GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 8386/1
Permit Holder:	City of Cockburn
Duration of Permit:	1 January 2020 to 1 January 2025

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

PART I – CLEARING AUTHORISED

1. **Purpose for which clearing may be done**
   Clearing for the purpose of road construction.

2. **Land on which clearing is to be done**
   Lot 301 on Deposited Plan 415486, Jandakot
   Lot 302 on Deposited Plan 415497, Jandakot
   Lot 303 on Deposited Plan 415496, Jandakot
   Lot 304 on Deposited Plan 415484, Jandakot
   Lot 305 on Deposited Plan 415482, Jandakot
   Lot 307 on Deposited Plan 415495, Jandakot
   Lot 309 on Deposited Plan 415495, Jandakot
   Lot 44 on Deposited Plan 415486, Jandakot
   Lot 800 on Deposited Plan 50212, Jandakot
   Lot 802 on Deposited Plan 50212, Jandakot
   Lot 804 on Deposited Plan 41233, Jandakot
   Lot 9001 on Deposited Plan 65564, Jandakot
   Lot 9002 on Deposited Plan 65563, Jandakot
   Prinsep Road road reserve (PIN 11246191)
   Verde Drive road reserve (PIN 12121051)

3. **Area of Clearing**
   The Permit Holder must not clear more than 5.18 hectares of native vegetation within the area cross-hatched yellow on attached Plan 8386/1.

4. **Application**
   This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

5. **Type of clearing authorised**
   This Permit authorises the Permit Holder to clear native vegetation for the activities described in condition 1 of this Permit to the extent that the Permit Holder has the power to carry out works involving clearing for those activities under the *Local Government Act 1995* or any other written law.

PART II – MANAGEMENT CONDITIONS

6. 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.

7. 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*:

(i) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
(ii) ensure that no *dieback* or *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared;
(iii) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

8. Direction of clearing

The Permit Holder shall conduct clearing in a slow, progressive manner from one direction to the other (e.g. west to east) to allow fauna to move into adjacent native vegetation ahead of the clearing activity.

9. Fauna management

(a) A pre-clearance trapping and relocation survey for quenda must be completed within three days prior to the commencement of clearing;
(b) The Permit Holder shall engage a *fauna specialist* to trap and relocate quenda, in accordance with a fauna licence pursuant to the Biodiversity Conservation Regulations 2018;
(c) The Permit Holder shall engage a fauna spotter to traverse the project area ahead of clearing machinery, at the time of clearing;
(d) The Permit Holder must complete a trapping and relocation report and provide it to the Department of Water and Environmental Regulation within three months of the clearing being undertaken;
(e) The report must include, but not be limited to;
(i) number of quendas trapped and relocated under condition 9(b);
(ii) the location of any relocated quendas 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.

10. Vegetation management

(a) Where practicable the Permit Holder shall avoid clearing riparian vegetation;
(b) Where a watercourse or wetland is to be impacted by clearing, the Permit Holder shall maintain the existing surface flow.

11. Wind erosion management

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

PART III – RECORD KEEPING AND REPORTING

12. Records must be kept

The Permit Holder must maintain the following records for activities done in 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 or decimal degrees;
(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 6 of the Permit.
(c) Actions taken to minimise the risk of the introduction and spread of *weeds* and *dieback* in accordance with condition 7 of the Permit.
(d) Actions taken for fauna management in accordance with condition 9 of the Permit.

13. Reporting

(a) The Permit Holder must provide to the CEO on or before 30 June of each year, a written report:
   (i) of records required under condition 12 of this Permit; and
   (ii) concerning activities done by the Permit Holder under this Permit between 1 January to 31 December of the preceding calendar year.

(b) If no clearing authorised under this Permit was undertaken between 1 January to 31 December of the preceding calendar year, a written report confirming that no clearing under this permit has been carried out, must be provided to the CEO on or before 30 June of each year.

(c) Prior to 1 October 2024, the Permit Holder must provide to the CEO a written report of records required under condition 12 of this Permit where these records have not already been provided under condition 13(a) of this Permit.

