



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: CPS 7930/1
File Number: DER2017/002219
Duration of Permit: From 18 July 2018 to 18 July 2020

PERMIT HOLDER

Lake Karrinyup Country Club Incorporated.

LAND ON WHICH CLEARING IS TO BE DONE

Lot 9000 on Deposited Plan 58333.

AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 11 Marri (*Corymbia calophylla*) trees, one deceased Bull Banksia (*Banksia grandis*) tree, 11 Tuart (*Eucalyptus gomphocephala*) trees and three Jarrah (*Eucalyptus marginata*) trees within the area cross-hatched yellow on attached Plan 7930/1.

CONDITIONS

1. Avoid, minimise and reduce the impacts and extent of clearing

In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:

- (a) avoid the clearing of native vegetation;
- (b) minimise the amount of native vegetation to be cleared; and
- (c) reduce the impact of clearing on any environmental value.

2. Records must be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit, in relation to the clearing of native vegetation authorised under this Permit:

- (a) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
- (b) the date that the area was cleared;
- (c) the number of Marri, deceased Bull Banksia, Tuart and Jarrah trees removed; and
- (d) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 1 of this Permit.

3. Reporting

The Permit Holder must provide to the *CEO* the records required under condition 2 of this Permit, when requested by the *CEO*.

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

Mathew Gannaway
MANAGER
CLEARING REGULATION

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

18 June 2018

CPS 7930/1, 18 June 2018

PLAN 7930/1

115°46.500'E

115°46.800'E

115°47.100'E

115°47.400'E

115°47.700'E

31°51.300'S

31°51.600'S

31°51.900'S

31°52.200'S



Legend

 Areas approved to clear
cadastre

 Cadastre

WANow_Imagery



0 100 200 300 400 m



MGA 94
Geocentric Datum of Australia 1994

Matthew Gennaway Date: *18/01/2018*

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



GOVERNMENT OF
WESTERN AUSTRALIA



1. Application details

1.1. Permit application details

Permit application No.: 7930/1
Permit type: Area Permit

1.2. Proponent details

Applicant's name: Lake Karrinyup Country Club Incorporated

1.3. Property details

Property: Lot 9000 on Deposited Plan 58333
Local Government Authority: City of Stirling
Localities: Karrinyup

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
N/A	26	Mechanical Removal	Infrastructure Maintenance

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 18 June 2018

Reasons for Decision: The clearing permit application was received on 22 December 2017 and has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986*. It has been concluded that the proposed clearing is not likely to be at variance to any of the clearing principles.

In determining to grant a clearing permit subject to conditions, the Delegated Officer determined that the proposed clearing is unlikely to lead to an unacceptable risk to the environment.

2. Background

2.1. Existing environment and information

2.1.1 Description of the native vegetation under application

Clearing Description The proposed clearing comprises the removal of 11 Marri (*Corymbia calophylla*) trees, one deceased Bull Banksia (*Banksia grandis*) tree, 11 Tuart (*Eucalyptus gomphocephala*) trees and three Jarrah (*Eucalyptus marginata*) trees from the Lake Karrinyup Country Club (the country club) grounds, to reduce the impact of canopy shade on the quality of the turf on the golfing green.

Vegetation Description The application area is mapped as occurring within the following vegetation communities (Hedde et al 1980):

- Cottesloe Complex - Central and South: Mosaic of woodland of Tuart and open forest of Tuart - Jarrah - Marri; closed heath on the Limestone outcrops; and
- Karrakatta Complex - Central and South: Predominantly open forest of Tuart - Jarrah - Marri and woodland of Jarrah - Banksia species. *Agonis flexuosa* (Peppermint) is co-dominant south of the Capel River.

The vegetation within the country club grounds has been described as typically open forest and ecotonal, with Tuart and Marri trees dominating forest patches interspersed with fewer Jarrah trees (ArborCarbon 2017). Bull Banksia and Slender Banksia (*Banksia attenuata*) occur in small remnant patches of native vegetation with Grass Tree (*Xanthorrhoea preissii*), Zamia (*Macrozamia riedlei*), *Acacia* sp., Sheoak (*Allocasuarina fraseriana*) and a small number of other understorey species (ArborCarbon 2017).

Vegetation Condition A review of the application area using supporting materials provided by the applicant, alongside aerial photography, found the vegetation within the application area is in the following condition (Keighery 1994):

- Good: Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or the ability to regenerate it; to
- Degraded: Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching Good (Keighery 1994) condition without intensive management.

