GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: CPS 8892/1

File Number: DWERVT5697

Duration of Permit: From 31 July 2021 to 31 July 2026

PERMIT HOLDER

Kemoc Pty Ltd
Raymond Barry Bostelman
Helen Louise Bostelman
Karen Anne Draper
Stephen Robert Draper
Geoffrey Kenneth Marshall

LAND ON WHICH CLEARING IS TO BE DONE

Lot 156 on Diagram 20124, Furnissdale

AUTHORISED ACTIVITY

The permit holder must not clear more than 2.797 hectares of native vegetation within the area cross-hatched yellow in Figure 1 of Schedule 1.

CONDITIONS

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

In determining the native vegetation authorised to be cleared under this permit, the permit holder must apply the following principles, set out in descending 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. Weed and dieback management

When undertaking any clearing authorised under this permit, the permit holder must take the following measures to minimise the risk of 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. Clearing not authorized

This Permit does not authorise the Permit Holder to *clear* any living or dead trees at the locations specified in Table 1.

Table 1: Locations of trees not authorised to *clear*

Latitude	Longitude
-32.5478819501	115.7702795962
-32.5476792913	115.7709274631
-32.5475189416	115.7708732019
-32.5473019795	115.7707568151
-32.5472334375	115.7707319453
-32.5471462099	115.7706121779
-32.547128561	115.7709027134
-32.5470189516	115.771288041
-32.5469297642	115.7708280108
-32.5468073511	115.7706022823
-32.5467290593	115.7705581927
-32.546561593	115.7707540042

4. Wind erosion management

The permit holder must commence construction of the group housing facility no later than three months after undertaking the authorised clearing activities to reduce the potential for wind erosion.

5. Records that must be kept

The permit holder must maintain records relating to the listed relevant matters in accordance with the specifications detailed in Table 2.

Table 2: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	(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; (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; (e) actions taken to minimise the risk of the introduction and spread of weeds and dieback in accordance with condition 2; (f) actions undertaken in accordance with condition 3; and (g) actions taken to manage and mitigate impacts to wind erosion in accordance with condition 4.

6. Reporting

The permit holder must provide to the *CEO* the records required under condition 5 of this permit when requested by the *CEO*.

DEFINITIONS

In this permit, the terms in Table have the meanings defined.

Table 2: Definitions

Term	Definition
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*.
clearing	has the meaning given under section 3(1) of the EP Act.
condition	a condition to which this clearing permit is subject under section 51H of the EP Act.

Term	Definition
fill	means material used to increase the ground level, or to fill a depression.
dieback	means the effect of *Phytophthora* species on native vegetation.
department	means the department established under section 35 of the *Public Sector Management Act 1994* (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
EP Act	*Environmental Protection Act 1986* (WA)
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.
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
weeds	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.

END OF CONDITIONS

Meenu Vitarana
A/MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

7 July 2021

SCHEDULE 1

Figure 1: Map of the boundary of the area within which clearing may occur

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1. Application details and outcome

1.1 Permit application details

Permit number:	CPS 8892/1
Permit type:	Area permit
Applicant name:	Kemoc Pty Ltd; Raymond Barry Bostelman; Helen Louise Bostelman; Karen Anne Draper; Stephen Robert Draper; Geoffrey Kenneth Marshall
Application received:	24 April 2020
Proposed clearing:	2.797 hectares (ha)
Purpose of clearing:	Construction of a group housing facility
Method of clearing:	Mechanical removal
Property:	Lot 156 on Diagram 20124
Location (LGA area/s):	Shire of Murray
Localities (suburb/s):	Furnissdale

1.2 Description of clearing activities

The applicant proposes to clear 2.797 hectares of native vegetation, comprising the entirety of Lot 156 on Diagram 20124, for the purpose of constructing a group housing facility (see Figure 1, Section 1.5).

The applicant originally applied for clearing of 1.5 hectares within Lot 156 on Diagram 20124, which included only the larger trees and midstorey trees within the property. The application area was revised during the assessment process to the approved 2.797 hectare area after it was identified that other scattered understorey native vegetation was present within the property that may also require clearing for the construction of the group housing facility.

1.3 Decision on application

Decision:	Granted
Decision date:	7 July 2021
Decision area:	2.797 ha as depicted in Figure 1, Section 1.5

1.4 Reasons for decision

This clearing permit application was submitted, accepted, assessed and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). The application was initially advertised for 21 days for the proposed clearing of 1.47 ha of native vegetation, then for a further seven days to reflect the larger application area across the entirety of Lot 156.

One public submission was received, raising concerns in relation to three threatened black cockatoo species. The submitter's comments, and the Department's consideration of these, are summarised in Appendix B.

In undertaking the assessment, the Delegated Officer had regard for the site characteristics (see Appendix C), relevant datasets (see Appendix G), the clearing principles set out in Schedule 5 of the EP Act (see Appendix D), supporting information provided by the applicant, a site inspection undertaken by DWER, the findings of a tree inspection report and any other matters considered relevant to the assessment (see Section 3).

The assessment identified that the proposed clearing area:

- may contain breeding habitat for black cockatoo habitat species;
- may contain foraging habitat for black cockatoo species, although this habitat is unlikely to be significant;
- may contain habitat suitable for other conservation signifciant fauna species, chuditch, peregrine falcon, quenda, Perth slider, black-striped snake, western brush wallaby and brush tailed phascogale, however this habitat is unlikely to be significant;
- may contain one individual of Priority listed flora species *Eucalyptus rudis* subsp. *cratyantha*;

- has the potential to result in the introduction and spread of weeds and dieback into adjacent vegetation, including an area mapped as the Banksia Woodlands BC Act listed Priority 3 ecological community and EPBC Act listed Threatened ecological community;
- may contain riparian vegetation associated with a wetland;
- may cause wind erosion leading to deterioration in surface water quality through sedimentation;

After consideration of the available information, as well as the applicant's minimisation and mitigation measures, the Delegated Officer determined that the impacts of the proposed clearing identified above could be minimised and managed to be environmentally acceptable, and that the applicant has suitably demonstrated avoidance and minimisation measures. The Delegated Officer decided to grant a clearing permit subject to conditions to:

- avoid, minimise and reduce the impacts and extent of clearing;
- take steps to minimise the risk of the introduction and spread of weeds and dieback;
- retain specific trees as required as a condition of the applicant's development approval, including two trees identified during DWER's site inspection to provide potentially suitable breeding habitat for black cockatoos and one *Eucalyptus rudis* tree to mitigate potential impacts to black cockatoo breeding and foraging habitat and *Eucalyptus rudis* subsp. *cratyantha*; and
- not undertake clearing unless development activities commence within three months of the clearing being undertaken in order to minimise the risk of wind erosion.

