GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

ADVICE NOTE

Allocation of offset site

The offset referred to in condition 8 of this permit, is intended to contribute towards the conservation in perpetuity of 8.5 hectares of native vegetation within Crown Reserve 39622, Margaret River, that comprises of significant foraging habitat for *black cockatoo species* and for the western ringtail possum, in addition to other environmental values.

Revegetation and rehabilitation offset

The 'Offset Revegetation Management Plan Wadandi Track – Witchcliffe' (Cape Life, 2024) referred to in condition 9 of this permit, is intended to facilitate the *revegetation* and *rehabilitation* of a total of 0.41 hectares of native vegetation within Wadandi Trail Reserve 470449, Witchcliffe, that comprises 0.41 hectares of significant foraging habitat for *black cockatoo species* and *suitable habitat* for the western ringtail possum.

Purpose Permit number:	CPS 9857/1
Permit Holder:	Shire of Augusta-Margaret River
Duration of Permit:	From 25 December 2024 to 25 December 2035

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 upgrades.

2. Land on which clearing is to be done

Warner Glen Road reserve (PINs 11602653, 11602654, 11602655 and 11602657), Forest Grove.

3. Clearing authorised

The permit holder must not clear more than 0.47 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 25 December 2029.

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

(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 immediately prior to, and for the duration of clearing activities, for the presence of western ringtail possum(s) (*Pseudocheirus occidentalis*).

(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) individual has moved on from that area to adjoining *suitable habitat*; or

  (ii) the western ringtail possum(s) individual has been removed by a *western ringtail possum specialist*.

(c) Any western ringtail possum(s) individual removed in accordance with condition 7(b)(ii) must be relocated by a *western ringtail possum specialist* to a *suitable habitat*.

(d) Where fauna is identified under condition 7(a), the permit holder must, within 14 calendar days, provide the following records to the *CEO*:

  (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 2020 (GDA2020), expressing the geographical coordinates in Eastings and Northings or decimal degrees;

  (iv) the number of individuals removed and relocated;

  (v) the relevant qualifications of the *western ringtail possum specialist* undertaking removal and relocation;

  (vi) the date each individual was removed;

  (vii) the method of removal;

(viii) the date each individual was relocated;
(ix) the location where each individual was relocated to, recorded using a GPS unit set to GDA2020, expressing the geographical coordinates in Eastings and Northings or decimal degrees; and
(x) details pertaining to the circumstances of any death of, or injury sustained by, an individual.

8. Offset – Crown Reserve 39622

Within 12 months of the commencement of clearing authorised under this permit and no later than 25 December 2025, the permit holder must provide to the CEO a copy of the executed change in purpose of the area cross-hatched red in Figure 1 of Schedule 2 within Lot 4816 on Diagram 63561 (Crown Reserve 39622), Margaret River from 'Parks and Recreation' to 'Conservation'.

9. Offset – Wadandi Trail Reserve 470449

Within 24 months of undertaking clearing authorised under this permit, and no later than 25 December 2026, the permit holder must:

(a) provide to the CEO a copy of the executed change in purpose of Lot 5438 on Deposited Plan 27432 (Wadandi Trail Reserve 470449), Witchcliffe from 'Heritage Trail' to 'Heritage Trail and Conservation';
(b) implement and adhere to the 'Offset revegetation management Plan Wadandi Track - Witchcliffe' (CapeLife, dated August 2024) for the combined areas hatched orange in Figure 2 of Schedule 2, including but not limited to the following actions:
    (i) deliberately *planting* and/or *direct seeding native vegetation*, of which provides:
        (A) suitable foraging habitat for *black cockatoo species*, and
        (B) *suitable habitat* for western ringtail possums;
    (ii) ensuring only *local provenance* seeds and propagating material are used to *revegetate* and *rehabilitate*;
    (iii) establish three 5 x 5 metre quadrat monitoring sites as specified in Table 1 of Schedule 3;
    (iv) undertake *weed* control activities prior to *planting*, and annually thereafter until completion criteria in Table 1 Schedule 3 have been met;
    (v) achieve the completion criteria specified in Table 1 of Schedule 3 after a five-year monitoring period for areas *revegetated* and *rehabilitated* under this condition;
    (vi) undertake remedial actions for areas *revegetated* and *rehabilitated*, where monitoring indicates that *revegetation/rehabilitation* has not met the completion criteria outlined in Table 1 of Schedule 3 of this permit, including;
        (A) *revegetate/rehabilitate* the area by deliberately *planting* and/or *direct seeding native vegetation* that will result in the minimum completion criteria detailed in Table 1 of Schedule 3 and ensuring only *local provenance* seeds and propagating material are used;
        (B) *additional weed* control activities; and
        (C) *annual* monitoring of the *revegetated* and *rehabilitated* areas by an *environmental specialist*, until the completion criteria, specified in Table 1 of Schedule 3 are met;

(c) where an *environmental specialist* determines that the completion criteria outlined in Table 1 of Schedule 3 has been met, a report shall be submitted to the *CEO* within three months of the determination being made.

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	(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 GDA2020, 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); (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 in accordance with condition 7; and (h) actions taken to change the purpose of Crown Reserve 39622 in accordance with condition 8.
2.	In relation to *revegetation* and *rehabilitation* pursuant to condition 9	(a) actions taken to change the purpose of Wadandi Trail Reserve 470449 from 'Heritage Trail' to 'Heritage Trail and Conservation'; (b) a description of the *revegetation* and *rehabilitation* activities undertaken; (c) the size of the area *revegetated* and *rehabilitated*; (d) the date/s on which the *revegetation* and *rehabilitation* was undertaken; (e) the boundaries of the area *revegetated* and *rehabilitated* (recorded digitally as a shapefile using a Global Positioning System (GPS) unit set to GDA2020, expressing the geographical coordinates in Eastings and Northings); (f) determinations made by an *environmental specialist*; and

No.	Relevant matter	Specifications
		(g) other actions taken in accordance with condition 9.

11. Reporting

The permit holder must provide to the *CEO* the records required under condition 10 of this permit when requested by the *CEO*.

DEFINITIONS

In this permit, the terms in Table 2 have the meanings defined.

Table 2: Definitions

Term	Definition
black cockatoo species	means one or more of the following species: (a) *Zanda latirostris* (Carnaby's cockatoo); (b) *Zanda baudinii* (Baudin's cockatoo); and/or (c) *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo).
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.
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.
dieback	means the effect of *Phytophthora* species on native vegetation.
environmental specialist	means a person who holds a tertiary qualification in environmental science or equivalent, and has a minimum of two (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	*Environmental Protection Act 1986* (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 *Biodiversity Conservation Act 2016*.
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.

Term	Definition
optimal time	means the period from April to June.
planting	means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species.
rehabilitate/ed/ing/ion	means actively managing an area containing native vegetation in order to improve the ecological function of that area.
revegetate/ed/ing/ion	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 (*Pseudocheirus occidentalis*) 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 (*Agonis flexuosa*) dominated woodlands, jarrah (*Eucalyptus marginata*) and marri (*Corymbia calophylla*) forests, riparian vegetation with a canopy of Bullich (*Eucalyptus megacarpa*) or flooded gum (*Eucalyptus rudis*), karri (*Eucalyptus diversicolor*) forests, sheoak (*Allocasuarina fraseriana*) dominated woodlands, and other stands of myrtaceous trees growing near swamps, watercourses or floodplains.
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.
western ringtail possum specialist	means a *fauna specialist* who holds a tertiary qualification specialising in environmental science or equivalent, has a minimum of two years of work experience in western ringtail possum (*Pseudocheirus occidentalis*) identification, surveys of western ringtail possums and capture and handling of western ringtail possums, and holds a valid fauna licence issued under the *Biodiversity Conservation Act 2016*.

END OF CONDITIONS

JBurton

Jessica Burton
MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

28 November 2024

Schedule 1

The boundary of the area authorised to be cleared is shown in the map below (Figure 1).

