:
- Threatened Fauna SAC Biodataset - DEC, 25/06/07;
- Threatened Fauna Database } DEC;
- Bunbury 50cm ORTHOMOSAIC - DLI04

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

Comments Proposal may be at variance to this Principle

Diuris drummondii (DRF) has been recorded in low-lying depressions in peaty and sandy clay swamps that contain water into summer (Florabase; DEC, 1998). The nearest recorded occurrence is 500m north of the applied area and occurs within the same soil and vegetation type.

DEC Corporate and regional datasets identify that 4 species of priority flora are known to occur within a few 100m of the proposed clearing. Additionally new populations of Declared Rare Flora (DRF) Diuris drummondii have recently been discovered in remnant vegetation of similar vegetation types 300m north of the proposed clearing (DEC, 2007).

Given the proximity and vegetation type of known DRF, the area under application may include or provide habitat for rare flora.

Based on the above information, the proposal may be at variance to this Principle.

To manage potential impact a Flora Management condition will be imposed if clearing is permitted.

Methodology Florabase (1998);
DEC (2007);

GIS Databases:
- DEFL SAC Biodataset } DEC, 25/06/07;
- Geomorphic wetlands (Mgt Categories) - DoW
- Bunbury 50cm ORTHOMOSAIC - DLI04

(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 may be at variance to this Principle

Approximately 85% of the application area is located within the buffered site of an area listed as the threatened ecological community (TEC) 'dense shrublands on clay flats'.

A site inspection by DEC (2007) indicates clearing within the northern portion of the applied area may have significant impacts on its values.

DEC Regional Advice (2007) indicates that given the presence of suitable moist soils, particularly on the northern end of the proposal, there is a reasonable likelihood that the TEC and its component species extend beyond the currently recognised boundary.

Based on the above information, the area under application may comprise, or be necessary for, the maintenance of the TEC and therefore the proposed clearing may be at variance to this Principle.

To mitigate the potential loss of 'dense shrublands on clay flats' community, a condition to offset vegetation values will be imposed if clearing is permitted.

Methodology DEC Site Visit (2007);
DEC (2007)

GIS Databases:
- TEC SAC Biodataset - DEC, 25/06/07;
- TEC Database - DEC;
- Bunbury 50cm ORTHOMOSAIC - DLI04

(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 at variance to this Principle

Pre-European	Current extent	Remaining	% In	
	reserves/CALM (ha)*	(ha)*	(%)*	
			managed land	
IBRA Bioregion -Swan Coastal Plain	1,529,235	657,450	43.0	14
City of Bunbury	56,300	1,688	3.0	
Vegetation type:				

Beard: Unit 6	79,001	18,398	23.3	14.5
Heddle: Karrakatta Complex Central and South	49,935	13,331	26.7	

* (Shepherd et al. 2001)

*** Within the Intensive Landuse Zone

The area is within the Maidens / Preston River Ecological Linkage, as recognised by EPA (2003).

The area under application also lies within the 'Greater Bunbury Regional Constrained Area' of the Swan Coastal Plain. The EPA's objective is to retain at least 10% of the pre-clearing extent of the ecological community in the 'Constrained Area' of the Greater Bunbury Region where greater than 10% of the ecological community remains on the Swan coastal Plain (the natural region) (EPA 2003).

Mapping indicates greater than 10% of Beard Unit 6 and Heddle Karrakatta Complex Central will remain within the constrained area. Additionally, approximately 30% of native vegetation remains within the local area (10km radius).

Given the area is recognised within a regionally significant ecological linkage and may impact on fauna habitat, flora of conservation significance and Threatened Ecological Communities the proposed clearing is considered to be a significant remnant of vegetation within the Greater Bunbury Regional Area and is therefore at variance to this principle.

To mitigate the loss of significant vegetation, a condition to offset vegetation values will be imposed if clearing is permitted.

Methodology Hopkins et al. (2001);
Shepherd et al (2001);
Department of Natural Resources and Environment & Conservation (2002);
EPA (2003);
Heddle et al. (1980);
WAPC (2000);
GIS Databases:
- Heddle Vegetation Complexes -
- Local Government Authorities - DLI 8/07/04;
- Pre European Vegetation - DA 01/01;
- Bunbury 50cm ORTHOMOSAIC - DLI04

(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**
DEC Wetlands Program (2007) advised that the wetland located within the application area is identified in the Geomorphic Wetlands Swan Coastal Plain dataset as a 37.8ha dampland (i.e. seasonally waterlogged basin) which has been assigned to Conservation and Multiple Use category. Clearing will directly impact the Conservation Category Wetland (CCW) located within the application area by clearing approximately 1ha of wetland vegetation. Additionally, wetlands that are to be conserved require a buffer to protect them from potential adverse impacts and maintain ecological processes and functions within the wetland. The width of the buffer should be determined based on the values of the wetland to be protected and the threats posed by the adjacent land use. (50m being the minimum buffer distance recommended by DEC.) No buffer has been provided between the proposed clearing and CCW within Manea Park. Therefore, the dampland is likely to experience degrading processes which would otherwise be mitigated by an appropriate buffer.

Based on the above information, the proposal is at variance to this Principle.

To mitigate the loss of wetland vegetation a condition will be imposed to offset vegetation values if clearing is permitted.

Methodology DEC, Wetlands Program (2007)
GIS databases:
- ANCA, Wetlands - CALM 08/01
- EPP Areas - DEP 06/95
- EPP Lakes - DEP 28/07/03
- Geomorphic Wetlands (Mgt Categories) Swan Coastal Plain - DoE 15/9/04
- Hydrography Linear - DoE 1/2/04
- RAMSAR, Wetlands - CALM 21/10/02
- Bunbury 50cm ORTHOMOSAIC - DLI04

(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 has a low salinity risk (GIS Database) and a groundwater salinity of 500-1000mg/L (GIS Database). Given the above and the scale of the proposed clearing, appreciable land degradation is unlikely to occur.