1.5 Site map

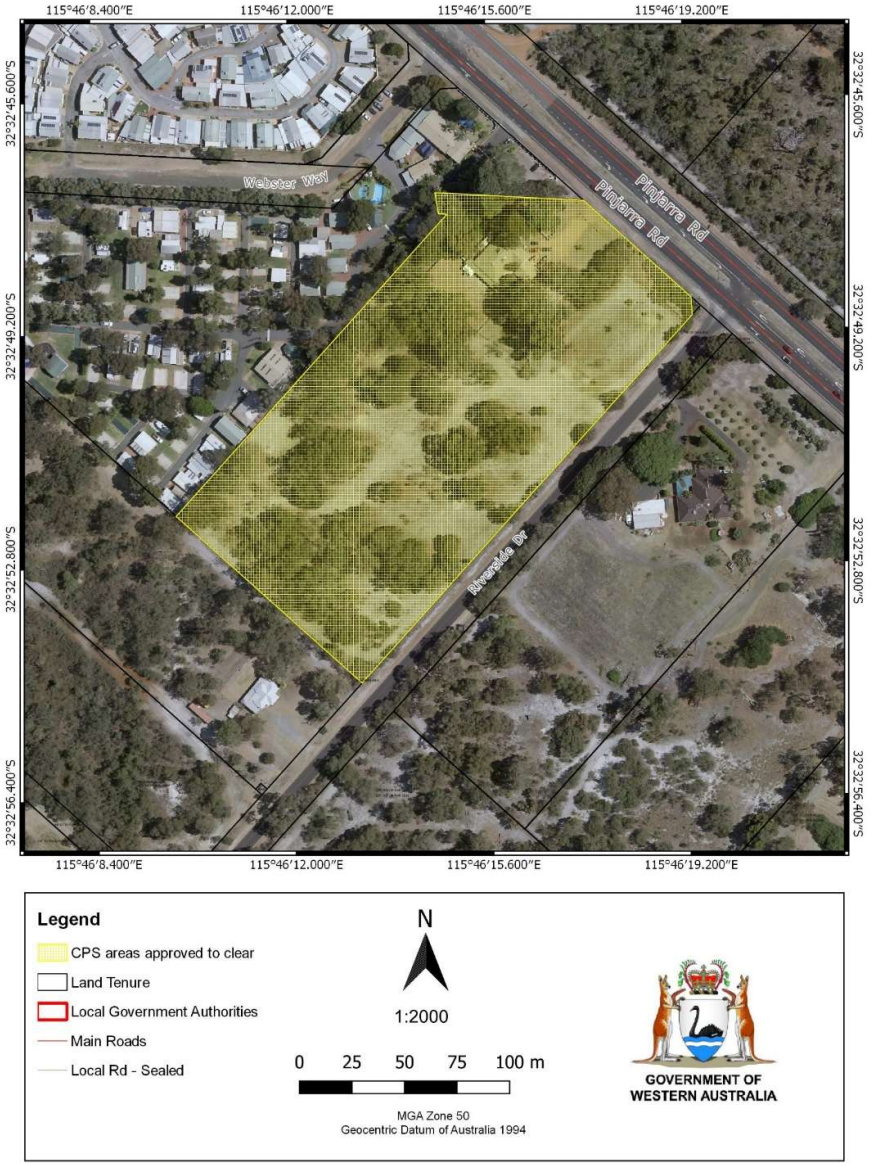

Figure 1: Map of area approved to clear. The area cross-hatched yellow indicates the area authorised to be cleared under the granted clearing permit.

2. Legislative context

The clearing of native vegetation in Western Australia is regulated under the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.3), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- Biodiversity Conservation Act 2016 (WA)
- Conservation and Land Management Act 1984 (WA)
- Environment Protection and Biodiversity Conservation Act 1999 (Cth)
- Rights in Water and Irrigation Act 1914.

The key guidance documents which inform this assessment are:

- A guide to the assessment of applications to clear native vegetation (DWER, December 2013)
- Procedure: Native vegetation clearing permits (DWER, October 2019)

3. Detailed assessment of application

3.1 Avoidance and mitigation measures

The application form states that the proposed clearing will be subject to the Shire of Murray's *Natural Landscapes in Urban Areas Local Planning Policy* (2018), which emphasises the importance of vegetation retention, and that while the application area encompasses all of the native vegetation on the land, the final clearing areas will likely be less than what has been applied for. The Development Approval issued to the applicant by the Metro Outer Joint Development Approval Panel for the proposed development required the applicant to retain 12 trees identified within the clearing area, unless permission was obtained by the Shire of Murray to remove these trees. Three of the trees required to be retained were identified during DWER's assessment to have environmental values, and DWER requested that they be retained:

- Two trees identified during DWER's site inspection (2020) to provide potentially suitable breeding habitat for black cockatoos (refer to Section 3.2.1 for further information); and
- One tree identified to be a *Eucalyptus rudis*, which could not be ruled out to be the Priority 4 listed subspecies *Eucalyptus rudis* subsp. *cratyantha* (refer to Section 3.2.2 for further information).

The Delegated Officer was satisfied that a reasonable effort has been made to avoid and minimise potential impacts of the proposed clearing on environmental values.

3.2 Assessment of environmental impacts

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix C) and considered the extent to which the impacts of the proposed clearing present a risk to environmental values and whether these can be managed to be environmentally acceptable. The assessment against the clearing principles is contained in Appendix D.

This assessment identified that the risks of the proposed clearing to fauna, flora and land and water resources required further consideration. The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

3.2.1 Fauna

Assessment: The application area may provide suitable habitat for the following conservation significant fauna species:

- *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo) (VU);
- *Calyptorhynchus baudinii* (Baudin's cockatoo) (EN)
- *Calyptorhynchus latirostris* (Carnaby's cockatoo) (EN);
- *Dasyurus geoffroii* (chuditch, western quoll) (VU);
- *Falco peregrinus* (Peregrine falcon) (OS);
- *Isoodon fusciventer* (quenda, southwestern brown bandicoot) (P4);

- *Lerista lineata* (Perth slider, lined skink) (P3);
- *Neelaps calonotos* (Black-striped snake, black-striped burrowing snake) (P3);
- *Notamacropus irma* (Western brush wallaby) (P4); and
- *Phascogale tapoatafa wambenger* (South-western brush-tailed phascogale, wambenger) (CD).

