



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

ADVICE NOTE

The funds referred to in condition 2 of this permit are intended for contributing towards the purchase of 2.8 hectares of native vegetation containing similar environmental values to the application area, being; habitat for Carnaby's cockatoo (*Calyptorhynchus latirostris*), forest red-tailed Black Cockatoo (*Calyptorhynchus banksii* subsp. *naso*) and Baudin's Cockatoo (*Calyptorhynchus baudinii*).

PERMIT DETAILS

Area Permit Number: CPS 8656/1

File Number: DWERTV3366

Duration of Permit: From 19 April 2020 – 19 April 2022

PERMIT HOLDER

Rhyian Pty Ltd

LAND ON WHICH CLEARING IS TO BE DONE

Lot 1001 on Deposited Plan 408990, Murdoch

AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 1.47 hectares of native vegetation within the area hatched yellow on attached Plan 8656/1.

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

Prior to undertaking any clearing authorised under this Permit and no later than 19 April 2021, the Permit Holder shall provide documentary evidence to the *CEO* that funding of \$84,112 has been transferred to the Department of Water and Environmental Regulation for the purpose of establishing or maintaining native vegetation.
- 3. Wind erosion management**

The Permit Holder shall not clear native vegetation unless development commences within three months of the authorised clearing being undertaken.

4. Records must be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit:

- (a) In relation to the clearing of native vegetation authorised under this Permit:
 - (i) 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;
 - (ii) the date that the area was cleared; and
 - (iii) the size of the area cleared (in hectares).
- (b) Actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 1 of the Permit; and
- (c) The date development commenced in accordance with condition 3 of the Permit.

5. Reporting

The Permit Holder must provide a written report of records required under condition 4 of this Permit when requested by the *CEO*.

DEFINITIONS

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

CEO means the Chief Executive Officer of the Department responsible for administering the clearing provisions contained within the *Environmental Protection Act 1986*;



Mathew Gannaway
MANAGER
NATIVE VEGETATION REGULATION

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

20 March 2020

Plan 8656/1

32.078046°S

32.078046°S

115.841649°E

115.841649°E







115.841649°E

115.841649°E

32.079378°S

32.079378°S

Legend

-  Imagery
-  Cadastre
-  Clearing Instruments Activities
-  Roads




1:1,647

(Approximate when reproduced at A4)

GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

 Date 20/03/2020
Mathew Gannaway

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



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1. Application details

1.1. Permit application details

Permit application No.: 8656/1
Permit type: Area Permit

1.2. Applicant details

Applicant's name: Rhyian Pty Ltd
Application received date: 22 August 2019

1.3. Property details

Property: Lot 1001 on Deposited Plan 408990, Murdoch
Local Government Authority: City of Melville
Localities: Murdoch

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	Purpose category:
1.47		Mechanical Removal	Building or structure

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 20 March 2020

Reasons for Decision: The clearing permit application was received on 28 August 2019 and has been assessed against the clearing principles, planning instruments and other matters in accordance with section 510 of the *Environmental Protection Act 1986* (EP Act). It has been concluded that the proposed clearing is at variance with principles (a) and (e), may be at variance with principle (g) and is not likely to be at variance with any of the remaining clearing principles.

Through assessment the Delegated Officer determined that the proposed clearing may cause appreciable land degradation in the form of wind erosion. To mitigate potential impacts as a result of wind erosion a condition requiring the applicant to commence works within two months of clearing has been placed on the permit.

The Delegated Officer determined that the application area is considered to be a significant remnant within an extensively cleared landscape. However, the application area is located within the Permit Metropolitan Region which the EPA has a modified objective to retain at least 10 per cent of the pre-clearing extent of vegetation complexes for defined constrained areas. Noting this, the remnant native vegetation within the local area is above the 10 percent threshold.

The Delegated Officer also determined that the application area contains 0.53 hectares of significant foraging habitat for forest red-tailed Black Cockatoo (*Calyptorhynchus banksii* subsp. *naso*), Baudin's Cockatoo (*Calyptorhynchus baudinii*) and Carnaby's Cockatoo (*Calyptorhynchus latirostris*).

Consistent with the WA Environmental Offset Policy (2011) and WA Environmental Offsets Guidelines (2014), and pursuant to section 511(2)(b) of the EP Act, in order to mitigate the significant residual environment impacts described above, the Permit Holder is required to provide an offset through the provision of a monetary contribution of \$84,112 to the Department of Water and Environmental Regulation (DWER) for the purchase and conservation of 2.8 hectares of remnant native vegetation. The abovementioned offset is determined to adequately address the residual impact to black cockatoo foraging habitat as a result of clearing.