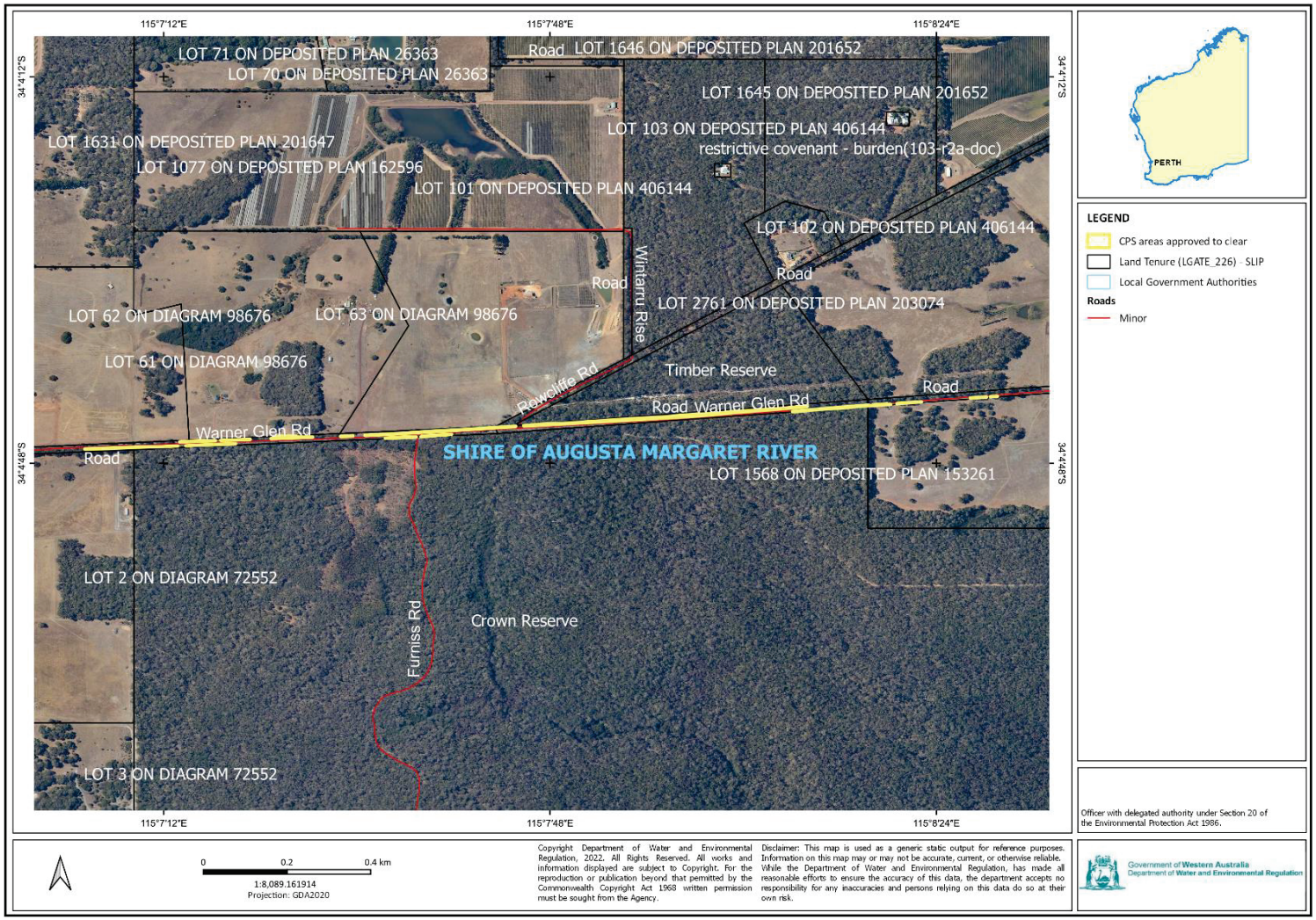


Figure 1: Map of the boundary of the area within which clearing may occur.

Schedule 2

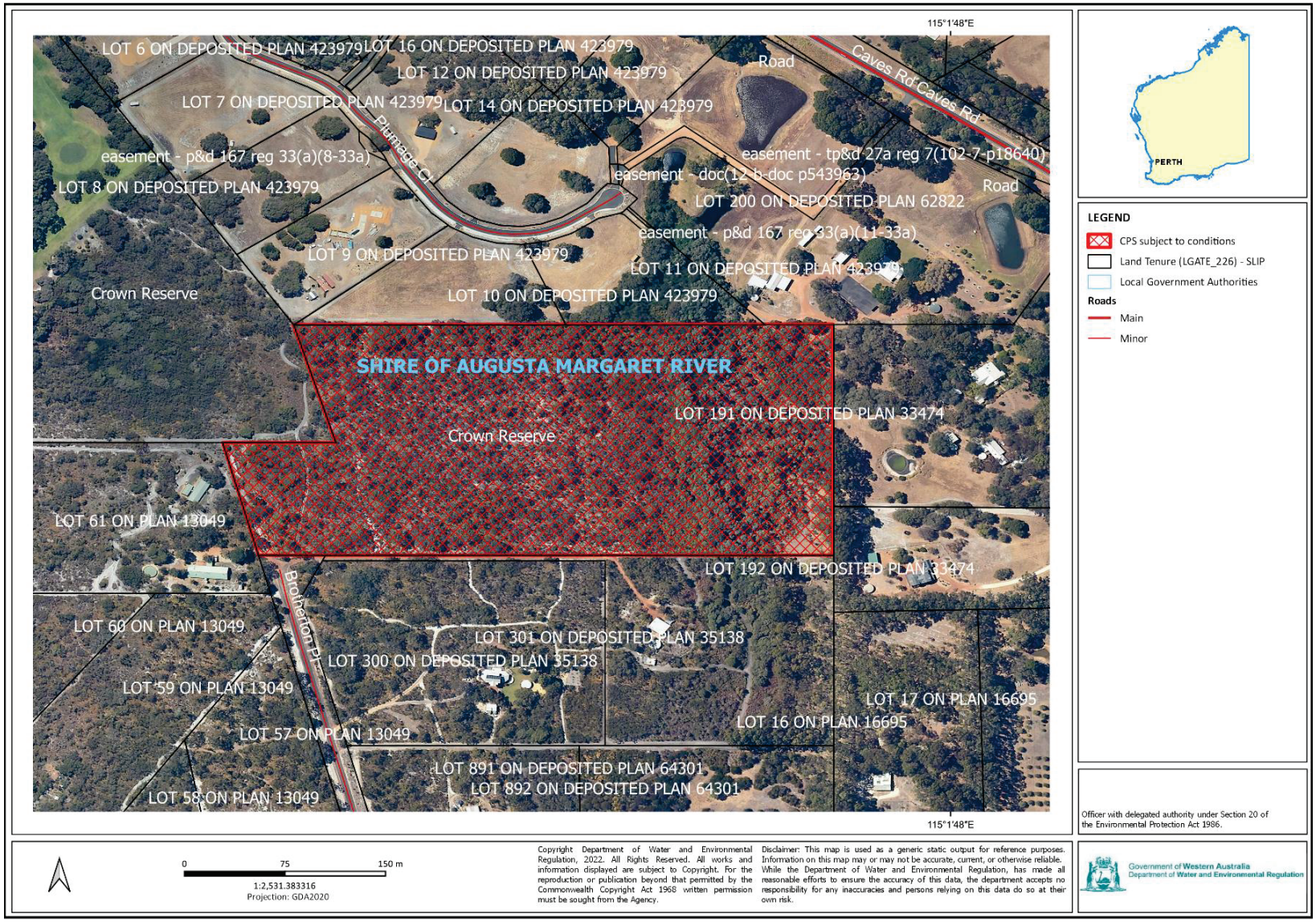


Figure 1: Map of the boundary of the area subject to condition 8.

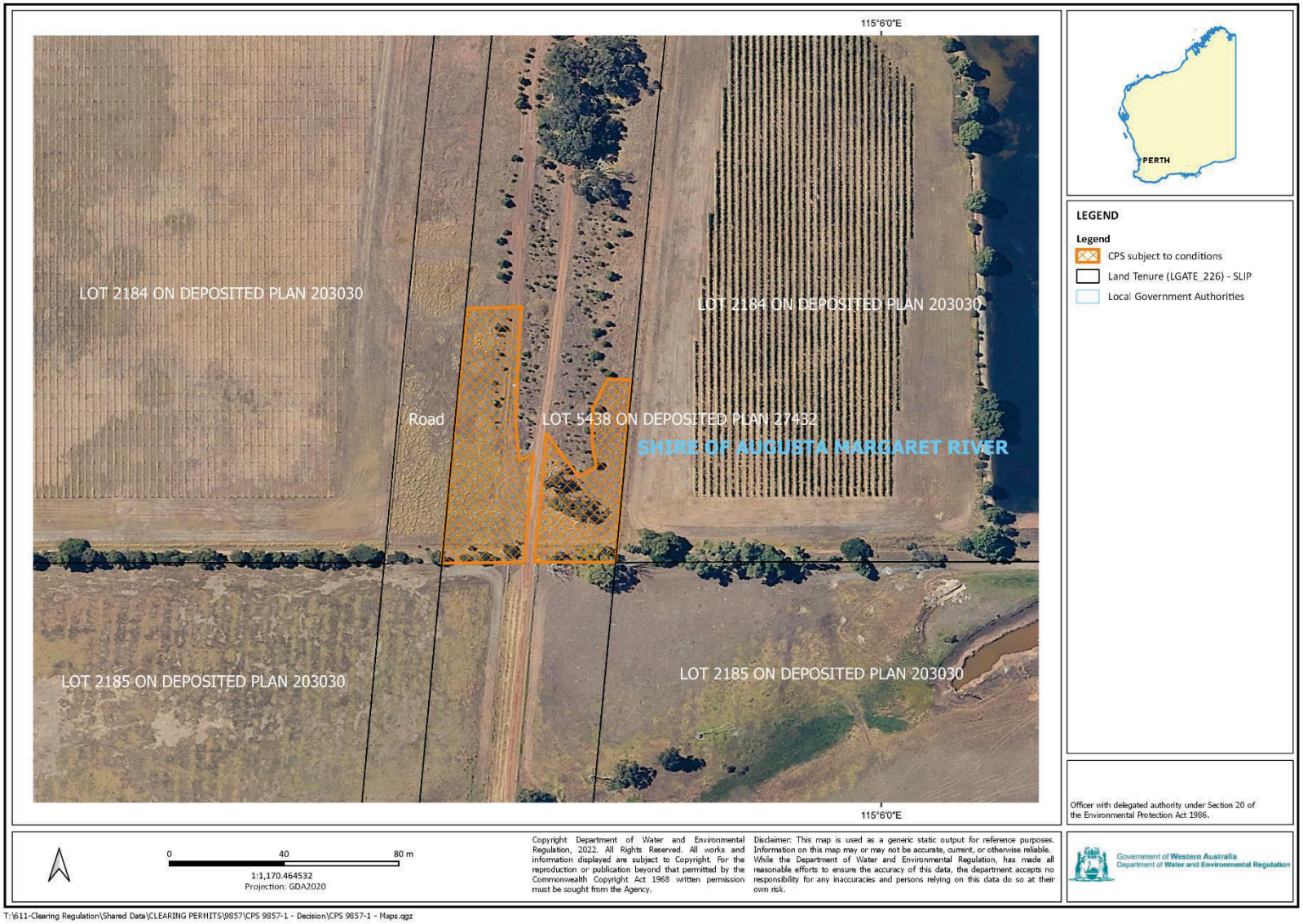


Figure 2: Map of the boundary of the area subject to condition 9.

