



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: 5304/1
File Number: 2012/007109-1
Duration of Permit: From 11 April 2013 to 11 April 2015

ADVICE NOTE

The funds referred to in condition 1 of this permit are intended for the purchase of significant remnant vegetation with Carnaby's cockatoo foraging habitat and value as an ecological stepping stone.

PERMIT HOLDER

The Roman Catholic Archbishop of Perth

LAND ON WHICH CLEARING IS TO BE DONE

LOT 594 ON PLAN 23204 (HOCKING 6065)

AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 2.07 hectares of native vegetation within the area hatched yellow on attached Plan 5304/1.

CONDITIONS

1. Monetary contributions to a fund maintained for the purpose of establishing or maintaining vegetation (offset)

Prior to undertaking any clearing authorised under this Permit, the Permit Holder shall provide documentary evidence to the CEO that funding of \$25,000 has been transferred to the Department of Environment and Conservation to purchase land for the purpose of establishing or maintaining native vegetation.

2. Vegetation management

- (a) Prior to 1 January 2014, the Permit Holder shall construct a fence enclosing the area hatched red on attached Plan 5304/1.
- (b) Within one month of installing the fence required by condition 2(a), the Permit Holder shall notify the CEO in writing that the fence has been completed.

3. Dieback and weed control

When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds* and *dieback*:

- (a) Clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) Only move soils in *dry conditions*;
- (c) Ensure that no *dieback* or *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
- (d) Restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

DEFINITIONS

The following meanings are given to terms used in this Permit:

dieback means the effect of *Phytophthora* species on native vegetation;

dry conditions means when soils (not dust) do not freely adhere to rubber tyres, tracks, vehicle chassis or wheel arches;

fill means material used to increase the ground level, or fill a hollow;

mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

weed/s means any plant -

- (a) that is declared under section 37 of the *Agriculture and Related Resources Protection Act 1976*;
or
- (b) published in the Department of Environment and Conservation Regional Weed Assessments, regardless of ranking; or
- (c) not indigenous to the area concerned.



M Warnock
MANAGER
NATIVE VEGETATION CONSERVATION BRANCH

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

11 April 2013

Plan 5304/1



LEGEND

Clearing Instruments

- Areas Subject to Conditions
- Areas Approved to Clear
- Road Centrelines
- Cadastre

Perth Metropolitan Area
Central 15cm Orthomosaic -
Landgate 2012

- Local Government Authorities



0 50 m

Scale 1:2000

(Approximate when reproduced at A4)

Geocentric Datum Australia 1994

Note: the data in this map have not been projected. This may result in geometric distortion or measurement inaccuracies.

M Warnock Date 11/4/13
M Warnock

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

Information derived from this map should be
confirmed with the data custodian acknowledged
by the agency acronym in the legend.



Department of
Environment and Conservation

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1. Application details

1.1. Permit application details

Permit application No.: 5304/1

Permit type: Area Permit

1.2. Proponent details

Proponent's name: The Roman Catholic Archbishop of Perth

1.3. Property details

Property: LOT 594 ON PLAN 23204 (House No. 720 WANNEROO HOCKING 6065)

Local Government Area: City of Wanneroo

Colloquial name: Hocking Catholic Primary School

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
2.07		Mechanical Removal	Building or Structure

1.5. Decision on application

Decision on Permit Application: Grant

Decision Date: 11 April 2013

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description

Mapped Beard vegetation association:
6 - Medium woodland; tuart & jarrah (Shepherd et al., 2001).

Hedde Complex:

Karrakatta Complex-Central and South: Predominantly open forest of *Eucalyptus gomphocephala* (Tuart) - *Eucalyptus marginata* (Jarrah) - *Corymbia calophylla* (Marri) and woodland of *Eucalyptus marginata* (Jarrah) - *Banksia* species. (Hedde et al, 1980)

ATA Environmental assessed the vegetation on 1 December 2006 and advised that the vegetation is predominantly a woodland of jarrah (*Eucalyptus marginata*), Sheoak (*Allocasuarina fraseriana*), *Banksia* (*Banksia attenuata*) over a moderately dense shrub understorey. Typical understorey species include *Hibbertia hypericoides*, *mesomelaena pseudostygia*, *Desmodium flexuosus*, *Macrozamia fraseri*, *Gompholobium tomentosum* and *Conostylis aurea*. The eastern portion of the site has fewer jarrah and sheoak trees and a greater abundance of *Banksia prionotes* and some *Banksia grandis* trees. Understorey species common in the eastern portion include *Jacksonia furcellata*, *Hakea prostrata*, *Xanthorrhoea preissii* and *Macrozamia fraseri*. Some young tuart trees also occur in the eastern portion of the site. A very small stand of marri (*Corymbia calophylla*) occurs in the northwest corner of the vegetated area (ATA

Clearing Description

The application is to clear up to 2.07 hectares of native vegetation for the purpose of constructing a catholic primary school off Wanneroo Road, Hocking.

