



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: 6636/1
File Number: 2011/006853-1
Duration of Permit: 16 January 2016 to 16 January 2018

PERMIT HOLDER

Shire of Kalamunda

LAND ON WHICH CLEARING IS TO BE DONE

Lot 3000 on Deposited Plan 44636, Forrestfield

AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 1.2 hectares of native vegetation within the area hatched yellow on attached Plan 6636/1.

CONDITIONS

1. Management plan

The Permit Holder must implement and adhere to the document 'Vegetation Management Plan - Hartfield Park Hockey Fields Development'. Doc No EP15-054--001. Revision A. 7 December 2015.

A handwritten signature in blue ink, appearing to read "Jane Clarkson", written over a horizontal line.

Jane Clarkson
A/SENIOR MANAGER
CLEARING REGULATION




*Officer delegated under Section 20
of the Environmental Protection Act 1986*

17 December 2015

Plan 6636/1



Legend

-  Cadastre
-  Roads
-  Areas approved to clear
Virtual Mosaic (LGATE-V001)
-  LGA



1:3,000

MGA 94
Geocentric Datum of Australia 1994

 Date 17/12/15
Jane Clarkson

Officer with delegated authority under Section 20
of the Environmental Protection Act 1986





1. Application details

1.1. Permit application details

Permit application No.: 6636/1
Permit type: Area Permit

1.2. Applicant details

Applicant's name: Shire of Kalamunda

1.3. Property details

Property: LOT 3000 ON PLAN 44636, FORRESTFIELD
Local Government Authority: KALAMUNDA, SHIRE OF
DER Region: Greater Swan
DPaW District: PERTH HILLS
Localities: FORRESTFIELD

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
1.2		Mechanical Removal	Recreation

1.5. Decision on application

Decision on Permit: Granted
Application:
Decision Date: 17 December 2015

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 968 is described as medium woodland; jarrah, marri & wandoo (Shepherd et al, 2001).	The clearing of 1.2 hectares of native vegetation is for the purpose of constructing three hockey fields.	Degraded; Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994).	The condition and structure of the vegetation under application was assessed during a site inspection conducted by the Department of Environment Regulation (DER, 2015) and a flora survey undertaken by Natural Area Consulting Management Services (2015) prepared on behalf of the Shire of Kalamunda.
Mattiske Vegetation Association Forrestfield (Fo) consists of mosaic of open forest of <i>Corymbia calophylla</i> - <i>Eucalyptus wandoo</i> - <i>Eucalyptus marginata</i> subsp. <i>elegantella</i> and open forest of <i>Eucalyptus marginata</i> subsp. <i>marginata</i> - <i>Corymbia calophylla</i> - <i>Allocasuarina fraseriana</i> - <i>Banksia</i> spp. on the erosional spurs off the Darling Scarp to woodland of <i>Eucalyptus rudis</i> on the dissecting gullies in humid to semiarid zones (Mattiske and Havel, 1998).		To Completely Degraded: No longer intact; completely/almost completely without native species (Keighery, 1994).	

3. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Comments **Proposed clearing is not likely to be at variance to this Principle**
The application is to clear 1.2 hectares of native vegetation within Lot 3000 on Deposited Plan 44636 (Reserve 17098), Forrestfield, for the purpose of facilitating the layout and future construction of three grassed hockey fields.

The vegetation proposed to be cleared ranges from a degraded to completely degraded (Keighery, 1994) condition. This was determined by a site inspection undertaken by the Department of Environment Regulation (2015) and a flora survey undertaken by Natural Area Consulting Management Services (2015). The area under application has been parkland cleared and has been heavily disturbed by existing land uses including recreational and sporting practices. The site is subject to a high concentration of weed invasion.

One hundred and nine priority flora and thirty seven rare flora species have been recorded within the local area (10 kilometre radius). Given the history of parkland clearing and the degraded (Keighery, 1994) condition of the understorey, it is unlikely rare or priority flora occur within the area under application. Therefore, the clearing proposed is unlikely to have an impact on the conservation status of these species.

