



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 9879/1
Permit Holder:	Nutan Pty Ltd
Duration of Permit:	From 10 March 2023 to 10 March 2033

The permit holder is authorised to clear *native vegetation* subject to the following conditions of this permit.

PART I – CLEARING AUTHORISED

1. Clearing authorised (purpose)

The permit holder is authorised to clear *native vegetation* for the purpose of road construction and upgrades.

2. Land on which clearing is to be done

Bussell Highway Road Reserve (PINs 11412334, 11602670, 12271281 and 12488341), Karridale

3. Clearing authorised

The permit holder must not clear more than 0.26 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

4. Period during which clearing is authorised

The permit holder must not clear any *native vegetation* after 10 March 2028.

PART II – MANAGEMENT CONDITIONS

5. 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.

6. 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.

7. Fauna management – western ringtail possums and south-western brush-tailed phascogales

- (a) In relation to the area cross-hatched yellow in Figure 1 of Schedule 1, the permit holder must engage a *fauna specialist* to inspect that area, including all trees and tree hollows present, within 24 hours prior to, and for the duration of clearing, for the presence of *Pseudocheirus occidentalis* (western ringtail possum(s)) and *Phascogale tapoatafa* (southwestern brush-tailed phascogales).
- (b) Clearing activities must cease in any area where fauna referred to in condition 7(a) are identified until either:
 - (i) the western ringtail possum(s) and/or south-western brush-tailed phascogale individual(s) has moved on from that area to adjoining *suitable habitat*; or
 - (ii) the western ringtail possum(s) individual(s) has been removed by a *western ringtail possum specialist* and/or the south-western brush-tailed phascogale individual(s) has been removed by a *fauna specialist*
- (c) Any western ringtail possum individuals removed in accordance with condition 7(b)(ii) of this permit must be relocated by a *western ringtail possum specialist* to *suitable habitat*.
- (d) Any south-western brush-tailed phascogale individuals removed in accordance with condition 7(b)(ii) of this permit must be allowed to disperse into adjacent vegetation or must be relocated by a *fauna specialist* to *suitable habitat*.
- (e) Where fauna is identified under condition 7(a) of this permit, the permit holder must provide the following records to the *CEO* as soon as practicable:
 - (i) the number of individuals identified;
 - (ii) the date each individual was identified;
 - (iii) the location where each individual was identified recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994/2020(GDA94/2020), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (iv) the number of individuals removed and relocated;
 - (v) the date each individual was removed;
 - (vi) the method of removal;
 - (vii) the date each individual was relocated;
 - (viii) the location where each individual was relocated to, recorded using a GPS unit set to GDA94/2020, expressing the geographical coordinates in Eastings and Northings or decimal degrees; and
 - (ix) details pertaining to the circumstances of any death of, or injury sustained by, an individual.

8. Offset - conservation covenant

In respect to the areas cross-hatched red on Figure 1 of Schedule 1, the Permit Holder must, within 12 months of the commencement of clearing authorised under this Permit: and no later than 10 March 2024:

- (a) give a conservation covenant under section 30B of the *Soil and Land Conservation Act 1945* for the protection and management of vegetation in perpetuity; and
- (b) Within 1 month of executing the conservation covenant, provide a copy of the executed conservation covenant to the *CEO*.

9. Offset - revegetation

The Permit Holder must, within 12 months of the commencement of clearing authorised under this Permit or at an *optimal time* in the first winter following clearing authorised under this Permit, implement the *Karridale West Road Reserve – Revegetation Management Plan* (dated 10 February 2023) by *revegetating* one (1) hectares within the area crosshatched red in Figure 1 of Schedule 1, to provide foraging habitat for black cockatoos, western ringtail possum and south-western brush-tailed phascogale, including but not limited to the following actions:

- (a) ripping the ground on the contour to remove soil compaction;
- (b) fencing the *revegetation* area as specified in the *Karridale West Road Reserve – Revegetation Management Plan* (dated 10 February 2023);
- (c) establishing photographic monitoring sites within the *revegetated* area as described in the *Karridale West Road Reserve – Revegetation Management Plan* (dated 10 February 2023);
- (d) implementing hygiene protocols by cleaning earth-moving machinery of soil and vegetation prior to entering and leaving the site;
- (e) undertaking deliberate *planting* of *native vegetation* as listed in the *Karridale West Road Reserve – Revegetation Management Plan* (dated 10 February 2023);
- (f) ensure only *local provenance* propagating material is used for *planting* activities;
- (g) ensure *planting* is undertaken at an *optimal time*; and
- (h) undertake *weed* control activities bi-annually;
- (i) achieving the completion criteria in Schedule 2 of this permit after the five-year monitoring period for the areas *revegetated* and *rehabilitated* within the areas cross hatched red in Figure 1 of Schedule 1;
- (j) undertake remedial actions for areas *revegetated* where monitoring indicates that *revegetation* has not met the *completion criteria*, including:
 - (i) revegetate the area by deliberately *planting native vegetation* and/or *direct seeding native vegetation* that will result in the minimum target in Schedule 2 and ensuring only *local provenance* propagating material are used;
 - (ii) undertake further *weed* control activities;
 - (iii) annual monitoring of the *revegetated* and *rehabilitated* areas, by an *environmental specialist* is to be undertaken until the *completion criteria* outlined in Schedule 2 are met; and
 - (iv) undertake all other remedial actions as described in the *Karridale West Road Reserve – Revegetation Management Plan* (dated 10 February 2023).

PART III - RECORD KEEPING AND REPORTING

10. 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 1.

