



## CLEARING PERMIT

*Granted under section 51E of the Environmental Protection Act 1986*

### PERMIT DETAILS

Area Permit Number: 8477/1

File Number: DWERVT2712

Duration of Permit: From 3 September 2019 – 3 September 2021

### PERMIT HOLDER

Public Transport Authority of Western Australia

### LAND ON WHICH CLEARING IS TO BE DONE

Lot 9008 on Plan 407807, Claremont

Lot 34 on Plan 2050, Claremont

Lot 300 on Plan 76383, Cottesloe

### AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 1.5 hectares of native vegetation within the area cross-hatched yellow on attached Plan 8477/1.

### 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. 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) ensure that no known *dieback* or *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
- (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

#### 3. Wind erosion management

The Permit Holder shall not clear native vegetation unless material laydown and rail realignment activities commence 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, 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 size of the area cleared (in hectares);

- (d) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 1 of this Permit;
- (e) actions taken to minimise the risk of the introduction and spread of *dieback* and *weeds* in accordance with condition 2 of this Permit; and
- (f) in accordance with condition 3, the date(s) on which the material laydown and rail realignment commenced.

## 5. Reporting

The Permit Holder must provide to the *CEO* the 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 the administration of the clearing provisions under the *Environmental Protection Act 1986*;

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

***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 a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*;  
or
- (b) published in a Department of Biodiversity, Conservation and Attractions Regional Weed Rankings Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



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Samara Rogers  
MANAGER  
NATIVE VEGETATION REGULATION




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

9 August 2019

# Plan 8477/1



## Legend

-  CPS areas approved to clear base layers
-  Local Government Authorities
-  Roads
- Image



0 100 200 m

MGA 94  
Geocentric Datum of Australia 1994

**Samara Rogers**  
2019.08.09

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



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WESTERN AUSTRALIA  
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# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 8477/1  
Permit type: Area Permit

### 1.2. Applicant details

Applicant's name: Public Transport Authority of Western Australia  
Application received date: 23 April 2019

### 1.3. Property details

Property: Lot 9008 on Plan 407807, Claremont  
Lot 34 on Plan 2050, Claremont  
Lot 300 on Plan 76383, Cottesloe  
Local Government Authority: Town of Cottesloe, Town of Claremont  
Localities: Cottesloe and Claremont

### 1.4. Application

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

### 1.5. Decision on application

Decision on Permit Application: Granted  
Decision Date: 9 August 2019

Reasons for Decision: The clearing permit application has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986* (EP Act). It has been concluded that the proposed clearing may be at variance to principles (b) and (e) and is not likely to be at variance to the remaining principles.

The Delegated Officer determined that the proposed clearing may increase the spread of weeds and dieback into adjacent native vegetation. To minimise this impact, a condition has been placed on the permit requiring the implementation of weed and dieback management measures.

In determining to grant a clearing permit subject to conditions, the Delegated Officer considered 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 1.5 hectares of native vegetation within Lot 9008 on Plan 407807, Lot 34 on Plan 2050, Claremont and Lot 300 on Plan 76383, Cottesloe (the Application area), for the purpose of material lay down and rail realignment. The proposed clearing was divided by Applicant into two sections:

- Claremont station area, which makes approximately 0.3 hectares of the Application area; and
- Swanbourne laydown area, which makes approximately 1.2 hectares of the Application area (Figure 1).

**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 following Swan Coastal Plain vegetation complexes (Heddl et al., 1980):

- 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. *Agonis flexuosa* (Peppermint) is co-dominant south of the Capel River; and
- Cottesloe Complex-Central And\South: Mosaic of woodland of *Eucalyptus gomphocephala* (Tuart) and open forest of *Eucalyptus gomphocephala* (Tuart) - *Eucalyptus marginata* (Jarrah) - *Corymbia calophylla* (Marri); closed heath on the Limestone outcrops.