In determining to grant a clearing permit subject to offset and wind erosion management conditions, the Delegated Officer found that the proposed clearing is not likely to lead to an unacceptable risk to the environment.

2. Site Information

Clearing Description The application is to clear 1.47 hectares of native vegetation within Lot 1001 on Deposited Plan 408990, Murdoch, for the purpose of construction of commercial premises.

Vegetation Description The application area is mapped in the 'Swan Coastal Plain' region of the Interim Biogeographic Regionalisation for Australia (IBRA), and is mapped as the 'Bassendean Complex-Central and South Swan Coastal Plain vegetation complex which is described as vegetation that ranges from woodland of *Eucalyptus marginata* (jarrah) - *Allocasuarina*

fraseriana (sheoak) - *Banksia* species to low woodland of *Melaleuca* species, and sedgeland on the moister sites. This area includes the transition of *Eucalyptus marginata* (jarrah) to *Eucalyptus totiana* (pricklybark) in the vicinity of Perth (Heddl et al., 1980).

A reconnaissance flora and vegetation survey undertaken within the application on 24 June 2019 identified that the application area comprises of sandy soils adjacent to low lying areas, with some remnant native vegetation in addition to planted vegetation and heavily disturbed areas. The vegetation types identified within the application area are described as:

- **BaBm** - Low open woodland of *Banksia menziesii*, *Banksia attenuata*, *Banksia ilicifolia*, *Eucalyptus marginata* and *Nuytsia floribunda* over open shrubland of *Kunzea glabrescens*, *Xanthorrhoea preissii* and *Allocasuarina humilis* over low shrubland of *Acacia pulchella* var. *glaberrima*, *Stirlingia latifolia*, *Eremaea pauciflora* var. *pauciflora* and *Hibbertia* spp. over formland of *Desmocladius flexuosus*, *Patersonia occidentalis* and *Lomandra* spp. and open grassland of **Ehrharta calycina* and **Briza maxima* (0.47 hectares);
- **EMCc** - Scattered *Eucalyptus marginata* and *Corymbia calophylla* trees over weeds (0.09 hectares);
- **Planted**- Open woodland of planted **Eucalyptus* spp. over shrubland of *Stirlingia latifolia* and *Kunzea glabrescens* over weeds (0.04 hectares); and
- **Cleared** - Heavily disturbed areas comprising weeds with occasional native shrubs and forbs and planted vegetation (0.89 hectares) (Emerge Associates, 2019a).

Vegetation Condition

The condition of the vegetation within the application area was determined through a reconnaissance flora and vegetation survey undertaken by Emerge Associates (Emerge Associates, 2019a). The vegetation within the application area was identified as being in a completely degraded to very good (Keighery, 1994) condition described as:

- **Completely Degraded:** The structure of the vegetation is no longer intact and the area is completely or almost completely without native species (Keighery, 1994);
- **Degraded:** Basic vegetation structure severely impacted by disturbance; scope for regeneration but not to a state approaching Good condition without intensive management (Keighery 1994);
- **Good:** Vegetation structure significantly altered by very obvious signs of multiple disturbance; retains basic structure or ability to regenerate (Keighery 1994); and
- **Very Good:** Vegetation structure altered; obvious signs of disturbance (Keighery, 1994);

The most intact native vegetation was located in the eastern portion of the application area (0.47 hectares of the BaBm plant community). Some of the BaBm vegetation was mapped as very good (Keighery, 1994) condition. Portions of the BaBm vegetation in the north eastern portion of the application area were mapped as being in good and degraded (Keighery, 1994) condition due to the higher weed cover and lower native species cover (Emerge Associates, 2019a).

The area of planted vegetation in the north eastern corner of the application area shows a high level of disturbance, with planted non-native tree species present on a steep north facing slope out of the site boundary. The understorey in this area is sparse and dominated by the native species *Kunzea glabrescens*, *Jacksonia furcellata* and *Stirlingia latifolia*. The understorey is also dominated by weeds with notable patches of sandy open ground present. Despite reasonable native cover in parts, this vegetation was mapped as being in degraded (Keighery, 1994) condition (Emerge Associates, 2019a).

The small patches of EMCc vegetation in the south western portion of the site consists of trees over scattered native shrubs and dense pasture weeds. This vegetation was mapped as being in degraded to completely degraded (Keighery, 1994) condition (Emerge Associates, 2019a).

The remaining areas in the site are in 'completely degraded' condition and consist of non native species such as pasture grasses and planted trees and shrubs (particularly **Chamelaucium uncinatum* (Geraldton wax)) (Emerge Associates, 2019a).

