



1. Application details

1.1. Permit application details

Permit application No.: 1861/1
 Permit type: Area Permit

1.2. Proponent details

Proponent's name: Terrence Milton & Joyce Mary Chapman

1.3. Property details

Property: Lot 1 on Diagram 21007 (No. 305 Burnside Road MEELON 6208)
 Lot 1 on Diagram 21007 (No. 305 Burnside Road MEELON 6208)
 Local Government Area: Shire Of Murray
 Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
0.46		Burning	Dam 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
Heddele Vegetation Complex: Forrestfield Complex - Vegetation ranges from open forest of <i>E. calophylla</i> - <i>E. wandoo</i> - <i>E. marginata</i> to open forest of <i>E. marginata</i> - <i>E. calophylla</i> - <i>C. fraseriana</i> - <i>Banksia</i> species. Fringing woodland of <i>E. rudis</i> in the gullies that dissect this landform.	The proposal is to clear 0.5 hectares of native vegetation for the purpose of dam construction. The vegetation under application comprises <i>Eucalyptus calophylla</i> over <i>Kingia australis</i> , <i>Xanthorrhoea preissii</i> and an occasional <i>Banksia</i> spp. There is a thick layer of leaf litter and limited understorey present.	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	Vegetation clearing description based on a site visit conducted by a DEC officer on 24 April 2007. Vegetation ranges in condition from good to degraded, with an average condition of good.
Beard Vegetation Association 4: Medium woodland; marri and wandoo			

(Adapted from: 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 may be at variance to this Principle**
 The vegetation under application is in good condition, may comprise a Threatened Ecological Community and has the potential to include rare flora. In addition, the vegetation under application is located within a Conservation Category Wetland and is considered to be significant as a remnant in an area that has been historically extensively cleared for agriculture. It is therefore considered that the vegetation under application may comprise a high level of biodiversity.

Methodology DEC site visit 24/04/07

(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**
 Within the local area (5km radius) there is one recorded occurrence of the Priority 5 fauna *Isoodon obesulus fusciventer* (Quenda) located approximately 4km to the northeast of the area under application. The Quenda

prefers areas with dense understorey vegetation, particularly around swamps and along watercourses, that provides ample protection from predators (CALM 2006).

The vegetation under application is located within a Conservation Category Wetland (CCW) and is considered to be in good condition. Although generally lacking dense understorey, the vegetation under application does contain a significant *Xanthorrhoea preissii* population that would provide some habitat for ground dwelling species such as the Quenda.

The vegetation under application is also located in an area that has been historically extensively cleared for agriculture, and forms part of a thin strip of remnant vegetation that is likely to provide an ecological linkage that would allow movement of fauna, including avifauna and mammals, between the nearby nature reserve to the west and vegetation in the Darling scarp to the east.

Given that the vegetation under application may provide habitat for fauna such as Quenda in an area that has been extensively cleared, and is likely to provide an important ecological linkage for fauna movement, it is considered that the proposed clearing may be at variance to this Principle.

Methodology CALM (2006)
DEC site visit 24/4/07
GIS Database:
SAC Bio datasets accessed 13/09/07

(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 radius) there is one known population of the Declared Rare Flora (DRF) *Diuris micrantha* located approximately 3.5km to the northwest of the area under application.

D. micrantha is described as a tuberous, perennial, herb 0.3-0.6 m high with yellow-brown flowers during Sep-Oct in brown loamy clay, winter-wet swamps and in shallow water (Western Australian Herbarium 1994).

There are also 14 known populations of Priority flora in the local area, with the closest being the Priority 4 species *Drosera occidentalis subsp. occidentalis*, which is located approximately 400m to the west within the road reserve.

D. occidentalis subsp. occidentalis is described as a fibrous-rooted, rosetted perennial, herb, to 0.01 m high with pink-white flowers during Nov-Dec in sandy & clayey soils, swamps and wet depressions (Western Australian Herbarium 1994).

The area under application is located within a Conservation Category Wetland and is likely to provide suitable habitat for these DRF and Priority flora species. It is therefore considered that the vegetation under application may include, or be necessary for the maintenance of, rare flora.

Methodology Western Australian Herbarium (1994)
GIS Databases:
Geomorphic Wetlands (Classification), Swan Coastal Plain - DEC
SAC Bio datasets accessed 13/06/07

(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 may be at variance to this Principle**
The Threatened Ecological Communities (TEC) associated with the Foothills/Pinjarra Plain land form are:
2 - southern wet shrublands,
3a - *Eucalyptus calophylla* - *Kingia australis* woodlands on heavy soils,
3b - *E. calophylla* - *E. marginata* woodlands on sandy clay soils,
3c - *E. calophylla* - *Xanthorrhoea preissii* woodlands and shrublands (Government of Western Australia 2000).