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;

fauna specialist means a person who holds a tertiary qualification specializing in environmental science or equivalent, and has a minimum of 2 years work experience in fauna identification and surveys of fauna native to the region being inspected or surveyed, or who is approved by the CEO as a suitable fauna specialist for the bioregion, and who holds a valid fauna licence issued under the *Biodiversity Conservation Act 2016* and Biodiversity Conservation Regulations 2018.

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;

riparian vegetation has the meaning given to it in Regulation 3 of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004;

watercourse has the meaning given to it in section 3 of the *Rights in Water and Irrigation Act 1914*;

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 species-led ecological impact and invasiveness ranking summary, regardless of ranking; or
(c) not indigenous to the area concerned.

wetland/s means an area of seasonally, intermittently or permanently waterlogged or inundated land, whether natural or otherwise, and includes a lake, swamp, marsh, spring, dampland, tidal flat or estuary.

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Ryan Mincham
MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

2 December 2019

Plan 8386/1

Legend

CPS layers

CPS areas approved to clear

base layers

Road Centrelines

Cadastre - LGATE 218

Local Government Authorities

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Officer delegated under section 20 of the Environmental Protection Act 1986

GOVERNMENT OF WESTERN AUSTRALIA

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 8386/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: City of Cockburn
Application received date: 27 February 2019

1.3. Property details

Property:
Lot 301 on Deposited Plan 415486, Jandakot
Lot 302 on Deposited Plan 415497, Jandakot
Lot 303 on Deposited Plan 415496, Jandakot
Lot 304 on Deposited Plan 415484, Jandakot
Lot 305 on Deposited Plan 415482, Jandakot
Lot 307 on Deposited Plan 415495, Jandakot
Lot 309 on Deposited Plan 415495, Jandakot
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Lot 804 on Deposited Plan 41233, Jandakot
Lot 9001 on Deposited Plan 65564, Jandakot
Lot 9002 on Deposited Plan 65563, Jandakot
Prinsep Road road reserve (PIN 11246191)
Verde Drive road reserve (PIN 12121051)

Local Government Authority: City of Cockburn
Localities: Jandakot

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	Purpose category:
5.18		Mechanical Removal	Road construction or upgrades

1.5. Decision on application

Decision on Permit Application: Granted
Decision Date: 2 December 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 is at variance with principle (f), may be at variance with principle (g), and is not likely to be at variance with the remaining principles.

Through the assessment, it was determined that the proposed clearing may impact upon fauna species and the wetland within the application area, and increase the risk of wind erosion.

The Delegated Officer has granted the clearing permit subject to conditions requiring:

- pre-clearance surveys to identify any Quenda within the application area, and the relocation of any Quenda recorded during the pre-clearance surveys;
- one-directional clearing to allow fauna to move into adjacent habitat;
- the proposed activity being conducted within three months of any clearing being undertaken to minimise wind erosion;
- the maintenance of existing surface flow where the wetland is to be impacted by clearing; and
- dieback and weed management control.

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

2. Site Information

Clearing Description

The application is to clear 5.18 hectares of native vegetation within numerous lots between Cutler Road and the Kwinana Freeway, Jandakot, for the purpose of road construction (Figure 1). The road construction is for the westward extension of Verde

Drive, which will form a link through the area to Armadale Road. The road construction will serve as an alternative access/egress to the Cockburn Central Station carpark as a major road and bridge project by Main Roads Western Australia will cut off access to the current entrance.

Vegetation Description

The application area has been mapped as Bassendean complex – Central and South, which is described as 'Vegetation ranging from woodland of *Eucalyptus marginata* (Jarrah) – *Allocasuarina fraseriana* (Sheoak) – Banksia species to low woodland of Melaleuca species, and sedgelands on the moister sites. This area includes the transition of *Eucalyptus marginata* (Jarrah) to *Eucalyptus todtiana* (Pricklybark) in the vicinity of Perth' (Heddle et al., 1980).