Calyptorhynchus banksii naso (forest red-tailed black cockatoo), *Calyptorhynchus baudinii* (Baudin's cockatoo) and *Calyptorhynchus latirostris* (Carnaby's cockatoo) (hereafter collectively referred to as black cockatoo species) have been mapped within the local area, and may utilise vegetation within the application area as habitat. Black cockatoos breed in large hollow-bearing trees, generally within woodlands or forests or in isolated trees, including *Corymbia calophylla* (marri) and *Eucalyptus marginata* (jarrah) trees with trunk diameter of greater than 50 centimetres at a height of 150 centimetres (DSEWPC, 2012). A site inspection (DWER, 2020) found that one large marri tree contained two hollows and a stag tree contained one hollow that were potentially suitable for breeding by black cockatoo species. A subsequent detailed inspection of these trees was undertaken, which found that the hollows within the marri tree were too small for black cockatoo breeding, however the stag tree contained a hollow that appeared to have been previously utilised for black cockatoo breeding (Terrestrial Ecosystems, 2020). Following this inspection, and in accordance with a condition of the Development Approval issued for the proposed development, the applicant has committed to retaining these two trees, along with other trees within the application area (refer to Figure 2). This has been reflected in the permit conditions. Given this, the proposed clearing is not considered likely to impact black cockatoo breeding habitat.

The marri, jarrah, sheoak and *Banksia* spp. trees within the application area may also provide foraging habitat for black cockatoo species, particularly given:

- the presence of a breeding tree within the application area;
- eight confirmed white-tailed black cockatoo breeding sites are present within a 12 kilometre radius, with the closest site 6.3 kilometres north;
- 12 confirmed black cockatoo roost sites are present within the local area, with the closest site one kilometre southeast;
- sources of drinking water are present within a one kilometre radius;
- evidence of foraging (likely from red-tailed black cockatoos) was observed within the application area during DWER's site inspection (refer to Figure F-9, Appendix F);
- previous surveys within the broader Furnissdale West Structure Plan area (Greg Rowe Pty Ltd t/a RoweGroup (2016); ENV Australia (2008; 2010) noted that a number of conservation-significant fauna (including black cockatoos) may utilise the area for feeding purposes.

DWER's site inspection (2020) indicates that the areas of mixed marri, introduced Eucalypts and jarrah (described in Table C.1, Appendix C) comprise approximately 1 hectare, of which approximately half comprises canopy of native species suitable for foraging (marri, jarrah, sheoak and banksia) (Shah, 2006; Valentine and Stock, 2008). Of this vegetation, nine trees comprising approximately 0.2 hectares of canopy will be retained, leaving approximately 0.3 hectares of suitable foraging habitat of native species that will be cleared. Given the vegetation remaining in adjacent properties and the extent of vegetation within the surrounding area that is likely to provide suitable foraging habitat, the proposed clearing is not considered likely to have a significant impact on the extent of foraging habitat. Similarly, it is also considered likely that this vegetation would provide roosting habitat, however given the presence of suitable roosting sites within the local area and the retention of 12 large trees within the application area, the proposed clearing is not considered likely to have a significant impact on the extent of black cockatoo roosting habitat.

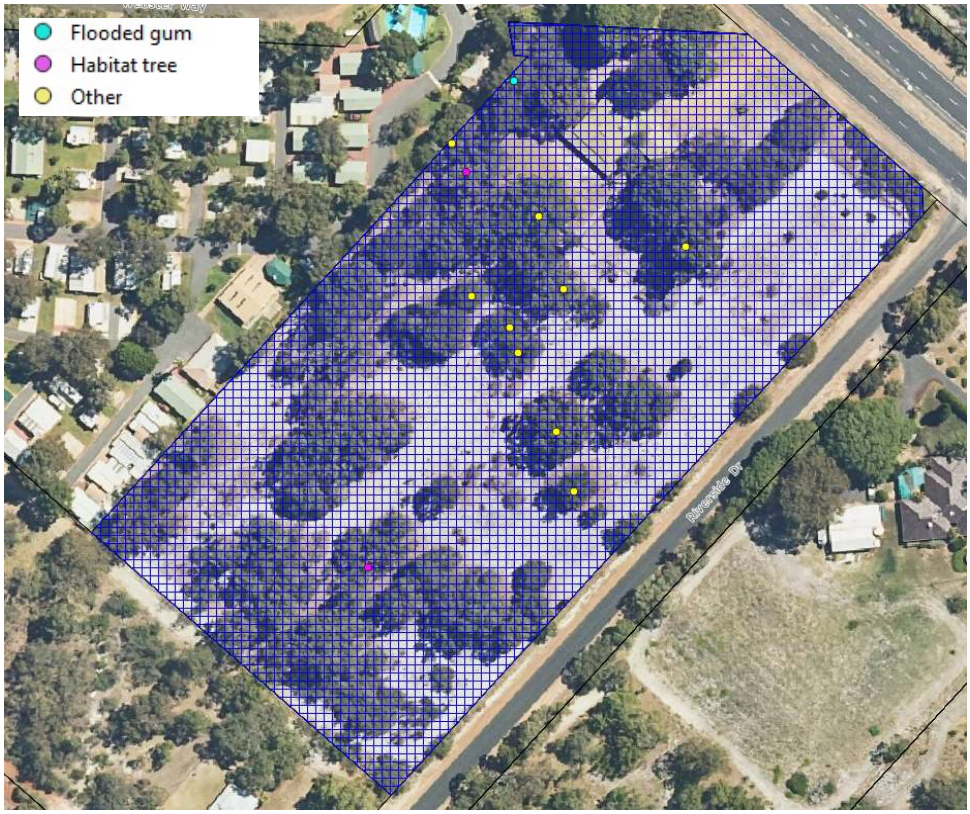

Figure 2 – Locations of trees required to be retained within application area.

Chuditch use a range of habitats including forest, mallee shrublands, woodland and desert, and require habitats that are of a suitable size and not excessively fragmented (Department of Environment and Conservation, 2012a). Noting the surrounding development and absence of refuge sites within the application area, it is unlikely that the application area would provide ideal chuditch habitat, however they may utilise the application area as a corridor for movement through the landscape. Given the extent of clearing and the condition of the vegetation, the proposed clearing is unlikely to significantly impact this species.

In the south-west, the south-western brush-tailed phascogale is typically found in jarrah forest, and has been observed in dry sclerophyll forests and open woodlands that contain hollow-bearing trees (Department of Environment and Conservation, 2012b). The application area contains suitable habitat for this species, and this species may utilise the application area as a corridor for movement through the landscape. However, given the extent of clearing, the proposed clearing is unlikely to significantly impact this species.

