



1. Application details

1.1. Permit application details

Permit application No.: 801/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: Shire of Waroona
Postal address: Po Box 20 Waroona WA 6215
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1.3. Property details

Property: LOT 982 ON PLAN 89333 (WAROONA 6215)
LOT 505 ON PLAN 302681 (WAROONA 6215)
LOT 100 ON DIAGRAM 91796 (WAROONA 6215)
MURRAY LOCATION 1619 (WAROONA 6215)

Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
1.5		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 1000: Mosaic: Medium forest; Jarrah - Marr / low Woodland; Banksia / Low Forest; tea tree (<i>Melaleuca</i> spp.)	The proposal includes clearing of 1.5 hectares for the construction of a road in association with the proposed realignment of Coronation Road.	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994)	The vegetation description was obtained from a flora survey conducted by Mattiske Consulting Pty Ltd (2006) and during a site visit conducted by DEC officers on Wednesday 5 July 2006.
Hedde Vegetation Complex: - Southern River Complex - Open woodland of <i>E. calophylla</i> - <i>E. marginata</i> - <i>Banksia</i> species with fringing woodland of <i>E. rudis</i> - <i>M. raphiophylla</i> along creek beds. - Serpentine River Complex - Closed scrub of <i>Melaleuca</i> species and fringing woodland of <i>E. rudis</i> - <i>M. raphiophylla</i> along streams	The western portion of the applied vegetation comprises woodland of <i>Banksia</i> spp., <i>Allocasuarina fraseriana</i> , <i>Eucalyptus marginata</i> , <i>Nuytsia floribunda</i> over <i>Kunzea glabrescens</i> , <i>Acacia puchella</i> , <i>Dasyogon bromeliifolius</i> and <i>Hibbertia hypercolides</i> , which is in excellent condition (Mattiske Consulting 2006). The applied vegetation immediately to the west of the open water comprises 'a thicket of <i>Astartea scoparia</i> , <i>Pteridium esculentum</i> , <i>Aotus gracillima</i> and <i>Melaleuca teretifolia</i> in a 5m band and a 5m stretch of open sedgeland over exotic herbs and grasses' which is also an excellent condition (Mattiske Consulting 2006). The vegetation under application to the east of the open water comprises low sedgeland and then low <i>Melaleuca</i> woodland bounded by a thicket of <i>Astartea scoparia</i> over <i>Juncus pallidus</i> . This portion of vegetation is most similar to Floristic Community Type 12 - <i>Melaleuca teretifolia</i> and/or <i>Astarea</i> aff. <i>Fascicularis</i> shrublands (Mattiske Consulting 2006). The vegetation east of the lake in the paddock has basic structure intact. Overall Mattiske Consulting (2006) described the wetland vegetation as being in very good to excellent condition.		

Hedde et al.(1980)
Shepherd et al.(2001)

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 at variance to this Principle**

The vegetation under application is described by Mattiske Consulting (2006) as having an overall condition of very good to excellent, with 55 native flora species being identified within the applied area during a spring flora survey.

The area under application also contains both upland and wetland habitats and was identified as having the potential to support a range of indigenous fauna, including species of conservation significance, such as Quenda and the water rat, with numerous waterbirds being observed during the fauna survey (Bamford 2006).

Given that the vegetation under application provides significant habitat for fauna and is located on the coastal plain east of the estuary within a landscape that is extensively cleared, it is considered that it comprises a high level of biodiversity, especially in the local context.

The Shire of Waroona has proposed offsets including fauna protection measures, the revegetation of corridors between the wetland and upland vegetation, and fencing and protection of remnants in adjoining land.

Methodology DEC site visit 5/7/06

Officer Megan Stalker

(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**

Bamford (2006) conducted a Level 1 fauna assessment (desk-top study and site visit) for the area under application and found that the site could potentially support 22 mammal, 128 bird, 33 reptile and 10 frog species. This includes species that are closely associated with the wetland, woodland and farmland environments, and includes species of conservation significance.