Flora and vegetation surveys conducted by Focused Vision Consulting (FVC) (2019a) on 27 and 29 September 2016, 29 November 2018 and 25 June 2019 identified three remnant, native vegetation types within the application area:

- BaXp: Low woodland of *Banksia attenuata* and *Banksia ilicifolia* over occasionally dominant patches of *Kunzea glabrescens,* with *Xanthorrhoea preissii* and **Acacia longifolia,* over mostly weeds, dominated by **Ehrharta calycina* and **Actotheca calendula,* in grey sands;
- Mp: Low woodland of occasional *Eucalyptus rudis* over *Melaleuca preissiana* over occasionally dominant patches of *Kunzea glabrescens,* with *Xanthorrhoea preissii* and **Acacia longifolia,* over mostly weeds, dominated by **Ehrharta calycina,* in brown loamy sands; and
- Eg (d): Degraded areas of *Eucalyptus gomphocephala* over weeds, dominated by **Ehrharta calycina* and **Ehrharta longiflora* in brown loamy sands.

*denotes weed species

Vegetation Condition

Good; Vegetation structure significantly altered with obvious signs of multiple disturbance. Retains basic vegetation structure or ability to regenerate (Keighery, 1994).

To

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

The majority of the application area was determined to be in Completely Degraded and Degraded-Completely Degraded condition (44.51% and 21.89%, respectively) (DWER, 2019; FVC, 2019a)

Soil type

The application area is mapped within the following land subsystem (Schoknecht et al., 2004):

- Bassendean System 212Bs: Swan Coastal Plain from Busselton to Jurien. Sand dunes and sandplains with pale deep sand, semi-wet and wet soil. Banksia-paperbark woodlands and mixed heaths.

Comment

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

Photographs taken by the Department of Water and Environmental Regulation (DWER) during a site inspection of the application area on 17 September 2019 are shown in Figures 2 to 8.

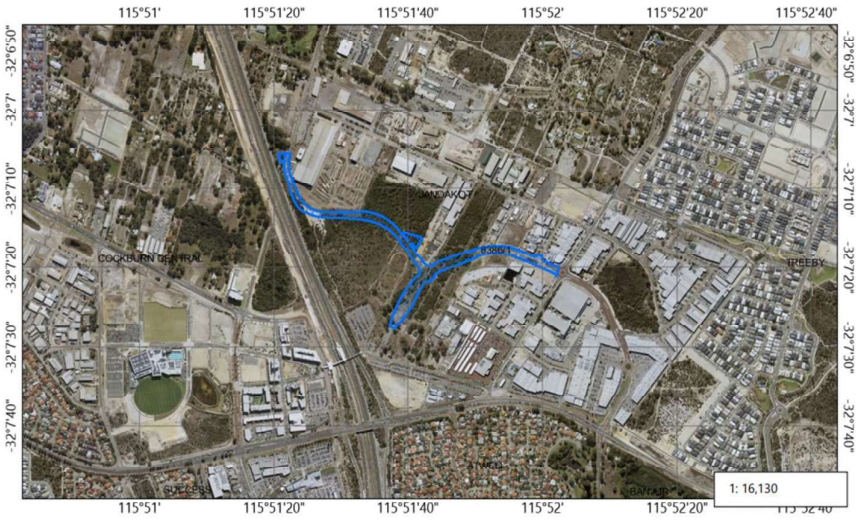

Figure 1: Application area (outlined in blue)


Figure 2: Looking north-west from the eastern corner of the application area. Groundcover comprises weeds.


Figure 3: Looking south-west, existing track along the eastern boundary of application area. Groundcover comprises weeds.


Figure 4: Looking north. Weeds in foreground.


Figure 5: Looking north from southern aspect of application area. Completely degraded condition. Existing track, weeds abundant.


Figure 6: Looking south-west. Banksia sp. among an area in degraded condition. Litter in foreground, just off existing track.


Figure 7: *Opuntia stricta* (Common Prickly Pear), found throughout application area.

Figure 8: Looking east from the western aspect of the application area. Rubbish in foreground.