The Peregrine falcon 'is found in most habitats, from rainforests to the arid zone, and at most altitudes, from the coast to alpine areas' (Australian Museum, 2020). Noting this species is widespread and highly mobile, the wide variety of habitats used by this species and the extent of clearing, the proposed clearing is unlikely to significantly impact this species.

Vegetation within the application area may also provide habitat for *Lerista lineata* (Perth slider), *Neelaps calonotos* (black-striped snake) and *Isodon fusciventer* (quenda) (DBCA, 2017), however due to its degraded nature and the scarcity of native understorey species present, the habitat is unlikely to be significant for these species.

Conclusion: Based on the above assessment, the proposed clearing area comprises suitable habitat for conservation significant fauna species, including breeding habitat for black cockatoo species. However, noting the extent of the clearing and condition of the vegetation, and that the applicant has committed to retaining black cockatoo breeding trees as a condition of the permit, the proposed clearing is unlikely to significantly impact these species.

Conditions: To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- Retention of trees at locations shown in Figure 2 above, including one tree with suitable habitat for black cockatoo breeding and one other tree with smaller hollows, to minimise impacts to black cockatoo habitat.

3.2.2 Flora and vegetation

Assessment:

Flora

The application area may provide suitable habitat for the following conservation significant flora species:

- *Caladenia huegelii* (T);
- *Drakaea elastica* (T);
- *Johnsonia pubescens* subsp. *cygnorum* (P2);
- *Jacksonia gracillima* (P3);
- *Caladenia speciosa* (P4);
- *Eucalyptus rudis* subsp. *cratyantha* (P4); and
- *Jacksonia sericea* (P4).

Threatened species *Drakaea elastica* and *Caladenia huegelii* are found in the same mapped soil and vegetation types as the application area, *Drakaea elastica* within bare patches of sand within otherwise dense vegetation in low-lying areas alongside winter-wet swamps, typically in banksia woodland or spearwood thicket vegetation (Department of Environment and Conservation, 2009a) and *Caladenia huegelii* in areas of mixed woodland of jarrah, banksia, sheoak and marri in deep grey-white sand usually associated with the Bassendean sand-dune system (Department of Environment and Conservation, 2009b). As such, the application area contains suitable habitat for these species. However, given the Completely Degraded condition of the vegetation present and that horses graze within the property, that historical aerial imagery indicates that the application area was mostly cleared of native vegetation in 1960 and that leaves or flowers for these species were not noted during DWER's site inspection (DWER, 2020) in September when at least leaves were likely to be present, it is considered very unlikely that these species are present within the application area and would be impacted by the proposed clearing. Similarly, while available habitat information (Western Australian Herbarium, 1998-) indicates that the application area may provide suitable habitat for *Johnsonia pubescens* subsp. *cygnorum*, *Jacksonia gracillima*, *Caladenia speciosa* and *Jacksonia sericea*, given the vegetation condition, historical clearing and that individuals were not detected during DWER's site inspection (DWER, 2020) or by Bowman and Partners (2020), it is considered very unlikely that these species are present within the application area and would be impacted by the proposed clearing.

One *Eucalyptus rudis* tree was recorded close to the northern corner of the application area. As fruits or nuts were not noted on the tree at the time of the site inspection, it could not be determined whether this tree was *Eucalyptus rudis* subsp. *rudis* or the Priority 4 species *Eucalyptus rudis* subsp. *cratyantha*. Given that the applicant has committed to retaining this tree (refer to Figure 2 above), which has been reflected in the permit conditions, should this tree comprise the Priority 4 subspecies impacts to this species are considered to be mitigated.

Ecological Communities

The application area is adjacent to an area mapped as the Banksia Dominated Woodlands of the Swan Coastal Plain IBRA region' Priority 3 ecological community endorsed by the Western Australian Minister for Environment and EPBC Act listed Threatened ecological community (hereafter referred to as Banksia PEC/TEC). Noting the composition and condition of the vegetation proposed to be cleared, with only several Banksia trees present throughout the entire area, vegetation within the application area is not considered to be representative of the Banksia TEC (Threatened Species Scientific Committee, 2016) and therefore also the Banksia PEC. Noting its proximity, while vegetation within the application area is not likely to be necessary for the maintenance of this area of adjacent PEC/TEC, the proposed clearing activities could result in the introduction or spread of weeds and dieback into adjacent vegetation, which could impact on habitat quality of adjacent vegetation. It is considered that impacts to adjacent vegetation can be managed to be environmentally acceptable by requiring the applicant to take steps to minimise the risk of the introduction and spread of weeds and dieback. This will be required as a condition on the clearing permit.

Conclusion: Vegetation within the application area is unlikely to include threatened species, however it is possible that one individual of *Eucalyptus rudis* subsp. *cratyantha* may be present. Given that this tree will be retained impacts to this species will be mitigated.

While vegetation within the application area does not comprise a threatened or priority ecological community, the proposed clearing may have impacts on an adjacent area of Banksia PEC/TEC. Conditions placed on the permit to manage weeds and dieback are considered sufficient to mitigate impacts to this adjacent vegetation.

Conditions: To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- Retention of trees at locations shown in Figure 2 above, including one *Eucalyptus rudis* tree to mitigate impacts to potential *Eucalyptus rudis* subsp. *cratyantha*;
- Dieback and weed management conditions to mitigate impacts to an adjacent area of Banksia PEC/TEC.

3.2.3 Land and water resources

Assessment:

Land degradation

The main land degradation risks associated with the mapped soil type are a greater than 70 per cent high to extreme risk of wind erosion, and a 30-50 per cent moderate to high risk of salinity. With regard for the purpose of the proposed clearing, and the mapped groundwater salinity in the local area, the proposed clearing is unlikely to cause an appreciable increase in salinity, however the proposed clearing may cause land degradation in the form of wind erosion. A condition requiring clearing to be undertaken no more than three months prior to development is undertaken is considered sufficient to mitigate impacts of wind erosion.

Water quality

The *Kunzea glabrescens* (spearwood) vegetation within the south-eastern corner of the application area is indicative of riparian vegetation, and a Conservation category floodplain wetland, associated with a floodplain area of the Serpentine River, is mapped approximately 35 metres southwest. However, supporting information provided by the applicant (Bowman and Partners, 2020) indicates that the application area is approximately 4 m above sea level, slightly higher in the landscape than this wetland, and historical aerial imagery indicates that the application area and surrounds do not appear to be inundated with water on a seasonal or perennial basis. As such, it is considered that the proposed clearing is not likely to significantly impact upon the function of this wetland. The potential risk of wind erosion (see above) in combination with an increase in surface water run-off on cleared land may lead to a change in the quality of surface water through the transport of sediments, and may lead to sedimentation of the nearby wetland. A condition requiring clearing to be undertaken no more than three months prior to development is undertaken is considered sufficient to mitigate impacts sedimentation resulting from wind erosion.