Flora and vegetation survey was undertaken by PGV Environmental in October 2018 for the Claremont station area. The survey described vegetation as *Xanthorrhoea preissii*, Lemon-scented Gum, one Jarrah and one Tuart in rail reserve (area of 3 scattered sections in the centre of Figure 1) (Figure 2), and Norfolk Island Pines and scattered *Xanthorrhoea preissii* on lawn (eastern portion of the Application area on Figure 1) (Figure 3).

The vegetation within the Swanbourne laydown area was described as scattered remnant and regrowth *Xanthorrhoea preissii*, with a number of *Zamia* palms (*Macrozamia sp.*) (Public Transport Authority (PTA), 2019a).

**Vegetation Condition**

The condition of the vegetation within the application area is considered to be:

- Completely Degraded; No longer intact, completely/almost completely without native species (Keighery, 1994).

The condition of the vegetation for the Claremont station area was determined based on a Flora and vegetation survey (PGV Environmental, 2018). The vegetation condition for the Swanbourne laydown area was determined based on photographs provided by Applicant (PTA, 2019b).

**Soil type**

The application area is mapped as the following land subsystem (DPIRD, 2019):

- EnvGeol LS1 Phase subsystem which is mapped across approximately 83 per cent of the application area and is described as 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.
- EnvGeol S7 Phase subsystem which covers approximately 17 per cent of the application area and is described as SAND - pale and olive yellow, medium to coarse-grained, sub-angular to sub-rounded quartz, trace of feldspar, moderately sorted, of residual origin

**Comments**

The local area is considered a 5 kilometre radius of the application area.

The application area is located within the mapped extent of the Perth Metropolitan Region Scheme.



Figure 1 Application area



Figure 2 Vegetation within Claremont Station area – vegetation in the centre of Figure 1 (PGV Environmental, 2018)



Figure 3 Vegetation within Claremont Station area – vegetation in the eastern portion of the Figure 1 (PGV Environmental, 2018)



Figure 4 Vegetation within the Swanbourne laydown area – scattered and regrowth *Xanthorrhoea preissii* and a large shrub within the clearing area (PTA, 2019b)



Figure 5 Vegetation within the Swanbourne laydown area - scattered Grass trees and a *Zamia palm* (PTA, 2019b).

### 3. 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 to this Principle

The application is to clear 1.5 hectares of native vegetation within Lot 9008 on Plan 407807, Lot 34 on Plan 2050, Claremont and Lot 300 on Plan 76383, Cottesloe (the Application area), for the purpose of material lay down and rail realignment. The proposed clearing was divided by Applicant into two sections: 'Claremont station' which makes approximately 0.3 hectares of the application area, and 'Swanbourne Laydown Area' makes approximately 1.2 hectares (Figure 1).

Seven priority and no threatened flora species have been mapped within the local area. Based on the similarities shared between the soil and vegetation types in habitats for these flora taxa and within the application area, the following priority flora may occur within the application area:

- *Beyeria cinerea* subsp. *cinerea* (P3) is a shrub that usually inhabits sand over limestone on road verges. This species is known from fifty records (four in the local area) with the closest record being recorded approximately 1.6 kilometre west of the application area; and

- *Lasiopetalum membranaceum* (P3) is a multi-stemmed shrub, 0.2-1 metre high that occur on sandy soils over limestone and is typically associated with *Agonis flexuosa*, *Banksia attenuata*, *Clematis pubescens*, *Dicopogon* sp., *Eucalyptus gomphocephala*. The species is known from thirty two records (one in the local area) with the closest species recorded 4.3 kilometre southeast of the application area.

A flora and vegetation survey for the Claremont station area was undertaken in October 2018 (PGV Environmental, 2019). No intact vegetation was recorded within this area and the condition of vegetation across the surveyed area was rated as completely degraded (Keighery, 1994) (PTA, 2019). The survey recorded few *Xanthorrhoea preissii* plants, one Jarrah and Tuart tree (*Eucalyptus gomphocephala*) which may be remnant native plants. Total of twenty six plant species were recorded, eleven native species and fifteen introduced. Most native species recorded in the survey area were considered to have been planted. Vegetation in the Swanbourne laydown area was described as scattered remnant and regrowth *Xanthorrhoea preissii* with a number of *Zamia* palms over parkland cleared land (PTA, 2019a).