Within the local area (10km radius) there are five known occurrences of TECs with the closest being Eastern *Banksia attenuata* and/or *Eucalyptus marginata* woodlands (20b) located approximately 430m to the west; and 3b located approximately 930m to the southwest of the applied area.

The vegetation under application comprises *E. calophylla* over *K. australis* and *X. preissii* and is in good to degraded condition. It is therefore considered that the vegetation under application is likely to comprise either Floristic Community Type 3a or 3b. The proposed clearing therefore may be at variance to this Principle.

Methodology DEC Site visit 24/4/07
Government of Western Australia (2000)

(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

Heddle et al (1980) defines the vegetation under application as Forrestfield Complex, which has a pre-European representation of 17.5% and is classified as being of 'vulnerable' status for biodiversity conservation (Department of Natural Resources and Environment 2002; EPA 2006).

The vegetation under application is also classified as Beard vegetation association 4, which has 23.3% of the pre-European extent remaining and which is also classified as vulnerable (Adapted from: Shepherd et al. 2001).

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).

The remaining ecological communities for both the Heddle et al. 1980 and Shepherd et al. 2001 are considered vulnerable and well below the minimum 30% vegetation present pre-1750 target within the National Objectives for Biodiversity Conservation.

The vegetation under application is considered to be in good to degraded condition and is located within an area which has been historically extensively cleared for agriculture, additionally the area is likely to provide an important ecological linkage for fauna movement, therefore the vegetation under application is considered to be significant as a remnant.

	Pre-European (ha)	Current (ha)	Remaining %	Conservation status*** % in reserves
Jarrah Forest	4,506,674	2,426,079	53.8**	Depleted
Shire of Murray	181,526	98,552	54.3*	Depleted
Local Area (~10km radius)	31,400	~12,570	~40%	Depleted
Heddle vegetation complex				
Forrestfield Complex	20,052	3,518	17.5***	Vulnerable
Beard vegetation association 4	1,054,316	245,361	23.3**	Vulnerable

* (Shepherd et al. 2001)

** (Adapted from: Shepherd et al. 2001)

***(EPA, 2006)

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

Methodology DEC site visit 24/4/07
Department of Natural Resources and Environment, 2002
EPA (2006)
Heddle et al. (1980)
Shepherd (2006)

(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 seriously at variance to this Principle

The area under application is located within a Conservation Category Wetland (CCW) and a creek flow line was observed during the site visit. CCWs are wetlands with high ecological values and area the highest priority wetlands for protection (Water and Rivers Commission 2001). CCWs are recognised under objective one of the Wetlands Conservation Policy for Western Australia as valuable (Government of Western Australia 1997).

Previous estimates indicate that 70-80% of original wetlands on the Swan Coastal Plain have been cleared, drained or filled since European settlement (Balla 1994 in EPA 2006), and in 2004 approximately 17% of remaining wetlands were of high environmental value (EPA 2006). Therefore government agencies and the Environmental Protection Authority consider there should be no further loss and degradation of these wetlands.

Given that the vegetation under application is located within a mapped wetland, it is considered that it is growing in, or in association with an environment associated with a wetland. In addition, given that the wetland is a Conservation Category Wetland, the proposed clearing is considered to be seriously at variance to this Principle.

Methodology DEC site visit 24/4/07

EPA (2006)
Government of Western Australia (1997)
GIS Databases:
Geomorphic Wetlands (Classification), Swan Coastal Plain - DEC

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Comments Proposal is at variance to this Principle

Soils within the applied area are part of the Forrestfield F4 Phase and comprise deep acidic yellow duplex soils and sandy alluvial gradational brown earths. These soils have a high risk of phosphorus export, water logging and water erosion (State of Western Australia 2005). The area under application has a low salinity risk and no known risk of acid sulphate soils.

The area under application is located within a Conservation Category Wetland, which has flowing water during the winter months, and the proposed clearing of the creek will cause water erosion. Given the location of the applied area within a wetland, the proposed clearing also has the potential to result in localised water logging.

Given the soil type identified on site, and the location of the applied area within a wetland, it is considered that the proposed clearing will result in appreciable land degradation in the form of water erosion and water logging.