A number of waterbirds have the potential to utilise the wetland within and surrounding the area under application, with Bamford (2006) recording over 250 individuals from 9 different species during a site inspection. The wetland is a permanent waterbody, and as such has the potential to be an important habitat for waterbirds and other wetland dependent fauna species during the summer months when other wetlands have dried out.

Bamford (2006) advises that bird species of conservation significance, such as the Peregrine Falcon, Great Egret, Carnaby's Cockatoo, Red-tailed Black Cockatoo and Rainbow Bee-eater, are likely to be regular visitors to the area under application, but are not likely to rely on the site.

The area under application also has the potential to support a number mammal species including the Rakali and the Quenda, which are both species of conservation significance. The Rakali is a native water rat that relies on dense riparian vegetation for shelter. Similarly, the Quenda inhabits the dense vegetation around wetland areas, with Bamford (2006) reporting that this species appears to be abundant on site. The vegetation under application surrounding the wetland is described by Mattiske Consulting (2006) as being in very good to excellent condition and contains a dense low understorey that would be suitable for these species. The dense vegetation surrounding the wetland within the area under application is especially important for these species given the extensively cleared surrounding landscape and the lack of corridors to other suitable habitat.

The Western False Pipistrelle is also a potential resident within the area under application, and a number of other fauna species of local conservation significance are likely to be regular visitors to the applied area (Bamford 2006).

The area under application is located within a landscape that has been historically extensively cleared for agriculture, and has the potential to support a range of indigenous fauna, including species of conservation significance and including those dependent on wetland ecosystems. It is therefore considered that the vegetation under application comprises significant habitat for indigenous fauna.

The Shire of Waroona has proposed offsets including the installation of fauna protection measures along the length of the realignment route including fencing and fauna underpass corridors, and the revegetation of corridors between the wetland and upland vegetation.

Methodology Bamford (2007)

DEC site visit 5/7/06

Officer Megan Stalker

(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

Within the local area (10km of application) there are three recorded species of Declared Rare Flora (DRF), the closest of which is located approximately 1.5km to the northwest of the applied area. There are also 11 Priority Flora species, with *Caladenia speciosa* (P4) previously recorded within the Coronation Road reserve adjacent to the western portion of the applied area.

No DRF species or Priority flora species were identified within the area under application during a spring flora survey conducted by Matiske Consulting (2006).

Given that a no DRF or Priority flora species were identified during a spring flora survey, it is not considered likely that the vegetation under application includes, or is necessary for the maintenance of the continued in situ existence of rare flora.

Methodology Biodiversity Coordination Section (2007)
Matiske Consulting (2006)
GIS Databases:
Declared Rare and Priority Flora List - CALM 01/07/05
Soils, Statewide - DA 11/99

Officer Megan Stalker

(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 eight known occurrences of Threatened Ecological Communities (TEC) within the local area (10km radius of the application), the nearest of which is located approximately 5.7km to the southwest of the area under application.

Matiske Consulting (2006) reported that the vegetation under application is most similar to Floristic Community Types 21a and 12, neither of which are listed as a TEC.

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

Methodology Matiske Consulting (2006)
GIS Database: Threatened Ecological Communities - CALM 12/4/05

Officer Megan Stalker

(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

Hedde *et al.* (1980) defines the western portion of the area under application as Southern River Complex, of which there is 19.8% of pre-European extent remaining and which is described as being of 'vulnerable' status for biodiversity conservation (Department of Natural Resources and Environment 2002). Hedde *et al.* (1980) defines the eastern portion of the area under application as Serpentine River Complex, of which there is 10.6% of pre-European extent remaining and which is also described as 'vulnerable' (Department of Natural Resources and Environment 2002).