The vegetation under application may provide suitable feeding habitat for three significant fauna species, namely, Carnaby's cockatoo (*Calyptorhynchus latirostris*), Baudin's cockatoo (*Calyptorhynchus baudinii*) and forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*). However, the application area is not likely to provide significant habitat for these species given the small size of the application area and that there is vegetation in a better condition adjacent to the site likely to provide suitable foraging habitat.

The closest priority ecological community (PEC) to the application area, "Central Northern Darling Scarp Granite Shrubland Community" (priority 4), is located approximately 1.8 kilometres east of the application area. A site inspection undertaken by DER (2015) confirmed that the vegetation under application is not consistent with this PEC.

The closest threatened ecological community (TEC) to the application area has been identified by the Department of Parks and Wildlife (2015a) as being "Banksia attenuata woodland over species rich dense shrublands" (FCT20a) located approximately 25 metres north of the application area. Given the degraded to completely degraded (Keighery, 1994) condition of the vegetation under application, it is not considered to represent an extant occurrence of this TEC. However, clearing the vegetation under application may have indirect impacts on this TEC vegetation. Emerge Associates Integrated Science and Design (2015) have developed a Vegetation Management Plan on behalf of the Shire which outlines the management actions proposed to be implemented during the construction and operation phases of the proposed project in order to manage impacts to this TEC.

The vegetation under application forms part of Bush Forever site No. 320, known as 'Hartfield Park Bushland, Forrestfield'.

Given that the vegetation proposed for clearing has been subject to significant disturbance, the proposed clearing is not likely to hold a high level of biological diversity and is not likely to be at variance to this Principle.

Methodology

References:

- DER (2015)
- Emerge Associates Integrated Science and Design (2015)
- Keighery (1994)
- Natural Area Consulting Management Services (2015)
- Parks and Wildlife (2015a)

GIS Databases:

- SAC Bio Datasets -- (Accessed December 2015)
- NLWRA, Current Extent of Native Vegetation
- Hydrography, linear
- Hydrography, hierachy
- Parks and Wildlife Tenure

(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

Proposed clearing is not likely to be at variance to this Principle

The vegetation type under application may provide suitable foraging habitat and breeding habitat for three significant fauna species, namely Carnaby's cockatoo (*Calyptorhynchus latirostris*), Baudin's cockatoo (*Calyptorhynchus baudinii*) and forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*), all declared as rare or likely to become extinct under the Wildlife Conservation Act 1950 (Parks and Wildlife, 2007-).

The vegetation proposed to be cleared ranges from a degraded to completely degraded (Keighery, 1994) condition. The area under application has been parkland cleared and has been heavily disturbed by existing land uses including recreational and sporting practices. The site is subject to a high concentration of weed invasion (DER, 2015; Natural Area Consulting Management Services, 2015).

Carnaby's cockatoo, Baudin's cockatoo and forest red-tailed black cockatoo nest in large hollows of eucalyptus trees and forage on the seeds, nuts and flowers of a large variety of plants including Proteaceous species (Banksia, Hakea, Grevillea), Eucalypts, Corymbia species and a range of introduced species (Shah, 2006; Valentine and Stock, 2008).

Potential habitat trees for the three black cockatoo species have a diameter at average adult human chest height of greater than 50 centimetres. Suitable habitat trees generally contain dead limbs and broken crowns that are likely to contain hollows and roosts suitable for native fauna. A site inspection of the application area did not observe any hollows of a suitable size for black cockatoo breeding (DER, 2015).

Given the condition of the vegetation, the limited amount of foraging habitat recorded and the presence of suitable habitat adjacent to the application area, the vegetation under application is not likely to provide significant foraging habitat for these species.

