



1. Application details

1.1. Permit application details

Permit application No.: 1969/1
 Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Yarra Yarra Catchment Management Group (Inc)

1.3. Property details

Property: LOT 5091 ON PLAN 232571 (House No. 2015 TAYLOR LATHAM 6616)
 LOT 8045 ON PLAN 232571 (LATHAM 6616)
 LOT 9423 ON PLAN 154948 (LATHAM 6616)
 LOT 4227 ON PLAN 135434 (LATHAM 6616)
 LOT 4165 ON PLAN 83203 (LATHAM 6616)
 LOT 11006 ON PLAN 211098 (LATHAM 6616)
 LOT 10616 ON PLAN 208707 (LATHAM 6616)
 LOT 7269 ON PLAN 201989 (House No. 291 SIMPSON BUNJIL 6623)
 LOT 5696 ON PLAN 82636 (LATHAM 6616)
 LOT 7849 ON PLAN 150620 (House No. 301 I JUST LATHAM 6616)
 Local Government Area: Shire Of Perenjori
 Colloquial name: 10 x Victoria Locations, 5 landholders, 3 Road Reserves. 20 Km drain construction

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
30.91		Cutting	Drainage
30.91		Cutting	Drainage

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
<p>Three Beard (1980) vegetation associations are represented within the area under application.</p> <p>- Type 352 is described as medium woodland; York Gum (Eucalyptus loxophleba). This type is present across 95% of the area under application.</p> <p>- Type 435 is described as shrublands; Acacia neurophylla, Acacia beauverdiana and Acacia resinomarginea thicket. This type is present at the southern, eastern and western extremities of the area under application.</p> <p>- Type 631 is described as succulent steppe with woodland and thicket; York Gum (Eucalyptus loxophleba) over Melaleuca thyoides and samphire. This type is present at the northern extremity of the area under application.</p>	<p>Aerial photography indicates that the majority of the area under application traverses cleared agricultural land, with seven distinct sections that impact on native vegetation. Supporting information provided by the proponent indicates that the vegetation is in predominantly degraded condition (Keighery scale). A site inspection undertaken on 14-15 August 2007 by DEC staff determined that vegetation predominantly degraded with small areas of good to very good condition.</p>	<p>Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)</p>	<p>Three soil types have been broadly mapped across the area under application (DAWA 1999).</p> <p>- Type Mx10 is described as plains with alkaline red earths. This type is present across 95% of the area under application.</p> <p>- Type AC11 is described as undulating to hilly areas on gneissic rocks with shallow yellow earthy sands and shallow red earthy sands and earths. This type is present at the eastern extremity of the area under application.</p> <p>- Type SV4 is described as saline valleys and salt lakes with gypseous and saline loams underlain by clayey or sandy strata. This type is present at the northern extremity of the area under application.</p>

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 involves the removal of up to 30.91 hectares of native vegetation to a width of 30 metres over 20.2 kilometres to facilitate the construction of a drainage channel to improve the movement of surface and ground water through the valley floor. Six areas of remnant vegetation on private property will be directly impacted by this activity, being approximately:

- 11.94 hectares on Lot 11006 on Plan 211098 (2 sites);
- 3.85 hectares on Lot 7849 on Plan 150620;
- 0.96 hectares on Lot 4165 on Plan 83203;
- 7.46 hectares on Lot 5696 on Plan 82636; and
- 6.7 hectares on Lot 7269 on Plan 201989.

Subsequent amendment of the applied area by the proponent has resulted in a lesser extent of clearing on Lot 11006 on Plan 211098 to reduce the effect of fragmentation.

Scattered samphires and other vegetation (but not occurring in block remnants) is likely to be impacted on a further 5 land parcels the subject of this application to clear.

Three road reserves (being Taylor Road, Rabbit Proof Fence Road and Simpson Road) will also be impacted by clearing, predominantly for the purpose of constructing culverts to facilitate water movement. The local government has provided permission for the proponent to undertake drainage works within these road reserves, and the application has been amended by the proponent to include proposed clearing on these road reserves for this purpose.

Three Beard (1980) vegetation associations are represented within the area under application. Type 352 occurs within all of the areas of vegetation described above, with approximately 0.5 hectares of Type 435 within the vegetation on Lot 7849 on Plan 150620, approximately 6.5 hectares of Type 631 within the vegetation on Lot 7269 on Plan 201989 and approximately 1 hectare of Type 631 within the vegetation on Lot 5696 on Plan 82636.