Soil Type

The application area occurs within the following mapped land subsystems (Department of Primary Industry and Regional Development 2017):

- EnvGeol Cps Phase: peaty clay - dark grey and black, soft, variable organic content, some quartz sand in places, of lacustrine origin;
- EnvGeol S7 Phase: sand - pale and olive yellow, medium to coarse-grained, sub-angular to sub-rounded quartz, trace of feldspar, moderately sorted, of residual origin; and
- EnvGeol LS1 Phase: Limestone - light, yellowish brown, fine to coarse-grained, sub-angular to well rounded, quartz, trace of feldspar, shell debris, variably lithified, surface kankar, of eolian origin. Minor heavy minerals.

Comment

The local area referred to in this assessment is defined as the area within a ten kilometre radius of the application area.



Figure 1: Overview of the application area (the areas cross-hatched blue) in relation to the surrounding Lot boundaries (shown in yellow).

3. Assessment of application against the clearing principles

Comments

Analysis of high resolution multispectral imagery of the country club grounds collected by ArborCarbon, and the subsequent height model derived from this imagery, determined that the country club grounds contain a high density of tree cover when compared with the surrounding urban landscape (ArborCarbon 2017). Trees with a canopy height of three metres or more occupy 38.4 hectares (36.8 per cent) of the country club grounds. A 2016 audit of the country club grounds conducted by grounds staff counted over 3,000 large native trees in the vicinity of the fairways and estimated about 20,000 trees exist within the country club grounds (ArborCarbon 2017). Less than 0.2% of the country club's native tree cover will be lost as a result of the proposed clearing.

A review of available databases has determined that three priority 1, three priority 2, eight priority 3 and two priority 4 flora species have been recorded in the local area. ArborCarbon (2017) advise that no conservation significant flora species have been recorded within the application area. The clearing activities are targeted towards individuals from four distinctive tree species which are not of conservation significance and no flora species of conservation significance will be removed as a consequence of the clearing activities. The clearing of 26 trees is not expected to change the flora habitats present in the local area. The proposed clearing activities are unlikely to adversely impact any habitats necessary for the maintenance of conservation significant flora species.

A review of available databases determined that 58 conservation significant fauna species have been recorded within the local area (Department of Biodiversity, Conservation and Attractions 2007-). ArborCarbon (2017) advises that six of the trees targeted for clearing have a diameter at breast height of greater than 800 millimetres and have been confirmed to contain hollows suitable for native fauna to use (ArborCarbon 2017). Of the 58 fauna species of conservation significance recorded in the local area, five are known to use hollows for breeding and roosting, the Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii* subsp. *naso*), Baudin's Cockatoo (*Calyptorhynchus baudinii*), Carnaby's Cockatoo (*Calyptorhynchus latirostris*), the Barking Owl (southwest) (*Ninox connivens* subsp. *connivens*) and the Masked Owl (*Tyto novaehollandiae* subsp. *novaehollandiae*). The black cockatoo species have been observed in the country club grounds (ArborCarbon 2017).

Both the field survey undertaken by ArborCarbon (ArborCarbon 2017) and ongoing monitoring of the targeted hollow-bearing trees by grounds staff at the country club since December 2017 have found no evidence that these trees are used by conservation significant fauna species for roosting or identified any instances where these hollows have been utilised by conservation significant fauna species. Grounds staff at the country club have identified the use of these trees only by Rainbow Lorikeet's (*Trichoglossus haematodus*), which are not native to Western Australia. Rainbow lorikeets dominate and aggressively protect feeding and nesting resources (Chapman, 2005). In the south-west of Western Australia they often displace other native birds from potential nest sights (Chapman, 2005). Given the above, the proposed clearing is not likely to impact on significant breeding habitat for conservation significant fauna.

The proposed clearing activities may result in the loss of foraging habitat for fauna species of conservation significance. Given the limited extent of the proposed clearing, the apparent lack of use of the targeted hollow-bearing trees by native fauna and the extensive tree cover in the country club grounds, the proposed clearing is not likely to significantly impact on foraging habitat for fauna species of conservation significance.