No priority flora species were recorded, and given the type and condition of the vegetation identified within the application area, priority flora are not likely to occur within the application.

As discussed in Principle (b), the vegetation may comprise significant foraging habitat for black cockatoos.

As discussed in Principle (c) the application area does not include, or is necessary for the continued existence of threatened flora.

As discussed in Principle (d) there is no intact native vegetation within the application, and given that the application area contains only one Tuart tree, the vegetation within the application area does not meet criteria for the Tuart (*Eucalyptus gomphocephala*) Woodlands and Forests of the Swan Coastal Plain (Tuart woodlands) ecological community (Department of Environment, 2019). Therefore no threatened or priority ecological communities (PEC) occur within the application area.

Noting the completely degraded (Keighery, 1994) condition of the native vegetation, the application area is not likely to comprise a high level of biological diversity.

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

**(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 may be at variance to this Principle**

According to available databases, thirty threatened, one priority 2, four priority 3, eight priority 4, twenty seven protected under international agreement and one other specially protected fauna species listed as being of conservation significance under the *Biodiversity Conservation Act 2016* (BC Act) within the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* have been recorded within the local area (Department of Biodiversity, Conservation and Attractions (DBCA), 2007). Noting the habitat requirements of these species, the mapped vegetation type within the application area, and the extent of the proposed clearing, the application area may be utilised by red-tailed black cockatoo (*Calyptorhynchus banksia* subsp. *naso*), Carnaby's cockatoo (*Calyptorhynchus latirostris*), Baudin's cockatoo (*Calyptorhynchus baudinii*) and peregrine falcon (*Falco peregrinus*).

A fauna habitat assessment for the Claremont station area was undertaken in January 2019 (Harewood, 2019). The survey rated overall fauna values of the application area as extremely low, given the highly degraded nature of most of the application area. Fauna biodiversity within the application area were considered to be depauperate. However, given the presence of some vegetation the area still has value for some species able to persist in degraded habitats of this type (Harewood 2019).

Forest red-tailed black cockatoo, Carnaby's black cockatoo and Baudin's black cockatoo 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. 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" (Commonwealth of Australia, 2012).

Photographs of the application area indicate that the Swanbourne laydown area does not contain black cockatoo habitat trees (PTA, 2019b). In regards to the Claremont station area, the fauna survey (Harewood, 2019) identified two trees with DBH >500 millimetres (Figure 2). Neither of these trees contained hollows of any size. No evidence of black cockatoo breeding or roosting was observed in the application area.

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). Vegetation within the application area is largely confined to road verges and residential gardens. Vegetation along road verges comprises of grassland or planted exotic, non-native and scattered native trees and shrubs of variable composition and density. Of the flora species potentially used as a food source for black cockatoo, the flora survey (PGV Environmental, 2019) and photographs provided by applicant (PTA, 2019b) identified *Eucalyptus gomphocephala*, *Eucalyptus marginata*, *Xanthorrhoea preissii*, *Agonis flexuosa*, *Callistemon* spp. and *Pinus* spp.. However, these species are only represented by a small number of specimens, and therefore do not provide a significant foraging habitat for black cockatoos. Evidence of black cockatoos foraging was observed during the fauna survey in the Claremont station area in the form of small number of chewed Jarrah fruits at a single location (Harewood, 2019). Given the limited extent of suitable habitat present within the application area it is likely that black cockatoos would only occur occasionally and only for brief periods. Noting the application area comprises foraging habitat for black cockatoos, given the degraded (Keighery, 1994) condition and the low quality foraging species present, the vegetation may be necessary for the maintenance of significant habitat for fauna.