Schedule 3

Table 1. *Revegetation* and *rehabilitation* completion criteria

Closure outcome	Completion criteria	Measurement tool	Corrective action	Timing
Exclusion of stock and limitation of grazing mammals to secure revegetation success	Maintenance of suitable perimeter fence to be installed and provide an effective barrier to prevent or reduce impacts to revegetation area.	• Visual inspection of perimeter fence • Visual inspection of tree guards • Visual inspection for presence of Kangaroos and Rabbits	Maintain fence Maintain or increase tree guards Remove or control Kangaroos or rabbits	Ongoing
Overstorey vegetation is self-sustaining and suitable for future habitat or foraging use by western ringtail possums and three species of black cockatoos.	Within 5 years a total abundance of overstorey woodland species is over 100 stems (~200 stems/ha)	Three 5m x 5m quadrats will be established to monitor the vegetation.	Additional planting of overstorey woodland species using tube stock following yearly monitoring of number of surviving overstorey species	Achieve by Spring 2031
Species composition is similar to the clearing and historical vegetation community of the Cowaramup C1 vegetation complex	Within 5 years: • Species richness is at least 50% of revegetation species list. • Species density is at least 2,000 stems/ha.	Three 5m x 5m quadrats will be established to monitor the vegetation.	Additional planting of tubestock and application of direct seeding to be undertaken following monitoring review of species richness and diversity.	Achieve by Spring 2031
Plants used in rehabilitation to be of local provenance.	The mix of species is comprised of species recruited from direct seeding and species introduced as tube stock grown from seed or cuttings from within 20km of the revegetation site.	Audit of rehabilitation records for sources of plant materials used in rehabilitation.	Purchase or collection of additional local provenance seed of target species	Achieve by Spring 2031
Vegetation resilient to weeds – Weeds not out-competing revegetation.	Within 5 years: • Weed cover is reduced to under 30% (currently 100%). • Invasive weed coverage is sustained without weed control between 4th and 5th year's respective seasons. • No Declared weeds are present within the revegetation area.	Three 5m x 5m quadrats will be established to monitor the vegetation.	Weed control methods will be ongoing and potentially modified as required to achieve the best practice solution.	Achieve by Spring 2031
Dieback	No dieback is present within the revegetation area at 5 years post establishment.	Dieback survey	Signage and other public mitigation strategies. Possible phosphite treatment	Achieve by Spring 2031

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 9857/1
Permit type:	Purpose permit
Applicant name:	Shire of Augusta Margaret River
Application received:	19 August 2022
Application area:	0.47 hectares of native vegetation
Purpose of clearing:	Road widening
Method of clearing:	Mechanical
Property:	Warner Glen Road reserve (PIN 11602653, 11602654, 11602655 and 11602657),
Location (LGA area/s):	Shire of Augusta-Margaret River
Localities (suburb/s):	Forest Grove

1.2. Description of clearing activities

The vegetation proposed to be cleared occurs along a 2.2-kilometre section of Warner Glen Road, between SLK 16.05 and 18.24, and will result in no more than 0.47 hectare of roadside vegetation being removed (see Figure 1, Section 1.5).

1.3. Decision on application

Decision:	Granted
Decision date:	28 November 2024
Decision area:	0.47 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 (the department) 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 H.1),
- photographs of the application area (see Appendix F),
- the findings of biological surveys (see Appendix G),
- the clearing principles set out in Schedule 5 of the EP Act (see Appendix C), and
- relevant planning instruments and any other matters considered relevant to the assessment (see Section 3).

The Delegated Officer also took into consideration that the purpose of the clearing is to improve driver safety of Warner Glen Road since it currently contains deformations that are causing traffic hazards and is to narrow relative to the amount of traffic using the road.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing will result in the following significant residual impacts:

- the loss of 0.47 hectares of native vegetation that is suitable foraging habitat for Carnaby's black cockatoo, Baudin's black cockatoo and forest red-tailed black cockatoo, and
- the loss of 0.47 hectares of native vegetation that is suitable habitat for western ringtail possums (*Pseudocheirus occidentalis*).

In accordance with the Government of Western Australia's Environmental Offsets Policy and Environmental Offsets Guidelines, the Delegated Officer determined that the following land acquisition and rehabilitation offsets are required to address the above significant residual impacts:

- Conservation of 8.50 hectares of native vegetation that provides suitable foraging habitat for black cockatoos and western ringtail possums within Crown Reserve 39622, Margaret River, and
- Revegetation and rehabilitation of 0.41 hectares of Wadandi Trail Crown Reserve R470449, Witchcliffe, composed of species suitable for black cockatoo foraging habitat and western ringtail possum habitat.

The Delegated Officer determined that the above offset was sufficient to counterbalance the significant residual impacts associated with the proposed clearing. Further information on the suitability of the offsets provided are summarised in Section 4.

The Delegated Officer therefore decided to grant a clearing permit subject to the following conditions, which have been imposed on the clearing permit, to manage and address the impacts of clearing:

- avoid, minimise to reduce the impacts and extent of clearing
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback
- fauna management conditions for the western ringtail possum
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity, and
- the provision of an offset, as outlined above.

Given the above and noting that the offset measures provided (see section 4) counterbalances the significant residual impacts to western ringtail possum and black cockatoo foraging habitat, the Delegated Officer determined that the proposed clearing is unlikely to lead to an unacceptable risk to the environment.

1.5. Site map

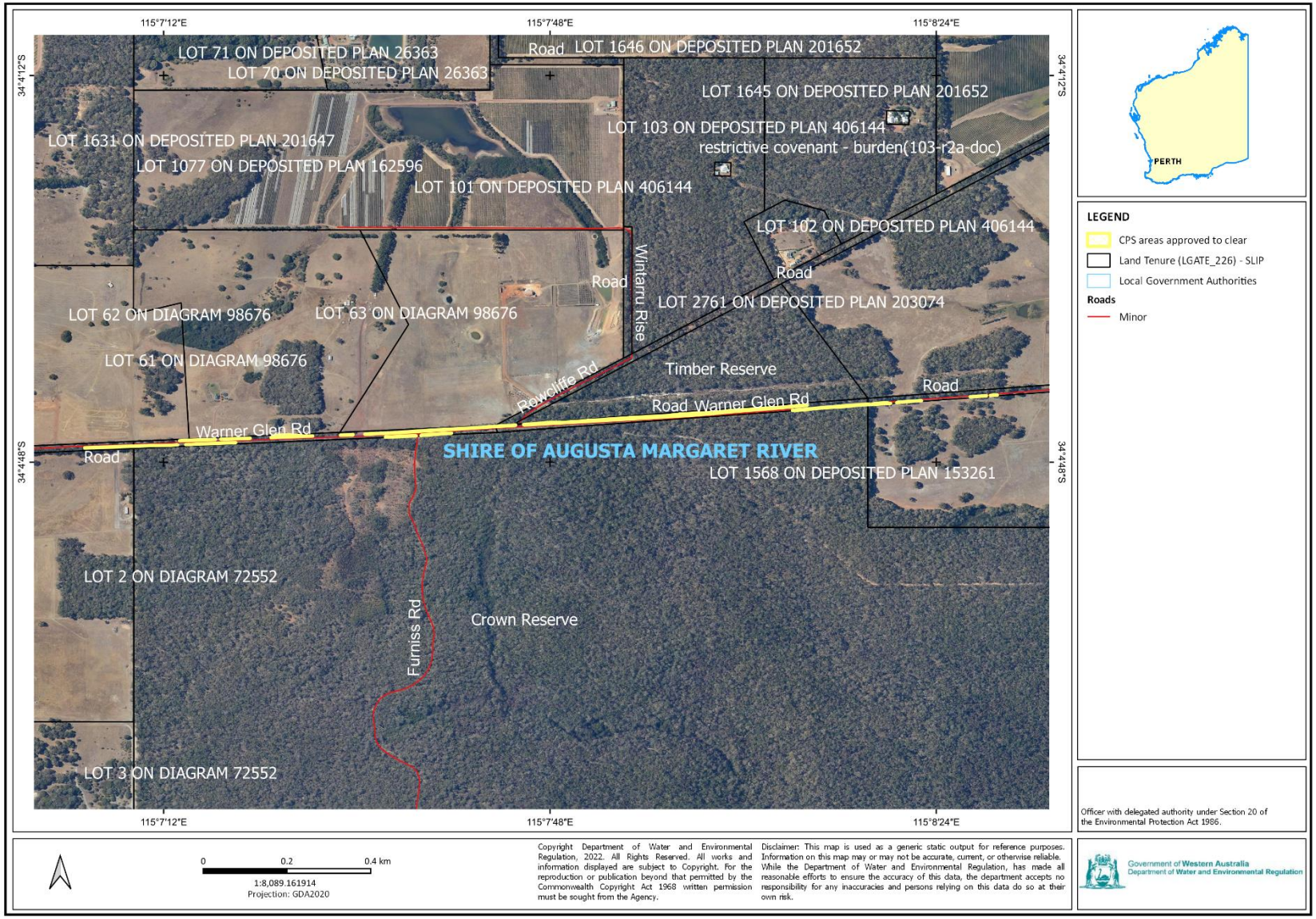


Figure 1. Map of the application area.

The areas crosshatched yellow indicates the areas 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 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the polluter pays 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) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Soil and Land Conservation Act 1945* (WA)

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)
- *Environmental Offsets Guidelines* (August 2014)
- 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

The following evidence was submitted by the applicant to demonstrate that avoidance, and mitigation measures have been applied to the proposed clearing (Shire of Augusta-Margaret River, 2022b):

Avoidance

- The road reconstruction will be designed to minimise disturbance to native vegetation where possible.
- Retrenchment pruning will be implemented as an alternative to tree removal where possible, where branches pose a safety hazard.
- The location of habitat trees (≥50cm DBH) will be avoided and incorporated into the road design and alignment, except for tree no. 31.

Mitigation

- For tree no. 31, the Shire will engage a black cockatoo specialist to re-inspect the tree prior to clearing to determine whether there is evidence of usage by black cockatoo species for breeding/nesting. Should there be any evidence of current use of breeding/nesting by black cockatoo species, the Shire will not remove the tree or branches until usage of the hollow is complete.
- The Shire will install one artificial black cockatoo nesting tube at a suitable site nearby, in accordance with DBCA guidelines.
- Clearing will be implemented in strict accordance with DBCA's *Procedures to Minimise the Risk to Western Ringtail Possums during Vegetation Clearing and Building Demolition* (DBCA, 2015), including the presence of a fauna spotter and handler on site prior to and during construction in order to inspect trees and manage any disturbed animals.
- Existing surface drainage patterns will be maintained during road reconstruction, with no changes to surface hydrology or movement of sediment into the surrounding environment.
- Best practice weed and dieback hygiene measures will be implemented during clearing and construction (clean vehicles and machinery prior to entering the site).
- The Shire will consult with the local Parks and Wildlife Service office prior to road works to notify them of the works adjacent to Forest Grove National Park, and to discuss any on ground issues.

