



1. Application details

1.1. Permit application details

Permit application No.: 2481/1
 Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Urban Resources Pty Ltd

1.3. Property details

Property: ROAD RESERVE (WEST COOLUP 6214)
 Local Government Area: Shire Of Murray
 Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
0.3		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
Hedde Southern River Complex - Open woodland of <i>Corymbia calophylla</i> , <i>Eucalyptus marginata</i> and <i>Banksia</i> spp. with fringing woodland of <i>E. rudis</i> and <i>Melaleuca raphiophylla</i> along creek beds (Hedde et al. 1980).	The proposal is to clear 0.3ha of native vegetation over an area ~400m long and 7m wide for the purpose of road construction.	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	The vegetation clearing description is based on information obtained in the Vegetation Survey and Rare Flora Search, Road Reserve (Site Access) Lot 101 Old Bunbury Road Kooljerrenup, Shire of Murray (Weston 2008).
Beard Vegetation Association 1000: Mosaic: Medium forest; jarrah-marri / low woodland; banksia / low forest; tea tree (Shepherd 2006).	The area of vegetation under application comprises two different vegetated areas. The northern portion of the vegetation under application (from Herron Point Rd south to 100m) comprises <i>Eucalyptus marginata</i> woodland, with <i>Corymbia calophylla</i> and <i>Allocasuarina fraseriana</i> , over <i>Kunzea glabrescens</i> Tall Open Shrub and a layer of herbaceous plants, including weeds (Weston 2008). The vegetation within this area is considered to be in a good to degraded condition (Weston 2008).	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994)	
	The southern portion of the vegetation under application comprises <i>Eucalyptus marginata</i> Open Forest and <i>Banksia attenuata</i> Low Woodland, over <i>Hibbertia hypericoides</i> Low Shrubland to Open Low Heath over a variable mixed Herb Land with <i>Dampiera linearis</i> , <i>Conostylis aculeata</i> , <i>Patersonia occidentalis</i> and <i>Stylidium</i> spp. There are also <i>Acacia pulchella</i> , <i>Macrozamia riedlei</i> ,		

Xanthorrhoea preissii and scattered Allocasuarina fraseriana and Banksia grandis (Weston 2008). The vegetation within this area is considered to be in excellent to very good condition (Weston 2008).

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 vegetation under application comprises two different vegetated areas. The northern portion of the vegetation under application comprises Eucalyptus marginata woodland over Kunzea glabrescens Tall Open Shrub, with a layer of herbaceous plants (Weston 2008). The vegetation within this area is considered to be in a good to degraded condition (Weston 2008)

The southern portion of the vegetation under application comprises Eucalyptus marginata Open Forest and Banksia attenuata Low Woodland, over Low Shrubland to Open Low Heath with a mixed Herb Land (Weston 2008). The vegetation within this area is considered to be in excellent to very good condition (Weston 2008).

Aerial mapping of the applied area shows similarities in the vegetation condition and structure to the vegetation found within the adjacent Lot 101. Flora and vegetation surveys undertaken in 2007 of Lot 101 identified the upland vegetation community adjacent to the applied area as resembling Floristic Community Type 21a: Central Banksia attenuata-Eucalyptus marginata woodlands (Weston 2007). Approximately 65 native flora species were recorded across the property during the 2007 surveys (Weston 2007).

Photographs of the vegetation under application (Weston 2008) indicate that the vegetation has a diverse shrub and herb understorey, particularly in areas of good and better condition. Given the similar composition and structure of the applied area to vegetation within Lot 101, presence of vegetation in very good to excellent condition and the diversity of flora within the adjacent lot, the vegetation under application may comprise a high level of floral diversity.

In addition, the vegetation under application comprises suitable habitat for local indigenous fauna, including species of conservation significance. Therefore, the proposed clearing may be at variance to this Principle.