Eighteen of the trees targeted for clearing are situated within mapped occurrences of the priority 3 'Banksia Dominated Woodlands of the Swan Coastal Plain Interim Biogeographic Regionalisation of Australia (IBRA) Region' priority ecological community (PEC). This community is also listed as an 'Endangered' threatened ecological community (TEC) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). ArborCarbon (2017) advise that the species richness, understory diversity and cover of the remnant patches of native vegetation within the country club grounds have been simplified, likely as a result of weed species colonisation. A review of the application area using aerial photography and supporting information supplied by the applicant has found that the mapped occurrences of the above PEC where tree removal has been targeted appear to lack a diversified understory. Based on the above, the targeted removal of eighteen trees from mapped occurrences of this PEC is not expected to adversely impact the ecological values of any occurrences of this PEC, or adversely impact the extent of this PEC's occurrence in the local area.

In addition to the above PEC, a review of available databases found the following PEC's and TEC's exist within the local area:

- The 'Callitris preissii (or *Melaleuca lanceolata*) forests and woodlands, Swan Coastal Plain' TEC which is listed as 'Vulnerable' by the Western Australian Minister for Environment. The closest recorded occurrence of this TEC is situated approximately 2.2 kilometres southwest of the application area;
- The 'Acacia shrublands on taller dunes' priority 3 PEC. The closest recorded occurrence of this PEC is situated approximately 1.8 kilometres southwest of the application area;
- The 'Northern Spearwood shrublands and woodlands' priority 3 PEC. The closest recorded occurrence of this PEC is situated approximately 1.6 kilometres west-southwest of the application area; and
- The 'Banksia attenuata woodlands over species rich dense shrublands' TEC which is listed as 'Endangered' by both the Western Australian Minister for Environment and under the EPBC Act. The closest recorded occurrence of this TEC is situated approximately 5.2 kilometres north-east of the application area.

When consideration is given to the separation distances between the above ecological communities and the application area and the extent of the proposed clearing, the proposed clearing is not likely to impact the environmental values any of the above ecological communities or ecological linkage's promoting species diversity and recruitment within these ecological communities.

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). Within constrained areas (i.e. areas of urban development in cities and major towns) on the Swan Coastal Plain the target for representation of the pre-clearing extent of a particular native vegetation complex is 10 per cent (EPA

2006). The application area is located within a constrained area.

The application area forms part of the 'Swan Coastal Plain' IBRA region. This IBRA region retains over 38 per cent of its pre-European clearing extent (Government of Western Australia 2017a). The mapped Heddle vegetation complex's 'Karrakatta Complex-Central and South' and 'Cottesloe Complex-Central and South' currently retain over 23 and 32 per cent of their pre-European clearing extent, respectively (Government of Western Australia 2017b). Noting the above vegetation extents, the targeted removal of 26 trees in the confines of the country club grounds is not likely to impact the remaining extent of any of the above vegetation complexes.

A review of available databases has determined that the application area is situated 57 metres from the nearest mapped surface water feature, Lake Karrynyup. None of the trees targeted for removal exist in the vegetation fringing Lake Karrynyup. Given the extent of the proposed clearing and the distances between the application area and mapped surface water features, no vegetation communities growing in association with surface water features are expected to be adversely impacted by the proposed clearing.

Given the extent of the proposed clearing, these clearing activities are not likely to cause appreciable land degradation, result in deterioration in the quality of local surface water or groundwater resources, or cause or exacerbate the incidence or intensity of flooding.

The local area contains several managed conservation areas, the nearest of which is situated approximately 4.7 kilometres east-southeast of the application area. In addition, the country club is situated adjacent to a bush forever site covering the Lake Gwelup Reserve. Given the extent of the proposed clearing, the proposed clearing activities are unlikely to adversely impact any conservation areas, or ecological linkage's promoting species diversity and recruitment within conservation areas.

Given the above, the proposed clearing is not likely to be at variance to any of the clearing principles.

Planning instruments and other relevant matters.

Comments

ArborCarbon undertook a spatial shade assessment of the country club grounds using the height model derived from the multispectral imagery of these grounds. This assessment allowed the removal of trees to be targeted to those with the greatest impact on the quality of the golfing greens as a result of shade cast by their canopy and resulted in the proposed clearing being scaled down from 74 to 29 trees (ArborCarbon 2017). Three of the targeted trees are not subject to this assessment due to these trees not fitting the definition of native vegetation under the *Environmental Protection Act 1986*.

The applicant has committed to utilise a suitably qualified and experienced wildlife ecologist to monitor the targeted trees within 24 hours of the proposed clearing occurring to ensure no fauna are currently occupying the tree. Where fauna are found to be occupying the tree, clearing activities will be deferred until the tree has been vacated. The targeted trees will be cleared progressively and a qualified wildlife ecologist experienced with handling fauna will be on-site as each tree is cleared (ArborCarbon 2018).