The proposed clearing is not likely to impact on other conservation significant fauna recorded within the local area (10 kilometre radius) given the degraded condition of the vegetation under application and the disturbance resulting from the adjoining landuses.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology References:
- DER (2015)
- Parks and Wildlife (2007-)
- Shah (2006)
- Valentine and Stock (2008)
- Natural Area Consulting Management Services (2015)

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

Comments **Proposed clearing is not likely to be at variance to this Principle**
Thirty seven records of rare flora have been recorded within the local area (10 kilometre radius). Given the vegetation under application has been park land cleared, heavily disturbed by weed invasion and existing land use practices (DER, 2015), it is unlikely the application area would provide suitable habitat for rare flora.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology References:
- DER (2015)

GIS Databases:
- SAC Bio Datasets (Accessed December 2015)

(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 **Proposed clearing may be at variance to this Principle**
The area under application was found to contain vegetation historically subject to clearing, weed invasion and planting with non-native taxa (Parks and Wildlife, 2015a). As a result of this disturbance the application area is in a completely degraded (Keighery, 1994) condition and is therefore not representative of TEC occurrences recorded within the local area.

One threatened ecological community (TEC) described as "Eucalyptus calophylla - Kingia australis woodlands on heavy soils, Swan Coastal Plain" (FCT3a) federally listed as 'critically endangered' located in close proximity (25 metres) to the application area was potentially identified during the survey undertaken by Natural Area Consulting Management Services (2015). Further investigation by the Department of Parks and Wildlife (2015a) determined that the vegetation type was not representative of FCT3a, rather, based on habitat and floristics, most likely to be consistent with state listed TECs "Banksia attenuata woodland over species rich dense shrublands" (FCT20a) and/or "Eucalyptus marginata woodlands" (FCT20b).

The proposed clearing is likely to impact upon adjoining vegetation representative of the above mentioned TEC, through increased weed invasion, human disturbance and hydrological changes, given there is only 25 metres between the areas of extant TEC and the application area (Parks and Wildlife, 2015a).

Therefore, the proposed clearing may be at variance to this Principle.

In order to manage the potential impacts to the adjoining vegetation representative of a TEC, a Vegetation Management Plan has been developed by Emerge Associates Integrated Sciences and Design (2015) on behalf of the Shire. The plan outlines the management actions the Shire proposes to implement in order to mitigate the potential impacts that the proposed clearing may have on the TEC in close proximity to the application area. These actions include:

- constructing a fence along the boundary of the TEC and around the hockey fields to separate and protect the adjacent native vegetation;
- implementing weed and pathogen control measures that will be monitored annually;
- separating irrigated areas from the boundary of the TEC by an irrigation buffer zone; and
- directing surface water flow away from the TEC through the designed topography of the hockey fields.

Methodology **References:**
 - Emerge Associates Integrated Sciences and Design (2015)
 - Natural Area Consulting Management Services (2015)
 - Parks and Wildlife (2015a)
 - Keighery (1994)

GIS Databases:
 -SAC Bio Datasets (Accessed December 2015)

(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 **Proposed clearing is not likely to be at variance to this Principle**
 The area under application is located within the Swan Coastal Plain Interim Biogeographic Regionalisation of Australia (IBRA) bioregion. This IBRA bioregion has approximately 39 per cent of its pre-European vegetation extent remaining (Government of Western Australia, 2014).

The vegetation under application is mapped as Beard vegetation association 968 and Mattiske vegetation complex 'Forrestfield (Fo)' which have approximately 7 and 12 per cent of their pre-European extent remaining in the Swan Coastal Plain bioregion respectively (Government of Western Australia 2014; Parks and Wildlife, 2015).

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).

Aerial imagery indicates that the local area (10 kilometre radius) surrounding the area under application retains approximately 20 per cent vegetation cover.

A site inspection undertaken by DER (2015) and a survey undertaken by Natural Area Consulting Management Services (2015) verified that the vegetation under application is not representative of Beard vegetation association 968 and Mattiske vegetation complex 'Forestfield (Fo)'. The vegetation has been identified as being in a completely degraded to degraded (Keighery, 1994) condition given the heavily modified understorey and high density of weeds present most likely resulting from current land use practices (DER, 2015).

Given that the vegetation under application is degraded and a not representative of vegetation associations under application, the proposed clearing is not likely to be at variance to this Principle.