Methodology

References:

- Weston (2007)
- Weston (2008)

GIS Databases:

- Swan Coastal Plain South 20cm Orthomosaic - DLI06
- Topographic Contours, Statewide

(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 comprises Eucalyptus marginata woodland over Kunzea glabrescens Tall Open Shrub, with a layer of herbaceous plants, and Eucalyptus marginata Open Forest-Banksia attenuata Low Woodland over Low Shrubland to Open Low Heath with a mixed Herb Land in good to degraded, and excellent to very good condition respectively (Weston 2008).

Five fauna species of conservation significance have been recorded within the local area (10km radius), being:

- Chuditch (Dasyurus geoffroii)(Vulnerable);
- Baudin's Black Cockatoo (Calyptorhynchus baudinii)(Endangered) (historic record);
- Masked Owl (Tyto novaehollandiae novaehollandiae)(Priority 3);
- Peregrine Falcon (Falco peregrinus)(Other specially protected fauna);
- Water rat (Hydromys chrysogaster) (Priority 4) (historic record); and
- Western Ringtail Possum (Pseudocheirus occidentalis) (Vulnerable).

Of the above species, the vegetation under application is considered to comprise suitable habitat for Chuditch, Masked Owl, Peregrine Falcon and the Western Ringtail Possum due to the presence of suitable nesting trees which may contain hollows, foraging plants, areas of dense understorey with leaf litter and close proximity to nearby wetland areas. Other ground-dwelling species such as Quenda (Isodon obesulus fusciventer) (Priority 5) are also considered likely to utilise the vegetation under application in areas of dense understorey and leaf litter for foraging, nesting and protection from predators.

In addition, whilst the nearest known record of Baudin's Black Cockatoo is historic, this species has recently been recorded within 20km of the applied area, and may also utilise parts of the vegetation under application

due to the presence of suitable nesting trees and foraging plants.

The vegetation under application is located within a large (~450ha) vegetated remnant within an extensively cleared area on the eastern side of the Peel Harvey Estuary, on the Swan Coastal Plain.

Whilst the area under application is relatively small (0.3ha) given the presence of suitable habitat for local indigenous fauna including species of conservation significance, and the applied area's location within a large and locally significant remnant, the vegetation under application is considered to comprise part of a significant habitat for fauna indigenous to Western Australia.

Fauna management conditions are considered to mitigate the clearing on conservation significant fauna.

- Methodology** **References:**
- DEC (2007)
 - Weston (2008)
- GIS Databases:**
- Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain
 - Interim Biogeographic Regionalisation of Australia
 - SAC Bio Datasets, Accessed 07/05/2008
 - Swan Coastal Plain South 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

Seven species of rare flora are known to occur within the local area (10km radius), being:

- Caladenia huegelii;
- Diuris drumondii;
- Diuris purdiei;
- Drakaea elastica;
- Drakaea micrantha;
- Synaphea sp. Fairbridge Farm; and
- Synaphea stenoloba.

The closest known population of rare flora is that of *Drakaea elastica* located approximately 530m from the vegetation under application.

Of the rare flora species known to occur within the local area *Caladenia huegelii*, *Drakaea micrantha* and *Drakaea elastica* are known to occur within the same vegetation community and soils as the area of vegetation under application.

A field flora survey undertaken in October 2007 did not locate any rare flora within the area of vegetation under application (Weston 2008). As the abovementioned three species are known to flower within October (Western Australian Herbarium 1998-), it is considered likely that these species would have been observed during the time of the survey. Therefore, the vegetation under application is not considered likely to include, or be necessary for the continued existence of, rare flora.

- Methodology** **References:**
- Western Australian Herbarium (1998-)
 - Weston (2008)
- GIS Database:**
- Hedde Vegetation Complexes
 - SAC Bio Datasets, Accessed 07/05/2008
 - Soils, Statewide

(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 two Threatened Ecological Communities (TEC) known to occur within the local area, being Floristic Community Types (FCT) 3b: *Corymbia calophylla* - *Eucalyptus marginata* woodlands on sandy clay soils of the southern Swan Coastal Plain, and FCT 10a: Shrublands on dry clay flats, located 4.3km and 4.0km from the area under application respectively.