The Southern River Complex and the Serpentine River Complex currently have 1.5% and 2.8% vegetation respectively (Hedde *et al.* 1980) in secure tenure, with JANIS (1997) recommending that 15% of the pre-1750 distribution of each vegetation ecosystem should be protected in a comprehensive, adequate and representative reserve system.

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 (Department of Natural Resources and Environment, 2002; EPA, 2000). Beyond this value, species extinction is believed to occur at an exponential rate and any further clearing may have irreversible consequences for the conservation of biodiversity and is therefore not supported.

The vegetation under application is considered to be in a very good to excellent condition with Matiske Consulting (2006) advising that the vegetation under application "is regionally significant according to the criteria outlined by Environmental Protection Authority (2003) because it represents a remnant of the Serpentine River vegetation complex, most of which has been cleared". In addition the area under application is located on the coastal plain east of the estuary, which has been historically extensively cleared for agriculture, and therefore the vegetation under application is considered to be significant as a remnant.

The Shire of Waroona has proposed offsets including the fencing and protection of vegetation remnants, and revegetation and weed management of land adjacent to the proposed realignment.

	Pre-European (ha)	Current (ha)	Remaining %	Conservation status***	% in reserves
Swan Coastal Plain	1,529,235	657,450	43.0*	Depleted	
Shire of Waroona	83,508	50,761	60.8*	Least concern	
Local Area (~10km radius)					
Hedde vegetation complex			**		
Southern River	57,979	11,501	19.8%*	Vulnerable	1.5
Serpentine River	19,855	2,103	10.6	Vulnerable	2.8
Beard vegetation associations					
1000	119,340	29,396	24.6*	Vulnerable	13.0

* (Shepherd et al. 2001)

** (EPA, 2003)

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

Methodology Department of Natural Resource and Environment (2002)
EPA (2000)
Hedde *et al.* (1980)
Mattiske Consulting (2006)
Shepherd et al. (2001)
GIS Databases:
Hedde Vegetation Complexes - DEP 21/06/95
Pre-European Vegetation - DA 01/01

Officer Megan Stalker

(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

There are a number of wetlands within the local area (10km radius of the application), with the area under application being located within a multiple use wetland with standing water. The standing water is hydrologically linked with a wetland that has been identified under the *Environmental Protection (Swan Coastal Plain Lakes) Policy 1992*, located 50m north of the area under application.

A number of watercourses are also located within the local area, including the Waroona Drain, which is located 30m to the east, and the Harvey River which is located approximately 7km to the southwest.

Mattiske Consulting (2006) reported during their spring flora survey that the vegetation under application includes wetland dependent vegetation such as *Metateuca teretifolia*, *Juncus pallidus*, and *Aotus gracillima*.

Given that a portion of the vegetation under application is situated within a multiple use wetland, and that wetland dependent vegetation was observed during the flora survey, it is considered that the vegetation under application is growing in association with a wetland. The proposal is therefore considered to be at variance to this Principle.

The Shire of Waroona has proposed offsets and management measures including revegetation, fencing and protection of land adjoining the proposed realignment.

Methodology Mattiske Consulting (2006)
GIS Databases:
EPP, Lakes - DEP 1/12/92
EPP, Wetlands 2004 (DRAFT) - DOE 21/7/04
Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain - DOE 15/9/04
Hydrography, linear (hierarchy) - DOE 13/4/05

Officer Megan Stalker

(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

Soils within the applied area are part of the Bassendean Dune System and are comprised of grey sands. These soils have a high risk of waterlogging and water erosion, and a very high risk of phosphorus export (State of Western Australia 2005). The area under application also has a moderate to low risk of acid sulphate soils and a nil to low salinity risk. Acid sulphate soils are not likely to be disturbed given that the road will be constructed by importing fill, rather than excavating.

Although the removal of vegetation itself is not likely to cause waterlogging, if the construction of the road does not adequately address drainage issues to ensure the works do not significantly impact on the hydrology of the

wetland, this could result in localised waterlogging within the waterbodies.