Three soil types have been broadly mapped across the area under application (DAWA 1999). Type Mx10 occurs throughout the the areas of vegetation described above, with approximately 2 hectares of Type SV4 within the vegetation on Lot 7269 on Plan 201989.

A site inspection undertaken by DEC staff on 14-15 August 2007 found that for most the area under application contained vegetation that had been degraded by effects of salinity and grazing. However the proposed clearing at two separate sites on Lot 11006 on Plan 211098 will impact on some vegetation that is considered to be in good condition and provides habitat to a diversity of fauna (predominantly avian) including at least two Priority fauna.

The areas under application are located in the valley floor and the vegetation is already subject to (or at threat of) waterlogging and secondary salinity. It could be suggested that in the long-term the vegetation would further deteriorate in the absence of remedial drainage, thus in the long term the majority of the proposed clearing (with the exception of those areas of good condition vegetation) is unlikely to have a net detrimental impact on biological diversity.

In the local context, the area under application occurs within larger areas of remnant vegetation or revegetation of mixed composition and condition, thus it could be surmised that (for most) the vegetation proposed to be cleared does not comprise a higher level of biological diversity than the immediately surrounding bushland.

In the broader context, aerial photography indicates that the vegetation through which the proposed clearing is to occur comprises fragmented remnants within a landscape that has been extensively cleared for agriculture, with linkages to other areas of remnant vegetation by way of vegetation occurring along road reserves. The proposed clearing is likely to further fragment this vegetation.

Given that some parts of the area under application traverse good condition vegetation adjacent areas of salt-affected vegetation, those areas may be considered to have a higher level of biological diversity than salt-affected vegetation in other areas of the landscape.

Methodology

Soils, Statewide - DA 11/99
DAWA 2001
Beard 1980
DEC site visit 14-15 August 2007
GIS dataset
- Pre-European Vegetation - DA 01/01
- Salinity Mapping LM 25m - DOLA 00
- Salinity Risk LM 25m - DOLA 00

(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

Given the extensively cleared and highly fragmented nature of native vegetation within the landscape, it can be surmised that all remnant vegetation is of considerable importance as wildlife habitat.

The area under application impacts predominantly on degraded vegetation within a salt-affected valley floor. A site inspection undertaken by DEC staff on 14-15 August 2007 determined that most of the sites within the area under application contain predominantly degraded vegetation comprises mainly dead trees and large dead shrubs over scattered samphire understorey, which is not likely to be significant as habitat for fauna since this vegetation is widely spread across the valley floor. However the dead standing trees may have value to fauna as roosting sites and because of the presence of hollows.

The site inspection found that a site containing revegetation within the area under application (Lot 7849 on Plan 150620) contains a limited mixed diversity of York Gum over Saltbush. This in itself has value as habitat in terms of providing connectivity to an adjacent area of York Gum woodland and it is likely that avian fauna utilise this revegetation.

Two separate sites within the area under application (both on Lot 11006 on Plan 211098) contain vegetation that is in good condition, as determined during the inspection. This vegetation was found to host several avian fauna of different species, and signs of terrestrial fauna were also observed.

Most woodland birds prefer canopy cover and are unlikely to venture into open areas such as the 30 metre width of clearing proposed. Thus the proposed clearing is likely to impact on genetic exchange within the resulting fragmented remnants. Further, it should be noted that while mammals and other indigenous terrestrial fauna may successfully traverse a 30 metre wide clearing, it is highly unlikely that these fauna will be capable of crossing a 2-3 metre deep channel, especially when the channel holds any amount of water. For this reason the permit will contain a condition requiring the construction of fauna crossings within the larger remnant on Lot 11006 on Plan 211098.

Methodology Site inspection - DEC 14-15/08/07
GIS dataset
- Mongers 50cm Orthomosaic - Landgate 04/05
SAC Bio dataset
- Fauna 29/03/07

(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

There are approximately 320 records of Declared Rare and Priority flora within a 50 kilometre radius of the area under application.

- *Acacia nigripilosa* subsp. *latifolia* (Priority 1) occurs approximately 9.5 kilometres west of the area under application.
- *Wurmbea murchisoniana* (Priority 4) occurs approximately 11.1 northeast of the area under application.
- *Acacia lineolata* subsp. *multilineata* (Priority 1) occurs approximately 13.4 kilometres southwest of the area under application.
- *Gnephosis setifera* (Priority 1) occurs approximately 13.9 kilometres north of the area under application.
- *Eremophila rostrata* (Declared Rare) occurs approximately 15.3 kilometres northwest of the area under application.
- *Darwinia* sp. *Carnamah* (Declared Rare) occurs approximately 17.5 kilometres southwest of the area under application.