The property is 9.99 hectares in size, with an approximately 5.9 hectare remnant of native vegetation on the eastern side. The remaining approximately 4.09 hectares of the property is cleared, supporting dense weeds (DEC, 2012).

Of the 5.9 hectare remnant, approximately 1.45 hectares is proposed to be retained within the proposed school site, with the majority in a remnant to the south of the school. The applicant advised that the remainder of the property is proposed to be developed in the future (DEC, 2012). This includes the remaining approximately 2.3 hectares of native vegetation on the western side of the remnant.

The Department of Environment and Conservation (DEC, 2012) inspected the vegetation and considered it ranges from excellent to degraded (Keighery, 1994) condition, with the majority in good (Keighery, 1994) condition.

The vegetation under application is predominantly open *Banksia*/Jarrah/ Sheoak woodland, with *Banksia* species dominating the overstorey across the majority of the application area. Overstorey species noted included marri (*Corymbia calophylla*), jarrah (*Eucalyptus marginata*), sheoak (*Allocasuarina* sp), *Banksia attenuata*, *B. menziesii*, *B. grandis*. Midstorey of *Macrozamia* sp, *Acacia* sp, *Xanthorrhoea preissii*, *Jacksonia furcellata*, *Hakea* sp. (DEC, 2012).

Banksias are the tallest canopy species

Vegetation Condition

Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994)

To

Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994)

Comment

Vegetation condition was determined through aerial imagery and site inspection conducted by the Department of Environment and Conservation on 9 November 2012 (DEC, 2012).

Environmental 2006).

Coffey Environments assessed the vegetation under application in spring 2007, broadly describing it as jarrah, banksia spp and sheoak open forest over species rich low open heath (Coffey Environments, 2007). Three vegetation types were described from the remnant vegetation under application.

across the majority of the site, especially the eastern and southern parts of the application area (DEC, 2012).

Eucalypt /marri trees are more common and more mature in the western side of the application area, further increasing in number in the adjacent vegetation to the west (DEC, 2012).

Weeds such as veldt grass are present throughout the application area and are most dense around the edges, up to approximately 10 metres into the vegetation where they have largely replaced the native understorey (DEC, 2012). Litter occurs at relatively low densities and is largely restricted to the outside of the firebreak, adjacent to roads (DEC, 2012).

The eastern half of the application area is generally in more disturbed condition than the western half, has fewer eucalyptus type over storey trees, reduced native understorey and greater levels of weed invasion (DEC, 2012). The majority of this vegetation is in good (Keighery, 1994) condition.

The western half of the application area is mostly in very good to good (Keighery, 1994) condition, also containing an area of excellent to very good (Keighery, 1994) condition vegetation (DEC, 2012).

The majority of the vegetation that is proposed to be retained is to the south of the application area, where the vegetation is mostly in good to degraded (Keighery, 1994) condition (DEC, 2012).

There are two small tracks into the vegetation that appear to have been recently cleared, the first approximately 15 metres long from the eastern firebreak and the second approximately 13 metres long from the track in the southern part of the application area (DEC, 2012).

3. Assessment of application against clearing principles

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

Comments

Proposal is at variance to this Principle

The application is to clear up to 2.07 hectares of native vegetation for the purpose of constructing a new Catholic primary school.

The Department of Environment and Conservation (DEC) wrote to the proponent on 14 January 2013, requesting appropriately timed targeted flora and vegetation surveys, and information on how impacts identified in the preliminary assessment will be avoided or minimised and an offset for unavoidable impacts. In response the proponent's consultant provided a spring flora and vegetation survey report by Coffey Environments from 2007 and commented on the impacts identified in the preliminary assessment.

The vegetation under application is part of a relatively large (5.9 hectare) remnant of native vegetation in an area that has been significantly cleared for residential, industrial and horticultural purposes.

Of the 5.9 hectare remnant, 2.07 hectares is subject to the current clearing application for a primary school; approximately 1.45 hectares is proposed to be retained within the proposed school site (with the majority as a remnant to the south of the school building footprint); and the remaining approximately 2.3 hectares on the western side of the remnant is earmarked for future development on the western side of the property (DEC, 2012).

The area under application is within a relatively high (800 millimetre) rainfall area, where disturbance associated with the removal of native vegetation poses a high risk of the introduction or spread of weeds and dieback (*Phytophthora cinnamomi*) to the surrounding area. Considering this and edge effects, the retained vegetation will have reduced long term viability.