A flora and vegetation survey identified the area of vegetation under application as comprising *Eucalyptus marginata* woodland over *Kunzea glabrescens* Tall Open Shrub, with a layer of herbaceous plants, and *Eucalyptus marginata* Open Forest-Banksia attenuata Low Woodland over Low Shrubland to Open Low Heath with a mixed Herb Land (Weston 2008).

Given the description of the vegetation under application and distance to the closest known occurrences of

TEC, the vegetation under application is not considered likely to comprise the whole or a part of, or be necessary for the maintenance of a threatened ecological community.

Methodology References:
 - Gibson et al. (1994)
 - Weston (2008)
 GIS Database:
 - SAC Bio Datasets, Accessed 18/05/2008

(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 may be at variance to this Principle

The vegetation under application is located within a large (~450ha) vegetated remnant within an extensively cleared area on the eastern side of the Peel Harvey Estuary on the Swan Coastal Plain, and comprises Eucalyptus marginata woodland over Kunzea glabrescens Tall Open Shrub, with a layer of herbaceous plants, and Eucalyptus marginata Open Forest-Banksia attenuata Low Woodland over Low Shrubland to Open Low Heath with a mixed Herb Land in good to degraded, and excellent to very good condition respectively (Weston 2008).

The area of vegetation under application is associated with Heddle's Southern River vegetation complex and Beard Vegetation Association 1000 which have 19.8% and 25.7% pre-European vegetation extent remaining (EPA 2006, 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-European extent (Commonwealth of Australia 2001).

Both vegetation communities associated with the area under application are below the State Government's biodiversity conservation target of 30%. In addition, the local area is extensively cleared with only 19.0% vegetation cover remaining within a 10km radius, and only ~15.0% vegetation extent remaining within the Swan Coastal Plain portion of the Shire of Murray.

Whilst the area under application is relatively small (0.3ha) and linear in shape, given that the vegetation is representative of both under-represented Beard and Heddle vegetation communities and is located within a locally significant remnant, the vegetation under application may be considered to comprise vegetation that is significant as a remnant of native vegetation in an extensively cleared area.

	Pre-European (ha)	Current (ha)	Remaining %	% in reserves
Bioregion:				
Swan Coastal Plain (SCP)*	1,501,456	571,758	38.1	
Local Government:				
Shire of Murray**	181,526	98,552	54.3	
Shire of Murray (SCP)****	75,400	12,000	15.0	
Local Area (~10km radius)****	31,400	5,978	19.0	
Vegetation Complexes:				
Heddle Southern River***	57,979	11,501	19.8	1.5
Beard Association 1000*	99,841	25,683	25.7	16.8

* (Shepherd 2006)
 ** (Shepherd et al. 2001)
 *** (EPA 2006)
 **** (Approximate figures)

Methodology References:
 - Commonwealth of Australia (2001)
 - EPA (2006)
 - Heddle et al. (1980)
 - Shepherd (2006)
 - Shepherd et al. (2001)
 - Weston (2008)
 GIS Databases:
 - Heddle Vegetation Complexes
 - NLWRA, Current Extent of Native Vegetation
 - SAC Bio Datasets, Accessed 20/05/2008

(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 wetlands or watercourses mapped within the area of vegetation under application. The closest surface hydrological feature being a Conservation Category Wetland located 110m north east of the vegetation under application. The closest watercourse is a major tributary to the Harvey Estuary located ~1.4km west of the vegetation under application.

The vegetation under application is located mid slope in the landscape in relation to the closest surface hydrological feature, with an elevation 5-10m higher than that mapped at the extent of the wetland.

The vegetation under application comprises Eucalyptus marginata woodland over Kunzea glabrescens Tall Open Shrub, with a layer of herbaceous plants in the northern portion, and Eucalyptus marginata Open Forest-Banksia attenuata Low Woodland over Low Shrubland to Open Low Heath with a mixed Herb Land in the southern portion (Weston 2008).