Table 1: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	<ul style="list-style-type: none">(a) the species composition, structure, and density of the cleared area;(b) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994/2020 (GDA94/2020), expressing the geographical coordinates in Eastings and Northings;(c) the date that the area was cleared;(d) the size of the area cleared (in hectares); and(e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 5;(f) actions taken to minimise the risk of the introduction and spread of weeds and dieback in accordance with condition 6;(g) actions taken to manage and mitigate impacts to western ringtail possums and south-western brush-tailed phascogales in accordance with condition 7; and(h) actions taken to give a conservation covenant in accordance with condition 8.
2.	In relation to revegetation pursuant to conditions 9	<ul style="list-style-type: none">(i) the size of the area <i>revegetated</i>;(j) the date(s) on which the <i>revegetation</i> was undertaken;(k) the boundaries of the area <i>revegetated</i> (recorded digitally as a shapefile);(l) a description of the <i>revegetation</i> activities undertaken;(m) remedial actions undertaken; and(n) photographic evidence of areas <i>revegetated</i>.

11. Reporting

- (a) The permit holder must provide to the *CEO*, on or before 30 June of each calendar year, a written report containing:
 - (i) the records required to be kept under condition 10; and
 - (ii) records of activities done by the permit holder under this permit between 1 January and 31 December of the preceding calendar year.

- (b) If no clearing authorised under this permit has been undertaken, a written report confirming that no clearing under this permit has been undertaken, must be provided to the *CEO* on or before 30 June of each calendar year.
- (c) The permit holder must provide to the *CEO*, no later than 90 calendar days prior to the expiry date of the permit, a written report of records required under condition 10, where these records have not already been provided under condition 11(a).

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 <i>Environmental Protection Act 1986</i> .
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.
dieback	means the effect of <i>Phytophthora</i> species on native vegetation.
department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
environmental specialist	means a person who holds a tertiary qualification in environmental science or equivalent, and has a minimum of 2 years work experience relevant to the type of environmental advice that an environmental specialist is required to provide under this permit, or who is approved by the CEO as a suitable environmental specialist.
EP Act	<i>Environmental Protection Act 1986</i> (WA)
fauna specialist	means a person who holds a tertiary qualification specialising 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 <i>Biodiversity Conservation Act 2016</i> .
fill	means material used to increase the ground level, or to fill a depression.
local provenance	means native vegetation seeds and propagating material from natural sources within 50 kilometres and the same IBRA subregion of the area cleared.
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.
optimal time	means the period from May to October for undertaking planting and seeding
planting	means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species

Term	Definition
revegetate / vegetated / revegetation	means the re-establishment of a cover of local provenance native vegetation in an area using methods such as natural regeneration, direct seeding and/or planting, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area.
suitable habitat (western ringtail possum)	means habitat known to support western ringtail possums (<i>Pseudocheirus occidentalis</i>) and southwestern brush-tailed phascogales (<i>Phascogale tapoatafa</i>) within the known current distribution of the species, typically characterised by abundant foliage, presence of suitable nesting structures such as tree hollows, as well as high canopy cover and continuity. Known habitat includes peppermint (<i>Agonis flexuosa</i>) dominated woodlands, jarrah (<i>Eucalyptus marginata</i>) and marri (<i>Corymbia calophylla</i>) forests, riparian vegetation with a canopy of Bullich (<i>Eucalyptus megacarpa</i>) or flooded gum (<i>Eucalyptus rudis</i>), karri (<i>Eucalyptus diversicolor</i>) forests, sheoak (<i>Allocasuarina fraseriana</i>) dominated woodlands, and other stands of myrtaceous trees growing near swamps, watercourses or floodplains.
Suitable habitat (south-western brush-tailed phascogale)	Suitable habitat for southwestern brush-tailed phascogale is typically characterised by dry sclerophyll forests and open woodlands that contain hollow-bearing trees but a sparse ground cover.
weeds	means any plant – (a) that is a declared pest under section 22 of the <i>Biosecurity and Agriculture Management Act 2007</i> ; 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
MANAGER
 NATIVE VEGETATION REGULATION

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

15 February 2023

Schedule 1

The boundary of the areas authorised under this permit are shown in the map below (Figure 1).



Figure 1: Map of the boundary of the area within which clearing may occur (cross hatched yellow) and in which condition 9 apply (cross-hatched red)

Schedule 2

No.	Criteria	Completion targets	Monitoring
1.	Key species abundance	Establishment of 300 Peppermint and 100 Marri trees across the 1 ha site. Density of 1 tree per 25m ²	Establishment of three monitoring transects. Transects to be 5m width by 50m length (following planting rows). Abundance of key species scored. Average of 10 trees per transect required to meet target.
2.	Overall plant abundance and cover	Establishment of 60% of tubestock from initial planting density rate. Native species cover of 20% by end of year 3.	Monitoring of three 5m x 20m sub quadrats anywhere within the three 5m x 50m monitoring transects. Abundance of all planted species scored and % native foliar cover estimated. Trajectory of foliar cover increase assessed year by year to determine trend.
3.	Weed cover	Weed species and cover do not appear to be significantly limiting the establishment of native vegetation	Observation of weeds present and impact by experienced revegetation specialist across the three monitoring transects
4.	Grazing	Grazing (by rabbits or kangaroos) is impacting <25% of vegetation present and does not appear to be significantly limiting the establishment of native vegetation	Observation of grazing evidence and impact by experienced revegetation specialist across the three monitoring transects

As per *Karridale West Road Reserve – Revegetation Management Plan* (dated 10 February 2023)



Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 9879/1
Permit type:	Purpose permit
Applicant name:	Nutan Pty Ltd
Application received:	14 September 2022
Application area:	0.26 hectares of native vegetation
Purpose of clearing:	Road construction
Method of clearing:	Mechanical removal
Property:	Bussell Highway Road Reserves (PINs 11412334, 11602670, 12271281 and 12488341)
Location (LGA area/s):	Shire of Augusta-Margaret River
Localities:	Karridale

1.2. Description of clearing activities

The vegetation proposed to be cleared is distributed across four patches distributed across an approximately 340 metre stretch and clustered along both sides of the north approach of the Bussell Highway into the intersection with Brockman Highway (see Figure 1, Section 1.5). The clearing is to facilitate road widening and upgrades, for the construction of a slip land and new intersection on highway and associated signage and drainage works. The slip lanes are located on the east and west sides of Bussell Highway to allow safe access to the Karridale West Subdivision. New intersections allows for access to subdivision to the west of Bussell Highway (Nutan Pty Ltd, 2022).