The vegetation under application is described as Banksia woodland with scattered eucalyptus and marri trees in excellent to degraded (Keighery, 1994) condition, with the majority in good (Keighery, 1994) condition (DEC,

2012).

The application area is approximately 3 kilometres to the northwest of an occurrence of a threatened ecological community (TEC) SCP 20a: *Banksia attenuata* woodland over species rich dense bushlands. The vegetation proposed to be cleared is *Banksia attenuata* woodland and is located on the same mapped vegetation and soil types as the nearest occurrence of this TEC. A flora and vegetation survey of the property conducted by Coffey Environments in spring 2007 recorded species and site characteristics from seven 10 x 10 metre quadrats to categorise the vegetation units present (Coffey Environments, 2007). Four of the quadrats were within the application area and one was within the vegetation to be retained to the south. Coffey Environments inferred the floristic community type (FCT) of the remnant vegetation onsite to be FCT 28 (Coffey Environments, 2007).

There are records of numerous rare and priority flora species within the local area (10 kilometre radius). Coffey Environments (2007) reported that, on 2 October 2007, the entire site was thoroughly traversed in transects approximately 20 metres in width to search for conservation significant flora. Approximately 50 plants of a Priority 4 (P4) flora species were recorded in the southern part of the site (Coffey Environments, 2007). The report's mapping of the location of the P4 flora indicates a portion of the area in which this species occurs is within the application area, however the proponent's consultant has advised that the architects designed the school to specifically avoid the P4 flora and therefore none of the plants will be cleared (PGV Environmental, 2013). Due to the close proximity, the proposed clearing may result in edge effects and indirect impacts to the P4 flora population. There are records of this species from 34 locations within the local area, however some of the nearby populations are unlikely to remain due to development. Therefore maintaining the majority of the population on the property would help keep the species represented in the local area. The conservation of the remaining plants would be dependent on maintaining the quality of the habitat. An appropriate management action would be to fence the area of the remnant which will be retained to restrict access, as this will reduce degradation through human disturbance.

The vegetation under application may comprise suitable habitat for a rare orchid species that grows in deep sandy soil, in mixed woodland of jarrah and *Banksia* (Brown et al., 1998), however it is rare in the Karrakatta sands of the application area and was not recorded during the appropriately timed flora survey of the property.

The vegetation under application contains significant foraging habitat for Carnaby's cockatoo (*Calyptorhynchus latirostris*), which is a state and federally listed species. Signs of foraging on cones of *Banksia* trees was recorded within the application area during a DEC site visit on 9 November 2012 (DEC, 2012). In addition to fauna species of conservation significance, the vegetation under application may also provide suitable habitat and a refuge for a range of other indigenous mammal and avifauna. It also has value as an ecological stepping stone between vegetated remnants and nearby conservation areas in the extensively cleared landscape.

Given the above, the vegetation under application comprises high biological diversity and the proposed clearing is at variance to this principle.

To address the environmental impacts identified in this assessment, DEC has approved the applicant's offset package which comprises contributing funds towards the purchase of 24 hectares of vegetation to offset the loss of significant Carnaby's cockatoo feeding habitat and impacts to a significant remnant with high biodiversity value in a highly cleared landscape.

Fencing the remaining vegetation in the south of the school site, dieback and weed control measures will assist in preventing further indirect impacts to the remnant vegetation and the population of priority flora.

Methodology

References:

- Brown et al., 1998
- Coffey Environments, 2007
- DEC, 2012
- Keighery, 1994
- PVG Environmental, 2012
- PGV Environmental, 2013
- GIS Databases:
 - Bush Forever
 - DEC Tenure
 - Hedde Vegetation Complex
 - NLWRA, Current Extent of Native Vegetation
 - Perth Metropolitan Central 15cm Orthomosaic - Landgate 2011
 - Pre-European vegetation
 - Rainfall, Mean Annual
 - SAC Biodatasets - Accessed 31/10/2012
 - Soils, Statewide

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

Comments

Proposal is at variance to this Principle

The vegetation under application is part of a relatively large (5.9 hectare) remnant of native vegetation in an

area that has been significantly cleared for residential, industrial and horticultural purposes.

Of the 5.9 hectare remnant, 2.07 hectares is subject to the current clearing application for a primary school; approximately 1.45 hectares is proposed to be retained within the proposed school site (with the majority as a remnant to the south of the school building footprint); and the remaining approximately 2.3 hectares on the western side of the remnant is earmarked for future development on the western side of the property (DEC, 2012).