The Shire initially proposed revegetation within the Warner Glen Road Reserve to mitigate the impacts of the proposed clearing, however, they were advised by the Shire's Emergency Services Manager that the road has been identified as a significant evacuation route in the event of an emergency such as bushfire (Shire of Augusta-Margaret River, 2023). The road reserve has had fire risk mitigation works undertaken in recent years to ensure it meets fire risk safety standards. The density of planting of tree species that is required to meet appropriate conditions and completion criteria for a clearing permit would put the safety of the road reserve at risk as a regionally important evacuation route.

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

After consideration of avoidance and mitigation measures, it was determined that an offset to counterbalance the significant residual impacts to western ringtail possum and black cockatoo foraging habitat were 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 is 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 western ringtail and black cockatoo foraging habitat, and remnant vegetation. 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 (fauna) - Clearing Principles (a), (b)

Assessment

According to available databases, 22 conservation significant fauna species have been recorded within the local area (10-kilometre radius of the application area). In determining the likelihood of conservation significant fauna occurring within the application area, considerations were given to number of records in the local area, preferred habitat types, typical home ranges, proximity of records to the application area, the type and condition of the vegetation within the application area and historical nature of the records (Appendix B).

A fauna survey was undertaken along the road reserve in October 2021 by SW Environmental which assessed the quality of the fauna habitat as 'good', which is likely due to being located adjacent to intact native vegetation in the adjoining National Park. Evidence of conservation significant black cockatoos (all 3 species) and western ringtail possum (WRP) was observed within the area.

Black cockatoos (VU – EN)

The application area is within the known distribution of Baudin's cockatoo (*Zanda baudinii*, EN), Carnaby's cockatoo (*Zanda latirostris*, EN) and forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*, VU). Black cockatoo habitat can be considered in terms of breeding habitat, night-roosting habitat, and foraging habitat (DAWE, 2022).

The quality of black cockatoo foraging habitat to support populations at breeding sites or night roosting sites varies depending upon how black cockatoos utilise the habitat in that location. The application areas consist predominantly of Jarrah (*Eucalyptus marginata*) and Marri (*Corymbia calophylla*) with areas of Karri (*Eucalyptus diversicolor*) over Peppermint (*Agonis flexuosa*). Of these three species, Marri and Jarrah are considered a high-quality foraging resource with Karri less preferred and considered low to moderate quality (Bamford 2013, DAWE, 2022). A black cockatoo habitat assessment recorded foraging residue from all three black cockatoo species throughout the application area and broader road reserve, due to the dominance of marri and jarrah and key overstorey components (SW Environmental, 2021).

Food resources within the range of breeding sites and roost sites are important to sustain populations of black cockatoos. Black cockatoos will generally forage up to 12 kilometres from an active breeding site. Following breeding, they will flock in search of food, usually within six kilometres of a night roost (DAWE, 2022) but may range up to 20 kilometres. Within the local context, four roosting sites have been recorded. The nearest record is 900 metres east of the application area.

No breeding sites are recorded within the local area with the nearest known breeding site located 18.7 kilometres north of the application area.

Breeding habitat for species of black cockatoos is described as trees species known to support breeding which either, have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow (DAWE, 2022). For most tree species, suitable DBH is 50 centimetres. The black cockatoo habitat assessment (SW Environmental, 2021) recorded 18 potential breeding trees across the Warner Glen Road reserve. Of these, one tree (dead Marri) occurs within the application area which does not contain any hollows. Therefore, it is considered that the proposed clearing is not likely to have a significant impact on the availability of breeding habitat on black cockatoos

While the application is located next to Forest Grove National Park and is relatively small, there are several trees with suitable hollows or are of a suitable DBH to form hollows in proximity to the proposal. Therefore, the vegetation proposed to be cleared is significant as foraging habitat for potential breeding individuals in the local area.

Western Ringtail Possum (CR)
According to available databases the western ringtail possum (WRP) (*Pseudocheirus occidentalis*) has been recorded 711 times within the local area, with the nearest record to the application area is 1.4 kilometres south-west, taken in 2019.

Vegetation communities critical to WRPs include long unburnt mature remnants of *Agonis flexuosa* (peppermint) woodlands with high canopy continuity and *Eucalyptus marginata* (jarrah) and *Corymbia calophylla* (marri) forests and woodlands with limited anthropogenic disturbance (unlogged or lightly logged, and a low intensity and low frequency fire history), that are intensively fox-baited and have low indices of fragmentation. Long-term survival of WRP also requires linkages between such suitable habitat patches (DPaW, 2017). WRP use a range of nest and shelter sites to avoid predators and exposure to the weather. Dreys are constructed in the canopy if hollows are not available. Adequate nest and shelter sites are necessary components of good quality habitat (Shedley and Williams 2014).

The application areas consist predominantly of Jarrah and Marri with areas of Karri over Peppermint (SW Environmental, 2021), providing suitable habitat for WRP. The fauna assessment recorded WRP scats (although a low number) throughout the Warner Glen Road reserve, but no dreys were observed. Given the application area is adjacent Glen Forest National Park that provides large intact habitat for WRP, the road reserve is considered to provide suitable habitat for the WRP.

Other fauna
Numerous other fauna species may use the application area include the chuditch, quenda, quokka and south-western brush-tailed phascogale due to its proximity to large conservation areas.

Chuditch (*Dasyurus geoffroii*) (VU) are known to occupy a range of habitats including jarrah forests, eucalypt woodlands, mallee shrublands and heathland (DEC, 2012a). They require den resources such as tree hollows, hollow logs, burrows or rock crevices (DEC, 2012). According to available databases there are 365 records of chuditch in the local area, the nearest being 7.60 km from the proposed clearing.

Quenda (*Isoodon fusciventer*) (P4) are a small ground dwelling marsupial endemic to the South West of Western Australia and are listed as Priority 4 species. Quenda require a dense understorey for cover and are often found digging in leaf litter for invertebrates, earthworms, beetles and plant material, generally inhabiting dense understorey vegetation of forests, woodlands, shrubland and heathland (DBCA, 2017). According to available databases there are 794 records of quenda in the local area, the nearest being 2.62 km from the proposed clearing.

On the mainland, quokka (*Setonix brachyurus*) (VU) occupies jarrah, marri, and karri forests and woodlands in high rainfall areas. These habitats generally have thick understorey, nearby to swamps and will be close to more open, recently burnt vegetation (DEC, 2013). According to available databases there are 1554 records of the quokka in the local area, the nearest being 3.25 km from the proposed clearing.

The south-western brush-tailed phascogale (*Phascogale tapoatafa wambenger*) (CD) occurs in dry sclerophyll forests and open woodlands that contain hollow-bearing trees (DEC, 2012b). According to available databases, there are 93 records of the south-western brush-tailed phascogale in the local area, the nearest being 4.38 km from the proposed clearing.

Given the large intact remnant vegetation adjacent to the application area, the vegetation proposed to be cleared is not considered core habitat for these species, however, may be used intermittently to facilitate dispersal throughout the landscape.

Ecological Linkage
While the proposed clearing is not within any mapped ecological linkages, noting that much of the local area is comprised on previously cleared agricultural lands, roadside vegetation, such as that within the proposed clearing area, often serves as an ecological linkage between larger remnants of native vegetation. Given the extent of clearing over most of the application area is narrow (approximately 2 metres wide) and spread over multiple small areas, the

proposed clearing is not likely to fragment this ecological linkage or significantly impact vegetation connectivity and fauna dispersal within the local area.

Given the survey identified weed species within the application area (Stream Environment and Water, 2022), the proposed clearing may cause degradation of adjacent and nearby remnant native vegetation, by facilitating the spread of weeds and dieback, which could impact on the quality of fauna habitat.

Conclusion

Based on the above assessment, the application area includes significant habitat for western ringtail possum and black cockatoo species and contributes to a local linkage across the patchwork of remnant vegetation within the local area. The proposed clearing may facilitate the introduction or spread of weed species and/or dieback disease that may compromise the condition of adjacent fauna habitat and ecological linkage values.

Conditions

To address potential impacts to nearby native vegetation from the proposed clearing, the following conditions measures will be required as a condition on the clearing permit:

- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback into adjacent habitat;
- slow directional clearing to allow fauna to move into adjacent vegetation ahead of the clearing activity will minimise impact to individuals;
- inspection of the application area by a fauna specialist immediately prior to and during clearing activities for the presence of Western Ringtail Possums with any individuals relocated to a suitable habitat; and
- the provision of an offset to counterbalance the significant residual impacts to 0.47 hectares of habitat for threatened black cockatoo species and western ringtail possum.

3.3. Relevant planning instruments and other matters

No Aboriginal sites of significance have been 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 0.47 hectares of native vegetation that is suitable foraging habitat for Carnaby's black cockatoo, Baudin's black cockatoo and forest red-tailed black cockatoo, and
- the loss of 0.47 hectares of native vegetation that is suitable habitat for western ringtail possums.

In determining the appropriateness of an offset, the Delegated Officer took into consideration the applicant's implementation of the mitigation hierarchy and the public benefit of the proposed clearing (see Section 3.1). In considering these matters, the Delegated Officer determined that it was appropriate to grant the clearing permit in relation to the significant residual impacts, on the basis that a suitable environmental offset was implemented to counterbalance the impacts.

The applicant has proposed an offset consisting of two components:

- The conservation of 8.5 hectares of native vegetation composed of high-quality foraging habitat for all three threatened black cockatoo species and suitable habitat for the western ringtail possum within Crown Reserve 39622, Margaret River; and
- The revegetation and rehabilitation of 0.41 hectares of significant foraging habitat for black cockatoos and suitable habitat for the western ringtail possum within Wadandi Trail Reserve 470449, Witchcliffe.