3. Minimisation and mitigation measures

The applicant provided the following avoidance and mitigation measures in relation to the proposed clearing (City of Cockburn, 2019):

- Undertake fauna trapping and relocation program prior to clearing, specifically for Quenda;
- Maintain the presence of a suitably qualified zoologist on site during the proposed clearing to enable relocation to adjacent bushland areas;
- Ensure suitable drainage features are incorporated into road design to avoid potential adverse impacts from run-off, and on surface and groundwater quality;
- Ensure suitable drainage features are incorporated into road design to avoid potential flooding; and
- Relocate grasstrees (*Xanthorrhoea preissii*) located within the application area to revegetation sites throughout the City's boundary.

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 datasets, three Threatened flora species and 16 priority flora species have been recorded in the local area. Flora, vegetation and fauna surveys were conducted by FVC and Harewood Consulting to identify and map the environmental values of the application area. The surveys were undertaken during the spring season of 2016, 2017 and 2018. The size of the application area was increased in June 2019 and a follow up survey was conducted to include the additional area and update the survey report (FVC, 2019a). A targeted search for Threatened and Priority flora was conducted in September 2017, with a focus on *Caladenia huegelii* (FVC, 2019a). A further targeted flora survey for two Threatened orchid species, *Diuris drummondii* and *Drakaea elastica,* was conducted in early November 2019 (FVC, 2019b).

A total of 77 flora species, from 66 genera and 38 families were recorded within the application area. The total includes 33 (42%) native species and 44 (57%) weed species (FVC, 2019a). The vegetation condition of the application area was considered to be in Good to Completely Degraded condition, with the majority being in Completely Degraded and Degraded-Completely Degraded condition (44.51 and 21.89%, respectively). The site inspection undertaken by DWER confirmed the high number and abundance of weed species, and the mapping of vegetation types within the application area (DWER, 2019).

The flora and vegetation survey identified nine Threatened and priority flora species that could potentially occur within the application area (FVC, 2019a), however the surveys did not identify any conservation significant flora species (FVC, 2019a; 2019b).

The application area includes 0.72 hectares (12.5% of the application area) of the vegetation unit BaXp, which is considered to be representative of the structure and composition of the Commonwealth listed Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community (TEC) (FVC, 2019a). However, to be considered as part of the Commonwealth listed Banksia Woodland TEC, a patch should meet at least the 'Good' condition category (Threatened Species Scientific Committee, 2016). Based on the results of the flora and vegetation assessment and the site inspection undertaken by DWER, the Banksia Woodland found within the application area is in Degraded and Degraded to Completely Degraded condition, and therefore does not meet the criteria of the TEC. In addition to the areas of BaXp within the application area falling below the condition threshold, none of the Banksia woodland immediately surrounding the application area was at a minimum of 'Good' condition (FVC, 2019a). Given the condition of the vegetation unit BaXp both within and surrounding the application area, the vegetation under application is not assessed as comprising part of a regional patch as per the Conservation Advice (Threatened Species Scientific Committee, 2016).

As discussed under Principle (b), a fauna survey of a broad study area which included the application area, recorded 47 fauna species, comprising 34 birds (including four introduced species), five reptiles, six mammals (including four introduced species) and two frogs (Harewood, 2016). Of the 39 native fauna species recorded, four were of conservation significance; *Calyptorhynchus latirostris* (Carnaby's cockatoo), *Calyptorhynchus banksia naso* (Forest Red-tailed Black cockatoo), *Isodon obesulus fusciventer* (Quenda), and *Lerisita lineata* (Perth Lined Lerista). There are large areas of suitable habitat for these species found within the local area. Given that the majority of the application area is in Completely Degraded and Degraded-Completely Degraded condition, it is unlikely that the application area provides significant habitat for the abovementioned fauna

species. Additionally, the implementation of a fauna management condition and one-directional clearing will assist in mitigating impacts to these species.