There are records of five fauna species listed as Rare or Likely to Become Extinct under the Wildlife Conservation Act 1950 (WC Act) within the local area (10 kilometre radius), being:

- *Calyptorhynchus latirostris* (Carnaby's cockatoo)
 - *Bettongia penicillata* subsp. *ogilbyi* (woylie)
 - *Dasyurus geoffroii* (chuditch)
 - *Petrogale lateralis* subsp. *lateralis* (black-flanked rock-wallaby)
 - *Pogona minor* subsp. *minima* (dwarf bearded dragon)
- (DEC, 2007-)

A further five species of priority fauna and three otherwise protected fauna species have also been recorded in the local area (DEC, 2007-).

The Carnaby's cockatoo population has declined by at least 50 per cent over the past 45 years (Cale, 2003). This species is also listed as endangered under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). Carnaby's cockatoo nests in large hollows of eucalyptus trees and forages on the seeds, nuts and flowers of a large variety of plants including Proteaceous species (*Banksia*, *Hakea*, *Grevillea*), as well as *Allocasuarina* and *Eucalyptus* species, *Corymbia calophylla* and a range of introduced species, especially seeds from cones of *Pinus* species (Shah, 2006; Valentine and Stock, 2008).

The application area is approximately 4 kilometres east and 4 kilometres west of confirmed Carnaby's cockatoo roost areas and is within the buffer to these areas. Carnaby's cockatoo forages intensively in suitable vegetation within 15 kilometres of a roost site.

A survey of the trees on the site was undertaken by PGV Environmental in May 2011 to identify any trees within the 5.9 hectare remnant that may be existing or potential breeding habitat for black cockatoos (PVG Environmental, 2011). A 2012 review, by PGV Environmental, of the impacts of the proposed school on the EPBC Act reported the density of *Banksia* trees in the application area is moderate compared to other *Banksia* woodlands in the Perth Metropolitan Region, the vegetation is in good health and no evidence of foraging on the site was observed during the 2011 tree survey (PVG Environmental, 2012). PGV Environmental concluded that, given the overall small size of the patch of native vegetation on the site, the quality of habitat as a foraging source is considered to be low and advised that the proposed clearing is unlikely to result in a significant impact on Carnaby's cockatoo and referral under the EPBC Act may not be required (PVG Environmental, 2012).

It is acknowledged that a consultant was engaged to conduct targeted black cockatoo surveys and provided the above advice on the significance of the clearing and obligations under the EPBC Act. However, the vegetation under application includes preferred feeding habitat for Carnaby's cockatoo and chewed *Banksia* cones were recorded within the application area during a site visit by the Department of Environment and Conservation (DEC) on 9 November 2012 (DEC, 2012). One of the major threats to Carnaby's cockatoo is the cumulative clearing of feeding habitat on the Swan Coastal Plain (Cale, 2003). Given this, all feeding habitat within the Swan Coastal Plain is considered significant. Any clearing of cockatoo feeding habitat on the Swan Coastal Plain habitat will contribute to the cumulative loss and fragmentation of habitat that is occurring on the Swan Coastal Plain and poses a significant threat to the long term survival of Carnaby's cockatoo.

Considering the above, the vegetation proposed to be cleared represents significant feeding habitat for Carnaby's cockatoo.

The vegetation under application also supports potential habitat for forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*) which is listed as Rare or Likely to Become Extinct under the WC Act and endangered under the EPBC Act. This species has not been recorded in the local area, however the application area is within its modelled distribution (SEWPAC, 2012). While the vegetation proposed to be cleared may be utilised by forest red-tailed black cockatoo, it is unlikely to represent significant habitat for this species.

PVG Environmental's 2011 tree survey recorded eleven trees with a diameter of 50 centimetres or greater within the 5.9 hectare remnant (PVG Environmental, 2011), one of which appears to be located within the application area. Two of the large trees were reported to contain hollows, one of which was being used by feral honeybees (PVG Environmental, 2011). The proposed clearing of one potential habitat tree is not likely to significantly impact native fauna. The current design for the school shows 55 mature trees within the application area are to be retained and 18 are to be removed (Roman Catholic Archbishop of Perth, 2012). The applicant has advised that the predominant area where trees are to be retained is in the vicinity of the oval area (western side of the application area), but that they will also be retained within the building precinct area, where possible (Roman Catholic Archbishop of Perth, 2012).

In addition to species of conservation significance, the vegetation under application may also provide suitable

habitat and a refuge for a range of other indigenous mammals and avifauna. It also has value as an ecological stepping stone between vegetated remnants and nearby conservation areas in the extensively cleared landscape.

Considering the above, the proposed clearing comprises a significant habitat for indigenous fauna and is at variance to this principle.