Soil type

The application area is mapped as the land subsystems 'EnvGeol S8 Phase' which is described as sand - very light grey at surface, yellow at depth, fine to medium-grained, sub-rounded quartz, moderately well sorted of eolian origin (Schoknecht et al., 2004).

Comment

The local area considered in the assessment of this application is defined as a 10 kilometre radius from the perimeter of the application area.

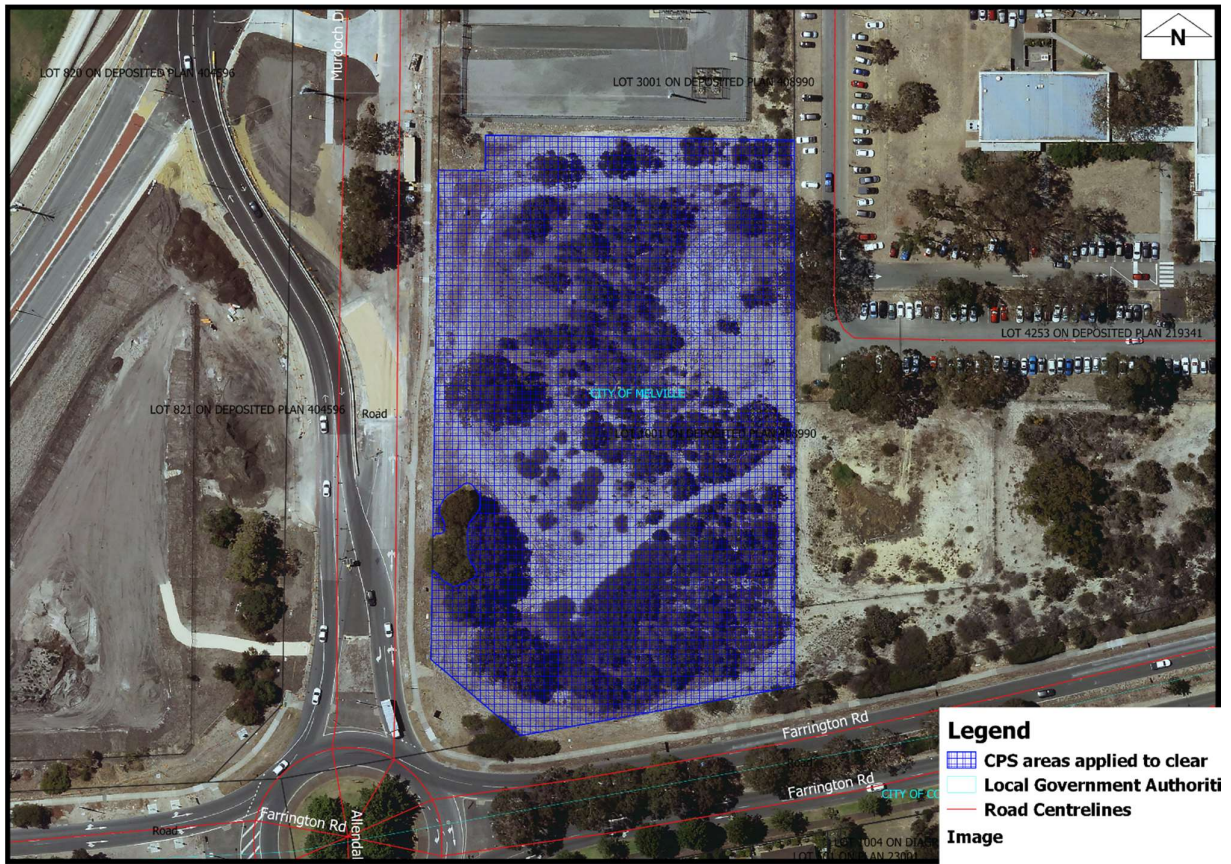


Figure 1: Application Area cross hatched in blue

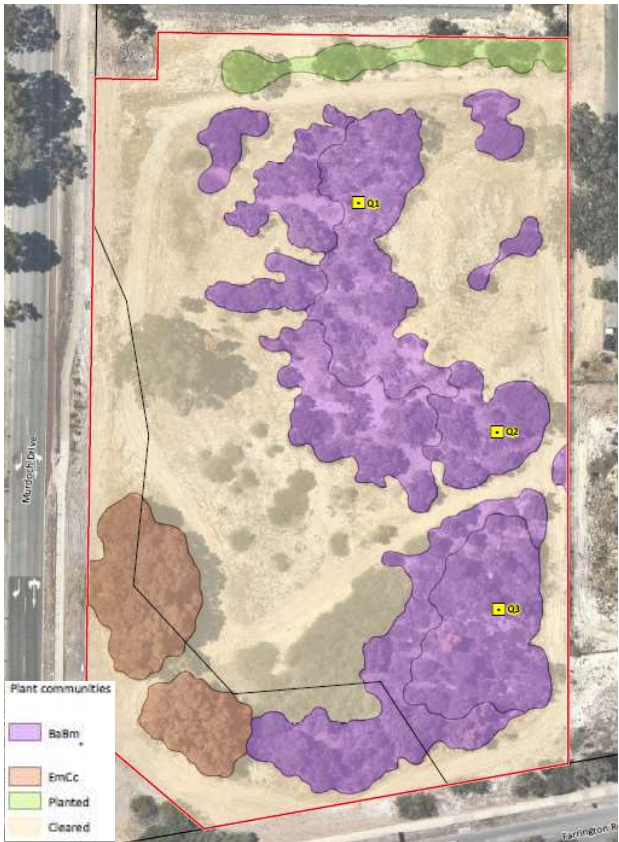


Figure 2: Plant Communities located within the application area (Emerge Associates, 2019a)

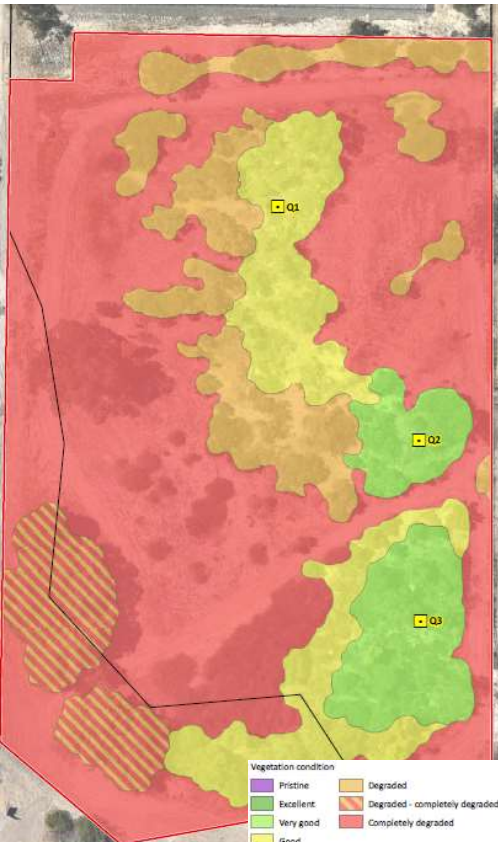


Figure 3: Condition of vegetation within application area (Emerge Associates, 2019a)

3. Minimisation and mitigation measures

The applicant has advised that opportunities to retain vegetation are severely limited across the site. This is due to the existing surface levels of the site which are required to be significantly altered to allow for an appropriate interface with existing levels of adjacent roads (Emerge Associates, 2019c).

The applicant has committed to retaining two large trees (marri) within the south western boundary of Lot 1001. The retention of the two trees will help mitigate impacts to black cockatoo foraging habitat (Emerge Associates, 2019b). The applicant reduced the application area from 1.49 hectares to 1.47 hectares.

The applicant has proposed the following mitigation measures to minimise impacts to fauna:

- Requirement for fauna habitat inspections immediately prior to clearing commencing, to ensure no black cockatoos are within the site at the time of clearing; and
- Fauna spotter/observer present during clearing, to monitor clearing works and temporarily halt works if black cockatoos enter the site (Emerge Associates, 2019c).

The applicant has advised the proposed development will include the installation of landscape planting utilising native flora species across portion of the site and adjacent to local government verge. A total area of 0.42 hectares is proposed to undergo landscape planting, which will include planting of flora species that are suitable for foraging by the black cockatoos (Emerge Associates, 2019c).

4. Assessment of application against clearing principles

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

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

According to available databases, ten threatened flora species and 45 priority flora have been recorded within the local area. A reconnaissance and targeted flora and vegetation assessment undertaken on 24 June, 19 September and 18 October 2019 did not identify any threatened or priority flora within the application area. This is considered an appropriate time to survey the area for threatened and priority flora. Given this and the predominantly completely degraded to degraded (Keighery, 1994) condition of the application area (approximately 1.16 hectares) the proposed clearing is not likely to impact upon any threatened or priority flora.

As discussed under Principle (b), a targeted black cockatoo assessment identified that the application area contains approximately 0.53 hectares of potential black cockatoo foraging habitat, of which 0.53 hectares is suited to Carnaby's cockatoo and Baudin's cockatoo and approximately 0.12 hectares is suited to the forest red-tailed black cockatoo (Emerge Associates, 2019b). The application area is considered to provide significant foraging habitat for the black cockatoo species.