With the possible exception of *Gnephosis setifera*, FloraBase descriptions for the species above suggest that these species occur generally higher in the landscape than the area under application. *Gnephosis setifera* is associated with saline flats, and although the above recorded occurrence is some distance from the area under application the possibility of it occurring within the area under application cannot be discounted. For this reason the proposal may be at variance to this principle.

To mitigate any potential impacts of the proposal on Declared Rare or Priority flora within the area under application, a condition has been imposed on the permit to undertake a flora survey within areas that contain healthy vegetation prior to undertaking clearing, in order to identify and avoid any populations of Declared Rare or Priority flora within or immediately adjacent the areas under application.

Methodology FloraBase
Schoknecht 2002
GIS dataset

- Soils, Statewide - DA 01/01
- SAC Bio dataset
- DeFI 07/07
- WAHerb 05/07

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Comments Proposal is not likely to be at variance to this Principle

There are 6 mapped occurrences of Threatened Ecological Communities within a 50 kilometre radius of the area under application. The nearest of these are described as Koolanooka System, located approximately 43 kilometres northwest and 46 kilometres northeast of the area under application.

Given the distance between these occurrences and the area under application, and given that these occurrences are not subject to the discharge of the proposed drainage, it is unlikely that the proposed clearing will impact on these TECs. Therefore this proposal is not likely to be at variance to this principle

Methodology TEC Database
SAC Bio dataset
- TEC 07/07

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Comments Proposal is at variance to this Principle

There are 3 Beard vegetation associations represented within the area under application. Two of these have less than 15% of their pre-European extent remaining and all have less than 10% conserved. The area under application falls within the EPA's Position Statement No.2 agricultural area, which has a general presumption against clearing within the agricultural area for agricultural purposes.

	Pre-European (ha)	Current extent (ha)	Remaining (%)	Conservation status **	Pre-European % in reserve/DEC
land					
IBRA Bioregions: #					
- Avon Wheatbelt ***	9 578 995	1 536 296	16.0	Vulnerable	
Shire of Perenjori # (Area inside clearing line)	377 319	31 564	8.4	Endangered	
Beard vegetation assoc: *					
- Type 352	630 606	88 953	14.1	Vulnerable	1.6
- Type 435	255 991	26 585	10.4	Vulnerable	2.0
- Type 631	104 063	51 752	49.7	Depleted	9.7

statistics from Shepherd et al 2001 (Technical Report 249)

* statistics from AGWA 2005 (Shepherd et al)

** Department of Natural Resources and Environment 2002

*** Within the Intensive Landuse Zone

Given the extensive clearing (inside the clearing line) within the Shire of Perenjori, the impact on extensively cleared vegetation associations that are under-represented within the conservation estate, and the location of the clearing within the EPA's agricultural area, this proposal is considered to be at variance to this principle.

Methodology Beard 1980
DAWA 2001
EPA Position Statement No. 2
Environment Australia 2001
GIS dataset
- Pre-European Vegetation DA 2001

(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

The proposed clearing is to occur within the valley floor, following the approximately route of a natural watercourse. Much of the vegetation proposed to be cleared is typical of broad flat valley floors (samphires), and the mapped vegetation at some sites is consistent with primary saline areas.

A site inspection undertaken by DEC staff on 14-15 August 2007 confirmed that some sites within the area under application contained vegetation comprising species (tall Melaleuca sp.) distinctly associated with the occasionally inundated valley floor.

Methodology GIS dataset
- Topographic Contours, Statewide - DOLA 12/09/02
- Mengers 50cm Orthomosaic - Landgate 04/05

(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

Salinity mapping and salinity risk datasets indicate that the valley floor is saline and at risk of spreading. This is demonstrated by the presence of many trees within the area under application that are visibly under stress (particularly noted within good quality vegetation on Lot 11006), most likely as a result of increasing salinity concentrations and decreasing depth to watertable.

Advice from the Department of Agriculture and Food WA (August 2007) indicates that the watertable is approximately 1.9 metres below the soil surface, salinity concentration ranges from 3830mS/m to 7580 mS/m along the proposed drainage channel (for comparison, seawater is 5500-6000 mS/m), and pH has an average of 7 (neutral).

The proposed clearing may result in possibly erosion during the first rainfall event following clearing, although it is expected that proposed drain construction will contain any erosion impacts within the drain.