To address the environmental impacts identified in this assessment, DEC has approved the applicant's offset package which comprises contributing funds towards the purchase of 24 hectares of vegetation to offset the loss of significant Carnaby's cockatoo feeding habitat and impacts to a significant remnant with high biodiversity value in a highly cleared landscape.

Fencing the remaining vegetation in the south of the school site, dieback and weed control measures will assist in preventing further indirect impacts to the remnant vegetation.

Methodology

References:

- Cale, 2003
- DEC, 2007-
- DEC, 2012
- PVG Environmental, 2011
- PVG Environmental, 2012
- Roman Catholic Archbishop of Perth, 2012
- SEWPAC, 2012
- Shah, 2006
- Valentine and Stock, 2008
- GIS Databases:
 - Bush Forever
 - DEC Tenure
 - NLWRA, Current Extent of Native Vegetation
 - Perth Metropolitan Central 15cm Orthomosaic - Landgate 2011
 - Pre-European vegetation
 - SAC Biodatasets - Accessed 31/10/2012
 - Soils, Statewide

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

Comments

Proposal is not likely to be at variance to this Principle

There are records of two rare flora species within the local area (10 kilometre radius).

The closest record is an orchid species that has been recorded approximately 5 kilometres east-southeast of the application area. This species grows in deep sandy soil, in mixed woodland of Jarrah and Banksia and tends to favour areas of lush undergrowth (Brown et al., 1998). In the Perth metropolitan area much of its remaining habitat is threatened by development and its growth is suppressed by weed invasion (Brown et al., 1998). This species is rare in the Karrakatta sands of the application area. A flora and vegetation survey of the property was conducted by Coffey Environments on 2 October 2007, and the entire site was reportedly thoroughly traversed in transects approximately 20 metres in width to search for conservation significant flora (Coffey Environments, 2007). The flora survey was conducted at an appropriate time of year to identify this rare species in flower. As the likelihood of this orchid occurring in the habitat type of the application area is low and the systematic 20 metre transects would have given a reasonable coverage, it is unlikely this species occurs within the vegetation proposed to be cleared.

The second rare flora species inhabits white sand over limestone on low coastal cliffs (Western Australian Herbarium, 1998-). The area under application does not support suitable habitat for this species.

Given the above, the area under application is unlikely to support rare flora and is not likely to be at variance to this principle.

Methodology

References:

- Brown et al., 1998
- Coffey Environments, 2007
- Western Australian Herbarium, 1998-
- GIS Databases:
 - Perth Metropolitan Central 15cm Orthomosaic - Landgate 2011
 - Pre-European vegetation
 - SAC Biodatasets - Accessed 31/10/2012
 - Soils, Statewide

(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

The application area is approximately 3 kilometres to the northwest of a mapped occurrence of the endangered threatened ecological community (TEC) SCP20a: *Banksia attenuata* woodland over species rich dense bushlands. Aerial imagery indicates this occurrence has recently been cleared.

There are occurrences of this TEC to the north and south of the application area, on the same mapped vegetation and soil types as the application area.

The vegetation under application is *Banksia* woodland in excellent to degraded (Keighery, 1994) condition. An area of higher quality vegetation in the central to western part of the application area was observed to have a dense native understorey (DEC, 2012).

A flora and vegetation survey of the property conducted by Coffey Environments in spring 2007 recorded species and site characteristics from seven 10 x 10 metre quadrats to categorise the vegetation units present (Coffey Environments, 2007). Four of the quadrats were within the application area and one was within the vegetation to be retained to the south.

Coffey Environments (2007) described three vegetation types occurring within the remnant bushland and concluded that the remnant vegetation within the study area most likely aligns with floristic community type (FCT) 28 Spearwood *Banksia attenuata* -*Eucalyptus* woodlands (not threatened).

Banksia attenuata-*Eucalyptus marginata* woodlands over species rich dense shrublands (SCP 20a) are very restricted and are the richest of any *Banksia* community found on the Swan Coastal Plain, containing up to 80 different plant species in one hundred square metres. The northern group of occurrences occur on the eastern fringes of the Spearwood soil and landform unit. The more common *Banksia* community B. *attenuata*-*Eucalyptus* woodlands (FCT 28) share close affinity to the TEC, with a high crossover of flora taxa present within these communities, however FCT 28 is noticeably less species rich than the TEC.

Coffey Environments did not provide information on the statistical methods used in determining floristic community types present at this site and how they reached their conclusions in the delineation of SCP 20a and FCT 28. The best way to determine the floristic community types present at a new site on the Swan Coastal Plain is to repeat methods as described in the Gibson et al (1994) report Floristic Survey of the Southern Swan Coastal Plain using appropriate statistical techniques and parameters.