Conclusion: For the reasons set out above, it is considered the impacts of the proposed clearing in relation to the risk of wind erosion (and the associated potential risk of sedimentation of surface water) can be managed to be environmentally acceptable by requiring the applicant to avoid clearing vegetation unless commencing development within three months. This will be required as a condition on the clearing permit.

Conditions: To address the above impacts, the following management measure will be required as a condition on the clearing permit:

- The permit holder must commence construction of the group housing facility no later than three months after undertaking the authorised clearing activities to reduce the potential for wind erosion.

3.3 Relevant planning instruments and other matters

The Shire of Murray was invited to provide comment on the application as a direct interest party. The Shire of Murray advised that development approval is required for the construction of the proposed group housing facility, and that it has not yet received an application for this (Shire of Murray, 2020). Following this advice a Development Approval approved by the Metro Outer Joint Development Assessment Panel (JDAP) was issued on 16 April 2021. As a condition of this approval, the applicant is required to retain certain trees (refer to Figure 2).

Lot 156 is primarily zoned 'Residential Development' in the Shire of Murray's *Town Planning Scheme No. 4* and 'Urban' under the Peel Region Scheme (under both schemes there is a small overlap with 'Primary Regional Road' zoning). Lot 156 is identified as primarily 'Residential - R60' development in the *Furnissdale West Structure Plan;* a portion in the south-west corner is identified as 'Public Open Space' and a 20 metre Asset Protection Zone (1) has been identified along the western and southern borders of the application area. The *Furnissdale West Structure Plan* notes "no subdivision or development, excepting any proposed road or public open space, should be approved in Asset Protection Zone 1 unless it can be demonstrated that the 20 metre wide asset protection zone is not required on Lot 156 Pinjarra Road, Furnissdale."

As such, it is noted that the Development approval approved by the JDAP included a condition that "the development shall at all times comply with the requirements and recommendations of the approved Bushfire Management Plan (prepared by Allerding and Associates being Document ID NLV FU2 ZB/2009 dated 30.9.20), or a revised Bushfire Management Plan approved by the Shire of Murray". The approved Bushfire Management Plan (BMP) dated 30 September 2020 included a restriction on the development of certain lots along the south-western boundary (adjacent to the vegetated property) until such a time that a BAL rating of BAL29 or lower could be achieved for those lots. The landowner of Lot 119 on Plan 54842 (279 Diverside Drive), Furnissdale has provided a letter to DWER that vegetation within Lot 119 will be maintained to achieve a BAL29 in perpetuity without the requirement for additional approvals or clearing permits. DWER has also received a letter prepared by an accredited bushfire consultant setting out the mechanisms by which Lot 119 can be maintained to reduce bushfire impacts on the clearing permit application area. Those mechanisms include:

- The Bush Fire Risk Treatment Standards 2020 (the Standards);

- the Shire of Murray Firebreak Notice and Bushfire Information 2020-2021 (the Firebreak Notice)
- The Guidelines for Planning in Bushfire Prone Areas (the Guidelines); and
- Australian Standard AS3959:2018 Construction of buildings in bushfire-prone areas (Allerding and Associates, 2021).

As such, DWER is satisfied that the required BAL can be achieved for the proposed development, in consistent with State Planning Policy 3.7.

A number of Aboriginal heritage places occur within the local area, however none are mapped within the application area. The nearest is a registered site known as 'Serpentine River', located approximately 140 m from the application area. Given the separation distance, the proposed clearing is unlikely to impact on this site. In any event, it is the permit holder's responsibility to comply with the *Aboriginal Heritage Act 1972* (WA) and ensure that no Aboriginal sites of significance are damaged through the clearing process.

Appendix A – Additional information provided by applicant

Following acceptance of the application, the applicant provided the following additional information considered by DWER during the assessment.

Summary of comments	Consideration of comment
Applicant provided a report of an inspection of two potential habitat trees (Terrestrial Ecosystems, 2020) noted during DWER's site inspection (2020)	Considered in Section 3.2.1
Applicant provided plan of trees required to be retained under the Development Approval as approved by the Shire of Murray	Considered in Sections 3.2.1 and 3.2.2
Applicants' bushfire consultant provided additional documentation on how the required BAL for the development will be achieved	Considered in Section 3.3

Appendix B – Details of public submissions

One public submission was received, raising concerns in relation to three threatened black cockatoo species. The submittor's comments, and the Department's consideration of these, are summarised below.

Summary of comments	Consideration of comment
Importance of foraging habitat • Foraging habitat for black cockatoos on the Swan Coastal Plain is already insufficient, which is driving ongoing decline in these species. Therefore, any remaining foraging habitat, particularly on migration pathways, will be important. • The application area is part of a migration path for Carnaby's black cockatoo flocks that live on the Swan Coastal Plain during the non-breeding season, and provides roosting and foraging habitat for this species. The application area is also within the range areas of both Baudin's black cockatoo and the forest red-tailed black cockatoo. • The application area would remove 1.2 ha of jarrah woodland which provides ideal black cockatoo foraging habitat.	As discussed in Section 3.2.1, considering the findings of DWER's site inspection and the trees which will be retained as a condition of the clearing permit, the proposed clearing is likely to remove approximately 0.3 ha of native vegetation that provides black cockatoo foraging habitat. The Delegated Officer considered that given the vegetation remaining in adjacent properties and the extent of vegetation within the surrounding area that is likely to provide suitable foraging habitat, the proposed clearing was not considered likely to have a significant impact on the extent of foraging habitat.
Issues identified with supporting information • The black cockatoo habitat survey was undertaken in March, which would not have been the best time of year to assess use of the site by black cockatoos, and does not recognise that flocks depend on different patches of habitat at different times of year. Appropriate times of year to observe Carnaby's black cockatoo during migration would be September to November and January to February. • The consultant's report states 'There are no known species of native flora or fauna with any special conservation values likely to utilise the site. As such there are no apparent grounds in relation to conservation values upon which a clearing permit could reasonably be refused'. These claims are incorrect.	The submitter's advice regarding the applicant's supporting information is noted. However, as well as considering this supporting information, the Delegated Officer's assessment of black cockatoo habitat also considered other information as set out under Section 1.4. This included relevant datasets, including records of threatened fauna and black cockatoo roosting and breeding sites in the local area, the vegetation and evidence of foraging observed during site inspection undertaken by DWER, and the findings of an inspection of potential black cockatoo habitat trees. The Delegated Officer considered that enough information had been obtained to make an informed assessment regarding black cockatoo habitat.