Further advice provided by DAFWA (6 September 2007) states "The proposed clearing of 30.91 hectares of land within the various Locations is unlikely to cause appreciable land degradation. Therefore, this clearing is unlikely to be at variance with principle (g)."

Although not directly related to the clearing, the proposed drain construction may disturb sulphides in the soil profile, which may result in saline acid sulphate soils that could have impacts downstream at and beyond the discharge point of the drain. Advice provided by the Department of Water in relation to environmental impacts of the proposed drain (TRIM Ref: DOC43945 and DOC45322) indicate that the acidity of discharged water is expected to be about 1pH unit below that of groundwater samples that have been measured at 5.9 to 7.6, and that discharging into a natural salt playa is unlikely to impact on surrounding vegetation.

Methodology DAFWA advice 06/09/07
GIS Dataset
- Salinity Mapping LM (25m) (DOLA 00)
- 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 is not likely to be at variance to this Principle

There are several (30+) DEC-managed lands within a 50 kilometre radius of the area under application. The closest of these are:

- East Latham Nature Reserve, 7 kilometres west
- Latham Nature Reserve 11.4 kilometres west
- Maya Nature Reserve 14.1 kilometres southwest
- un-named Nature Reserve 14.2 kilometres northwest.

Australian Bush Heritage's Charles Darwin Reserve (previously White Wells Station) is located approximately 18 kilometres east of the area under application.

Australian Wildlife Conservancy's Mount Gibson Station is located approximately 38 kilometres east of the area under application.

Given the distance of the above conservation areas from the area under application, and given that the proposed clearing is located in a valley floor that drains approximately 5 kilometres northeast of the area under application, is unlikely that the proposed clearing would impact on these conservation areas.

Methodology GIS database
- Topographic Contours, Statewide - DOLA 12/09/02
- CALM Managed Lands and Waters - CALM 01/07/05
- Register of National Estate - EA 28/01/03
- Mengers 50cm Orthomosaic - Landgate 04/05
- Clearing Regulations - Environmentally Sensitive Areas - DOE 30/05/05
- Pre-European Vegetation - DA 01/01

(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

Advice from the Department of Agriculture and Food WA (August 2007) indicates that the watertable is approximately 1.9 metres below the soil surface, salinity concentration ranges from 3830mS/m to 7580 mS/m along the proposed drainage channel (for comparison, seawater is 5500-6000 mS/m), and pH has an average of 7 (neutral). It is not likely that the clearing of native vegetation will have a significant impact on the already compromised quality of groundwater. The removal of deep-rooted perennial vegetation within the area under application may have a local impact on depth to watertable, which may be remedied by the proposed construction of a drain.

Many trees within the area under application are demonstrating varying degrees of stress (particularly noted within good quality vegetation on Lot 11006), most likely as a result of increasing salinity concentrations and decreasing depth to watertable. It is likely that many of these will die as a result of stress, thereby having in effect a similar local outcome on depth to watertable as the clearing of these trees would have but within a shorter timeframe.

The area under application occurs within the valley floor, at an elevation of 270-300 metres above sea level. Surrounding land is at the same or greater elevation. The proposed clearing may result in sedimentation downstream and possibly erosion during the first rainfall event following clearing, although it is expected that drainage construction will have occurred by this time and therefore the potential for sedimentation and erosion impacts will be contained within the drain.

It is unlikely that the proposed clearing is likely to cause deterioration in the quality of surface or underground water. Therefore this proposal is not likely to be variance to this principle.

Although not directly related to the clearing, the proposed drain construction may disturb sulphides in the soil profile, which may result in saline acid sulphate soils that could have impacts downstream at and beyond the discharge point of the drain. Advice provided by the Department of Water in relation to environmental impacts of the proposed drain (TRIM Ref: DOC43945 and DOC45322) indicate that the acidity of discharged water is expected to be about 1pH unit below that of groundwater samples that have been measured at 5.9 to 7.6, and that discharging into a natural salt playa is unlikely to impact on surrounding vegetation.

Methodology DAFWA (August 2007)
GIS Dataset
- Salinity Mapping LM 25m - DOLA 00
- Salinity Risk LM 25m - DOLA 00
- Topographic Contours, Statewide - DOLA 12/09/02

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Comments Proposal is not likely to be at variance to this Principle

The area under application receives approximately 400mm of rainfall per year, and has an evapotranspiration rate of approximately 400mm per year. The landform of the area under application is of low gradient and located within in the valley floor.