Whilst the northern portion of the applied area comprises vegetation known to occur within seasonally waterlogged and winter wet areas, aerial imagery shows distinct vegetation change between the adjacent wetland and its surrounding vegetation, to the vegetation under application. Given this, the distance to the nearby wetland and the applied area's location mid slope in the landscape, the vegetation under application is not considered to be growing in, or in association with, an environment associated with a watercourse or wetland.

Methodology Reference:
- Weston (2008)
GIS Databases:
- Geomorphic Wetlands (Classification), Swan Coastal Plain
- Hydrography, linear (hierarchy)
- Swan Coastal Plain South 20cm Orthomosaic - DLI06
- Topographic Contours, Statewide

(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 vegetation under application is associated with sandy dunes with intervening sandy and clayey swamp flats, and chief soils of leached sands, sometimes with a clay D horizon below 5 ft, on the dunes and sandy swamps (Northcote et al. 1960-68).

The soils on site are known to have a high risk of wind erosion and eutrophication given their loose, sandy nature, high permeability and low nutrient holding capacity. However, given the small area proposed to be cleared (0.3ha), linear nature of the clearing and the proposal's location within a large area (~450ha) of remnant vegetation, the proposed clearing is not considered likely to cause appreciable land degradation.

Methodology Reference:
- Northcote et al. (1960-68)
GIS Database:
- Soils, Statewide

(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 vegetation under application is located in close proximity to Nine Mile Lake Nature Reserve, which is located ~20m north of the applied area, on the opposite side of Herron Point Road.

Whilst the vegetation under application comprises vegetation in good or better condition with (Weston 2008) with fauna habitat values, given the relatively small and thin, linear nature of the area applied to be cleared (0.3ha over 400m length) and its isolation from the two nearby conservation areas by a main road, the proposed clearing is not considered likely to have an impact on the environmental values of these nearby conservation areas.

Methodology Reference:
- Weston (2008)
GIS Databases:
- CALM Managed Lands and Waters

- Geomorphic Wetlands (Management Categories), Swan Coastal Plain
- Road Centrelines
- Swan Coastal Plain South 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

There are no wetlands or watercourses mapped within the area of vegetation under application. The closest surface hydrological feature is a Conservation Category Wetland located 110m north east of the vegetation under application. The closest watercourse is a major tributary to the Harvey Estuary located ~1.4km west of the vegetation under application.

There are no Public Drinking Water Source Areas within the applied or local area (10km radius).

The area of vegetation under application is located mid-slope in the local landscape, and is associated with sandy dunes with intervening sandy and clayey swamp flats, and chief soils of leached sands, sometimes with a clay D horizon below 5 ft, on the dunes and sandy swamps (Northcote et al. 1960-68).

Whilst the soils on site are known to have a low nutrient retention capacity and may impact on eutrophication on nearby water bodies, given the relatively small area proposed to be cleared (0.3ha), distance to nearby hydrological features and the proposal's location within a large area (~450ha) of remnant vegetation, the proposed clearing is not considered likely to cause deterioration in the quality of surface or underground water.

Methodology Reference:

- Northcote et al. (1960-68)
- GIS Databases:
- Geomorphic Wetlands (Management Categories), Swan Coastal Plain
 - Hydrography, linear (hierarchy)
 - Public Drinking Water Source Areas (PDWSAs)
 - Soils, Statewide
 - Swan Coastal Plain South 20cm Orthomosaic - DLI06
 - Topographic Contours, Statewide

(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 of vegetation under application is located mid-slope in the local landscape, and is associated with sandy dunes with intervening sandy and clayey swamp flats, and chief soils of leached sands, sometimes with a clay D horizon below 5 ft, on the dunes and sandy swamps (Northcote et al. 1960-68).

The closest surface hydrological feature is a Conservation Category Wetland located 110m north east of the vegetation under application.