Summary of comments	Consideration of comment
Need to consider cumulative impacts • The cumulative impacts of habitat loss on black cockatoos needs to be considered, particularly the effects of numerous instances of clearing smaller patches that do not meet the threshold for referral as controlled actions.	Although many clearing actions in Western Australia may not reach the threshold for Federal level referral for impacts to black cockatoos, the State system for managing these smaller areas of clearing, Part V of the EP Act, includes assessment of the impacts on habitat for black cockatoos, including the context of available habitat in the wider region and at a local scale. Cumulative impacts are considered in the assessment of clearing permit applications primarily through clearing 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*. Through this assessment, the proportion of native remnant vegetation remaining within the wider region (IBRA region) and at a smaller scale, such as within buffers surrounding application areas, is considered. The proportion of vegetation remaining in specific vegetation complexes, and the value of the area as a remnant, such as ecological linkage value, are also considered in the assessment. This assessment allows for the consideration of these smaller areas of clearing, which are reflected in remnant vegetation databases. Consideration has been given to the context for this application area and the value of the vegetation to be cleared in comparison to the quantity and value of the vegetation in the local area and beyond.
Referral under the EPBC Act is required • Given that there appears to be more than 1 ha of jarrah woodland foraging habitat for black cockatoos at the site, federal referral should occur, and DWER would be an appropriate agency to advise the applicant of this requirement.	The Department has advised the applicant that they may have notification responsibilities under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* in relation to black cockatoos. The responsibility for determining if notification is required is with the applicant. It is also noted that an assessment conducted by the Department identified that the proposed clearing is likely to impact less than 1 hectare of native vegetation providing suitable foraging habitat for black cockatoos (refer to Section 3.2.2 for further information).
Need for mitigation measures that are effective for black cockatoo conservation • To ensure no significant impacts on black cockatoos from the proposed clearing, the foraging habitat should be replaced through revegetation.	As noted above, for the reasons set out in Section 3.2.1, the Delegated Officer considered that the vegetation proposed to be cleared is unlikely to comprise significant habitat for black cockatoo species, and that the proposed clearing is 'may be at variance' with clearing principle (b). Noting this and with regard for the *WA Environmental Offsets Policy* and *Guidelines*, an offset is not necessary.

Appendix C – Site characteristics

C.1. Site characteristics

Site characteristic	Details
Local context	The application area is adjacent to a housing development to the northwest, Pinjarra Road to the northeast, a semi-rural property to the southeast and semi-cleared native vegetation to the south. The application area is within the intensive land use zone. The local area considered in the assessment of this application is defined as a 10-kilometre (km) radius from the perimeter of the application area, and retains approximately 19.81 per cent of native vegetation cover (excluding open water).
Ecological linkages	Several ecological linkages mapped within the *South West Regional Ecological Linkages Technical Report* (Molloy et al. 2009) occur in the local area, the nearest of which is approximately 0.37 km from the application area and follows the Serpentine River. Roadside Conservation Committee roadside conservation value: The adjacent portion of Pinjarra Road was mapped as having 'Low' roadside conservation value (February 2003). The application area comprises native vegetation trees and shrubs adjacent to other remnant vegetation, and may have a part in maintaining (canopy) connectivity between remnants in the local area. However, the proposed clearing is unlikely to result in severing of an ecological linkage.
Vegetation description	A site inspection undertaken by DWER (2020) found vegetation within the application area to comprise of the following: • Areas northwest and southeast of the house on the property – largely *Agonis flexuosa* (peppermint)) and exotic trees (*Eucalyptus* spp., and other species) over a groundcover of exotic grasses and herbs (Figure F-1, Appendix F); • Southeastern corner - *Kunzea glabrescens* (spearwood) shrubs over a groundcover of exotic grasses and herbs (Figure F-2, Appendix F); • Majority of remaining vegetation within the property – largely *Corymbia calophylla* (marri) trees, introduced Eucalypts and *Eucalyptus marginata* (jarrah), with several *Allocasuarina fraeriana* (sheoak), peppermint and unidentified stag trees, and occasional *Banksia* spp. trees over a groundcover of exotic grasses and herbs. Some shrubs including Myrtaceae species, zamia (*Macrozamia riedlei*), grey stinkwood (*Jacksonia furcellata*), *Chamelaucium* spp. and *Acacia* spp (Figures F-3, F-4 and F-5, Appendix F); • Cleared areas - groundcover of exotic grasses and herbs with occasional shrubs. One large *Eucalyptus rudis* (flooded gum) was present near the northern corner of the application area (Figure F-8, Appendix F). The findings of the site inspection were largely consistent with the supporting information provided by the applicant (Bowman and Partners, 2020), although the supporting information indicated the area of the mixed Eucalypts was larger, and the area of spearwood was smaller, than what was observed during the site inspection. Approximately 1.5 hectares within the application area comprises of substantial tree or shrub cover (Bowman and Partners, 2020), with cleared areas consisting of a groundcover of exotic grasses and herbs with occasional shrubs occurring in the remaining 1.3 ha. Vegetation observed within the application area is consistent with the mapped vegetation type: • Bassendean Complex – Central and South, described as: ranging from woodland of jarrah (*Eucalyptus marginata*)-sheoak (*Allocasuarina fraseriana*)-*Banksia* species to low woodland of *Melaleuca* species, and sedgelands on the moister sites; this area includes the transition of jarrah to pricklybark (*Eucalyptus todtiana*) in the vicinity of Perth (Heddle et. al., 1980). The mapped vegetation type retains approximately 27per cent of its Pre-European extent.
Vegetation condition	DWER's site inspection (2020) found vegetation to be in Completely Degraded (Keighery, 1994) condition, described as "the structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs."