A further three conservation significant species were identified to possibly occur within the application area: *Falco peregrinus* (Peregrine Falcon), *Ardea alba* (Eastern Great Egret) and *Throscodectes xiphos* (unnamed cricket) (FVC, 2019a). However, due to the high mobility of the birds and available habitat within the local area, it is unlikely that the application area provides significant habitat for these species.

Given the above, the application area is not likely to comprise a high level of biodiversity and the proposed clearing is not likely to be at variance with 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 is not likely to be at variance with this Principle

Two intact fauna habitat types, in addition to open degraded areas, were defined and mapped within the application area. The fauna habitat types within the application area are as follows:

- Banksia Woodland habitat – consists of an overstorey of Banksia species (*Banksia attenuata, Banksia menziesii* and *Banksia ilicifolia*), occasionally with Coastal Blackbutt (*Eucalyptus todtiana*) over native shrubs and herbs, as well as grassy weeds in more degraded areas;
- Paperbark Woodland/Swamp habitat – dominated by *Melaleuca preissiana,* occurring occasionally with introduced shrub, **Acacia longifolia* and occurring mostly over native shrubs such as *Hypocalymma angustifolium* or over dense stands of weeds, commonly **Fumaria capreolata.*

A Level 1 fauna survey and a black cockatoo habitat assessment were undertaken over a broad study area encompassing 29.5 hectares, which includes the application area (Harewood, 2016). The field surveys identified 47 fauna species, comprising 34 birds (including four introduced species), five reptiles, six mammals (including four introduced species) and two frogs. Of the 39 native fauna species recorded, four were of conservation significance; Carnaby's cockatoo, Forest Red-tailed Black cockatoo, Quenda, and Perth Lined Lerista.

Carnaby's cockatoo is listed as endangered and Forest Red-tailed Black cockatoo is listed as vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Black cockatoo's 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). 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).

The Banksia Woodland habitat occupies approximately 0.72 hectares (12.5%) of the application area. While evidence of foraging by black cockatoos was observed within the broad study area, the foraging value of the Banksia Woodland within the application area is considered low (FVC, 2019a; Harewood, 2016). The application area is approximately 6.8 kilometres west of confirmed breeding areas for Carnaby's cockatoo. Foraging resources within 12 kilometres of breeding trees are considered important, however, a previous assessment of foraging habitat for black cockatoos within the local area identified 726 hectares of suitable foraging habitat, with 430 hectares secured in Bush Forever tenure (FVC, 2019a). Noting this, the application area is not likely to be significant as foraging habitat. No potential habitat trees were identified within the application area, and due to the lack of large trees, the application area does not provide roosting habitat for black cockatoos (DWER, 2019; Harewood, 2016). Therefore, the application area is not considered to comprise the whole, or part of a significant habitat for black cockatoos.

Perth Lined Lerista (Priority 3) was recorded in previous surveys (Harewood, 2016). Most Banksia dominated habitat appears to be suitable for this species to persist. This species is known to inhabit gardens therefore it may persist in degraded areas and subsequent to development (Harewood, 2016). A one-directional clearing condition to allow fauna to move into adjacent habitat will assist in mitigating impacts to this species.

Quenda (Priority 4) tend to inhabit scrubby, often swampy, vegetation with dense cover up to one metre high, and often feed in adjacent forest and woodland that is burnt on a regular basis and in areas of pasture and cropland lying close to dense cover. Quenda are often associated with wetlands in the Swan Coastal Plain. Evidence of this species foraging (i.e. diggings) in some sections of the application area was observed during the field survey (Harewood, 2016) and this species may potentially be present where understorey is dense. The Paperbark Woodland/Swamp habitat occupies approximately 1.41 hectares (24.48%) of the application area, which is likely to support populations of Quenda. A fauna management condition requiring the trapping and relocating of this species prior to the proposed activities will assist in mitigating impacts to this species.

A further three conservation significant species were identified to possibly occur within the application area: Peregrine Falcon, Eastern Grey Egret and unnamed cricket (*Throscodectes xiphos*). However, due to the high mobility of the birds and available habitat within the local area, it is unlikely that the application area provides significant habitat for these species.