DBCA (2019) advised that most of the introduced species listed in the Flora and vegetation survey report (PGV, 2018) are species that have been documented as providing a valuable food source for Carnaby's and Red-tailed cockatoos. This is in addition to the native species that were listed in the survey report for the Claremont station area. This assessment can only consider the foraging values of the native vegetation.

The Peregrine Falcon is listed as other specially protected fauna species under the BC Act within the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*. Fauna survey undertaken by Harewood (2019) in the Claremont station section of the Application area advised that no peregrine falcon were observed and these species are generally uncommon and only likely to occur very infrequently for brief periods in the application area. Given the degraded nature of habitat in the site, it is unlikely that the site provides significant food resources for the Peregrine Falcon (Harewood, 2019).

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

According to available databases no threatened flora have been recorded within the local area.

A Flora and vegetation survey undertaken for the Claremont station area in October 2018 (PGV Environmental, 2019) did not record any threatened flora within the application area. PTA (2019a) advised that vegetation in the Swanbourne laydown area comprises scattered *Xanthorrhoea preissii* Zamia palms over parkland cleared area closely resembling the surveyed vegetation in the Claremont station area. Therefore, the application area is not likely to include, or be necessary for the continued existence of threatened flora.

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

According to available databases, no threatened ecological communities have been recorded within the application area.

A Flora and vegetation survey undertaken in October 2018 within the Claremont station area (PGV Environmental, 2019) identified that there is no intact native vegetation within this area and it is only scattered native species and non-native species. Similarly, the vegetation within the Swanbourne laydown area comprises only scattered trees and a shrub over parkland cleared land. Therefore the application area does not comprise the whole or part of, or is necessary for the maintenance of a threatened ecological community.

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

The application is located within the Swan Coastal Plain IBRA bioregion. This IBRA region has approximately 38.6 per cent of its pre-European vegetation extent remaining (Government of Western Australia, 2019).

The application area is also mapped in the following Swan Coastal Plain vegetation complexes:

- Karrakatta Complex – Central And/South which mapped across approximately 69 per cent of the application area, and retains approximately 24 per cent pre-European vegetation; and
- Cottesloe Complex – Central And/South which is mapped across approximately 31 per cent of the application area, and retains approximately 32 per cent pre-European vegetation.

The local area retains approximately 18 per cent native vegetation.

The National Objective for the Targets for Biodiversity Conservation include a target to prevent the clearance of ecological communities with an extent below 30 per cent of that present pre-European settlement, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).

Noting the local area retains 18 per cent of native vegetation, it is considered to be within an extensively cleared area.

A flora and vegetation survey (PGV Environmental, 2018) described the vegetation in Cottesloe station area as no intact vegetation with scattered native and non-native species. PTA (2019a) described the vegetation within the Swanbourne laydown area as scattered *Xanthorrhoea preissii* and Zamia palms over parkland cleared land. Noting these descriptions and the mapped vegetation complexes, the vegetation in the application area is not considered to be representative of the Karrakatta and the Cottesloe complex. In addition, no threatened or priority flora, or TEC's or PEC's occur within the application area. Noting this, the application area is not considered a significant remnant of native vegetation within extensively cleared area.

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



As discussed above, the application area is located within extensively cleared area. However, it is noted that the Environmental Protection Authority (EPA) recognises the Perth Metropolitan Region to be a constrained area, within which a minimum 10 per cent representation threshold for ecological communities is recommended (EPA, 2008). The application area is located within the mapped extent of the Perth Metropolitan Region Scheme. Noting that the EPA considers a constrained area to be an area where there is an expectation that development will proceed, and that the cleared area is zoned 'Urban' in the Perth Metropolitan Region Scheme, the 10 per cent threshold applies in this instance. Noting this, the proposed clearing is not likely to cause significant residual impact to the environment.