As discussed under principle (d), a reconnaissance and targeted flora and vegetation assessment did not identify any state listed threatened ecological communities (TEC) located within the application area.

A reconnaissance and targeted flora and vegetation assessment identified that the BaBm plant community was considered to most likely represent floristic community type (FCT) 23a 'Central *Banksia attenuata* – *Banksia menziesii* woodlands and shrublands'. The structure and composition of plant community BaBm indicates that the vegetation has the potential to represent the ecological community 'Banksia Dominated Woodlands of the Swan Coastal Plain IBRA region' listed as 'Priority 3(iii)' Priority Ecological Community (PEC) by Department of Biodiversity Conservation and Attractions (DBCA), and as an 'Endangered' TEC under the *Environment Protection and Biodiversity Conservation Act 1999 Act* (EPBC Act).

The Banksia woodland TEC typically occurs over sandy soils from Jurien Bay to Dunsborough, and extends to the Whicher and Darling escarpments (TSSC, 2016). Conservation advice for this TEC states that the principal structural features of the community are a distinctive upper sclerophyllous layer of low trees, typically dominated or co-dominated by one or more listed Banksia species, including *Banksia attenuata* (TSSC, 2016). The community may also have an emergent tree layer of jarrah and marri (TSSC, 2016).

The Approved Conservation Advice for this TEC specifies a number of key diagnostic criteria for vegetation to be considered representative of this TEC (TSSC, 2016). Given the small area of vegetation considered representative of this TEC (0.47 hectares), the vegetation located within the application area does not meet the minimum patch size for vegetation in good and very good (Keighery, 1994) condition and therefore is not considered to be the Banksia woodland TEC.

The clearing of 1.47 hectares of native vegetation that is predominantly in a completely degraded to degraded (Keighery, 1994) condition is not likely to result in significant impacts to the biodiversity in the local area or region.

Given the above, the application area is not likely to comprise a high level of biodiversity.

(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.

Proposed clearing is at variance with this Principle

A level 1 fauna and targeted black cockatoo assessment identified a total of six fauna habitats within the application area including banksia woodland, 'open woodland *Corymbia calophylla* and *Eucalyptus marginata*', 'dense shrubland *Chamelaucium uncinatum*', 'open woodland *Eucalyptus* spp.', 'scattered non-native trees and shrubs' and 'non-native grassland' (Emerge Associates, 2019b).

A database search identified seven conservation significant fauna species that may utilise the application area including Pacific swift (*Apus pacificus*), forest red-tailed Black Cockatoo, Baudin's Cockatoo, Carnaby's Cockatoo, Quenda (*Isoodon fusciventer*), Perth slider (*Lerista lineata*) and Black-striped snake (*Neelaps calonotos*) (Emerge Associates, 2019b).

Carnaby's cockatoo is listed as endangered and forest-tailed cockatoo and Baudin's Cockatoo is listed as vulnerable under the EPBC Act and *Biodiversity Conservation Act 2016* (BC Act). Black cockatoos breed in large hollow-bearing trees, generally within woodlands or forests or in isolated trees (Commonwealth of Australia, 2012). These species nest in hollows in live or dead trees of karri, marri, wandoo, tuart, salmon gum, jarrah, flooded gum, York gum, powder bark, bullich and blackbutt (Commonwealth of Australia, 2012).

Potential nesting trees for black cockatoos are defined as "trees of species known to support breeding within the range of the Species which either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow. For most tree species, suitable DBH is 500 millimetres". A targeted black cockatoo survey identified seven potential black cockatoo habitat trees within the application area of which, none contain hollows suitable for black cockatoo breeding (Emerge, 2019b). Given no hollows suitable for breeding by the black cockatoos are present within the application area, significant breeding habitat for these species is not likely to be located within the application area.

No evidence of black cockatoo roosting activity was observed within the application area (Emerge Associates, 2019b).

Black cockatoos have a preference for foraging habitat that includes jarrah and marri woodlands and forest heathland and woodland dominated by proteaceous plant species such as *Banksia* sp., *Hakea* sp. and *Grevillea* sp. (Commonwealth of Australia, 2012). Given the presence of *Banksia* sp. within the application area, the application area comprises suitable foraging habitat for the black cockatoo species.