The size of the area and amount of clearing proposed was reduced during preliminary assessment and request for further mitigations by the department. The changes included a reduction in the amount of clearing from 0.55 hectares to 0.26 hectares to avoid and minimise the clearing impacts (see Section 3.1 for further details).

1.3. Decision on application

Decision:	Granted
Decision date:	15 February 2023
Decision area:	0.26 hectares of native vegetation, as depicted in Section 1.5, below.

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 Department of Water and Environmental Regulation (DWER) advertised the application for 21 days and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix B), relevant datasets (see Appendix G.1), the findings of a biological survey (Appendix F), the clearing principles set out in

Schedule 5 of the EP Act (see Appendix C), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3).

The assessment identified that the proposed clearing would result in:

- the loss of 0.26 ha of native vegetation which is suitable habitat for western ringtail possum (*Pseudocheirus occidentalis*),
- the loss of 0.03 ha of suitable habitat for south-western brush-tailed phascogale (*Phascogale tapoatafa wambenger*),
- the loss of 0.26 ha of black cockatoo foraging habitat,
- the removal of six potential black cockatoo breeding trees (with no known hollows), and
- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined that the proposed clearing can be minimised, managed and mitigated to be unlikely to lead to an unacceptable risk to environmental values above, subject to the permit including appropriate management conditions and a suitable offset. The applicant has suitably demonstrated avoidance and minimisation measures, and the offset provided counterbalances the impacts to black cockatoo foraging habitat, future breeding habitat, western ringtail possum habitat and south-western brush-tailed phascogale habitat (see Section 4).

The Delegated Officer decided to grant a clearing permit subject to the following conditions:

- avoid and minimise clearing to reduce the impacts and extent of clearing,
- fauna management to ensure that the proposed clearing will not adversely impact on conservation significant species, or any individuals present at the time of clearing, and
- Offset conditions:
 - revegetation consisting of the planting of native trees of suitable species that provide habitat for conservation significant fauna, in accordance with the *Karridale West Road Reserve – Revegetation Management Plan*,
 - a conservation covenant under section 30B of the *Soil and Land Conservation Act 1945* be given for the conservation of the revegetation area, and
- weeds and dieback management measures as specified in the clearing permit.

1.5. Site map



Figure 1 Map of the application area

The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit. The area cross-hatched red indicates the area within which revegetation is to be undertaken.

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 1.4), 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 polluter pays principle
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Planning and Development Act 2005* (WA) (P&D Act)

Relevant policies considered during the assessment include:

- *Environmental Offsets Policy* (2011)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2016)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

Evidence was submitted by the applicant, demonstrating that avoidance and mitigation measures had been considered, in particular, Nutan Pty Ltd provided the following comments:

Avoidance

- application area footprint was modified from being 0.55 hectares to 0.26 hectares footprint.
- avoidance of one potential black cockatoo breeding tree.
- where possible within design and construction constraints trees will be trimmed rather than removed.

The applicant has indicated that further changes to the application size, location and design of the road upgrades would not be possible due to the future proposed realignment of the intersection of Brockman Highway with Bussell Highway planned by Main Roads WA (WEPL, 2022b and 2023a).

After consideration of avoidance and mitigation measures, it was determined that an offset to counterbalance the significant residual impacts to western ringtail possum, south-western brush-tailed phascogale and black cockatoo habitat was necessary. In accordance with the Government of Western Australia's *Environmental Offsets Policy* and *Environmental Offsets Guidelines*, these significant residual impacts have been addressed through the conditioning of environmental offset requirements on the permit. The nature and suitability of the offset provided are summarised in Section 4.

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix B) and the extent to which the impacts of the proposed clearing present a risk to biological, conservation, or land and water resource values.

The assessment against the clearing principles (see Appendix C) identified that the impacts of the proposed clearing present a risk to biological values (fauna). 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. Biological values - Clearing Principles (a) and (b)

Assessment - flora

According to available databases, there are records of 19 conservation significant flora species within the local area. Western Environmental Approvals Pty Ltd (WEPL) were contracted by Nutan Pty Ltd to survey the area of the proposed road construction and services.

WEPL undertook biological surveys of the site in February 2022 consisting of a flora and vegetation assessment and a fauna habitat assessment which included targeting black cockatoos and ringtail possum habitat. The biological surveys were undertaken in mid-summer, which is not the recommended timing for flora and vegetation surveys in the south west region of WA according to the EPA's Technical Guidance. The results of the surveys have been considered in light of this timing.

The vegetation and flora survey identified no Threatened or Priority flora within the site and indicates the vegetation within the proposed clearing area consists of two vegetation communities (WEPL, 2022):

- Peppermint over weedy grassland - Upper stratum of scattered *Agonis flexuosa* with a mixture of planted *Eucalyptus sp.* not naturally occurring in the region and **Pinus sp.* Mid stratum of **Acacia iteaphylla*, **Acacia longifolia*, *Acacia cyclops*, *Paraserianthes lophantha* and planted *Calothamnus sp.* Ground stratum of **Cenchrus clandestinus*, **Cynodon dactylon*, **Avena barbata* and other pasture grasses.
- Marri over weedy grassland - Upper stratum of *Corymbia calophylla* with mid stratum of sparse *Agonis flexuosa*, **Acacia iteaphylla* and **Acacia longifolia*. Ground stratum with areas of bare ground and **Avena barbata*, **Briza* areas are in completely degraded condition.

The native vegetation to be cleared is classified to be in Completely Degraded (Keighery, 1994) condition. The recorded vegetation communities did not have the characteristics of any Threatened Ecological Communities (TECs), as listed under the BC Act or the EPBC Act, or DBCA listed Priority Ecological Communities (PECs) (WEPL, 2022a). Given these findings and that no flora suspected of representing a threatened and priority flora species was identified (WEPL, 2022a), the timing of the survey outside of the flowering/ growth period is not considered a limiting factor.