There are several conservation areas, including those forming parts of the Beeliar Regional Park, present within the local area (e.g. Harry Waring Marsupial Reserve and Thompson's Lake Nature Reserve). It is likely that the fauna species of conservation significance identified above as well as other species of fauna recorded within the survey area would utilise these larger reserves, or have populations present within them. Small areas of bushland, such as where the application area is located, are subject to significant edge effects which degrade their habitat quality over time, resulting in the reduction of their already limited capacity to harbour populations of most fauna species (Harewood, 2016). This is evident from the mostly Degraded to Completely Degraded nature of the application area which is likely to be of limited value to fauna species. The application area does not

provide a link to any major remnant bushland areas and has not been identified as part of any greenway corridors throughout the Perth metropolitan area (Harewood, 2016). Furthermore, the Bush Forever sites within the local area form north-south linkages and do not include the application area. Therefore, the application area is not likely to have significant linkage values for fauna.

Given the above, the proposed clearing is not likely to be 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 available datasets, three Threatened flora species have been recorded in the local area: *Caladenia huegelii, Diuris drummondii* and *Drakaea elastica.*

Caladenia huegelii is known from 41 records between Wanneroo and Busselton from grey or brown sand, clay loam associated with areas of dense undergrowth (Western Australian Herbarium, 1998-). Throughout its range, the species tends to favour areas of dense undergrowth. The soil in which the species usually occurs in is deep grey-white sand associated with the Bassendean sand-dune system.

Diuris drummondii is known from 12 populations between Perth and Walpole from low-lying depressions in peaty and sandy clay swamps (Department of the Environment, Water, Heritage and the Arts, 2008).

Drakaea elastica is known over a range of approximately 350 kilometres between Cataby in the north and Busselton in the south. The species grows on bare patches of grey-white sand within otherwise dense vegetation in low-lying areas alongside winter-wet swamps and flats, typically in Banksia Woodland or spearwood thicket vegetation (Department of Environment and Conservation, 2009).

Targeted surveys for *Caladenia huegelii, Diuris drummondii* and *Drakaea elastica* were undertaken during their respective ideal survey season. The surveys did not identify any of these orchid species or other threatened flora species within the application area (FVC, 2019a; 2019b).

Given the above, 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
There are no State listed threatened ecological communities mapped within the application area. The nearest State listed TEC is the 'Shrublands on dry clay flats', located approximately seven kilometres south-east of the application area. Noting the distance and that the proposed clearing will be limited to the application area, it is unlikely that the proposed clearing will impact this TEC.

Given the above, 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 not likely to be at variance with this Principle
The application area falls within the Swan Coastal Plain IBRA Bioregion. Approximately 38% of the pre-European vegetation still exists in the Swan Coastal Plain IBRA Bioregion. The application area is located within the mapped extent of the Perth Metropolitan Region Scheme and is situated within the Swan Coastal Plain vegetation complex Bassendean complex – Central and South. This vegetation complex retains approximately 26% of its pre-European extent (Government of Western Australia, 2018; Table 1). The local area retains approximately 24% native vegetation (approximately 2,278 hectares).

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30% of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001). The mapped vegetation complex and the local area fall below the threshold level of 30% and therefore the application area is located within an area that has been extensively cleared. 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). Given that the vegetation representations are above this modified objective, and that clearing will not reduce vegetation representation below this threshold, it is not likely that the proposed clearing will have a significant residual impact.

The majority of the vegetation within the application area is in degraded and completely degraded condition with high weed presence and is of low foraging value. Therefore, the application area is not likely to be a significant remnant in an area that has been extensively cleared.