The targeted black cockatoo assessment identified foraging evidence attributed to the Carnaby's cockatoo and forest red-tailed black cockatoo within the application area (Emerge Associates, 2019b). The targeted black cockatoo assessment noted that the majority of the foraging habitat within the site consists of banksia woodland vegetation that contains plant species known to be an important part of the diet of Carnaby's cockatoo and Baudin's cockatoo and to a lesser extent forest red-tailed black cockatoo. Plant species such as *Banksia attenuata* (slender banksia), *Banksia ilicifolia* (holly leaved banksia), *Banksia menziesii* (firewood banksia), *Jacksonia furcellata* (stinkwood) and *Xanthorrhoea preissii* (grass tree) are typically associated with foraging by Carnaby's cockatoo and Baudin's cockatoo. The marri, jarrah and tuart trees are associated with foraging by all three black cockatoo species (Emerge Associates, 2019b).

The targeted black cockatoo assessment identified that the application area contains approximately 0.53 hectares of potential black cockatoo foraging habitat, of which 0.53 hectares is suited to Carnaby's cockatoo and Baudin's cockatoo and approximately 0.12 hectares is suited to the forest red-tailed black cockatoo (Emerge Associates, 2019b).

The threats and impacts to Carnaby's cockatoo are well known. The species is primarily threatened by the loss and fragmentation of breeding and foraging habitat as a result of vegetation clearing. This is particularly so on the Swan Coastal Plain and Avon-Wheatbelt regions where extensive historical clearing has occurred. Habitat fragmentation increases the distances cockatoos need to travel between resources. Proximity of foraging habitat and water has been demonstrated to be critical to support roosting and breeding sites. Foraging habitat within seven kilometres of a breeding site is important to adequately support breeding cockatoos. In the Perth-Peel region, individual night roosts need food and water within six kilometres, with overlapping foraging ranges within 12 kilometres, to support roosting sites and maintain habitat connectivity and movement across the landscape (EPA, 2019).

According to available databases the application area is mapped approximately 8.5 kilometres from a known Carnaby cockatoo breeding area and within 3.5 kilometres of six confirmed Carnaby cockatoo roost sites. A conservation category wetland is located approximately 140 metres west of the application area which also adjoins Beelie Regional Park and its associated wetlands including Bibra Lake, North Lake and South Lake all located within three kilometres of the application area. Given the close proximity of known roosting sites and water sources to the proposed clearing, the foraging habitat located within the application area is considered to be significant foraging source for the threatened black cockatoo species.

The Quenda are widely distributed near the south coast from Guilderton north of Perth to east of Esperance. On the Swan Coastal Plain, Quenda are often associated with wetlands (DEC, 2012). The application area does not contain any wetlands or vegetation growing in association with a wetland and therefore significant habitat for this species is not likely to be located within the application area.

The perth slider is found in sandy coastal heath and low scrubland. *Banksia* spp. woodland, *Eucalyptus gomphocephala* open woodland over deep sands, and coastal dunes immediately adjacent to the beach (Emerge Associates, 2019b). The blackstriped snake is found in coastal and near-coastal dunes, sandplains supporting heathlands and *Banksia* spp. Woodlands (Emerge Associates, 2019b).

Suitable habitat for these species may be located within the banksia woodland present within the application area, however given this species preferred habitat is widespread and varied, significant habitat for this species is not likely to be located within the application area.

The pacific swift is a migratory coastal bird and therefore significant habitat for this species is not likely to be located within the application area.

Given the application area comprises of 0.53 hectares of native vegetation considered to be significant foraging habitat for the conservation significant black cockatoo species, the proposed clearing is at variance with this Principle.

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

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

According to DBCA threatened flora database, ten threatened flora species have been recorded within the local area being: *Andersonia gracilis*, *Caladenia huegelii*, *Diuris drummondii*, *Diuris purdiei*, *Drakaea micrantha*, *Eremophila glabra subsp. Chlorella*, *Grevillea thelemanniana*, *Macarthuria keigheryi*, *Synaphea* sp. Fairbridge Farm (D. Papenfus 696) and *Drakaea elastica*.

A reconnaissance and targeted flora and vegetation assessment did not identify any threatened flora within the application area and therefore the application area is not likely to include or be necessary for the continued existence of threatened flora.

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

(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.

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

According to available datasets, three state listed TECs have been recorded within the local area being 'Herb rich shrublands in clay pans', 'Shrublands on dry clay flats' and '*Callitris preissii* (or *Melaleuca lanceolata*) forests and woodlands, Swan Coastal Plain'.

A reconnaissance and targeted flora and vegetation assessment did not identify any state listed TECs within the application area.

Noting the vegetation types present the application area it is not considered to be representative of any other state listed TEC, or be necessary for the maintenance of a TEC.

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

(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.

Proposed clearing is at variance with this Principle

The application area is located within the Swan Coastal Plain IBRA bioregion. This bioregion has approximately 38.62 per cent of its pre-European vegetation extent remaining (Government of Western Australia, 2019a). The application area is also mapped as Bassendean Complex-Central and South, which retains approximately 26.9 per cent pre-European extent (Government of Western Australia, 2019b). The local area retains approximately 12 per cent native vegetation.