Whilst the soils on site are known to have a high permeability which may result in water logging of nearby low-lying areas, given the relatively small area proposed to be cleared (0.3ha), distance to nearby hydrological features and the proposal's location within a large area (~450ha) of remnant vegetation, the proposed clearing is not considered likely to cause, or exacerbate, the incidence or intensity of flooding.

Methodology Reference:

- Northcote et al. (1960-68)
- GIS Databases:
- Geomorphic Wetlands (Management Categories), Swan Coastal Plain
 - Soils, Statewide
 - Swan Coastal Plain South 20cm Orthomosaic - DLI06
 - Topographic Contours, Statewide

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

Comments

The application is to clear 0.3ha of native vegetation to construct a road to access Lot 101 Old Bunbury Road for sand extraction activities. A clearing application is currently being considered by the Department for the proposed sand extraction (Reference CPS 2113/1).

The applicant has advised that access to the site needs to be through the unnamed road reserve due to safety concerns (curvature and topography of the road) with vehicles entering directly onto Old Bunbury Road.

The Shire of Murray (2008) has previously advised the applicant that the Shire has no objections to the

proposed clearing, subject to the following conditions:

- The clearing is to be minimal;
- Where practicable the access track is to follow the existing track along the western boundary of the road reserve, avoiding any significant trees or trees with hollows and a maximum of 7m width is to be cleared;
- The road reserve is to be rehabilitated to a standard acceptable to the Shire once the extractive activities have ceased; and
- A rehabilitation plan is to be prepared and implemented to the satisfaction of the Manager of Environmental Health.

The area of vegetation under application is located within the Environmental Protection (Peel Inlet-Harvey Estuary) Policy 1992 area. This Policy aims to limit nutrient loads entering the Peel Harvey Estuary through changes in land use within the catchment (Government of Western Australia 1992). As the proposed clearing is relatively small (0.3ha) the removal of this vegetation is not considered likely to significantly increase nutrient export from the site.

The area of vegetation under application is located within a Native Title Claim area. The applied area is contained within a road reserve that is managed by, or vested in the Shire of Murray. Therefore the clearing as proposed does not fall under the future acts process under the Native Title Act 1993.

The northern portion of the area of vegetation under application is located within an Aboriginal Site of Significance (Nine Mile Lake, Site 3686). It is the responsibility of the applicant to ensure that no sites are damaged through the clearing process.

Methodology

References:

- Government of Western Australia (1992)
- Shire of Murray (2008)

GIS Databases:

- Aboriginal Sites of Significance
- Clearing Instruments
- EPP, Areas
- Native Title Claims

4. Assessor's comments

Comment

The assessable criteria have been addressed and the clearing as proposed may be at variance to Principle (a), (b) and (e).

5. References

- Commonwealth of Australia (2001) National Targets and Objectives for Biodiversity Conservation 2001-2005, AGPS, Canberra.
- DEC (2007) DEC Fauna Habitat Notes.xls. February 2007. Department of Environment and Conservation (DEC), Western Australia.
- 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. Western Australian Department of Conservation and Land Management and the Western Australian Conservation Council.
- Government of Western Australia (1992) Environmental Protection (Peel Inlet-Harvey Estuary) Policy 1992. Western Australian Government Gazette, 11 December, 1992, pp 1-9.
- 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.
- 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. (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.
- Shire of Murray (2008) Correspondence to the applicant re clearing in Road Reserve, Lot 101 Old Bunbury Road, West Coolup. Dated 04/04/2008 (TRIM Ref. DOC50972).
- Western Australian Herbarium (1998-). FloraBase - The Western Australian Flora. Department of Environment and Conservation. <http://florabase.calm.wa.gov.au/> (Accessed 07/05/2008).
- Weston, A.S. (2007) Rare Flora Search, Lot 101 Old Bunbury Road, Kooljerrenup, West Coolup, Shire of Murray. Prepared for RPS Group. 6 December 2007 (TRIM Ref. DOC41222).

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)