Table 1 Native vegetation statistics

	Pre-European extent (ha)*	Current extent (ha)*	Extent remaining (%)*	Current extent in all DBCA managed lands (ha)*	Extent remaining in all DBCA managed lands (proportion of Pre-European extent) (%)*
<b>IBRA bioregion:</b>					
Swan Coastal Plain	1,501,222	578,997	38.6	222,767	14.8
<b>Swan Coastal Plain Vegetation complex:</b>					
Karrakatta Complex-Central And\South	53,080.99	12,467.20	23.49	4,282.73	8.07
Cottesloe Complex-Central And\South	45,299.61	14,567.87	32.16	6,606.12	14.58

\* Government of Western Australia. (2019). 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>

**(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 to this Principle**

According to available databases, no wetlands or watercourses have been mapped within the application area. A flora and vegetation survey (Aurora, 2019) did not identify any wetlands or watercourses within the application area.

The closest watercourse is Swan River which occurs approximately 770 metres from the application area. The area between the watercourse and the application area has been highly cleared and the vegetation within the application area is not likely growing in association with this watercourse.

Given the above, the application area is not growing in, or in association with, an environment associated with a watercourse or wetland.

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

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

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

Primary soils within the application area are mapped by the Department of Primary Industries and Regional Development (DPIRD) (2019) and described as:

- EnvGeol LS1 Phase subsystem, which has been mapped across approximately 83 per cent of the application area, and is described as 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; and
- EnvGeol S7 Phase subsystem, which covers approximately 17 per cent of the application area, and is described as SAND - pale and olive yellow, medium to coarse-grained, sub-angular to sub-rounded quartz, trace of feldspar, moderately sorted, of residual origin.

Table 2 Risk degradation summary

Risk categories	EnvGeol LS1 Phase	EnvGeol S7 Phase
Wind erosion	>70% of map unit has a high to extreme wind erosion risk	>70% of map unit has a high to extreme wind erosion risk
Water erosion	3-10% of map unit has a high to extreme water erosion risk	10-30% of map unit has a high to extreme water erosion risk
Salinity	30-50% of map unit has a moderate to high salinity risk or is presently saline	30-50% of map unit has a moderate to high salinity risk or is presently saline
Subsurface Acidification	10-30% of map unit has a high subsurface acidification risk or is presently acid	50-70% of map unit has a high subsurface acidification risk or is presently acid
Flood risk	<3% of the map unit has a moderate to high flood risk	<3% of the map unit has a moderate to high flood risk
Water logging	<3% of map unit has a moderate to very high waterlogging risk	<3% of map unit has a moderate to very high waterlogging risk
Phosphorus export risk	3-10% of map unit has a high to extreme phosphorus export risk	10-30% of map unit has a high to extreme phosphorus export risk

The abovementioned mapped soil types have a high to extreme wind erosion risk. The sandy soils (EnvGeol S7) have a high subsurface acidification risk or is presently acid. However, the application area has relatively flat topography, an average rainfall of 800 millimetres per annum, and marginal groundwater salinity (Mayer, Ruprecht & Bari, 2005) mapped between 500 – 1000 total dissolved solids (milligrams per litre). Noting this, the extent of the proposed clearing, and the condition of the vegetation within the application area, the proposed clearing is unlikely to cause appreciable land degradation.

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

A wind erosion management condition will mitigate any potential impacts from the proposed clearing.

**(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 to this Principle**

According to available databases, a number of privately managed and DBCA managed conservation areas occur within the local area. The closest conservation area is Swan River located approximately 770 metres south from the application area. The remaining conservation areas are located more than 2 kilometres from the application area.

According to flora and vegetation survey (Aurora, 2019) there is no intact native vegetation within the application area and the remaining vegetation is in completely degraded condition. Available aerial imagery indicates that the application area does not function as an ecological linkage between mapped conservation areas. Noting their distances from the application area, and the extent of the proposed clearing, the proposed clearing is not likely to have an impact on the environmental values of conservation areas.

The disturbance caused by the proposed clearing may impact on the environmental values of the adjacent native vegetation through increased edge effects and the introduction and spread of weeds and dieback. To minimise this impact, a condition has been placed on the permit requiring the implementation of weed and dieback management measures.