Assessment - fauna

According to available databases, 74 conservation significant fauna species have been recorded within the local area. The closest records to the application area are for white tailed black cockatoo (*Zanda sp.*), Margaret River burrowing crayfish (*Engaewa pseudoreducta*) and western ringtail possum (*Pseudocheirus occidentalis*), all recorded approximately 70 meters west of the application area. The application area is not likely to provide significant habitat for the masked owl.

Of the species recorded within the local area, one was considered to have a medium likelihood of occurrence within the application area, *Phascogale tapoatafa wambenger* (south-western brush-tailed phascogale). A further four species were considered highly likely to occur within the application area based on their known habitat preferences and the habitat available within the application areas. These included Carnaby's cockatoo (*Zanda latirostris*), Baudin's cockatoo (*Zanda calyptorhynchus*), forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*), and western ringtail possum (*Pseudocheirus occidentalis*).

Other fauna of conservation significance may use the site infrequently or as part of a larger patch. The potential utilization of the site would be predominately by birds and arboreal species due to the area providing low quality habitat for ground dwelling species as a result of the highly degraded nature of the habitat, lack of microhabitats and the high level of habitat fragmentation (WEPL, 2022a). Impacts to these other conservation significance species are considered negligible due to the small area of vegetation to be removed.

The fauna survey undertaken included western ringtail possum targeted survey and habitat assessment for black cockatoo breeding trees, foraging and roosting habitat to confirm the presence of these species likely to occur. The site was surveyed using the recommended methods from relevant guidelines.

Black cockatoos

Carnaby's cockatoo, Baudin's cockatoo and forest red-tail black cockatoo (collectively known as black cockatoos) 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, 2022). Breeding habitat or a 'habitat tree' is defined in the EPBC Act referral guidelines as 'trees of species known to support breeding within the range of the species which either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow' (Commonwealth of Australia, 2022). The application area is within the known breeding range of Baudin's and

Carnaby's black cockatoo and the 'core' range of forest red-tail black cockatoo, and therefore, is within the known range for all three black cockatoo species.

A review of the available databases indicated the application area is within 10 kilometres of one mapped black cockatoo roosting sites. The local area does not contain any mapped black cockatoo breeding sites but does contain 749 previous records of black cockatoo species, the closest located 100 metres away.

The fauna survey recorded seven trees which are classed as potential black cockatoo breeding trees, six within the application area (WEPL, 2022a). A hollow assessment of these and all other trees present did not identify any known nesting trees or suitable nesting trees containing a suitable nest hollow. The trees proposed for clearing do not appear to be suitable for black cockatoo breeding due to their size, a lack of observable suitable breeding hollows and a lack of broken branches of suitable diameter to form breeding hollows (see Appendix F) (WEPL, 2022a). The nearest confirmed breeding location for black cockatoos is located 30 kilometres north east of the application area.

The referral guidelines indicate while breeding, black cockatoos will generally forage within a 6–12-kilometre radius of their nesting site. Following breeding, black cockatoos assemble into flocks and move through the landscape searching for food, usually foraging within 6 kilometre of a night roost (Commonwealth of Australia, 2022). This variable range indicates large areas of foraging habitat are required to support black cockatoo populations. Cumulative impacts of the loss of remnant vegetation restrict the availability of food sources for black cockatoos (Commonwealth of Australia, 2022). The revised referral guidelines identifies that any native vegetation that is used for foraging by black cockatoos at any time is important for the species recovery. The application area proposes to remove a total of 0.26 hectares which contains foraging habitat. Some foraging evidence from chewed Marri tree nuts by forest red-tailed black cockatoo was recorded (WEPL, 2022a). This foraging evidence indicates that the trees are used as occasional foraging habitat, however the volumes of foraging evidence recorded was limited (WEPL, 2022a). No evidence of roosting behaviour was recorded and no tall trees in proximity to riparian environments (preferred roosting habitat) were identified (WEPL, 2022a).

The Delegated Officer determined the application is not likely to remove significant breeding or roosting habitat for any of the black cockatoo species in Western Australia, however comprises 6 potential future breeding trees and 0.26 hectares of significant foraging habitat for black cockatoos. The proposed revegetation of one hectares using species that provide black cockatoo foraging and breeding habitat in the adjacent lot (as discussed in Section 3.1), is deemed to adequately mitigate this significant residual impact.

Western Ringtail Possum (WRP)

The '*Western Ringtail Possum (Pseudocheirus occidentalis) Recovery Plan*' outlines strategies to slow the decline in population size, extent and area of occupancy through managing major threatening processes affecting the subpopulations and their habitats and allowing the persistence of the species in each of the identified key management zones: Swan Coastal Plain, southern forests and south coast (DPaW, 2017). The application area is located within the Southern Forest Management Zone.

Within this management zone, populations are associated with a diverse range of habitats including coastal heath, jarrah/marri woodland and forest, peppermint woodlands, myrtaceous heaths and shrublands, Bullich (*Eucalyptus megacarpa*) dominated riparian zones and karri forest.

Noting the habitat preferences of this species, the mapped vegetation type within the application area and local records of the species, it is considered likely that western ringtail possum occur within the application area. WEPL (2022) recorded no western ringtail possums within the clearing area during a spotlighting survey however, an adult with a sub adult at heel was observed approximately 50 meters outside the survey area in adjacent garden vegetation. No evidence of scats or dreys was found within the application area (WEPL, 2022a). The proposed clearing area is deemed to be habitat for western ringtail possums and provide some local ecological connectivity for the movement of the species.

The proposed revegetation of one hectare of western ringtail possum habitat in the adjacent lot (as discussed in Section 3.1), is deemed to adequately mitigate the loss of 0.26 hectares native vegetation to be cleared. Potential impacts to individuals that may be present at the time of clearing have been addressed through permit conditions.