Upon review of the information provided in Coffey Environments' (2007) report, DEC considered that two of the sites (Quadrat 1 and Quadrat 2) within the application area may align with the TEC SCP 20a and conducted an observational visit to the site. Observation of the remnant bushland and in particular Quadrat 1 and Quadrat 2 from the Coffey Environments (2007) survey indicated these sites have similarity to the TEC, however they lack the species richness usually present within the TEC. In addition, a number of flora taxa that were recorded on the property are found in FCT 28 sites but not within SCP 20a sites, including *Banksia prionotes*, *Caesia micrantha*, *Elythranthera brunonis*, *Leucopogon propinquus*, and *Macrozamia riedlei*. As a consequence the site is considered to align more closely with FCT 28.

Considering the above, the vegetation under application is unlikely to be an occurrence of the TEC SCP 20a and the proposed clearing is not likely to be at variance to this principle.

Methodology

References:

Coffey Environments, 2007

DEC, 2012

Keighery, 1994

GIS Databases:

- Perth Metropolitan Central 15cm Orthomosaic - Landgate 2011

- Pre-European vegetation - DA 03/07

- SAC Biodatasets - Accessed 31/10/2012

- Soils, Statewide - DAFWA 11/99

(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

The local area (10 kilometre radius) has been extensively cleared for residential, industrial and horticultural purposes, with approximately 15 percent native vegetation cover remaining.

The property is 9.99 hectares in size, with an approximately 5.9 hectare remnant of native vegetation on the eastern side. Of the 5.9 hectare remnant, 2.07 hectares is subject to the current clearing application for a primary school; approximately 1.45 hectares is proposed to be retained within the proposed school site (with the majority as a remnant to the south of the school building footprint); and the remaining approximately 2.3 hectares on the western side of the remnant is earmarked for future development on the western side of the property (DEC, 2012).

The vegetation under application is mapped as Beard Vegetation Association 6; medium tuart and jarrah woodland

(Shepherd et al., 2001) and Karrakatta Complex Central and South (Hedde et al., 1980). There is approximately 24 percent and 25 percent, respectively, of the pre-European extent of these vegetation types remaining within the Swan Coastal Plain IBRA region (Government of Western Australia, 2011; Shepherd, 2007).

The National Objectives and Targets for Biodiversity Conservation include a target that prevents the clearance of ecological communities with an extent below 30 percent of that present pre-European settlement (Commonwealth of Australia, 2001). Both of the mapped vegetation complexes associated with the area under application are below the State Government's target of 30 percent retention. However, the Environmental Protection Authority (EPA) recognises the Perth Metropolitan Region as a constrained area, which provides for the reduction of vegetation complexes to a minimum of 10 percent of the pre-European extent (EPA, 2006).

The City of Wanneroo (2012) advised that its Local Biodiversity Strategy 2011-16 indicates the Karrakatta Central and South vegetation complex is currently protected below 10 percent of its original extent and as such further protection is a high priority and should be protected wherever possible. There is approximately 5 percent (2,914 hectares) of this vegetation type in DEC managed lands (Shepherd, 2007).

There are numerous conservation areas in the local area, consisting predominantly of Bush Forever Sites in two roughly parallel strings to the east and west of the application area. The application area is one of the few areas of remnant vegetation located between these two strings.

Due to the location of the applied area and distance to other remnants, the vegetation under application is likely to be significant as a stepping stone between these areas, facilitating gene transfer that supports the viability of smaller remnants and contributes to the value of the conservation areas.

The vegetation under application is significant feeding habitat for the threatened Carnaby's cockatoo and contains part of a population of priority flora.

Although the area under application is located within the Perth Metropolitan Region and comprises a vegetation association that retains over 10 percent of its pre-European extent, at a local scale this vegetation is considered to be significant as a remnant of native vegetation in an area that has been extensively cleared and is of high conservation value.

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

To address the environmental impacts identified in this assessment, DEC has approved the applicant's offset package which comprises contributing funds towards the purchase of 24 hectares of vegetation to offset the loss of significant Carnaby's cockatoo feeding habitat and impacts to a significant remnant with high biodiversity value in a highly cleared landscape.

Fencing the remaining vegetation in the south of the school site, dieback and weed control measures will assist in preventing further indirect impacts to the remnant vegetation and the population of priority flora.