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

Table 1: Vegetation extents (Government of Western Australia, 2018)

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Current Extent in DBCA Managed Lands	
				(ha)	(%)
IBRA Bioregion					
Swan Coastal Plain	1,501,221.93	578,813.47	38.62	222,916.97	38.45
Swan Coastal Plain Vegetation Complex					
Bassendean Complex – Central and South	53,080.99	12,467.20	23.49	4,282.73	8.07
Local area					
10 kilometre radius	9,246.36	2,278.30	24.64	-	-

(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 at variance with this Principle

There are no watercourses mapped within the application area. A multiple use wetland is mapped over some parts of the application area. Multiple use category wetlands are wetlands with few important ecological attributes and functions remaining. Approximately 0.7 hectares of the 1.8 hectare wetland mapped within the application area was determined to be in degraded to good condition, with the remaining being in degraded to completely degraded condition. Due to the condition and the relatively small area of clearing within the wetland, the proposed clearing is not likely to have a significant impact on the environmental values of the wetland. A vegetation management condition requiring the maintenance of the existing surface flow will assist in mitigating impacts to the wetland.

Given the above, the proposed clearing is 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

The soil types below have been mapped within the application area:

- Bassendean B2 Phase, described as flat to very gently undulating sandplain with well to moderately well drained deep bleached grey sands with a pale yellow B horizon or a weak iron-organic hardpan 1-2m (approximately 38% of the application area);
- Bassendean B3 Phase, described as closed depressions and poorly defined stream channels with moderately deep, poorly to very poorly drained bleached sands with an iron-organic pan, or clay subsoil. Surfaces are dark grey sand or sandy loam (approximately 18% of the application area); and
- Bassendean B4 Phase, described as broadly poor drained sandplain with deep grey siliceous sands or bleached sands (approximately 43% of the application area).

Risk categories	Bassendean B2 Phase	Bassendean B3 Phase	Bassendean B4 Phase
Wind erosion	>70% of map unit has a high to extreme hazard	3-10% of the map unit has a very high to extreme hazard	10-30% of map unit has a high to extreme hazard
Water erosion	>3% of map unit has a very high to extreme hazard	30-50% of the map unit has a very high to extreme hazard	<3% of map unit has a high to extreme water erosion risk
Salinity	<3% of map unit has a moderate or high hazard or is presently saline	<3% of map unit has a moderate or high hazard or is presently saline	<3% of map unit has a moderate or high hazard or is presently saline
Flood risk	<3% of the map unit has a moderate to high flood risk	30-50% of map unit has a moderate to high hazard	<3% of the map unit has a moderate to high flood risk
Waterlogging	3-10% of the map unit has a moderate to very high risk	>70% of map unit has a moderate to very high waterlogging risk	>70% of map unit has a moderate to very high waterlogging risk

Majority of the application area is comprised of soil types Bassendean B2 and B4 Phases, while a low proportion is comprised of Bassendean B3 Phase. Based on this and the mapped land degradation risk outlined above, the application area has a relatively low likelihood of water erosion, salinity risk and flood risk (Schoknecht et al., 2004).

Wind erosion risk for Bassendean B2 Phase is mapped at more than 70% of the map unit having a high to extreme risk of wind erosion (Schoknecht et al., 2004). While the linear configuration of the clearing will mitigate the potential for appreciable wind erosion, this risk has been further mitigated by imposing a permit condition requiring development to commence within three months of the clearing.

Waterlogging risk for Bassendean B3 and B4 Phase is mapped at more than 70% of the map unit having a moderate to very high risk of waterlogging. The applicant has advised that suitable drainage features will be incorporated to avoid potential adverse impacts from runoff, which will assist in managing the potential for waterlogging.

Given 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

There are large areas designated as Bush Forever sites which are located east and west of the application area (Figure 9). These sites form north – south ecological linkages across the landscape. The closest conservation area to the application area is Bush Forever site 390 which is located approximately 1.2 kilometres east of the application area.

Given the distance to the closest conservation area, the proposed clearing is not likely to impact on the environmental values of any conservation areas. Noting that the Bush Forever sites form linkages across the landscape, the application area is not likely to be supporting a significant linkage.