The applicant has also committed to replant 40 Tuart, 10 Jarrah and 40 Marri trees within the country club grounds. These trees will be planted within remnant vegetation that is suitable for enhancement and around the perimeter of the country club grounds. The planted trees will be monitored and trees which do not survive will be replanted the following autumn. In addition, the applicant has also committed to developing the Lake Karrynyup Country Club Strategic Native Vegetation Conservation and Management Plan. This plan will guide the conservation and enhancement of the remnant vegetation within the country club grounds over a 10 year period (ArborCarbon 2018).

There are no registered Aboriginal Sites of Significance mapped within the application area.

The clearing permit application was advertised on DWER's website on 5 February 2018, with a 21 day submission period. No public submissions have been received in relation to this application.

A direct interest email was sent to the City of Stirling (the City) on 31 January 2018. The City advised in return correspondence on 1 February 2018 that they had no objections to the removal of non-local native trees or dead trees, but held strong reservations about the clearing of local native and endemic trees, especially Tuart trees. The City expressed concerns about the general loss of Tuart trees in the metropolitan region from physiological decline and clearing for development. In addition, the City is also aware that the 'Tuart Woodlands and Forests of the Swan Coastal Plain' are currently being considered for declaration as a TEC under the EPBC Act and by the Western Australian Minister for Environment. The City advised it would be prudent to defer any decision in relation to this application until a determination on the TEC status of the 'Tuart Woodlands and Forests of the Swan Coastal Plain' is reached.

To date, a decision on the TEC status of the 'Tuart Woodlands and Forests of the Swan Coastal Plain' ecological community has not been reached. The City's other concerns regarding this application are considered to have been addressed in Section 3 of this report, including by the applicant's commitment to re-establish 90 trees within the country club grounds in response to the removal of 26 remnant native trees. The trees to be re-established include 40 Tuart trees.

4. References

- ArborCarbon Pty Ltd (2017) 2018 Tree Clearing for Greens Management and Improvement – Background to Vegetation Clearing Area Permit Application. Lake Karrinyup Country Club Inc. Report No. LKCC J000213.
- ArborCarbon Pty Ltd (2018) Additional Information Provided to Support Clearing Permit Application CPS 7930/1. DWER Ref A1682040.
- Chapman, T. (2005) The status and impact of the Rainbow lorikeet (*Trichoglossus haematodus moluccanus*) in south-west Western Australia. Department of Agriculture and Food, Western Australia, Perth. Report 04/2005.
- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
- Department of Biodiversity, Conservation and Attractions (2007-) NatureMap: Mapping Western Australia's Biodiversity. Department of Parks and Wildlife. URL: <http://naturemap.dpaw.wa.gov.au/>.
- Department of Primary Industry and Regional Development (2017). NRInfo Digital Mapping. Department of Primary industry and Regional Development. Government of Western Australia. URL: <https://maps.agric.wa.gov.au/nrm-info/>.
- EPA (2006) Guidance for the Assessment of Environmental Factors - Level of Assessment for Proposals Affecting Natural Areas Within the System 6 Region and Swan Coastal Plain Portion of the System 1 Region. Guidance Statement No 10. Environmental Protection Authority, Western Australia.
- Government of Western Australia (2017a) 2017 Statewide Vegetation Statistics (formerly the CAR Reserve Analysis) - Full Report. Current as of December 2017 (based on most recent date of input datasets). Prepared by the Department of Biodiversity, Conservation and Attractions (DBCA), Perth. Published February 2018.
- Government of Western Australia (2017b) 2017 South West Vegetation Complex Statistics Report, Current as of October 2017. Prepared by the Department of Biodiversity, Conservation and Attractions (DBCA), Perth. Published February 2018.
- 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.
- Western Australian Herbarium (1998-) FloraBase - The Western Australian Flora. Department of Biodiversity, Conservation and Attractions. <http://florabase.dpaw.wa.gov.au/> (accessed May 2018).

GIS Databases:

- Aboriginal Sites of Significance
- Department of Biodiversity, Conservation and Attractions, Tenure
- Hydrography, COG Hydro
- Hydrography, General Hydro
- Hydrography, SLIP Hydro
- Hydrography, Swan Drainage Lines
- Hydrography, Swan Waterbodies
- Hydrography, Wetlands
- SAC bio datasets
- TPFL Data May 2018
- Vegetation Complexes – South West Forests
- WAHerb Data May 2018
- WA TEC PEC Boundaries