The National Objectives and Targets for Biodiversity Conservation 2001-2005 include a target to have clearing controls in place that prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750 (Commonwealth of Australia, 2001). The mapped vegetation complex and the local area fall below the threshold level of 30 per cent and therefore the application area is located within an area that has been extensively cleared.

The application area contains vegetation in completely degraded to very good (Keighery, 1994) condition and significant habitat for black cockatoos. Therefore the application area may be considered to be a significant remnant.

Given the above, the proposed clearing is at variance with this Principle. However, in the Perth Metropolitan and Bunbury regions, the Environmental Protection Authority (EPA) has a modified objective to retain at least 10 per cent of the pre-clearing extent of vegetation complexes for defined constrained areas (intensely developed) (EPA, 2015; EPA, 2003; Government of Western Australia, 2000). Noting that the application area is located within the Perth Metropolitan Region, the remnant vegetation within the local area is above the 10 percent threshold and an offset is not required.

Table 1: Vegetation extents

	Pre-European extent (ha)	Current extent (ha)	% remaining*	Current extent in all DBCA managed land (ha)	% Current Extent in all DBCA managed land (proportion of Pre-European extent)
IBRA Bioregion:*					
Swan Coastal Plain	1,501,221	579,813	38.62	222,916	14.85
South Coastal Plain vegetation complex:**					
Bassendean Complex-Central and South (44)	87,476	23,509	26.87	4,377	5

*Government of Western Australia (2019a)

**Government of Western Australia (2019b)

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

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

There are no wetlands or watercourses mapped within the application area. The closest wetland is a conservation category wetland mapped approximately 130 metres west of the application area.

A reconnaissance and targeted flora and vegetation assessment undertaken within the application area did not identify any wetlands or watercourses within the application area.

Given the distance to the closest wetland that is also separated by a road, the application area is not likely to be growing in or in association with a watercourse or wetland.

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

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

Proposed clearing may be at variance with this Principle

As described in Section 2, the application area is mapped as land subsystems 'EnvGeol S8 Phase' (Schoknecht et al., 2004). The former Department of Agriculture and Food Western Australia developed land degradation risk potentials for mapped subsystems, as shown within Table 2 below:

Table 2: Land Degradation Risk

Risk categories	EnvGeol S8 Phase
Wind erosion	Greater than 70 per cent of map unit has a high to extreme wind erosion risk
Water erosion	Less than 3 per cent of the map unit has a high to extreme water erosion risk
Salinity	Less than 3 per cent of the map unit has a moderate or high hazard or is presently saline
Waterlogging	3-10 per cent of the map unit has a moderate to very high waterlogging risk
Flooding	Less than 3 per cent of the map unit has a high flood risk

Given the above, the application area has a high to extreme wind erosion risk and moderate to high risk of salinity.

The application area may potentially be impacted by wind erosion if clearing is not managed appropriately. The potential impacts of wind erosion may be mitigated by the implementation of a staged clearing or undertaking works within two months of clearing.

Based on the above, the proposed clearing may be at variance with this Principle.

(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.

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

No conservation areas are mapped within the application area. The closest conservation area is a freehold parcel of land located approximately 280 metres south east of the application area. An additional conservation area that is a freehold parcel of land is located approximately 500 metres south west of the application area that adjoins Bush Forever Site 244.

As the application area is separate from any conservation areas due to the presence of existing main roads, the proposed clearing is not likely to have a direct impact on any conservation areas. No ecological linkages are likely to be severed as a result of the proposed clearing.

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

(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.

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

Groundwater salinity within the application area is mapped less than 500 total dissolved solids, milligrams per litre. This level of groundwater salinity is classified as 'fresh'. Given this and that the vegetation proposed to be cleared is predominantly in a completely degraded and degraded (Keighery, 1994) condition, the proposed clearing is not likely to increase groundwater salinity.

As discussed in Principle (f), there are no wetlands or watercourses intersected by the application area. Given that the application area does not contain any areas of surface water, the proposed clearing is not likely to degrade the quality of surface water.

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

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

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

Less than three per cent of the mapped soil unit has a moderate to high flood risk, and 3 to 10 per cent of the mapped soil unit has moderate to very high waterlogging risk (Schoknecht et al., 2004). Based on this relatively low risk of flooding and waterlogging, the proposed clearing is not likely to cause or exacerbate, the incidence or intensity of flooding.

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

Planning instruments and other relevant matters.