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in DEC Managed Lands (%)
IBRA Bioregion*				
Swan Coastal Plain	1,501,209	587,832	39	34
Shire*				
City of Wanneroo	67,698	31,541	46	50
Beard Vegetation Association in Bioregion*				
6	56,343	14,019	24	35 (4,995 ha)
Hedde Vegetation Complex **				
Karrakatta Complex-Central And\South	49,735	12,788	25	5 (2,914 ha)

*Government of Western Australia, 2011

** Shepherd, 2007

Methodology

References:
 City of Wanneroo, 2012
 Commonwealth of Australia, 2001
 DEC, 2012
 EPA, 2006
 Government of Western Australia, 2011
 Hedde et al., 1980

PGV Environmental, 2013
 Shepherd et al., 2001
 Shepherd, 2007
 GIS Databases:
 - Bush Forever
 - DEC Tenure
 - Heddle Vegetation Complex
 - IBRA WA
 - NLWRA, Current Extent of Native Vegetation
 - Perth Metropolitan Central 15cm Orthomosaic - Landgate 2011
 - Pre-European vegetation
 - SAC Biodatasets - Accessed 31/10/2012

(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 not likely to be at variance to this Principle

There are no watercourses or wetlands mapped within the application area.

The application area comprises predominantly dryland Banksia/jarrah woodland vegetation, however site inspection by Department of Environment and Conservation officers on 7 November 2012 noted the application area is situated relatively low in the landscape and supports some species that occur in damp environments (DEC, 2012).

The application area is located between two strings of Conservation Category Wetlands (CCW) in the Herdsman Complex and lakes to which the Environmental Protection Policy Swan Coastal Plain Lakes 1992 applies (EPP lakes). The nearest wetland is the Lake Joondalup CCW, approximately 1.4 kilometres to the west of the application area. This wetland is listed on the National Directory of Important Wetlands and is an EPP lake.

While the vegetation contains some dampland species, considering the distance to wetlands, the vegetation under application is unlikely to be growing in association with the Lake Joondalup wetland.

The proposed clearing is not likely to be at variance to this principle.

Methodology References:
 DEC, 2012
 GIS Databases:
 - Directory of Important Wetlands
 - EPP Lakes Policy Area
 - Geomorphic wetlands (Mgt Categories), Swan Coastal Plain
 - Hydrography, linear

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

Comments Proposal may be at variance to this Principle

Chief soils within the applied area are described as brown sands in an undulating dune landscape, with associated siliceous sands and leached sands (Northcote et al., 1960-68).

A site inspection conducted by the Department of Environment and Conservation (DEC) on 7 November 2012 noted deep fine sands within the application area (DEC, 2012), therefore the risk of wind erosion is high.

There is also a risk of nutrient export associated with the removal of native vegetation from sandy soils.

Given the size of the area proposed to be cleared (2.07 hectares) and the high risk of wind erosion the proposed clearing may be at variance to this principle. Appropriate management practices will minimise this risk.

Methodology References:
 DEC, 2012
 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 Proposal may be at variance to this Principle

The vegetation under application is in an area that has been significantly cleared for residential, industrial and horticultural purposes.

The vegetation under application is part of a relatively large (5.9 hectare) remnant of native vegetation in excellent to degraded (Keighery, 1994), with the majority in good (Keighery, 1994) condition (DEC, 2012).

A further approximately 2.3 hectares of the western side of the remnant is earmarked for development, leaving approximately 1.45 hectares predominantly in the highly disturbed eastern and southern parts of the site. This vegetation will have greatly reduced long term viability.

There are numerous conservation areas within the local area (10 kilometre radius), consisting predominantly of Bush Forever Sites in two roughly parallel strings to the east and west of the application area. The application area is one of the few areas of remnant vegetation located between these two strings. The closest conservation areas are Bush Forever Site 299; Yellagonga Regional Park and Bush Forever Site 327; Badgerup Lake and Adjacent Bushland, which are approximately 1 kilometre to the west and 1.8 kilometres to the east, respectively.

The Lake Joondalup and Jandabup Nature Reserves are located within two of the Bush Forever Sites and the Gngangara-Moore River state forest is approximately 5 kilometres to the east of the application area.

Given the condition, size and location of the application area and distances to conservation reserves and other remnants of native vegetation, the applied area may be significant as a stepping stone to link these areas ecologically, and facilitate the gene transfer that sustains their viability and conservation value.

The proposed clearing of 2.07 hectares of this remnant may be at variance to this principle.

To address the environmental impacts identified in this assessment, DEC has approved the applicant's offset package which comprises contributing funds towards the purchase of 24 hectares of vegetation to offset the loss of significant Carnaby's cockatoo feeding habitat and impacts to a significant remnant with high biodiversity value in a highly cleared landscape.

Fencing the remaining vegetation in the south of the school site, dieback and weed control measures will assist in preventing further indirect impacts to the remnant vegetation and the population of priority flora.

Methodology References:
Keighery, 1994
GIS Databases:
- Bush Forever
- DEC Tenure
- NLWRA, Current Extent of Native Vegetation
- Perth Metropolitan Central 15cm Orthomosaic - Landgate 2011

(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

The nearest watercourse is Bennett Brook, approximately 10 kilometres to the southeast of the application area.