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

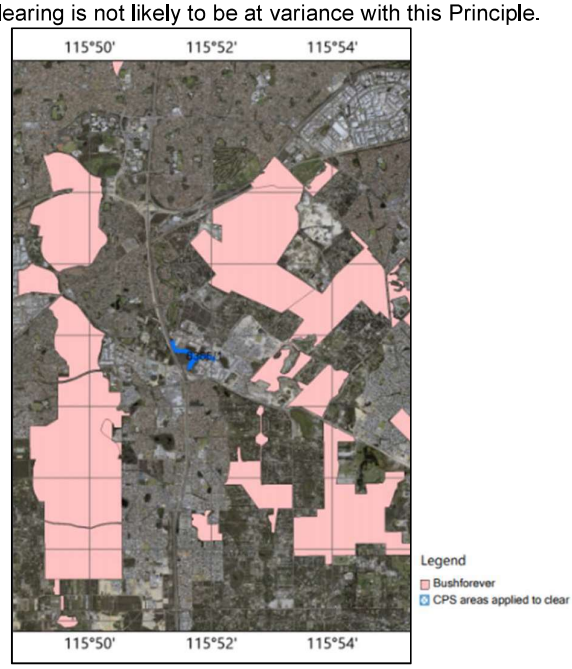

Figure 9: Bush Forever sites shaded in pink

(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

According to available databases, the groundwater within the application area is <500 milligrams per litre of Total Dissolved Solids (TDS). It would not be expected that the proposed clearing would cause salinity levels within the application or surrounding area to alter.

As discussed in Principle (f), approximately 1.8 hectares of the application area is mapped as a wetland. Given that the application area contains areas of surface water, the proposed clearing will increase sedimentation in the wetland which can potentially degrade the quality of surface water. While there is a potential for the quality of surface water to deteriorate, the impact is unlikely to be significant as the impact is likely to be short term during the clearing process. The applicant has advised that suitable drainage features will be incorporated into the road design to avoid potential adverse impacts on surface and groundwater quality.

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

The majority of the application area has a low flood risk, with the areas mapped as Bassendean B3 Phase having a higher risk (30-50% of the map unit has a very high to extreme hazard). However, less than 20% of the application area is mapped within the Bassendean B3 Phase, and the applicant has advised that suitable drainage features will be incorporated into road design to avoid potential flooding. Noting this, 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.

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

The clearing permit application was first advertised on the DWER website on 16 May 2019 with a 21 day submission period. One submission was received in relation to this application during this submission period (Submission, 2019). The clearing permit application was re-advertised on 14 August 2019 with a 7 day submission period, due to a change in the application area. No public submissions were received during this submission period. In summary, the one submission received raised the following matters:

- The proposed clearing will result in further reduction in size and likely reduction in the quality of remnant Banksia Woodlands of the Swan Coastal Plain;
- Area of Banksia Woodland may be larger than indicated in the survey report, eastern-most part of mapped wetland at odds with wetlands as mapped by DBCA;
- No offset for clearing of TEC offered, or enhancement/rehabilitation of surrounding degraded vegetation;
- The proposed clearing will impact on the wetland in the clearing envelope.

Concerns relating to Banksia Woodlands TEC and wetlands have been addressed under Principle (a) and (f), respectively. The site inspection undertaken by DWER confirmed the mapping of the Banksia Woodland and wetland by the consultant to be accurate (DWER, 2019). In accordance with the WA Environmental Offsets Policy (2011), DWER considers that environmental offsets should only be applied where significant residual impacts remain after appropriate attempts to avoid or mitigate the impacts of clearing have been implemented. It has been concluded that the proposed clearing is at variance with principle (f), may be at variance with principle (g), and is not likely to be at variance with the remaining principles. Consequently, the proposed clearing was assessed as being unlikely to result in any significant residual environmental impacts and therefore no offset was required.

5. References

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Western Australian Herbarium (1998-) Florabase – The Western Australian Flora. Department of Biodiversity, Conservation and Attractions. http://florabase.dpaw.wa.gov.au/ (accessed September 2019).

GIS Databases

- Aboriginal sites of significance
- Black cockatoos
- Conservation areas
- Flora – WAHerb and TPFL
- Hydrography, Linear

- Pre-European Vegetation
- Remnant Vegetation
- Threatened and Priority Ecological Communities