South-Western Brush-Tailed Phascogale

In south-west WA, this species is known to occur in open woodlands that contain hollow-bearing trees. This species is reported to occur in highest densities in the Perup/Kingston area, Collie River valley, and near Margaret River and Busselton (DBCA, 2012). No south-western brush-tailed phascogale observations were recorded by WEPL (2022b).

The vegetation unit Marri over weedy grassland constitutes potential habitat for south-western brush-tailed phascogale and trees within the application area may contain hollows suitable for nesting. The clearing permit has been conditioned to require the inspection of trees and management of individuals if encountered.

Given the presence of potential habitat trees and known habitat for south-western brush-tailed phascogale, the permit has been conditioned that the applicant is required to engaging an experienced fauna specialist to inspect the vegetation for evidence of use or occupation by this specie, immediately prior to, and for the duration of the clearing works being undertaken.

Conclusion

Based on the above assessment, the proposed clearing may result in impacts to individual fauna (WRP and south-western brush-tailed phascogale) if present during the clearing. The proposed revegetation of one hectares of western ringtail possum, south-western brush-tailed phascogale and black cockatoo foraging habitat in the adjacent lot (as discussed in Section 3.1), is deemed to adequately counterbalance the significant residual impacts of the proposed clearing of:

- 0.26 ha of native vegetation which provides suitable habitat for western ringtail possum (*Pseudocheirus occidentalis*),
- 0.03 ha of suitable habitat for south-western brush-tailed phascogale (*Phascogale tapoatafa wambenger*),
- the loss of 0.26 ha of black cockatoo foraging habitat and the removal of six potential black cockatoo breeding trees.

In addition, the revegetation area will be managed in perpetuity via a conservation covenant placed on the property title under section 30B of the *Soil and Land Conservation Act 1945*.

Conditions

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

- fauna management conditions requiring a pre-clearing inspection of the application area for presence of western ringtail possum and south-western brush-tailed phascogale,
- revegetation of a specified area in accordance with an offset permit conditions, and
- a conservation covenant under section 30B of the *Soil and Land Conservation Act 1945* be given for the revegetation area.

3.3. Relevant planning instruments and other matters

There are no Aboriginal sites of significance mapped within the application area. 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.

4 Suitability of offsets

Through the detailed assessment outlined in Section 3.2 above, the Delegated Officer has determined that the following significant residual impacts remain after the application of the avoidance and mitigation measures summarised in Section 3.1:

- the loss of 0.26 ha of native vegetation which is suitable habitat for western ringtail possum (*Pseudocheirus occidentalis*);
- the loss of 0.03 ha of suitable habitat for south-western brush-tailed phascogale (*Phascogale tapoatafa wambenger*),
- the loss of 0.26 ha of black cockatoo foraging habitat,
- the removal of six potential black cockatoo breeding trees.

The applicant proposed an environmental offset consisting of the revegetation of a one hectare area adjacent to the proposed clearing within the Karridale West subdivision (red hatched area in Figure 1 above), consisting of the planting of native trees of suitable species in accordance with the *Karridale West Road Reserve – Revegetation Management Plan* (dated 10 February 2023). The proposed planting will provide foraging habitat and future breeding habitat for black cockatoos and habitat for western ringtail possum and south-western brush-tailed phascogale.

The location would provide some ecological linkage to existing vegetated areas located along the Bushby Road reserve to the south. A corridor width of 40 metres is generally recognised as being sufficient to support fauna movement and being sufficient to sustainably withstand edge effects (WEPL, 2023 b and c). The revegetation area is approximately 60 meters in width.

Revegetation will predominately comprise Peppermint (*Agonis flexuosa*) and Marri (*Corymbia calophylla*) at a one to three ratio. Both species provide habitat for western ringtail possums, south-western brush-tailed phascogale and black cockatoo species. Both species will be planted using tube stock at 5 m intervals. This is proposed to provide sufficient growing room for each tree, with a target outcome of an interconnected canopy, whereby a canopy spread of 2.5m for each tree will achieve the desired interconnected canopy outcome. At this planting density, approximately 400 trees will be planted. Other locally endemic mid storey and ground cover species will also be planted (WEPL, 2022 b and c).

The Delegated Officer considers that this adequately counterbalances the significant residual impacts listed above. The justification for the values used in the offset calculation is provided in Appendix E.

End

Appendix A. Additional information provided by applicant

During the assessment, the applicant was responded to several request for information on the following:

- Further information on avoidance and minimisation,
- Proposed revegetation to counterbalance the significant residual impacts,
- Property details for the proposed revegetation area,
- commitment to place a conservation covenant over the revegetation area.

Summary of comments	Consideration of comment
Applicant provided a revised application area as an avoidance and minimisation measure (WEPL, 2022b)	Discussed in Section 1.2
Applicant provided details of the proposed revegetation (WEPL, 2023a)	Discussed in Section 3 and 4 and Appendix E
Applicant provided details of the proposed revegetation and property details, including the Local Development Plan for the adjacent property where the revegetation will occur (WEPL, 2023b)	Discussed in Section 3 and 4 and Appendix E
Applicant provided a revegetation plan (WEPL, 2023c)	Discussed in Section 4

The applicant provided adequate responses which has been included within relevant sections of this report (Section 3.1 Avoidance and minimisation and Section 4 Suitability of offset).