The application area is located between two strings of Conservation Category Wetlands (CCW) in the Herdsman Complex and lakes that the Environmental Protection Policy Swan Coastal Plain Lakes 1992 (EPP) applies to. The nearest wetland is the Lake Joondalup CCW, approximately 1.4 kilometres to the west of the application area. This wetland is listed on the National Directory of Important Wetlands and is an EPP lake.

A priority 3 underground water pollution control area exists over the Lake Joondalup system area and extends to within approximately 300 metres to the west of the application area.

Groundwater salinity for the area under application is less than 500mg /L total dissolved solids, therefore salinity risk for the proposed clearing is considered to be low.

There is a risk of nutrient export associated with the removal of native vegetation from sandy soils, however given the distance to watercourses and wetlands and that the application area is in an area that is extensively developed for urban, industrial and horticultural purposes, the proposed clearing is unlikely to result in appreciable deterioration in water quality.

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

Methodology GIS Databases:
- Directory of Important Wetlands
- EPP Lakes Policy Area
- Geomorphic wetlands (Mgt Categories), Swan Coastal Plain - DEC
- Groundwater Salinity, Statewide
- Hydrography, linear
- Public Drinking Water Source Areas
- Salinity Risk

(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

Chief soils within the applied area are described as brown sands in an undulating dune landscape, with associated siliceous sands and leached sands (Northcote et al., 1960-68).

The nearest watercourse is Bennett Brook, approximately 10 kilometres southeast of the area under application.

Given the sandy soil type and distance to the nearest watercourse the proposed clearing is unlikely to cause, or exacerbate the incidence or intensity of flooding and is not likely to be at variance to this principle.

Methodology

References:

Northcote et al., 1960-68

GIS Databases:

- Hydrography, linear

- Soils, Statewide

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

Comments

The applicant has advised that the clearing under application is for stage 1 and stage 2 of the school development, which should be all the clearing that is required to accommodate the whole school (Roman Catholic Archbishop of Perth, 2012).

The applicant obtained approval (ref: 145882) from the Western Australian planning Commission (WAPC) on 21 June 2012 to subdivide the property (WAPC, 2012). Approved subdivision plans have not been provided, however other plans supplied indicate the subdivision approval may allow the property to be split into a western 6.6 hectare 'superlot' and an eastern 3.3 hectares 'proposed primary school'.

The City of Wanneroo (2012) advised that the land is zoned as Urban Development under the District Planning Scheme No 2 and designated 'Private School Site' under the Local Structure Plan No 6 (East Wanneroo Cell 4).

The City of Wanneroo (2013) granted Planning Approval for Stage 1 of the school development on 3 January 2013. A condition of the planning approval is that all trees illustrated on the approved plans must be retained. This is consistent with the school design site plans provided by the applicant, which indicate these trees will be retained. The City of Wanneroo has not approved stage 2 of the school development.

The Department of Environment and Conservation (DEC) conducted a preliminary assessment of the proposed clearing and wrote to the proponent on 14 January 2013, providing the opportunity to respond to the impacts identified in the preliminary assessment report. In particular, requesting appropriately timed targeted flora and vegetation surveys, and information on how impacts identified will be avoided or minimised and an offset for unavoidable impacts.

The applicant's consultant responded on 6 February 2013, providing the report for Coffey Environments' 2007 spring flora and vegetation survey and advising that:

- The proponent has undertaken targeted black cockatoo surveys on the site and received advice on the significance of clearing and their obligations under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999;
- A spring flora and vegetation survey was undertaken on the site on 2 October 2007 by Coffey Environments. The timing of the survey was appropriate to identify the rare flora species in flower had it been there. No rare flora were recorded.
- The Coffey Environments flora and vegetation report concluded that the vegetation types on the site were likely to be FCT 28, not 20a (PGV Environmental, 2013).

This information has been considered and addressed where appropriate in the assessment against the clearing principles.

The application area is within the Wanneroo Groundwater Area proclaimed under the Rights in Water and Irrigation Act 1914 (RIWI Act). The abstraction of groundwater in this area may require licensing from the Department of Water (DoW). The DoW (2012) advised it has no comment in relation to this clearing permit application.

No public submissions were received in relation to this application.

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

Methodology

References:

City of Wanneroo, 2012

City of Wanneroo, 2013

DEC, 2012

DoW, 2012
PGV Environmental, 2013
Roman Catholic Archbishop of Perth, 2012
WAPC, 2012
GIS Databases:
- Aboriginal Sites of Significance
- RIWI Act, Areas

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5. 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)