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

According to available databases, no watercourse or wetlands are mapped in the application area. The closest watercourse is mapped approximately 770 metres south of the application area. Noting the extent of the vegetation within the application area and the distance to the mapped watercourse, it is unlikely that the proposed clearing would cause deterioration in the quality of surface or underground water.

Groundwater salinity within the application is mapped between 500 – 1000 milligrams per litre total dissolved solids which is considered to be marginal (Mayer, Ruprecht & Bari, 2005). Between 30-50 per cent of the mapped EnvGeol LS1 Phase and EnvGeol S7 Phase map units have a moderate to high salinity risk or is presently saline (DPIRD, 2019). Noting this, the extent of the proposed clearing and the condition of the vegetation within the application area, the proposed clearing is not likely to cause deterioration in the quality of underground water in the form of salinity.

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

Less than 3 per cent of the Noombling Subsystem (Dryandra) and the Popanyinning Subsystem (Pumphreys) map units have a moderate to high flood risk (DPIRD, 2019). Noting this, the extent of the proposed clearing and the condition of the vegetation within the application area, 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 to this Principle.

**Planning instruments and other relevant matters.**

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

The clearing permit application was advertised on the DWER website on 07 May 2019 with a 21 day submission period. No public submissions have been received in relation to this application.

Department of Water and Environmental Regulation (DWER) sought advice in relation to the proposed clearing. DBCA (2019) advised that the proposed clearing contains non-native species, both trees and shrubs, which are very important as foraging habitat to the three species of black cockatoos. Even though these introduced plant species were not historically a food source for the cockatoos, in the present highly cleared landscape where their native food source is constantly being removed, cockatoos have migrated into the Perth CBD primarily because they have been forced to adapt to non-native food resources.

DBCA further advised (2019) that most of the introduced species listed in this degraded area of primarily verge plants, are species that have been documented as providing a valuable food source for Carnaby's and Red-tailed cockatoos e.g. Cape Lilac, Jacaranda, Lemon scented gum, Liquidambar, Fig and Norfolk Island Pine. This is in addition to the native species that were listed in this area to be cleared, which include Peppermint, Tuart, Jarrah, Grass tree, *Callistemon* sp. and *Hakea prostrata* – all known foraging species for Black Cockatoos. The overall habitat in this clearing envelope may be degraded but the foraging value that each of these trees and shrubs provide to small flocks of cockatoos that are only visiting them because their own habitat has been cleared, cannot be underestimated.

In the EP Act, native vegetation is defined as indigenous aquatic or terrestrial vegetation and does not include vegetation that was intentionally sown, planted or propagated. Therefore, this assessment cannot consider non-native species.

It is noted that the Environmental Protection Authority (EPA) recognises the Perth Metropolitan Region to be a constrained area, within which a minimum 10 per cent representation threshold for ecological communities is recommended (EPA, 2008). The application area is located within the mapped extent of the Perth Metropolitan Region Scheme. Noting that the EPA considers a constrained area to be an area where there is an expectation that development will proceed, and that the cleared area is zoned 'Urban' in the Perth Metropolitan Region Scheme, the 10 per cent threshold applies in this instance.

#### 4. References

- Aurora. (2019). Summary of the findings from the flora, vegetation and fauna advice – Claremont station. DWER Ref: A1783717
- Commonwealth of Australia (2012) EPBC act referral guidelines for three threatened back cockatoos species. Department of Sustainability, Environment, Water, Populations and Communities, Canberra.
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#### GIS databases:

- CPS Areas applied to clear
- NatureMap (conservation significant fauna)
- DAFWA Subsystems V5
- Soils of WA
- Vegetation Complexes – Swan Coastal Plain
- Managed Tenure
- Environmentally Sensitive Areas
- TPFL Data March 2019
- WAHerb Data March 2019
- Aboriginal Sites Register
- IBRA Vegetation WA
- WA TECPEC
- Land Degradation Hazards