<table>
<tr><th>Site characteristic</th><th>Details</th></tr>
<tr><td></td><td>DWER noted the vegetation was mainly parkland cleared with an understorey of predominately exotic species, that horses have access to the majority of area, and that some man-made items were present in areas (DWER, 2020).
The full Keighery (1994) condition rating scale is provided in Error! Reference source not found.. Representative photos are available in Appendix F.</td></tr>
<tr><td>Soil description</td><td>The application area is mapped as:
Bassendean B2 Phase (212Bs_B2), 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 at 1-2 metres (m) (mapped across more than 1.46 hectares (ha) / approximately 99.9 per cent of the application area)
Vasse V1 Phase (211Va_V1), described as: saline tidal flats composed of grey, black and brown foetid muds and humic sandy clays with locally common shell and limestone fragments (mapped across approximately 10 metres square / 0.1 per cent of the application area in the south-western corner).</td></tr>
<tr><td>Land degradation risk</td><td>Mapped land degradation risk factors (as percentage of map unit)
<table>
<tr><th>Risk categories</th><th>212Bs_B2</th><th>211Va_V1</th></tr>
<tr><td>Wind erosion</td><td>>70% has a high to extreme risk</td><td><3% has a high to extreme risk</td></tr>
<tr><td>Water erosion</td><td><3% has a high to extreme risk</td><td>>70% has a high to extreme risk</td></tr>
<tr><td>Salinity</td><td>30-50% has a moderate to high risk</td><td>>70% has a moderate to high risk</td></tr>
<tr><td>Subsurface Acidification</td><td><3% has a high risk</td><td><3% has a high risk</td></tr>
<tr><td>Flood risk</td><td><3% has a moderate to high risk</td><td>>70% has a moderate to high risk</td></tr>
<tr><td>Waterlogging</td><td>3-10% has a moderate to very high risk</td><td>>70% has a moderate to very high risk</td></tr>
<tr><td>Phosphorus export risk</td><td>>70% has a high to extreme risk</td><td>>70% has a high to extreme risk</td></tr>
</table></td></tr>
<tr><td>Waterbodies</td><td>The application area is located within the broader Peel-Harvey Estuary consanguineous wetland suite.
The closest wetland to the application area is a Conservation category floodplain wetland mapped approximately 35 m southwest, associated with a floodplain area of the Serpentine River. The Serpentine River itself is mapped approximately 350 m southwest of the application area.</td></tr>
<tr><td>Conservation areas</td><td>The closest conservation area to the application area is an un-named Nature Reserve associated with Black Lake, located approximately 1.9 km east.</td></tr>
<tr><td>Climate and landform</td><td>Rainfall: 900
Evapotranspiration: 800
Geology: Alluvial, shoreline, and aeolian deposits
Acid Sulfate Soil Risk: High to moderate risk</td></tr>
<tr><td>Topography</td><td>Supporting information provided by the applicant (Bowman and Partners, 2020) indicates that the application area is approximately 4 m above sea level</td></tr>
<tr><td>Hydrology and hydrogeology</td><td>The application area is within the ‘Coastal Plain’ Hydrological Zone, and the ‘Peel Estuary – Serpentine River’ Hydrographic Catchment. The application area is also within the mapped ‘Murray’ Groundwater Area under the Rights in Water and Irrigation Act 1914.
Groundwater Salinity (Total Dissolved Soilds): 1,000-3,000 mg/L
Hydrogeology: Surficial Sediments - Shallow Aquifers (limestone, calcrete (west) and surficial sediments (east) lithology)</td></tr>
</table>

Site characteristic	Details
Flora	Five threatened and 29 priority flora species have been recorded within the local area, the closest of which to the application area is *Dillwynia dillwynioides* (P3) approximately 600 m north.
Fauna	19 threatened, nine priority, one 'conservation dependent', one 'other specially protected' fauna, and 25 fauna protected under an international agreement have been recorded in the local area. Of these, three threatened and two priority fauna (whales, turtle, lamprey, water-rat) are wholly associated with marine, estuarine or freshwater habitats that do not occur within the application area. The closest record to the application area is *Numenius madagascariensis* (Eastern curlew), approximately 270 m southwest.
Ecological Communities	Two threatened and three priority ecological communities have been recorded within the local area, the closest of which to the application area is an area of the Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region Priority 3 ecological community immediately adjacent to the southwestern application area boundary.

C.2. Vegetation extent

	Pre-European (ha)	Current extent (ha)	Current extent (%)	Current extent (ha) in DBCA-managed lands	Current extent (%) in DBCA-managed lands
IBRA bioregion*					
Swan Coastal Plain	1.501.221/93	579,813.47	38.62	269,964.76	17.98
Vegetation Complex					
Bassendean Complex – Central and South**	87,476.26	23,508.66	26.87	7,614.25	5
Local area					
10-kilometre radius	32,125,15	-	-	-	-
excluding open water:	25,086.75	4970.77	19.81	N/A	N/A

*Government of Western Australia (2019a)

**Government of Western Australia (2019b)

C.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix H.1), and supporting information, impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable habitat features ?	Suitable mapped vegetation type?	Suitable mapped soil type?	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify?
Acacia benthamii	2	N	Y	N	8.1	2	NA
Acacia lasiocarpa var. *bracteolata* long peduncle variant (G.J. Keighery 5026)	1	N	Y	Y	8.7	2	NA
Amanita drummondii	3	N	Y	N	4	1	NA
Boronia capitata subsp. *gracilis*	3	N	Y	Y	8.9	1	NA
Caladenia huegelii	T	Y	Y	N	5.8	1	NA
Caladenia speciosa	4	Y	Y	Y	9	2	NA
Cyathochaeta teretifolia	3	N	Y	Y	8	2	NA
Dillwynia dillwynioides	3	N	Y	Y	0.59	25	NA
Diuris drummondii	T	N	Y	Y	4.8	2	NA
Diuris micrantha	T	N	Y	N	3.5	1	NA
Drakaea elastica	T	Y	Y	Y	2.8	14	NA

Species name	Conservation status	Suitable habitat features ?	Suitable mapped vegetation type?	Suitable mapped soil type?	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify?
Drosera occidentalis	4	N	N	Y	8.4	1	NA
Eucalyptus rudis subsp. *cratyantha*	4	Y	Y	Y	2	3	NA
Jacksonia gracillima	3	Y	Y	N	4.8	1	NA
Jacksonia sericea	4	Y	Y	Y	2	4	NA
Johnsonia pubescens subsp. *cygnorum*	2	Y	Y	Y	5.3	2	NA
Lasiopetalum membranaceum	3	N	Y	N	8.1	1	NA
Myriophyllum echinatum	3	N	Y	N	5.9	2	NA
Parsonsia diaphanophleba	4	N	Y	Y	6.1	4	NA
Stylidium longitubum	4	N	Y	N	5.5	3	NA
Synaphea stenoloba	T	N	Y	N	8	2	NA
Tripterococcus sp. Brachylobus (A.S. George 14234)	4	N	Y	N	8.3	1	NA

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

C.4. Fauna analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix H.1), and supporting information, impacts to the following conservation significant fauna required further consideration.