Given that the proposed road realignment has the potential to result in waterlogging; it is considered that the proposal may result in appreciable land degradation.

If a permit was to be granted the assessing officer recommends that conditions be imposed requiring the preparation and implementation of a construction plan including the adequate management of drainage in the wetland to minimise the risk of waterlogging.

Methodology State of Western Australia (2005)
GIS Databases:
Acid Sulfate Soil Risk Map, SCP - DOE 04/11/04
Salinity Risk LM 25m - DOLA 00
Soils, Statewide - DA 11/89

Officer Megan Stalker

(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**

Buller Nature Reserve is located 2.4km south and Kooljerrenup Nature Reserve is located approximately 10km north west of the area under application. Due to the relatively small area under application and distance to the Buller Nature Reserve, it is considered unlikely that the clearing would have a direct impact on the environmental values of this conservation, or indirectly affect the conservation area by impacting upon existing corridors.

The proposed route for the Coronation Road realignment passes approximately 50m to the south of a wetland identified under the *Environmental Protection (Swan Coastal Plain Lakes) Policy 1992*, and through a multiple use wetland with standing water. Although the proposal is not likely to directly impact the EPP Lake, Mattiske Consulting (2006) advised that 'any changes to drainage patterns as a result of road construction could impact on wetland plants within the EPP'. If the construction of the road does not adequately address drainage issues to ensure the works do not significantly impact on the hydrology of the EPP Lake, the result may be flooding or drying of the EPP, impacting its environmental values.

Given that the proposal may impact the environmental values of the nearby conservation area and it is therefore considered that it may be at variance to this Principle.

If a permit was to be granted the assessing officer recommends that conditions be imposed requiring the preparation and implementation of a construction plan including the adequate management of drainage in the wetland to minimise any impact on the EPP Lake.

Methodology Mattiske Consulting (2006)
GIS Databases:
CALM Managed Lands and Waters - CALM 1/07/05
EPP, Wetlands 2004 (DRAFT) - DOE 21/7/04

Officer Megan Stalker

(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 at variance to this Principle**

The area under application has a nil to low salinity risk and a moderate to low risk of acid sulphate soils, although acid sulphate soils are not likely to be disturbed given that the road will be constructed by importing fill, rather than excavating. The area under application is not located within a Public Drinking Water Source Area.

The eastern portion of the area under application is situated within a multiple use wetland with standing water. The standing water of the wetland is hydrologically linked to a wetland identified under the *Environmental Protection (Swan Coastal Plain Lakes) Policy 1992*, located 50m north of the area under application.

The proposed road will be constructed through the wetland, which will result in temporary sedimentation and deterioration in quality of the surface water. Long term sedimentation of the waterbody also may result if the fill associated with the road is not adequately managed. In addition, if adequate drainage measures are not implemented, the hydrology of the entire wetland, including the EPP Lake, may be altered. This may affect surface water quality of the wetland by impacting flows.

Given that the proposed road construction through the wetland will result in temporary, and may cause longer term sedimentation of the surface water, and may alter the hydrology, it is considered that the proposal will cause deterioration in the quality of surface water.

If a permit was to be granted the assessing officer recommends that conditions be imposed requiring the

preparation and implementation of a construction plan including the adequate management of drainage of the wetland and the fill associated with the road construction to minimise impacts on the wetland.

Methodology GIS Databases:
EPP, Lakes - DEP 1/12/92
Hydrographic Catchments - Subcatchments - DOE 23/3/05
Hydrography, linear (hierarchy) - DOE 13/4/05
Public Drinking Water Source Areas (PDWSAs) - DOW

Officer Megan Stalker

(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 may be at variance to this Principle

The area under application is located at an elevation of 15-20 metres and a portion is located within a multiple use wetland with standing water. The grey sands identified on site have a high risk of waterlogging (State of Western Australia 2005).