Appendix B. Site characteristics

B.1. Site characteristics

Characteristic	Details
Local context	<p>The area proposed to be cleared is part of a linear tract of native vegetation in the intensive land use zone of Western Australia. It is along the Bussell Highway within the urban area of Karridale and provides an ecological linkage within the local area.</p> <p>Aerial imagery indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 48.63 per cent of the original native vegetation cover.</p>
Ecological linkage	The proposed clearing area is approximately 250 meters north of the east-west running South West Regional Ecological Linkage and provides local ecological linkage to remnant vegetation to the north of this linkage.
Conservation areas	The closest conservation area to the application area is Leeuwin-Naturaliste National Park located approximately 2.4 kilometres east of the application area.
Vegetation description	<p>A vegetation survey (WEPL, 2022a) indicates the vegetation within the proposed clearing area consists of two vegetation communities:</p> <ul style="list-style-type: none"> • Peppermint over weedy grassland - Upper stratum of scattered <i>Agonis flexuosa</i> with a mixture of planted <i>Eucalyptus sp.</i> not naturally occurring in the region and <i>*Pinus sp.</i> Mid stratum of <i>*Acacia iteaphylla</i>, <i>*Acacia longifolia</i>, <i>Acacia cyclops</i>, <i>Paraserianthes lophantha</i> and planted <i>Calothamnus sp.</i> Ground stratum of <i>*Cenchrus clandestinus</i>, <i>*Cynodon dactylon</i>, <i>*Avena barbata</i> and other pasture grasses. • Marri over weedy grassland - Upper stratum of <i>Corymbia calophylla</i> with mid stratum of sparse <i>Agonis flexuosa</i>, <i>*Acacia iteaphylla</i> and <i>*Acacia longifolia</i>. Ground stratum

Characteristic	Details				
	<p>with areas of bare ground and *<i>Avena barbata</i>, *<i>Briza</i> areas are in completely degraded condition.</p> <p>The full survey descriptions and maps are available in Appendix F</p> <p>This is somewhat inconsistent with the mapped vegetation type(s):</p> <ul style="list-style-type: none"> • Cowaramup, C1, which is described as an Open to tall open forest of <i>Eucalyptus marginata subsp. marginata-Corymbia calophylla-Banksia grandis</i> on lateritic uplands in the hyperhumid zone (Mattiske and Havel, 1998) • Cowaramup, Cw1, which is described as a Mixture of open forest to woodland of <i>Eucalyptus diversicolor-Corymbia calophylla</i> and woodland of <i>Eucalyptus marginata subsp. marginata -Corymbia calophylla</i> on slopes and low woodland of <i>Melaleuca preissiana-Banksia littoralis</i> on depressions in the hyperhumid zone (Mattiske and Havel, 1998) <p>The mapped vegetation type retains approximately 34 per cent of the original extent (Government of Western Australia, 2019).</p>				
Vegetation condition	<p>Vegetation survey (WEPL, 2022a) indicate the vegetation within the proposed clearing area is in Completely Degraded (Keighery, 1994) condition.</p> <p>The full Keighery (1994) condition rating scale is provided in Appendix D. The full survey descriptions and mapping are available in Appendix F.</p>				
Climate and landform	<p>The site slopes gently from approximately 50m AHD down on the southern extreme to approximately 55m AHD in northern extreme of the site. The annual average rainfall is estimated to be 1200 millimetres.</p>				
Soil description	<p>The soil is mapped as:</p> <ul style="list-style-type: none"> • Cowaramup wet flats phase (216CoCOw) (approximately 1% of application area) - Poorly drained flats and slight depressions with pale grey mottled (Mungite). • Cowaramup, undifferentiated upland phase - 216CoCOu (approximately 99% of application area) - Flats and gentles slopes (0-5% gradient) with gravelly duplex (Forest Grove) and pale grey mottled (Mungite) soils. 				
Land degradation risk	RISK	LIKELIHOOD	DESCRIPTION	PROPORTION OF APP AREA	RISK LEVEL
	Salinity	L1	<3% of map unit has a moderate to high salinity risk or is presently saline	100%	Low
	Water erosion	L1	<3% of map unit has a high to extreme water erosion risk	100%	Low
	Water logging	M2	30-50% of map unit has a moderate to very high waterlogging risk	90%	Medium
		H2	>70% of map unit has a moderate to very high waterlogging risk	10%	High
	Wind erosion	L2	3-10% of map unit has a high to extreme wind erosion risk	10%	Low
		H2	>70% of map unit has a high to extreme wind erosion risk	80%	High
	Phosphorus export	M2	30-50% of map unit has a high to extreme phosphorus export risk	10%	Medium
		L2	3-10% of map unit has a high to extreme phosphorus export risk	90%	Low
	Flood risk	L1	<3% of the map unit has a moderate to high flood risk	100%	Low
	Subsurface acidification	H2	>70% of map unit has a high subsurface acidification risk or is presently acid	100%	High
Waterbodies	<p>The desktop assessment and aerial imagery indicated that no watercourses transect the area proposed to be cleared. Turner Brook is located approximately 320 meters south of the application area, separated by the Brockman Highway and a palusvale wetland of the Geomorphic Wetlands Leeuwin Naturaliste Ridge and Donnybrook to Nannup is located approximately 110 meters west of the application area.</p>				

Characteristic	Details
Hydrogeography	The application area is within the Blackwater Groundwater Area and Cape to Cape South Surface water Area as proclaimed under the <i>RIWI Act 1914</i> .
Flora	According to available databases, there are records of 19 conservation significant flora species within the local area. Of these, one species is Priority 1 (P1), four are P2, seven are P3, four are P4 and three are threatened species. The biological survey identified no Threatened or Priority flora within the site (WEPL, 2022a).
Ecological communities	The closest ecological community of conservation significance to the application area is the State listed Critically Endangered <i>Aquatic Root Mat Community Number 4 of Caves of the Leeuwin Naturaliste Ridge (Calgardup Cave)</i> , located approximately 6.4 kilometres west of the application area.
Fauna	According to available databases, 74 conservation significant fauna species have been recorded within the local area. The closest records to the application area is a white tailed black cockatoo (<i>Zanda sp.</i>), Margaret River burrowing crayfish (<i>Engaewa pseudoreducta</i>) and western ringtail possum (<i>Pseudocheirus occidentali</i>), all recorded approximately 70 meters west.