Species name	Conservation status	Suitable habitat features?	Suitable vegetation type?	Distance of closest record to application area (km)	Number of known records in local area	Are surveys adequate to identify?
Calyptorhynchus banksii naso (Forest red-tailed black cockatoo)	VU	Y	Y	1.5	92	NA
Calyptorhynchus baudinii (Baudin's cockatoo)	EN	Y	Y	1.7	2*	NA
Calyptorhynchus latirostris (Carnaby's cockatoo)	EN	Y	Y	0.35	376*	NA
Dasyurus geoffroii (Chuditch, western quoll)	VU	Y	Y	0.16	4	NA
Falco peregrinus (Peregrine falcon)	OS	Y	Y	2.2	6	NA
Isoodon fusciventer (Quenda, southwestern brown bandicoot)	P4	Y	Y	0.55	223	NA
Lerista lineata (Perth slider, lined skink)	P3	Y	Y	3.6	5	NA
Neelaps calonotos (Black-striped snake, black-striped burrowing snake)	P3	Y	Y	5.5	3	NA
Notamacropus irma (Western brush wallaby)	P4	Y	Y	5.2	2	NA
Phascogale tapoatafa wambenger (South-western brush-tailed phascogale, wambenger)	CD	Y	Y	5.2	8	NA

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

*A further 9 records of Calyptorhynchus sp. 'white-tailed black cockatoo' were recorded within the local area, which could comprise either of these species

C.5. Ecological community analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix H.1), and supporting information, impacts to the following conservation significant ecological communities required further consideration.

Community name	Conservation status	Suitable habitat features?	Suitable mapped vegetation type?	Suitable mapped soil type?	Distance of closest record to application area (km)	Are surveys adequate to identify?
Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	P3	N	Y	Y	Adjacent	NA

Community name	Conservation status	Suitable habitat features?	Suitable mapped vegetation type?	Suitable mapped soil type?	Distance of closest record to application area (km)	Are surveys adequate to identify?
Herb rich saline shrublands in clay pans (floristic community type (FCT) 7)	T	N	N	Y	0.23	NA
Subtropical and Temperate Coastal Saltmarsh	P3	N	N	Y	0.27	NA
Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain	P3	N	N	Y	2.4	NA
Forests and woodlands of deep seasonal wetlands of the Swan Coastal Plain (FCT 15)	T	N	N	N	5.4	NA

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

Appendix D – Assessment against the Clearing Principles

Assessment against the Clearing Principles	Variance level	Is further consideration required?
Principle (a): "*Native vegetation should not be cleared if it comprises a high level of biodiversity*." Assessment: The area proposed to be cleared is not likely to contain vegetation of high biodiversity, significant habitat for fauna or significant assemblages of plants. The area proposed to be cleared contains a *Eucalyptus rudis* tree, which may be the Priority 4 species *Eucalyptus rudis* subsp. *cratyantha,* however this tree is required to be retained as a condition of the Permit.	Not likely to be at variance	Yes Sections 3.2.1 and 3.2.2
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*." Assessment: The application area contains suitable habitat for fauna species of conservation significance, including black cockatoo species, chuditch, peregrine falcon, quenda, Perth slider, black-striped snake, western brush wallaby and brush tailed phascogale, however this habitat is unlikely to be significant.	May be at variance	Yes Section 3.2.1
Principle (c): "*Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora*." Assessment: The area proposed to be cleared is unlikely to contain flora species listed under the BC Act.	Not likely to be at variance	Yes Section 3.2.2
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*." Assessment: The area proposed to be cleared does not contain species indicative of a threatened ecological community listed under the BC Act, and is unlikely to be necessary for the maintenance of an adjacent area of Banksia Woodlands PEC/TEC.	Not likely to be at variance	Yes Section 3.2.2
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*." Assessment: The extents of the mapped vegetation type and native vegetation in the local area are consistent with the national objectives and targets for biodiversity conservation in Australia for constrained areas (retention of at least 10 per cent of remnant vegetation as per *A guide to the assessment of applications to clear native vegetation*). The vegetation proposed to be cleared is not considered to be a critical part of a significant ecological linkage in the local area.	Not likely to be at variance	No
Principle (f): "*Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland*."	May be at variance	Yes Section 3.2.3

Assessment against the Clearing Principles	Variance level	Is further consideration required?
Assessment: The *Kunzea glabrescens* (spearwood) vegetation within the south-eastern corner of the application area is indicative of riparian vegetation, and a Conservation category floodplain wetland, associated with a floodplain area of the Serpentine River, is mapped approximately 35 metres southwest.		
Principle (g): "*Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation*." Assessment: The main land degradation risks associated with the soil type mapped across approximately 99.9 per cent of the application area are a greater than 70 per cent high to extreme risk of wind erosion, and a 30-50 per cent moderate to high risk of salinity. Noting the extent and purpose of the proposed clearing, the proposed clearing may cause land degradation in the form of wind erosion.	May be at variance	Yes Section 3.2.3
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*." Assessment: Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.	Not likely to be at variance	No
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*." Assessment: The potential for an increase in surface water run-off and wind erosion has the potential to lead to a change in the quality of surface water through the transport of sediments, and may lead to sedimentation of the nearby wetland. Taking into account the topography and the underlying groundwater salinity, the proposed clearing is unlikely to cause deterioration in underground water quality.	May be at variance	Yes Section 3.2.3
Principle (j): "*Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding*." Assessment: The mapped soils and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding or waterlogging.	Not likely to be at variance	No

Appendix E – Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Keighery (1994).

Measuring Vegetation Condition for the South West and Interzone Botanical Province (Keighery, 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very Good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely Degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Appendix F – Photographs of the vegetation

Figure F-1 - Facing northern corner of application area - *Agonis flexuosa,* non-native tree, weedy understorey

Figure F-2 - Facing southern corner of applciation area - spearwood, *Acacia* sp., weedy understorey

Figure F-3 – Facing southwest near western corner of application area – Eucalypts, *zamia* and weedy understorey

Figure F-4 – Facing southwest near eastern boundary of application area - non-native Eucalypts and Agonis flexuosa, weedy understorey

Figure F-5– Facing east near southeastern boundary of application area – marri trees, non-native trees, weedy understorey

Figure F-6: Hollow in large marri tree along north-western boundary of application area

Figure F-7 - Hollow in stag tree in southern portion of application area

Figure F-8 – Eucalyptus rudis along north-western side boundary

Figure F-9 - Marri nuts collected along south-eastern boundary of application area, possibly chewed by red-tailed black cockatoos

Appendix G – References and databases

C.1. GIS datasets

Publicly available GIS Databases used (sourced from www.data.wa.gov.au):

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Consanguineous Wetlands Suites (DBCA-020)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Geomorphic Wetlands, Swan Coastal Plain (DBCA-019)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Remnant Vegetation, All Areas
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- RIWI Act, Groundwater Areas (DWER-034)

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities

C.2. References

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