If the construction of the road does not adequately address drainage issues to ensure the works do not significantly impact on the hydrology of the wetland the result may be localised flooding. The proposal therefore may be at variance to this Principle.

If a permit was to be granted the assessing officer recommends that conditions be imposed requiring the preparation and implementation of a construction plan including the adequate management of drainage in the wetland to minimise the risk of waterlogging.

Methodology State of Western Australia (2005)
GIS Databases:
EPP, Wetlands 2004 (DRAFT) - DOE 21/7/04
Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain - DEC
Topographic Contours, Statewide - DOLA 12/09/02

Officer Megan Stalker

Planning instrument, Native Title, RIWI Act Licence, EP Act Licence, Works Approval, Previous EPA decision or other matter.

Comments

During the flora survey by Mattiske Consulting (2006) *Zantedeschia aethiopica* (Arum Lily) was found growing on the western edge of the open water. This weed species is classified for the Shire of Waroona as P1 and P4, which prohibits the movement of plants or seeds within the state, prohibits the movement of contaminated machinery and produce, and obliges the owner to treat to destroy and present seed set (Mattiske Consulting 2006).

The land proposed to be cleared is part of a Native Title Claim however, since it is 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.

The Shire of Waroona will use their powers delegated under the Local Government Act to construct the road and therefore permission does not need to be obtained from the landowners.

No other statutory approvals are required by the Department of Environment and Conservation or the Department of Water for this proposal.

The Waroona Roadwise Committee has indicated that the road in question is extremely dangerous and the proposed realignment will improve safety for motorists.

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

Officer Megan Stalker

4. Assessor's comments

Purpose	Method Applied	Comment
Road construction or maintenance	Mechanical Removal 1.5	The assessable criteria have been addressed, and the proposed clearing is at variance to Principles (a), (b), (e), (f) and (i). In response to the issues raised against the clearing principles, the Shire of Waroona has proposed the following to offset the impacts caused by the proposed clearing: - installation of fauna protection measures, including fencing and fauna underpass corridors;

- stock exclusion fencing of adjoining land;
- revegetation of 50m wide corridors on the western side of the wetland; and
- preparation and implementation of a weed management plan for the vegetation on the southern side of the proposed realignment route.

After considering the environmental issues raised while addressing the clearing principles and the offsets proposed by the Shire of Waroona, the assessing officer does not believe the offsets would adequately mitigate the environmental harm resulting from the clearing and associated road construction works.

The proposed offsets may adequately mitigate the loss of fauna habitat within the area under application and the loss of vegetation within a complex underrepresented and not adequately reserved. In addition the extent of the impact on water quality from sedimentation and potential waterlogging within the wetland could be managed through conditions. However, the permanent alteration and environmental harm caused by the filling of the wetland that would be associated with the proposed construction of the road has not been mitigated and is unlikely to be adequately offset.

The wetland is already vulnerable to ongoing impacts due to weed invasion, land degradation and grazing pressure, and the proposed realignment will divide the wetland and associated environments, adding to further degradation pressures.

5. References

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- Clearing Assessment Unit's biodiversity advice for land clearing application. Advice to Director General, Department of Environment and Conservation (DEC), Western Australia. TRIM ref DOC13113.
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- EPA (2003) 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.
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- JANIS Forests Criteria (1997) Nationally agreed criteria for the establishment of a comprehensive, Adequate and Representative reserve System for Forests in Australia. A report by the Joint ANZECC/MCFFA National Forest Policy Statement Implementation Sub-committee. Regional Forests Agreement process. Commonwealth of Australia, Canberra.
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- Mattiske Consulting Pty Ltd (February 2006) Flora and vegetation survey of the route of the proposed Coronation Road realignment, Waroona. (DEC TRIM ref. DOC511)
- Mattiske Consulting Pty Ltd (October 2006) Flora and vegetation survey of the route of the proposed Coronation Road realignment, Waroona. (DEC TRIM ref. DOC7230)
- 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.
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