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in Parks and Wildlife Managed Lands (%)
IBRA Bioregion*				
Swan Coastal Plain	1,501,222	580,697	39	37
Shire*				
Shire of Kalamunda	32,387	23,463	72	85
Beard vegetation association in Bioregion*				
968	136,188	9,143	7	18
Mattiske vegetation complex **				
Fo (Forrestfield)	11,594	1,445	12	2

Methodology **References**
 - *Government of Western Australia (2014)
 - **Parks and Wildlife (2015)
 - Commonwealth of Australia (2001)
 - Keighery (1994)
 - DER (2015)
 - Natural Area Consulting Management Services (2015)

GIS Databases:
 - NLWRA, Current Extent of Native Vegetation
 - Pre-European Vegetation

(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 Proposed clearing is at variance to this Principle

The application area is located 54 metres east of a resource enhancement – dampland and 406 metres east of a conservation category – palusplain. Several watercourses are mapped within the local area, the closest being a minor perennial watercourse known as “Woodlupine Brook” that occurs 660 metres north of the application area.

A site inspection undertaken by DER (2015) identified wetland vegetation within the western portion of the application area. However, given the condition of the vegetation under application and the adjoining land uses, impacts of the proposed clearing are likely to be minimal.

Given the above, the proposed clearing is at variance to this Principle.

Methodology References:
- DER (2015)

GIS Databases:
- Geomorphic Wetlands, (Mgt Categories), Swan Coastal Plain
- Hydrology, linear

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

Comments Proposed clearing is not likely to be at variance to this Principle

The application area is mapped within soil type Cb38, which is described as sandy dunes with intervening sandy and clayey swamp flats. Chief soils are leached sands, sometimes with a clay D horizon, on the dunes and sandy swamps. Associated are various soils in the clayey swamps (Northcote et al 1960 – 68).

The proposed clearing on sandy soils may increase the risk of wind erosion, however given the small size of the clearing, the proposed end land use and the current lack of an understorey within the application area, the risk of appreciable land degradation is minimal.

Although wetland vegetation has been identified within the application area (DER, 2015), as it is highly modified from historic clearing and adjoining land uses, clearing the vegetation under application is not likely to lead to water erosion.

Therefore, the proposed clearing is not likely to be at variance to this Principle.

Methodology References:
- DER (2015)
- Northcote et al (1960 – 68)

GIS Databases:
- 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 Proposed clearing may be at variance to this Principle

The vegetation under application forms part of Bush Forever site No. 320 and is known as ‘Hartfield Park Bushland, Forrestfield’. The application area falls 25 metres from vegetation consistent with a TEC.

The disturbance caused by the proposed clearing, may impact on the conservation values of Bush Forever Site No. 320 and degrade the quality of the adjoining TEC vegetation. The disturbance is likely to increase the risk of weeds and dieback spreading into these conservation areas. The applicant has developed a management plan that addresses weed and dieback management practices in order to mitigate this risk (Emerge Associates Integrated Science and Design, 2015).

Given the above, the proposed clearing may be at variance to this Principle.

Methodology References:
- Emerge Associates Integrated Science and Design (2015)

GIS Databases:
- Bush Forever

(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 **Proposed clearing is not likely to be at variance to this Principle**
A site inspection undertaken by DER (2015) identified wetland vegetation within the western portion of the application area, however no watercourses were observed.

Given there are no mapped watercourses within the application area, the degraded (Keighery, 1994) condition of the vegetation under application, and the adjoining landuses, the proposed clearing is not likely to result in the deterioration of surface water quality.

Groundwater salinity mapped within the application area is between 500 and 1000 milligrams per litre (marginal). Given this low salinity level and the limited size of the application area, it is not likely that the proposed clearing will lead to a perceptible rise in the water table or impact on the quality of groundwater.

Given the above, the proposed clearing is not likely to be at variance to this principle.

Methodology References:
- DER (2015)
- Keighery (1994)

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

Comments **Proposed clearing is not likely to be at variance to this Principle**
The removal of remnant vegetation is not expected to contribute to flooding given the small size of the proposed clearing.

Therefore the clearing as proposed is not likely to be at variance to this principle.

Methodology GIS Databases:
- Hydrography linear

Planning instruments and other relevant matters.