Methodology GIS databases:
- Salinity Risk LM 25m - DOLA 00.
- Groundwater Salinity, Statewide - 22/02/00

(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 is at variance to this Principle

The area under application is within the Maidens / Preston River Ecological Linkage, as recognised by EPA (2003). It also lays within a conservation category wetland.

There are no formal conservation reserves within 10 km of the area proposed to be cleared. The application area occurs within an informal conservation reserve, Manea Park, vested in the City of Bunbury. Another informal reserve vested to the City, Hay Park, is situated 300m west of the proposed clearing.

Given the proposed clearing is within a conservation category wetland, clearing will directly impact on conservation values and is therefore at variance to this clearing principle.

To mitigate impacts on conservation areas a condition to offset vegetation values will be imposed if clearing is permitted.

Methodology EPA (2003);
GIS Databases:
- CALM Managed Lands and Waters - CALM 1/06/04;
- Register of National Estate - EA 28/01/03;
- System 6 Conservation Reserves - DEP 06/95
- Bunbury 50cm ORTHOMOSAIC - DLI04

(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

There are three perennial swamps directly east of the proposed clearing, coinciding with a conservation category wetland that covers the majority of the applied area.

Groundwater salinities and salinity risk are low and the applied area has been mapped as having a moderate to low acid sulphate soil risk. Clearing of the vegetation is not considered likely to cause deterioration in the quality of surface or underground water; therefore the proposal is unlikely to be at variance to this Principle.

Methodology GIS Databases:
- Hydrographic Catchments, Catchments - DoE 3/4/03
- Acid Sulphate Soil risk map, SCP DOE 01/02/04;
- Salinity Risk LM 25m - DOLA 001

(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 proposed clearing is not considered likely to cause, or exacerbate the incidence or intensity of flooding because of its sandy soils, small scale and the location from the nearest waterway.

Therefore, the proposal is unlikely to be at variance to this Principle.

Methodology GIS Databases:
- Topographic Contours, Statewide - DOLA 12/09/02;
- Bunbury 50cm ORTHOMOSAIC - DLI04

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

Comments

The proposed clearing is to enable construction of an additional road linking the College Grove subdivision to

Robertson Drive.

The proposed road is vested as road reserve and the City of Bunbury advises the proposed road was highlighted in the College Grove Development Structure Plan drafted in 1995 (CoB, 2007).

DEC, Natural Resources Branch (2007) and DEC Wetlands Program (2007) advised that there is some threat to the Conservation Category Wetland (CCW) and subsequently Threatened Ecological Community (TEC). Namely the road surface will create an area of higher frequency and magnitude of runoff, relative to the surrounding area. This could alter the hydroperiod of the wetland, including changes in the size, timing, location and magnitude of inundation. The road mound may also stop water movement by overland flow during heavy rainfall events as it would represent a surface water barrier (unless it was well filtered with culverts). Additionally depending on the level of traffic on the road, large volumes of heavy metals and other pollutants may be channelled into the CCW through runoff. Increased groundwater recharge, due to reduced transpiration and pooling of runoff, could also create a rise in local groundwater levels, which could negatively impact biodiversity assets by creating waterlogging. In no case should stormwater and road runoff be directed into neighbouring wetlands.

Road runoff and drainage associated with the proposed road will be managed through conditions imposed on a clearing permit if granted.

The proposal was considered by the Environmental Protection Authority (EPA) who found that Proposed road runs along the edge of a Threatened or Poorly reserved plant community in an area already disturbed by firebreak. The proposal appears to address dieback, drainage and access issues and will provide a hard edge and management boundary between Manea Park and developed areas. On this basis the proposal can be managed by the Council and would be assessed at the level of informal advice (EPA, 1998). The level of assessment was set as 'not assessed', and 'managed under the provisions of Part V of the Environmental Protection Act 1986 for vegetation clearing' (EPA reference: CRN 126809). The level of assessment was set on 9 August 1998.

Methodology DEC, Natural Resources Branch (2007)
DEC, Wetlands Program (2007)
EPA (1998)
CoB advice (2007);

4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comment
Road construction or maintenance	Mechanical Removal	4.3	Assessment of the clearing application area revealed the proposal: - is at variance to Principles (e), (f) and (h); - may be at variance to Principles (a), (b), (c) and (d); and - is not likely to be at variance to Principles (g), (i) and (j).

5. References

- DEC (2007), Wetlands Program, Department of Environment and Conservation, Western Australia. TRIM Ref: DOC40111.
- Anne Jennings and Associates (1999). Management Plan for Manea Park, Brunswick Junction. TRIM Ref: DOC22425.
- DEC (2007), Natural Resources Branch, Supervising Hydrologist/Hydrogeologist, Department of Environment and Conservation, Western Australia. TRIM Ref: DOC44254.
- DEC (2007), South West Regional Advice, Regional Nature Conservation Leader, Department of Environment and Conservation, Western Australia. TRIM Ref: DOC39958..
- DEC Site Visit (2007). Department of Environment and Conservation, Western Australia. TRIM Ref: DOC32888.
- EPA (1998), College Grove Stage 3 (Draft) Structure Plan (Centenary Rd) Bussell Hwy, Bunbury, Environmental Protection Authority. TRIM Ref. CRN63557.
- EPA (2003). Greater Bunbury Regional Scheme - Bulletin No. 1108, September 2003.
- 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, 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.
- WAPC (2000). Greater Bunbury Regional Scheme - Scheme Report, August 2000.

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)