Crown Reserve 39622

To counterbalance significant residual impacts to both black cockatoos and the western ringtail possum, the applicant has committed to the conservation of 8.5 hectares of native vegetation within Crown Reserve 39622, Margaret River (Figure 2), by changing the vested purpose of the reserve from 'Parks and Recreation' with a purpose of 'Golf Course and Recreation and Water' to 'Conservation'.

The applicant commissioned a survey to determine the environmental values of the Reserve which found the vegetation to be composed of *Eucalyptus marginata* (Jarrah), *Corymbia calophylla* (Marri) and *Banksia ilicifolia*, with *Eucalyptus patens* (Swan River Blackbutt) in the wetter areas (Figure 3), with a minor waterway running from north

to south on the eastern side of the Site (Ecosystem Solutions, 2023). Both Baudin's cockatoo and the western ringtail possum were observed using the Reserve during the survey (Ecosystem Solutions, 2023) (Figure 4 & Figure 5).

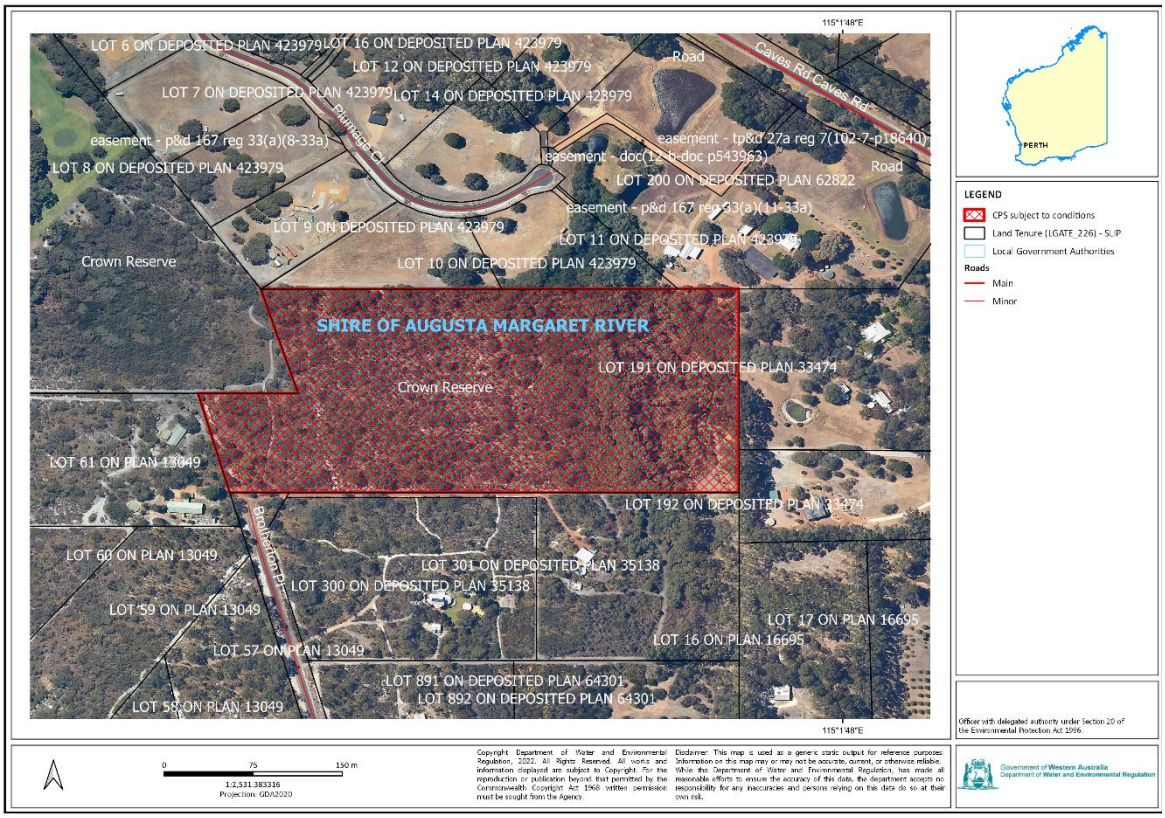


Figure 2. Map of Crown Reserve 39622, Margaret River.

Figure 2 Corymbia calophylla, Eucalyptus marginata, Banksia ilicifolia vegetation from the Site

Figure 3 Eucalyptus patens, Eucalyptus marginata, Pteridium esculentum vegetation from the Site

Figure 3. Representative photographs of the vegetation within Reserve 39622, Margaret River (Ecosystem Solutions, 2023).

Figure 7 Baudin's Black Cockatoos foraging in a Jarrah on Site during the second dawn survey

Figure 8 Baudin's Black Cockatoos foraging in a Banksia ilicifolia on Site during the second dawn survey

Figure 4. Photographs of Baudin's cockatoo observed within Reserve 39622, Margaret River (Ecosystem Solutions, 2023).

Figure 5. Map of Baudin's cockatoo and western ringtail possum observations within Reserve 39622, Margaret River during the fauna survey (Ecosystem Solutions, 2023).

Wadandi Trail Reserve 470449

To counterbalance significant residual impacts to both black cockatoos and the western ringtail possum, the applicant has committed to the revegetation and rehabilitation of 0.41 hectares of native vegetation within Wadandi Trail Reserve 470449 (R470449), Witchcliffe, and to change its vested purpose from 'Heritage Trail' to 'Conservation and Recreation'.

Flora and fauna surveys were undertaken along the Wadandi Trail in its entirety between 2012 and 2014, and a supplementary weed and revegetation report was prepared in 2020 to identify high priority sites for revegetation. The Wadandi Trail Reserve 470449 was mapped in the 2012 flora and vegetation survey as being 'Completely Degraded' and consists mainly of cleared sections either side of the trail with only sparse mature Eucalypts existing (karri and marri) (Ekologica, 2012).

A section of Reserve 470449, directly North of the proposed offset, was revegetated by the Shire between 2017-2020 (Shire of Augusta-Margaret River, 2023b). The area that the Shire is proposing to revegetate for this offset is at the southern end of the reserve and is one of the areas identified as a high priority of revegetation. There has been no revegetation within the 0.41-hectare footprint previously and the site is still in completely degraded (Keighery, 1994) condition.

In addition to providing suitable habitat for black cockatoos and the western ringtail possum, the revegetation would continue to improve habitat connectivity in a north-south direction along the Wadandi Trail Reserve and provide connection to habitat in the north at Witchcliffe. The work would complement other revegetation work to improve habitat values also being undertaken by the Shire north of Witchcliffe in the vicinity of Rowe Rd West, and Gnarawary Rd (Shire of Augusta-Margaret River, 2023b).

A revegetation and rehabilitation plan (Cape Life, 2024) was reviewed and approved by the department.

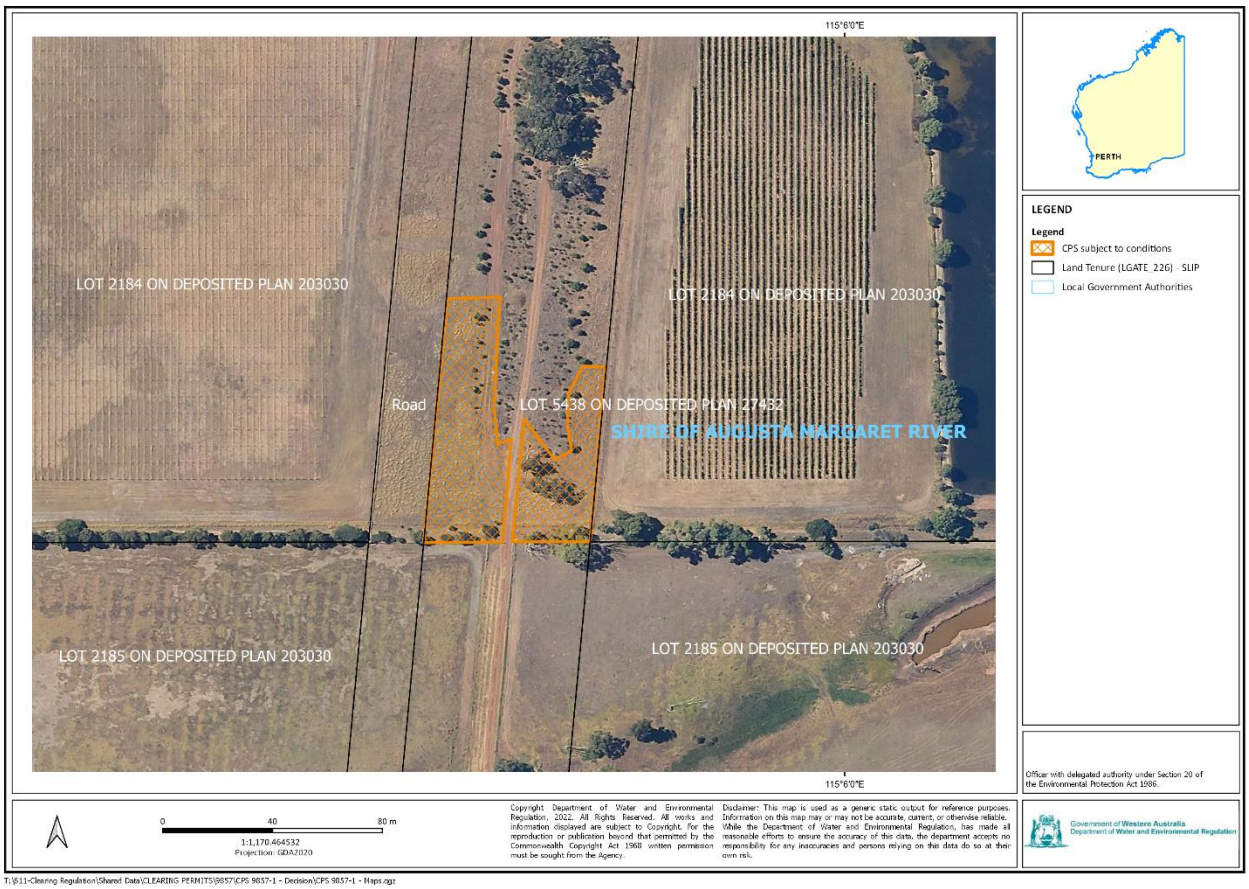


Figure 6. Map of the proposed revegetation and rehabilitation area within Wadandi Trail Reserve 470449, Witchcliffe.