Comments The Department of Planning has advised that the application area is reserved as Parks and Recreation under the Metropolitan Region Scheme and has the Bush Forever implementation category of Bush Forever (existing or proposed) (Department of Planning, 2015). State Planning Policy 2.8 – Bushland Policy for the Perth Metropolitan Region, section 5.1.2.1 outlines specific policy measures for Bush Forever reserves, namely that there is a general presumption against the clearing of regionally significant bushland. Part(i)(e) provides for an exception where the proposal is consistent with the overall purpose... or can be reasonably justified with regard to wider environmental, social, economic or recreation needs,... and reasonable offset strategies are secured to offset any loss of regionally significant bushland, where appropriate and practical (Department of Planning, 2015).

The Department of Planning (2015) has raised concern that the proposed layout of the three hockey fields is inconsistent with the Hartfield Park Recreation Management Plan. The Management Plan that was advertised in 2010 stated that the 'incorporation of new hockey fields in the equestrian area should be possible with appropriate management techniques to retain the quality of the surrounding bushland'. The Department of Planning (2015) has questioned why the applicant has not provided evidence as to why they have reconfigured the proposed layout of the hockey fields, and now requires clearing. The applicant has advised that the proposed layout of the hockey fields was modified in order to avoid extant areas of TEC and limit the amount of intact native vegetation applied to be cleared, whilst meeting the standards for field dimensions under the Department of Sport and Recreation guidelines. The applicant has advised that although the proposed layout has been modified, the new layout remains consistent with the specification for three hockey fields provided in the master plan (Emerge Associates Integrated Science and Design, 2015).

The application area is mapped within two Aboriginal Sites of Significance, namely 'Maamba Reserve' and 'Welshpool Reserve'. The applicant will be notified of their obligations under the Aboriginal Heritage Act 1972.

The application area is zoned as 'Parks and Recreation' under the Town Planning Scheme Zone.

No submissions have been received for this application.

Methodology References:
- Department of Planning (2015)
- Emurge Associates Integrated Science and Design (2015)

GIS Databases:
- Aboriginal Sites of Significance
- Town Planning Scheme Zones

4. References

- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
- Department of Planning (2015) Advice for Clearing Permit Application CPS 6636/1 (DER Ref: A974445).
- DER (2015) Site Inspection Report for Clearing Permit Application 6636/1. Site inspection undertaken 20 August 2015. Department of Environment Regulation, Western Australia (DER Ref: A983322)
- Emerge Associates Integrated Science and Design (2015) Vegetation Management Plan. Hartfield Park Hockey Fields Development. Project Number EP 15-054. Perth, Western Australia (DER Ref: A1019390).
- Government of Western Australia (2014) 2014 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of June 2014. WA Department of Parks and Wildlife, Perth.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Mattiske, E.M. and Havel, J.J. (1998) Vegetation Complexes of the South-west Forest Region of Western Australia. Maps and report prepared as part of the Regional Forest Agreement, Western Australia for the Department of Conservation and Land Management and Environment Australia.
- Natural Area Consulting Management Services (2015) Shire of Kalamunda. Hartfield Park Flora Survey. Whiteman, Western Australia. (DER Ref: A927993).
- 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.
- Parks and Wildlife (2007-) NatureMap: Mapping Western Australia's Biodiversity. Department of Parks and Wildlife. URL: <http://naturemap.dpaw.wa.gov.au/>. Accessed 14/12/2015
- Parks and Wildlife (2015) 2015 South West Forest and Swan Coastal Plain Vegetation Complex Statistics: a report prepared for the Department of Environment Regulation. Current as of March 2015. Department of Parks and Wildlife, Perth, Western Australia.
- Parks and Wildlife (2015a) Species and Communities (Threatened Ecological Communities) Advice for Clearing Permit CPS 6636/1. Department of Parks and Wildlife. Western Australia. (DER Ref: A956239).
- Shah, B. (2006) Conservation of Carnaby's Black-Cockatoo on the Swan Coastal Plain, Western Australia. December 2006. Carnaby's Black-Cockatoo Recovery Project. Birds Australia, Western Australia.
- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.
- Valentine, L.E. and Stock, W. (2008) Food Resources of Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) in the Ngarara Sustainability Strategy Study Area. Edith Cowan University and Department of Environment and Conservation. December 2008.