B.2. Fauna analysis table

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
Baudin's cockatoo (<i>Zanda baudinii</i>)	EN	Yes	Yes	0.01	11	Yes
Carnaby's cockatoo (<i>Zanda latirostris</i>)	EN	Yes	Yes	0.08	697	Yes
forest red-tailed black cockatoo (<i>Calyptorhynchus banksii naso</i>)	VU	Yes	Yes	0.08	41	Yes
masked owl (southwest) (<i>Tyto novaehollandiae novaehollandiae</i>)	P3	Yes	Yes	0.11	118	Yes
South-western brush-tailed phascogale, wambenger (<i>Phascogale tapoatafa wambenger</i>)	VU	Yes	Yes	0.21	27	Yes
Western ringtail possum, ngwayir (<i>Pseudocheirus occidentalis</i>)	CR	Yes	Yes	1.17	7	Yes
White-tailed black cockatoo (<i>Zanda sp. 'white-tailed black cockatoo'</i>)	EN	Yes	Yes	2.34	26	Yes

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

Appendix C. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p><u>Principle (a):</u> <i>“Native vegetation should not be cleared if it comprises a high level of biodiversity.”</i></p> <p><u>Assessment:</u> The proposed clearing area is not likely to contain locally or regionally significant flora or assemblages of plants. The application area:</p> <ul style="list-style-type: none"> • contains two vegetation communities both in a Completely Degraded (Keighery, 1994) condition, • provides habitat for conservation significant fauna, however, the proposed revegetation measure will ensure no nett loss will result from the proposed clearing • does not comprise of threatened or priority flora; and • does not contain native vegetation which represents a TEC or PEC. <p>Whilst, the native vegetation proposed to be cleared is not considered to have high biodiversity values it provides habitat for critically endangered fauna.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (b):</u> <i>“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.”</i></p> <p><u>Assessment:</u> The proposed clearing area provides habitat for conservation significant fauna. The proposed revegetation offset will ensure no nett loss will result from the proposed clearing.</p>	At variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (c):</u> <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p><u>Assessment:</u> No threatened flora species listed under the BC Act were recorded within the proposed clearing area (WEPL, 2022a).</p>	Not likely to be at variance	No
<p><u>Principle (d):</u> <i>“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.”</i></p> <p><u>Assessment:</u> No Threatened Ecological Communities (TECs) listed under the BC Act or the EPBC Act have been mapped within six kilometres of the application area. The vegetation over the application area does not align with any known TECs.</p>	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u> The national objectives and targets for biodiversity conservation in Australia has a target to prevent the clearance of ecological communities with an extent below 30 per cent of that present prior to the year 1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia 2001).</p> <p>The extent of native vegetation in the local area is consistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Principle (h):</u> <i>“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.”</i></p> <p><u>Assessment:</u> Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of any nearby conservation areas.</p>	Not likely to be at variance	No
Environmental value: land and water resources		
<p><u>Principle (f):</u> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u> Given no water courses or wetlands are recorded within the application area, the proposed clearing is unlikely to impact on- or off-site hydrology and water quality.</p>	Not likely to be at variance	No
<p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u> Noting the extent of the application area, the proposed clearing is not likely to have an appreciable impact on land degradation.</p>	Not likely to be at variance	No
<p><u>Principle (i):</u> <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.”</i></p> <p><u>Assessment:</u> Given no water courses are recorded within the application area, the proposed clearing is unlikely to impact surface or ground water quality.</p>	Not likely to be at variance	No
<p><u>Principle (j):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment:</u> 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. The application area is located outside of any recognised floodplain areas.</p>	Not likely to be at variance	No

Appendix D. 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, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

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 E. Offset calculator value justification

Environmental value to be offset		
Calculation	Score (Area)	Rationale
Conservation significance		
Description	Western Ringtail Possum	0.26 ha to be removed that provide foraging and future breeding habitat for three species of black cockatoo, and provide habitat for western ringtail possum and southwestern brush-tail phascogale.
Type of environmental value	Species (flora/fauna)	As above
Conservation significance of environmental value	Rare/threatened species - critically endangered	Critically endangered species (highest ranking) selected due to impacts on WRP
Landscape-level value impacted	yes/no	Yes - area presents local linkage value.
Significant impact		
Description	0.26 ha that provide foraging and future breeding habitat for three species of black cockatoo, habitat for western ringtail possum and southwestern brush-tail phascogale (only 0.03 ha)	Peppermint over weedy grassland and Marri over weedy grassland vegetation types in degraded condition, but peppermint and Marri comprise key foraging species and its presence is considered an indicator of habitat for the species. Fauna survey recorded WRP individual with adolescent 50m adjacent to site.
Significant impact (hectares) / Type of feature	0.26	Peppermint Trees with weedy grassland understorey and Marri with weedy understorey (some peppermint shrubs)
Quality (scale) / Number	7.00	The overstorey is considered to provide significant habitat for WRP and black cockatoos, noting the presence of preferred tree species.
Rehabilitation credit		
Description	No rehabilitation credit is proposed	
Proposed rehabilitation (area in hectares)	0.00	
Current quality of rehabilitation site / Start number (of type of feature)	0.00	
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	0.00	
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	0.00	
Time until ecological benefit (years)	0.00	
Confidence in rehabilitation result (%)	0	
Offset		
Description	Revegetation within the adjacent property, placed under a conservation covenant	Revegetating an area of 1 ha with a mix of Marri and Peppermint in the adjacent property to provide foraging habitat for three black cockatoo species and habitat for western ringtail possum and southwest brush-tail phascogale is proposed.
Proposed offset (area in hectares)	1.00	The proposed revegetation of a 1 hectare area adjacent to the application area will mitigate the significant residual impacts of the proposed clearing.
Current quality of offset site / Start number (of type of feature)	0.00	The area is linear and completely bare at present, it is anticipated that trees are planted within rectangular strip 40 m wide and 244 m long. A score of 0 is applied for this reason.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	0.00	A score of 0 is maintained indicating that recruitment in these areas is likely to be low without planting
Future quality WITH offset (scale) / Future number WITH offset	6.00	Proposed quality for offset through revegetation to foraging habitat with local connectivity to larger areas of vegetation to the east-west corridor along the road reserve to the south.
Time until ecological benefit (years)	15.00	Assumption of 15 years for the planted trees to grow to a size that provides foraging habitat and provides linkage values.
Confidence in offset result (%)	0.8	0.8 represents an 80 per cent confidence that the effort of planting trees can be achieved.
Duration of offset implementation (maximum 20 years)	20.00	As the offset site will require to be transferred to the conservation estate, the maximum duration of 20 years is applied
Time until offset site secured (years)	1.00	Time until conservation covenant is in place
Risk of future loss WITHOUT offset (%)	15.0%	The offset area has current development approvals, but has not been indicated for an alternative future use. The risk of future loss without the offset has used the underlying zoning irrespective of the fact that the area is currently bare and has no environmental values to lose.
Risk of future loss WITH offset (%)	5.0%	5% estimated on the basis that the revegetated areas will be placed under a conservation covenant.
Offset ratio (Conservation area only)	N/A	