Figure 7. Photographs of the proposed revegetation area within Wadandi Trail Reserve 470449, Witchcliffe (REF).

Conclusion

The offset proposal has been assessed against the WA Environmental Offsets Policy (2011) and WA Environmental Offsets Guidelines (August 2014), and informed by guidance quantifying environmental offsets in Western Australia (DWER, 2021),and the draft procedure for environmental offset metric inputs and associated DWER WA environmental offsets calculator (DWER, 2022). The justification for the values used in the offset calculation is provided in Appendix E. Based on the calculations, the proposed offset counterbalances:

- 122.9 per cent of the significant residual impacts to black cockatoos, and
- 100.0 per cent of the significant residual impacts to western ringtail possums

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

Summary of comments	Consideration of comment
Basic and Targeted Fauna Survey, Warner Glen Road, Warner Glen (SW Environmental, 2021).	Provided to support the application for CPS 9857/1.
Flora and Vegetation survey of Warner Glen Road (Stream Environment and Water, 2022).	Provided to support the application for CPS 9857/1.
Basic Fauna Significance Survey, Reserve No. 39622, Margaret River (Ecosystem Solutions, 2023).	See Section 4 Suitability of Offsets.
CPS 9857/1 – Offset proposal (Shire of Augusta-Margaret River, 2023b), including the following surveys for the Wadandi Trail: • *A flora and Vegetation Survey for the Proposed Busselton – Flinders Bay Rail Trail* (Ekologica, 2012) • *Fauna Assessment Busselton to Flinders Bay Rail Trail* (Harewood, 2013)	See Section 4 Suitability of Offsets.
Offset Revegetation Management Plan Wadandi Track – Witchcliffe (Cape Life, 2024).	See Section 4 Suitability of Offsets.

Appendix B. Site characteristics

The information provided below describes the key characteristics of the area proposed to be cleared and is based on the best information available to the department at the time of the assessment. This information was used to inform the assessment of the clearing against the Clearing Principles, contained in Appendix C.

Characteristic	Details
Local context	The area proposed to be cleared is distributed along a 2.2 kilometre stretch of vegetated road reserve in the intensive land use zone of Western Australia. The application area is surrounded by cleared land for agricultural purposes and the Forest Grove National Park (to the south). Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 46.5 per cent of the original native vegetation cover.
Ecological linkage	The proposed clearing is not mapped within a formal ecological linkage, however, likely acts as a linkage to remnant vegetation as many of the surrounding properties are cleared for agricultural purposes.
Conservation areas	The proposed clearing is not located within a conservation area, however, is directly adjacent to Forest Grove National Park.
Vegetation description	The vegetation survey (Stream Environment and Water, 2021) indicates the vegetation within the proposed clearing area consists predominately of Jarrah and Marri Forest. This is consistent with the mapped vegetation types (Government of Western Australia, 2019): • Cowaramup complex: Open to tall open forest of *Eucalyptus marginata* subsp. *marginata, Corymbia calophylla, Banksia grandis* on lateritic uplands in the hyperhumid zone. • Wilyabrup complex: Tall open forest of *Eucalyptus diversicolor, Corymbia calophylla, Allocasuarina decussata, Agonis flexuosa* on deeply incised valleys in the hyperhumid zone. The mapped vegetation types retain approximately 34.46 per cent (Cowaramup complex) and 53.67 per cent (Wilyabrup complex) of the original extent (Government of Western Australia, 2019).
Vegetation condition	The flora and vegetation survey (Stream Environment and Water, 2022) indicates the vegetation within the proposed clearing area is in completely degraded to excellent (Keighery, 1994) condition. A majority (65 per cent) of the application area is in Very Good to Excellent condition. The full Keighery (1994) condition rating scale is provided in Appendix D. The full survey descriptions are available in Appendix G.
Climate and landform	The application area is located within the south west of Western Australia. The south west has a Mediterranean climate with mild wet winters and hot dry summers. Warner Glen has an average annual rainfall of 999 millimetres, with most of the rain falling between May and September.

<table>
<tr><th>Characteristic</th><th>Details</th></tr>
<tr><td>Soil description</td><td>Three soil types are mapped across the application area:
<table>
<tr><th>Soil type</th><th>description</th></tr>
<tr><td>Wilyabrup, undifferentiated hillslope Phase</td><td>Slopes with gradients generally 5-15%, but ranging from 2-30%, and gravelly soils (i.e. Forest Grove and Keenan Soils).</td></tr>
<tr><td>Cowaramup, undifferentiated upland Phase</td><td>Flats and gentles slopes (0-5% gradient) with gravelly duplex (Forest Grove) and pale grey mottled (Mungite) soils.</td></tr>
<tr><td>Cowaramup ironstone rises Phase</td><td>Flats and gentle slopes (0-5% gradient) with some laterite outcrop and shallow gravelly sands over laterite.</td></tr>
</table></td></tr>
<tr><td>Land degradation risk</td><td>The soils within the application area and its local context are mapped as having a moderate to high risk of land degradation by wind erosion and substrate acidification. The soils are mapped as having a low risk of water erosion, phosphorus export and a low salinity and flood risk.</td></tr>
<tr><td>Waterbodies</td><td>The desktop assessment identified that the proposed clearing is partially mapped within Spearwood Creek which is a draft proposed RAMSAR site.

The desktop assessment and aerial imagery indicated that the application area does not intersect any wetlands or watercourses. The nearest waterbody is a seasonally waterlogged palusplain wetland located 0.6 kilometres southeast of the application area.</td></tr>
<tr><td>Hydrogeography</td><td>The application area is located within the Blackwood Groundwater Area and Lower Blackwood River Surface Water Area proclaimed under the Rights in Water and Irrigation Act 1914</td></tr>
<tr><td>Flora</td><td>Database records identified 29 priority and four threatened flora species within the local area. The nearest records area: Senecio gilbertii (P1), Acacia oncinophylla subsp. oncinophylla (P3) and Calothamnus pachystachyus (P4).

The flora and vegetation survey did not identify any threatened or priority flora species within the proposed clearing area (Stream Environment and Water, 2022).</td></tr>
<tr><td>Ecological communities</td><td>Database records identified one threatened ecological community (TEC) within the local area (10-kilometre radius) and one priority ecological community (PEC):
Caves Leeuwin (Critically Endangered)
Reedia Swamps Blackwood Plateau (Priority 1)
Neither community is recorded within proximity of the application area and no PECs or TECs were recorded within the application area (Stream Environment and Water, 2022).</td></tr>
<tr><td>Fauna</td><td>Database records identified 22 fauna species within the local area, including 13 bird species, two invertebrates, six mammals and one reptile. The nearest record is a Carnaby cockatoo recorded 0.24 kilometres from the application area.

The application area is mapped within the known distribution of all three species of black cockatoo. Five roost sites but no breeding sites are recorded within the local area.</td></tr>
</table>

B.1. 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]
Calyptorhynchus banksii naso (forest red-tailed black cockatoo)	VU	Y	Y	4.38	12	Y
Dasyurus geoffroii (chuditch)	VU	Y	Y	7.60	365	Y
Isoodon fusciventer (quenda)	P4	Y	Y	2.62	794	Y
Setonix brachyurus (quokka)	VU	N	Y	3.25	1554	Y
Phascogale tapoatafa wambenger (south-western brush-tailed phascogale, wambenger)	CD	Y	Y	4.38	93	Y
Pseudocheirus occidentalis (western ringtail possum, ngwayir)	CR	Y	Y	1.09	774	Y
Zanda baudinii (Baudin's cockatoo)	EN	Y	Y	1.54	97	Y
Zanda latirostris (Carnaby's cockatoo)	EN	Y	Y	0.39	41	Y

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]
Zanda sp. 'white-tailed black cockatoo' (white-tailed black cockatoo)	EN	Y	Y	2.15	44	Y

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		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: The area proposed to be cleared does not contain any conservation significant flora or assemblages of plants (Stream Environment and Water, 2022). However, the application area does contain habitat for conservation significant black cockatoos and western ringtail possum (SW Environmental, 2021).	May be at variance	Yes *Refer to Section 3.2.1, above.*
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 area proposed to be cleared contains foraging habitat for the conservation significant western ringtail possum and black cockatoo species. Evidence of use by the western ringtail possum (scats) and all three threatened black cockatoo species (foraging) was observed in the road reserve (SW Environmental, 2021).	At variance	Yes *Refer to Section 3.2.1, above.*
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: No threatened flora were recorded within the application area (Stream Environment and Water, 2022). The area proposed to be cleared is unlikely to contain habitat for flora species listed under the BC Act.	Not likely to be at variance	No
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 application area proposed to be cleared does not contain species that can indicate a threatened ecological community (Stream Environment and Water, 2022).	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
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 extent of the mapped vegetation types and native vegetation in the local area is consistent with the national objectives and targets for biodiversity conservation in Australia.	Not likely to be at variance	No
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:	May be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
Given a portion of the application area abuts the Forest Grove National Park, the proposed clearing may have an impact on the environmental values of adjacent conservation area through the spread of weeds and dieback. Potential impacts have been addressed by the applications mitigation measures and can be further addressed within the permit to clear by the application of a weed and dieback condition.		
Environmental value: land and water resources		
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."* Assessment: Given no water courses or wetlands are recorded within 0.5 kilometres of the application area, the proposed clearing is unlikely to impact on- or off-site hydrology and water quality. Additionally, no riparian vegetation was mapped within the application area (Stream Environment and Water, 2022)	Not likely to be at variance	No
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: The mapped soils are highly susceptible to wind erosion and substrate acidification. Noting the extent and location of the application area, and the mitigation measures proposed by the applicant, the proposed clearing is not likely to have an appreciable impact on land degradation.	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: Given no water courses or wetlands are recorded within 0.5 kilometres of the application area, the proposed clearing is unlikely to impact surface or ground water quality.	Not likely to be at variance	No
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. Given no water courses or wetlands are recorded within the application area, the proposed clearing is unlikely to contribute to waterlogging.	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.