Methodology State of Western Australia (2005)
DEC site visit 24/4/07
GIS Databases:
Acid Sulfate Soil Risk Map, Swan Coastal Plain y DEC
Geomorphic Wetlands (Classification), Swan Coastal Plain - DEC
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 within a Conservation Category Wetland (CCW) and a DEC managed nature reserve is also located approximately 440m to the west.

It is considered that the proposed clearing will have a direct impact on the environmental values of the CCW. The proposed clearing may also result in the introduction or spread of weeds or dieback into the wetland and then downstream with the flow of water.

In addition, it is considered that the vegetation under application forms part of a strip of remnant vegetation that may provide an ecological linkage for fauna movement between the nearby nature reserve to the west and vegetation in the Darling scarp to the east. The proposed clearing therefore may indirectly impact on the environmental values of the nature reserve by restricting fauna movement.

Given that the proposed clearing will have a direct impact on the Conservation Category Wetland, and may indirect impacts downstream and within the nearby nature reserve, it is considered that the proposal may be at variance to this Principle.

Methodology DEC site visit 24/4/07
GIS Databases:
CALM Managed Lands and Waters - CALM 1/07/05
Geomorphic Wetlands (Classification), Swan Coastal Plain - DEC

(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 may be at variance to this Principle

The area under application is located within a Conservation Category Wetland (CCW), and has a nil risk of acid sulphate soils and a low salinity risk.

The soils identified on site have a high risk of phosphorus export (State of Western Australia 2005) and the proposed clearing will remove deep-rooted perennials that are important for the uptake of nutrients throughout the year. This will increase the risk of exacerbating phosphorus loss from the soil, which may contribute to eutrophication and a deterioration in the quality of surface water in the wetland.

The soils on site also have a high risk of water erosion (State of Western Australia 2005) and the removal of vegetation from within the wetland is likely to result in water erosion causing a sedimentation of surface water downstream.

Given the high risk of phosphorus export and water erosion associated with the identified soil type, it is

considered that the proposed clearing may cause a deterioration in the quality of surface water.

Methodology DEC site visit 24/04/07
State of Western Australia (2005)
GIS Databases:
Acid Sulfate Soil Risk Map, Swan Coastal Plain - DEC
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 may be at variance to this Principle

The area under application is located within a Conservation Category Wetland (CCW) at an elevation of 65-70 metres and has a slight relief to the west. The soils identified on site have a high risk of waterlogging, resulting in localised flooding (State of Western Australia 2005).

Due to the high risk of water logging and the location of the applied area within a wetland, it is considered that the proposed clearing of vegetation may cause or exacerbate the incidence of localised flooding.

Methodology DEC site visit 24/4/07
State of Western Australia (2005)
GIS Databases:
Topographic Contours, Statewide - DOLA 12/09/02

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

Comments

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.

In a submission the Shire of Murray advise that they do not support the proposed clearing due to the location within a CCW and the watercourse, the regional significance of the vegetation, the potential for DRF and impact on the nearby TEC, and the importance of the vegetation as a buffer to the poultry farm. The Shire suggest that there are alternatives for sourcing water on the property.

The Department of Water advise that a permit to interfere with bed and banks is required for the proposed dam construction. An application has been received and is unlikely to be approved as it is not environmentally acceptable. Alternative water sources are being explored with the applicants.

Methodology

4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comment
Dam construction & maintenance	Burning	0.46	The assessable criteria have been addressed and the proposed clearing is seriously at variance to Principle f, is at variance to Principles e and g, and may be at variance to Principles a, b, c, d, h, i and j.

5. References

Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.

EPA (2006) Guidance for the Assessment of Environmental Factors -level of assessment of proposals affecting natural areas within the System 6 region and Swan Coastal Plain portion of the System 1 Region. Report by the EPA under the Environmental Protection Act 1986. No 10 WA.

EPA (2006) State of the Environment Report Western Australia - Draft 2006, Government of Western Australia, Perth.

Government of Western Australia (1997) Wetlands Conservation Policy for Western Australia.

Hedde, E. M., Loneragan, O. W., and Havel, J. J. (1980) Vegetation Complexes of the Darling System, Western Australia. In Department of Conservation and Environment, Atlas of Natural Resources, Darling System, Western Australia.

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Shepherd (2006) Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth. Includes subsequent updates for 2006 from Vegetation Extent dataset ANZWA1050000124.

Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.

State of Western Australia (2005) Agmaps Land Manager CD Rom.

Water and Rivers Commission (2001) Position Statement: Wetlands.

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)