On 19 December 2019, the Metro Central Joint Development Assessment Panel granted Planning Approval for mixed use development comprising a veterinary clinic, commercial tenancy, three fast food outlets and a service station within Lot 1001 Murdoch Drive (DAP/19/01645).

The City of Melville provided the following comments in relation to the application:

As a P3 Priority Ecological Community has been identified at the site, we would recommend that consideration be made at the design stage to protect some of this vegetation. If the site is approved to be cleared in its entirety, then the recommendation prior to any clearing would be to:

- Collect seed from suitable species in late spring; and
- Transplant suitable species, e.g., *Xanthorrhoea preissii* (City of Melville, 2019).

No Aboriginal sites of significance have been mapped within the application area.

The clearing permit application was advertised on the DWER website on 18 September 2019 with a 21 day submission period. No public submissions have been received in relation to this application.

5. Suitability of Proposed Offset

After avoidance, minimisation and mitigation measures (outlined in Section 3 of this report), it is considered that the proposed clearing will result in significant residual impacts comprising of 0.53 hectares of native vegetation that is considered significant foraging habitat for the conservation significant black cockatoos.

The applicant proposed an offset consisting of providing a monetary contribution for the purchase and conservation of 1.32 hectares of native vegetation that comprises of black cockatoo foraging habitat.

In assessing whether the proposed offset is adequately proportionate to the significant environmental values listed above, DWER undertook a calculation using the Commonwealth Offsets Assessment Guide calculator. DWER's calculation determined that the conservation of 2.8 hectares of suitable foraging habitat is required to adequately offset the significant residual impacts associated with the clearing of 0.53 hectares of black cockatoo habitat. After liaising with DWER through the assessment, Rhyian Pty Ltd have amended their proposed offset to provide a monetary contribution for the purchase of 2.8 hectares of native vegetation.

In determining the offset adequacy through use of the Commonwealth Offsets Assessment Guide, consideration was given to the following:

- The presence of suitable foraging habitat for black cockatoos within the proposed offset area;
- The excellent (Keighery, 1994) condition of the vegetation likely to be within the proposed offset area;
- The very good to completely degraded (Keighery, 1994) condition of the application area;
- The historical zoning of the likely proposed offset area prior to being within DBCA conservation estate;
- The long term and immediate conservation of the proposed offset area, and confidence in long term security given that it will form part of DBCA's conservation estate

Given the above, a monetary contribution of \$84,112 for the purchase and conservation of 2.8 hectares of native vegetation is considered adequate to counterbalance the significant residual impacts to black cockatoo habitat, consistent with the Environmental Offsets Policy October 2012 and WA Environmental Offsets Policy September 2011.

6. References

- City of Melville (2019) Advice for Clearing Permit CPS 8656/1. Western Australia. DWER Ref: A1826859
- Commonwealth of Australia (2012) EPBC Act referral guidelines for three threatened black cockatoo species. Department of Sustainability, Environment, Water, Populations and Communities, Canberra.
- Department of Environment and Conservation (2012) Fauna profile – Quenda *Isoodon obesulus*. Department of Environment and Conservation, Perth, Western Australia.
- Emerge Associates (2019a) Reconnaissance and Targeted Flora and Vegetation Assessment Lot 1001 Murdoch Drive Murdoch. Western Australia
- Emerge Associates (2019b) Level 1 Fauna and Targeted Black Cockatoo Assessment. Western Australia.
- Emerge Associates (2019c) Clearing Permit Application CPS 8656/1 – Response to request for information. Western Australia. DWER Ref: DWERDT258772
- EPA (2019) EPA Technical Report – Carnaby's Cockatoo in Environmental Impact Assessment in the Perth and Peel Region. Environmental Protection Authority. Western Australia
- Government of Western Australia (2019a). 2018 South West Vegetation Complex Statistics. Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions, Perth, <https://catalogue.data.wa.gov.au/dataset/dbca>.
- Government of Western Australia (2019b). 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions, Perth. <https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics>.

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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.

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Threatened Species Scientific Committee (2016). Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain Ecological Community. Canberra: Department of the Environment and Energy. Available from: <http://www.environment.gov.au/biodiversity/threatened/communities/pubs/131-conservation-advice.pdf>. In effect under the EPBC Act from 16-Sep-2016.

GIS Databases:

- Aboriginal Sites of Significance
- DBCA Managed Estate
- Directory of Important Wetlands
- Geomorphic Wetlands Swan Coastal Plain
- Groundwater salinity
- Hydrography, hierarchy
- Hydrography, linear
- Land Degradation datasets
- SAC Bio Datasets
- Soils, Statewide
- Topographic contours
- Vegetation Complexes Swan Coastal Plain