Condition	Description
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

E.1. Western ringtail possum offset calculations

WA Environmental Offset Calculator
Rationale for scores used in the offset calculator – Conservation

Calculation/Element	*Score (Area)*	*Rationale*
Conservation significance		
Description	Western ringtail possum habitat	The fauna survey (SW Environmental, 2021) identified suitable habitat for the western ringtail possum and evidence of the species in the form of scats within the proposed clearing area.
Type of environmental value	Species (Flora/Fauna)	Western ringtail possum (*Pseudocheirus occidentalis*)
Conservation significance of environmental value	Rare/Threatened Species – Critically Endangered	Western Ringtail Possum is listed as Critically Endangered under the EPBC Act and BC Act.
Landscape-level value impacted	yes/no	No, the National Park adjacent to the proposed clearing provides extensive habitat for the species.
Significant impact		
Description	Western ringtail possum habitat	Known records occur within the local area within proximity to the proposed clearing area. Fauna survey (SW Environmental, 2021) recorded suitable habitat and secondary evidence of western ringtail possum (scats).
Significant impact (hectares)	0.47	The entire proposed clearing area is considered to comprise of suitable habitat for the western ringtail possum based on the surveyed habitat types (SW Environmental, 2021).
Quality (scale)	8.00	The flora and vegetation survey (Stream Environment and Water, 2022) identified that most of the vegetation within the proposed clearing area is in very good to excellent (Keighery, 1994) condition. The proposed clearing is entirely composed of core habitat for the western ringtail possum (SW Environmental, 2021) and may function as an ecological linkage for the species.
Rehabilitation credit		
Description	N/A	No onsite revegetation and rehabilitation proposed.
Offset		

Description	Conservation of native vegetation	Conservation of native vegetation that provides suitable habitat for the western ringtail possum within Reserve 39622 by changing the vesting from 'Parks and Recreation' with a purpose of 'Golf Course and Recreation and Water' to 'Conservation'.
Proposed offset (area in hectares)	8.50	All the native vegetation within Reserve is considered to be composed of suitable habitat for western ringtail possum (Ecosystem Solutions, 2023). This accounts for approximately **84.7 per cent** of significant residual impacts to western ringtail possums.
Current quality of offset site	8.00	The reserve contains high quality habitat for western ringtail possum composed of vegetation such as Eucalyptus and Corymbia spp. With dense, continuous canopy preferred by the species (Ecosystem Solutions, 2023). Additionally, the fauna survey recorded western ringtail possum individuals during nocturnal surveys (Ecosystem solution, 2023).
Future quality WITHOUT offset (scale)	8.00	Change in value is not expected, given that the site is not subject to significant development pressures.
Future quality WITH offset (scale)	8.00	The site will have its purpose changed to 'Conservation', and it is assumed that the habitat would maintain its current quality without additional management.
Time until ecological benefit (years)	1.00	It is assumed that it will take 1 year to change the vesting purpose.
Confidence in offset result (%)	90.00%	There is a high level of confidence that the offset will be achieved, and that conservation of the offset site (in perpetuity) would successfully mitigate the future risk of loss of the site.
Duration of offset implementation (maximum 20 years)	20.00	The offset site will be conserved in perpetuity by changing the vesting purpose. Therefore, the maximum of 20 years for this field is applied.
Time until offset site secured (years)	1.00	Time until the vesting purpose can be changed.
Risk of future loss WITHOUT offset (%)	10.0%	The property is already vested as a reserve for 'Parks and Recreation' with a purpose of 'Golf Course and Recreation and Water'.
Risk of future loss WITH offset (%)	5.0%	Changing the vesting purpose to conservation will protect the vegetation from potential future developments. The risk of catastrophic events (fire, dieback, etc.) remain.

WA Environmental Offset Calculator
Rationale for scores used in the offset calculator – Revegetation and rehabilitation

Calculation/Element	***Score (Area)***	***Rationale***
Conservation significance		
Description	Western ringtail possum habitat	The fauna survey (SW Environmental, 2021) identified suitable habitat for the western ringtail possum and evidence of the species in the form of scats within the proposed clearing area.
Type of environmental value	Species (Flora/Fauna)	Western ringtail possum (*Pseudocheirus occidentalis*)
Conservation significance of environmental value	Rare/Threatened Species – Critically Endangered	Western Ringtail Possum is listed as Critically Endangered under the EPBC Act and BC Act.
Landscape-level value impacted	yes/no	No, the National Park adjacent to the proposed clearing provides extensive habitat for the species.
Significant impact		
Description	Western ringtail possum habitat	Known records occur within the local area within proximity to the proposed clearing area. The fauna survey (SW Environmental, 2021) recorded suitable habitat and secondary evidence of western ringtail possum (scats).

Significant impact (hectares)	0.47	The entire proposed clearing area is considered to comprise of suitable habitat for the western ringtail possum based on the surveyed habitat types (SW Environmental, 2021).
Quality (scale)	8.00	The flora and vegetation survey (Stream Environment and Water, 2022) identified that most of the vegetation within the proposed clearing area is in very good to excellent (Keighery, 1994) condition. The proposed clearing is entirely composed of core habitat for the western ringtail possum (SW Environmental, 2021) and may function as an ecological linkage for the species.
Rehabilitation credit		
Description	N/A	No onsite revegetation and rehabilitation proposed.
Offset		
Description	Revegetation and rehabilitation	Revegetation and rehabilitation of a portion of Wadandi Trail Reserve R470449.
Proposed offset (area in hectares)	0.41	The revegetation of 0.41 hectares of native vegetation that comprises significant habitat for western ringtail possums offsets approximately **15.3 per cent** of significant residual impacts.
Current quality of offset site	1.00	The trail is largely cleared and composed of paddock grasses with the existing trail traversing through the middle.
Future quality WITHOUT offset (scale)	1.00	Given the completely degraded (Keighery, 1994) condition of the site and that most of the surrounding area are previously cleared agricultural lands, it is not expected that the quality of vegetation will change without management.
Future quality WITH offset (scale)	6.00	Revegetation is expected to return the site to good (Keighery, 1994) condition, and provide moderate to good quality habitat (jarrah - marri species). This revegetation work would continue to improve habitat connectivity in a north-south direction along the Wadandi Trail Reserve, and connection to habitat in the north at Witchcliffe.
Time until ecological benefit (years)	17.00	It is assumed that the revegetation will take 15 years to provide suitable habitat for use by western ringtail possum in addition to two years of planting and/or replanting to meet completion criteria.
Confidence in offset result (%)	80.00%	There is a moderate level of confidence that the offset will achieve the predicted result given revegetation and rehabilitation will be undertaken in accordance with a revegetation plan prepared following DWER's Guide to preparing revegetation plans for clearing permits (2018).
Duration of offset implementation (maximum 20 years)	20.00	The offset site will be conserved in perpetuity by changing the vesting purpose. Therefore, the maximum of 20 years for this field is applied.
Time until offset site secured (years)	1.00	The property is already a reserve managed by the Shire of Augusta-Margaret River. The Shire will also change the vesting purpose to ‘Conservation and Recreation’
Risk of future loss WITHOUT offset (%)	15.0%	The site is currently zoned as Crown reserve for the purpose of ‘Heritage Trail’. There is a relatively low risk of future loss in the absence of the offset.
Risk of future loss WITH offset (%)	10.0%	The Shire will change the vesting purpose of this area to 'Conservation and Recreation'.

E.2. Black cockatoo foraging habitat

WA Environmental Offset Calculator
Rationale for scores used in the offset calculator – Conservation

Calculation/Element	*Score (Area)*	*Rationale*
Conservation significance		
Description	Black cockatoo foraging habitat	The fauna survey (SW Environmental, 2021), identified suitable foraging habitat within the proposed clearing area in the form of jarrah and marri trees. Evidence of foraging by all three species of threatened black cockatoo species was observed.
Type of environmental value	Species (Flora/Fauna)	Baudin's cockatoo (*Zanda baudinii*), Carnaby's cockatoo (*Zanda latirostris*) and forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*).
Conservation significance of environmental value	Rare/Threatened Species - Endangered	Baudin's and Carnaby's cockatoo are listed as endangered species under the Commonwealth EPBC Act and state BC Act and forest red-tailed black cockatoo are listed as Vulnerable. The calculations use the species with the highest listing.
Landscape-level value impacted	yes/no	No, the National Park adjacent to the proposed clearing provides extensive habitat for the species.
Significant impact		
Description	Black cockatoo foraging habitat	Known records occur within the local area within proximity to the proposed clearing area. Fauna survey (SW Environmental, 2021) recorded suitable habitat and secondary evidence of all three species of threatened black cockatoo (foraging).
Significant impact (hectares)	0.47	The entire proposed clearing area is considered to comprise of suitable habitat for black cockatoos based on the surveyed habitat types (SW Environmental, 2021).
Quality (scale)	8.00	The flora and vegetation survey (Stream Environment and Water, 2022) identified that most of the vegetation within the proposed clearing area is in very good to excellent (Keighery, 1994) condition. The proposed clearing is entirely composed of primary foraging species for black cockatoos (SW Environmental, 2021).
Rehabilitation credit		
Description	N/A	No onsite revegetation and rehabilitation proposed.
Offset		
Description	Conservation of native vegetation	Conservation of native vegetation that provides suitable habitat for black cockatoos within Reserve 39622 by changing the vesting from 'Parks and Recreation' with a purpose of 'Golf Course and Recreation and Water' to 'Conservation'.
Proposed offset (area in hectares)	8.50	All the native vegetation within Reserve 39622 is composed of suitable habitat for black cockatoos (Ecosystem Solutions, 2023). This accounts for approximately **89.4 per cent** of significant residual impacts to black cockatoos.
Current quality of offset site	8.00	The reserve contains high quality foraging and breeding habitat for black cockatoos composed of vegetation such as Eucalyptus and Corymbia spp. (Ecosystem Solutions, 2023). Additionally, black cockatoos were observed within the reserve (Ecosystem solution, 2023).
Future quality WITHOUT offset (scale)	8.00	Change in value is not expected, given that the site is not subject to significant development pressures.
Future quality WITH offset (scale)	8.00	The site will have its purpose changed to 'Conservation', and it is assumed that the habitat would maintain its current quality without additional management.
Time until ecological benefit (years)	1.00	It is assumed that it will take 1 year to change the vesting purpose.