Appendix F. Biological survey information excerpts

WEPL undertook biological surveys of the site in February 2022 in order to inform an assessment of potential impacts to flora, fauna and other environmental values. The survey was designed to focus on determining if suitable habitat for conservation significant species and communities may be present. The scope of work comprised the following:

- A desktop assessment of publicly available data for threatened species, communities and other significant environmental values
- A habitat assessment for black cockatoos, identifying if any trees meeting Commonwealth guidelines (DAWE, 2022a) (the Guidelines) as potentially suitable for nesting are present, and considering areas of foraging and roosting habitat
- A habitat assessment, targeted scat search and spotlighting for western ringtail possum
- Mapping of vegetation condition, vegetation types and fauna habitat types present
- Assessment of flora species present and habitat for priority and threatened flora species
- An assessment of potential impacts and assessment of proposed clearing against the Environmental Protection Authority (EPA) 10 Clearing Principles

Two broad vegetation types were identified.

- Peppermint over weedy grassland - Upper stratum of scattered *Agonis flexuosa* with a mixture of planted *Eucalyptus sp.* not naturally occurring in the region and **Pinus sp.* Mid stratum of **Acacia iteaphylla*, **Acacia longifolia*, *Acacia cyclops*, *Paraserianthes lophantha* and planted *Calothamnus sp.* Ground stratum of **Cenchrus clandestinus*, **Cynodon dactylon*, **Avena barbata* and other pasture grasses.
- Marri over weedy grassland - Upper stratum of *Corymbia calophylla* with mid stratum of sparse *Agonis flexuosa*, **Acacia iteaphylla* and **Acacia longifolia*. Ground stratum with areas of bare ground and **Avena barbata*, **Briza* areas are in completely degraded condition.

No vegetation types were identified as being consistent with a threatened or priority ecological community. Considering the completely degraded condition, dense understory of weedy grass species and paucity of native flora, it is not considered likely that the vegetation provides suitable habitat for threatened and priority flora.



Photo:1

Description: Assessment point 1 image

Details: Peppermint over weedy grassland vegetation type



Photo:2

Description: Site image

Details: Peppermint over weedy grassland vegetation type



Photo:3

Description: Site Image

Details: Peppermint over weedy grassland vegetation type



Photo:4

Description: Assessment point 3 image

Details: Peppermint over weedy grassland vegetation type



Photo: 5

Description: site image

Details: Marri over weedy grassland veg type



Photo: 6

Description: Assessment point 2 image

Details: Marri over weedy grassland veg type

Conclusions and Recommendations

Key conclusions and assessment of potential impacts are as follows:

- Vegetation is in completely degraded condition with previous clearing, grazing and weed invasion having resulted in vegetation present being typical of grazed road verges or windbreaks.
- No vegetation types were identified as being consistent with a threatened or priority ecological community.
- Due to the degraded condition, dense understory of weedy grass species and recorded paucity of native flora, it is not considered likely that the vegetation provides suitable habitat for threatened and priority flora. As the survey was undertaken in summer outside the flowering/ growth period, a targeted threatened flora survey in line with EPA technical guidance for impact assessment could not be undertaken. Although undertaken outside of the flowering/ growth period, no flora suspected of representing a threatened and priority flora species was identified.
- The 0.669 ha of vegetation provides some foraging habitat values for black cockatoo species, in particular the 0.123 ha of habitat type “Marri over weedy grassland”. The DAWE, 2022 guidance advises that loss of <1ha of foraging habitat is unlikely to require referral to the Commonwealth under the EPBC Act.
- 7 trees were identified as potential breeding trees (Marri/ Eucalypt with a DBH >50cm) under the DAWE, 2022 Guideline classification system. No known or suitable nesting trees which contain a suitable nesting hollow are present. Under the DAWE, 2022 Guideline referral thresholds “Any loss of / impact upon known, suitable or potential nesting trees, and the habitat around these trees, is highly likely to require a referral to the minister. Loss of any potential nesting habitat is likely to require a referral to the minister”. Due to the small number of potential breeding trees impacted and the absence of suitable nesting hollows, clearing of these trees is not considered likely to comprise an impact to a significant area of habitat for the species. Liaison with DAWE to better understand potential referral requirements under the new Guidelines may be undertaken by a proponent via a pre referral meeting with the Commonwealth.
- Habitat type “Peppermint over weedy grassland” provides supporting habitat for western ringtail possum. Potential impacts are limited to clearing of up to 0.546 ha with an estimated 30-35 small peppermint trees and shrubs removed. Due to the small extent of potential impacts and the reduced quality of habitat present, the proposed clearing is not considered likely to comprise an impact to a significant area of habitat for the species and is considered unlikely to form grounds for a EPBC referral. Residual risk of impacts to western ringtail possum during clearing may be mitigated by clearing procedures that consider the potential presence of the species.

Appendix G. Sources of information

G.1. GIS databases

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)
- Contours (DPIRD-073)
- 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)
- Flood Risk (DPIRD-007)
- 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)
- Regional Parks (DBCA-026)

- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems

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
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

G.2. References

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