The proposed clearing of approximately 30.91 hectares of native vegetation in predominantly degraded condition with sparsely distributed understorey and located (predominantly) within a natural watercourse is not expected to result in increased run-off or flooding.

Although not directly related to the clearing, the proposed drain construction may result in increased water volumes at the discharge point. Advice provided by the Department of Water in relation to environmental impacts of the proposed drain (TRIM Ref: DOC43945 and DOC45322) indicate that the location of the proposed clearing / drain is within the lowest part of the landscape, and that the flow rates (after the initial flush) are expected to be low and in the order of 1 to 10 litres per second.

Methodology GIS dataset
- Rainfall, Mean Annual - BOM 30/09/01
- Evapotranspiration, Areal Actual - BOM 30/09/01
- Topographic Contours, Statewide - DOLA 12/09/02

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

Comments

The local government has provided permission for the proponent to undertake drainage works within three road reserves (Simpson, Taylor and Rabbit Proof Fence roads), and the application has been amended by the proponent (16/10/07) to include proposed clearing on these road reserves for this purpose.

The area under application falls within the EPA's Position Statement No.2 agricultural area. There is a general

presumption against clearing within the agricultural area for agricultural purposes.

The area under application does not occur within a Native Title Claim Area. Two Aboriginal sites of significance occur within 10 kilometres of the area under application, being "Barret Well Campsite" approximately 3.5 kilometres to the northeast and "Lake Monger" approximately 7.4 kilometres to the northeast (both downstream of the proposed drain).

Although not relevant for the purpose of assessing the proposed clearing, two points need to be raised with regard to the proposed drainage. These are also raised under the relevant principles:

- most indigenous mammals will be highly unlikely to be capable of crossing a 2-3 metre deep channel, especially when the channel holds any amount of water; and
- the proposed drain construction may disturb sulphides in the soil profile, which may result in saline acid sulphate soils that could have impacts downstream at and beyond the discharge point of the drain.

Water quality (in particular acidification) will require careful monitoring to ensure that there are no significant impacts on the environment.

Advice provided by the Department of Water in relation to environmental impacts of downstream discharge (TRIM Ref: DOC43945) and in relation to monitoring data and photographs provided by the proponent for groundwater sampling undertaken in this and a nearby catchment (TRIM Ref: DOC45322) indicate that the location of the proposed clearing / drain is within the lowest part of the landscape, that the flow rates (after the initial flush) are expected to be low and in the order of 1 to 10 litres per second, that the acidity of discharged water is expected to be about 1pH unit below that of groundwater samples that have been measured at 5.9 to 7.6, and that discharging into a natural salt playa is unlikely to impact on surrounding vegetation. In summary, from the data provided this drain should not pose a significant acidity risk to the receiving environment.

It needs to be noted that although requested on two occasions the "Notice of Intent to Drain" advice from the Department of Agriculture and Food (WA) has not been sighted. The proponent will need to ensure no objection is raised before undertaking any clearing under this clearing permit.

Methodology EPA Position Statement No. 2
GIS dataset
- Aboriginal Sites of Significance - DIA
- Native Title Claims - DLI

4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comment
Drainage	Cutting	30.91	
Drainage	Cutting	30.91	The assessment of this proposal in its current format against the ten clearing principles has determined that the clearing is: - at variance to principles e) and f); - may be at variance to principles a), b) and c); and - not likely to be at variance to principles d), g), h), i) and j).

5. References

- AGPS (2001) The national objective and targets for biodiversity conservation 2001-2005. Commonwealth of Australia, Canberra.
- Clearing Assessment Unit's biodiversity advice for land clearing application. Advice to Director General, Department of Environment and Conservation (DEC), Western Australia. TRIM ref xxxxx
- DAFWA Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food Western Australia. DoE TRIM ref XXXXX.
- Department of Agriculture and Food WA (August 2007) Moora office verbal advice relating to groundwater status.
- Department of Environment and Conservation (2007). CPS 1969/1 Yarra Yarra Catchment Management Group (Inc) "Mongers16" drain, Shire of Perenjori. Site inspection undertaken by E Bramwell and M Warnock on 14-15 August 2007.
- EPA (2000) Environmental protection of native vegetation in Western Australia. Clearing of native vegetation, with particular reference to the agricultural area. Position Statement No. 2. December 2000. Environmental Protection Authority.
- Schoknecht N. (2002) Soil Groups of Western Australia. A simple guide to the main soils of Western Australia. Resource Management Technical Report 246. Edition 3
- 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.
- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001a) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia (updated 2005).

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)