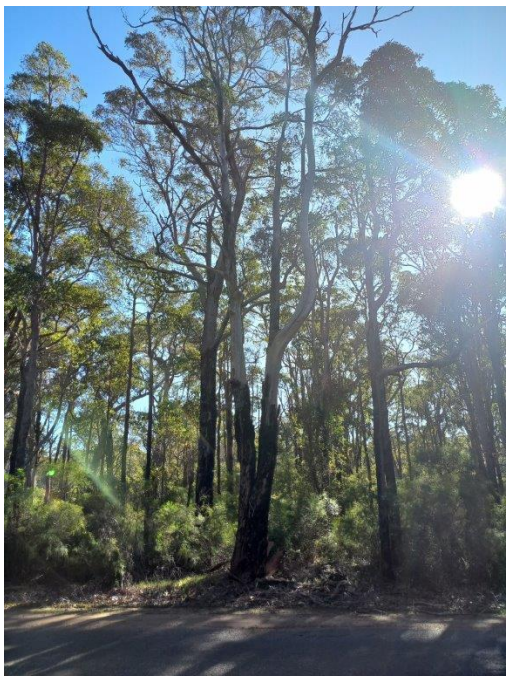
Confidence in offset result (%)	90.00%	There is a high level of confidence that the offset will be achieved, and that conservation of the offset site (in perpetuity) would successfully mitigate the future risk of loss of the site.
Duration of offset implementation (maximum 20 years)	20.00	The offset site will be conserved in perpetuity by changing the vesting purpose. Therefore, the maximum of 20 years for this field is applied.
Time until offset site secured (years)	1.00	Time until the vesting purpose can be changed.
Risk of future loss WITHOUT offset (%)	10.0%	The property is already vested as a reserve for 'Parks and Recreation' with a purpose of 'Golf Course and Recreation and Water'.
Risk of future loss WITH offset (%)	5.0%	Changing the vesting purpose to conservation will protect the vegetation from potential future developments. The risk of catastrophic events (fire, dieback, etc.) remain.

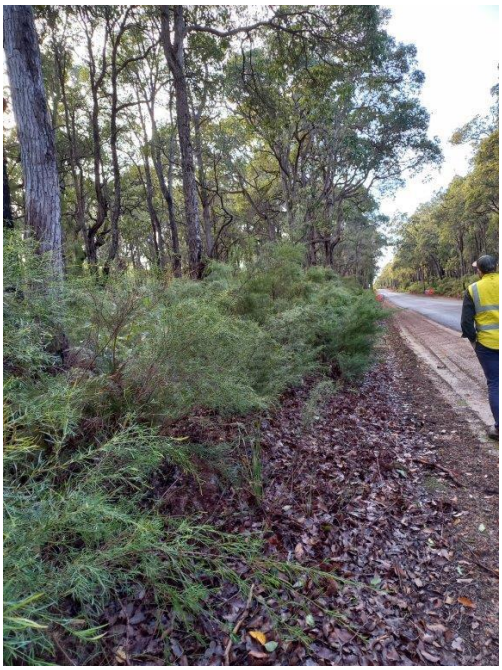
WA Environmental Offset Calculator
Rationale for scores used in the offset calculator – Revegetation and rehabilitation

Calculation/Element	***Score (Area)***	***Rationale***
Conservation significance		
Description	Black cockatoo foraging habitat	The fauna survey (SW Environmental, 2021) identified suitable foraging habitat within the proposed clearing area in the form of jarrah and marri trees. Evidence of foraging by all three species of threatened black cockatoo species was observed.
Type of environmental value	Species (Flora/Fauna)	Baudin's cockatoo (*Zanda baudinii*), Carnaby's cockatoo (*Zanda latirostris*) and forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*).
Conservation significance of environmental value	Rare/Threatened Species - Endangered	Baudin's and Carnaby's cockatoo are listed as endangered species under the Commonwealth EPBC Act and state BC Act and forest red-tailed black cockatoo are listed as Vulnerable. The calculations use the species with the highest listing.
Landscape-level value impacted	yes/no	No, the National Park adjacent to the proposed clearing provides extensive habitat for the species.
Significant impact		
Description	Black cockatoo foraging habitat	Known records occur within the local area within proximity to the proposed clearing area. Fauna survey (SW Environmental, 2021) recorded suitable habitat and secondary evidence of all three species of threatened black cockatoo (foraging).
Significant impact (hectares)	0.47	The entire proposed clearing area is considered to comprise of suitable habitat for black cockatoos based on the surveyed habitat types (SW Environmental, 2021).
Quality (scale)	8.00	The flora and vegetation survey (Stream Environment and Water, 2022) identified that most of the vegetation within the proposed clearing area is in very good to excellent (Keighery, 1994) condition. The proposed clearing is entirely composed of primary foraging species for black cockatoos (SW Environmental, 2021).
Rehabilitation credit		
Description	N/A	No onsite revegetation and rehabilitation proposed.
Offset		
Description	Revegetation and rehabilitation	Revegetation and rehabilitation of a portion of Wadandi Trail Reserve R470449.
Proposed offset (area in hectares)	0.41	The revegetation of 0.41 hectares of native vegetation that comprises significant habitat for black cockatoos offsets approximately **33.5 per cent** of significant residual impacts.
Current quality of offset site	1.00	The trail is largely cleared and composed of paddock grasses with the existing trail traversing through the middle.

Future quality WITHOUT offset (scale)	1.00	Given the completely degraded (Keighery, 1994) condition of the site and that most of the surrounding area are previously cleared agricultural lands, it is not expected that the quality of vegetation will change without management.
Future quality WITH offset (scale) / Future number WITH offset	6.00	Revegetation is expected to return the site to good (Keighery, 1994) condition, and provide moderate to good quality habitat (jarrah - marri species). This revegetation work would continue to improve habitat connectivity in a north-south direction along the Wadandi Trail Reserve, and connection to habitat in the north at Witchcliffe.
Time until ecological benefit (years)	17.00	It is assumed that the revegetation will take 15 years to provide suitable habitat for foraging by black cockatoos in addition to two years of planting and/or replanting to meet completion criteria.
Confidence in offset result (%)	80.00%	There is a moderate level of confidence that the offset will achieve the predicted result given revegetation and rehabilitation will be undertaken in accordance with a revegetation plan prepared following DWER's Guide to preparing revegetation plans for clearing permits (2018).
Duration of offset implementation (maximum 20 years)	20.00	The offset site will be conserved in perpetuity by changing the vesting purpose. Therefore, the maximum of 20 years for this field is applied.
Time until offset site secured (years)	1.00	The property is already a reserve managed by the Shire of Augusta-Margaret River. The Shire will also change the vesting purpose to ‘Conservation and Recreation’
Risk of future loss WITHOUT offset (%)	15.0%	The site is currently zoned as 'Crown reserve' for the purpose of Heritage Trail. There is a relatively low risk of future loss in the absence of the offset.
Risk of future loss WITH offset (%)	10.0%	The Shire will change the vesting purpose of this area to 'Conservation and Recreation'.

Appendix F. Photographs of the vegetation (Shire of Augusta-Margaret River, 2022)





Appendix G. Biological survey information excerpts

Fauna survey (SW Environmental, 2021)

Code	Fauna habitat type	Structural vegetation description	Fauna habitat quality
1	Jarrah Marri Forest with areas of Karri over Peppermint	Forest or Open Forest *of Corymbia calophylla, Eucalyptus marginata* over shrubland of *Hovea elliptica, Bossiaea or Taxandria parviceps* and *Bossiaea linophylla ornata*, on gravelly sands or laterite. Also *Corymbia calophylla, Eucalyptus marginata* and *Eucalyptus diversicolor* over open woodland of *Agonis flexuosa* in areas of gravel and grey sand.	Good

Figure 8. Fauna habitat mapped within the application area.

Figure 9. Mapped habitat types within the application area.

FIGURE 5 BLACK COCKATOO FORAGING HABITAT AND BREEDING POTENTIAL

BASIC AND TARGETED FAUNA SURVEY
WARNER GLEN ROAD, WARNER GLEN
0 - 1.6; 7.78 - 8.1, 9.42 - 19.34 SLK

Page 2 of 13

Distance from seal, Black cockatoo breeding classification
- 2-4 m, Tree with potentially suitable size hollow with no signs of use (not confirmed).
- 2-4 m, Tree with suitable DBH with unsuitable hollow
- Road
- Quality black cockatoo foraging habitat
- Warner Glen Road study area
- DBCA managed land

A3 @ 1:3000

FIGURE 5 BLACK COCKATOO FORAGING HABITAT AND BREEDING POTENTIAL

BASIC AND TARGETED FAUNA SURVEY
WARNER GLEN ROAD, WARNER GLEN
0 - 1.6; 7.78 - 8.1, 9.42 - 19.34 SLK

Page 3 of 13

Distance from seal, Black cockatoo breeding classification
- 2-4 m, Tree with potentially suitable size hollow with no signs of use (not confirmed).
- Road
- Quality black cockatoo foraging habitat
- Warner Glen Road study area
- DBCA managed land

A3 @ 1:3000

Figure 10. Mapped black cockatoo foraging and potential breeding habitat within and adjacent to the application.

Flora and Vegetation Survey (Stream Environment and Water, 2022)

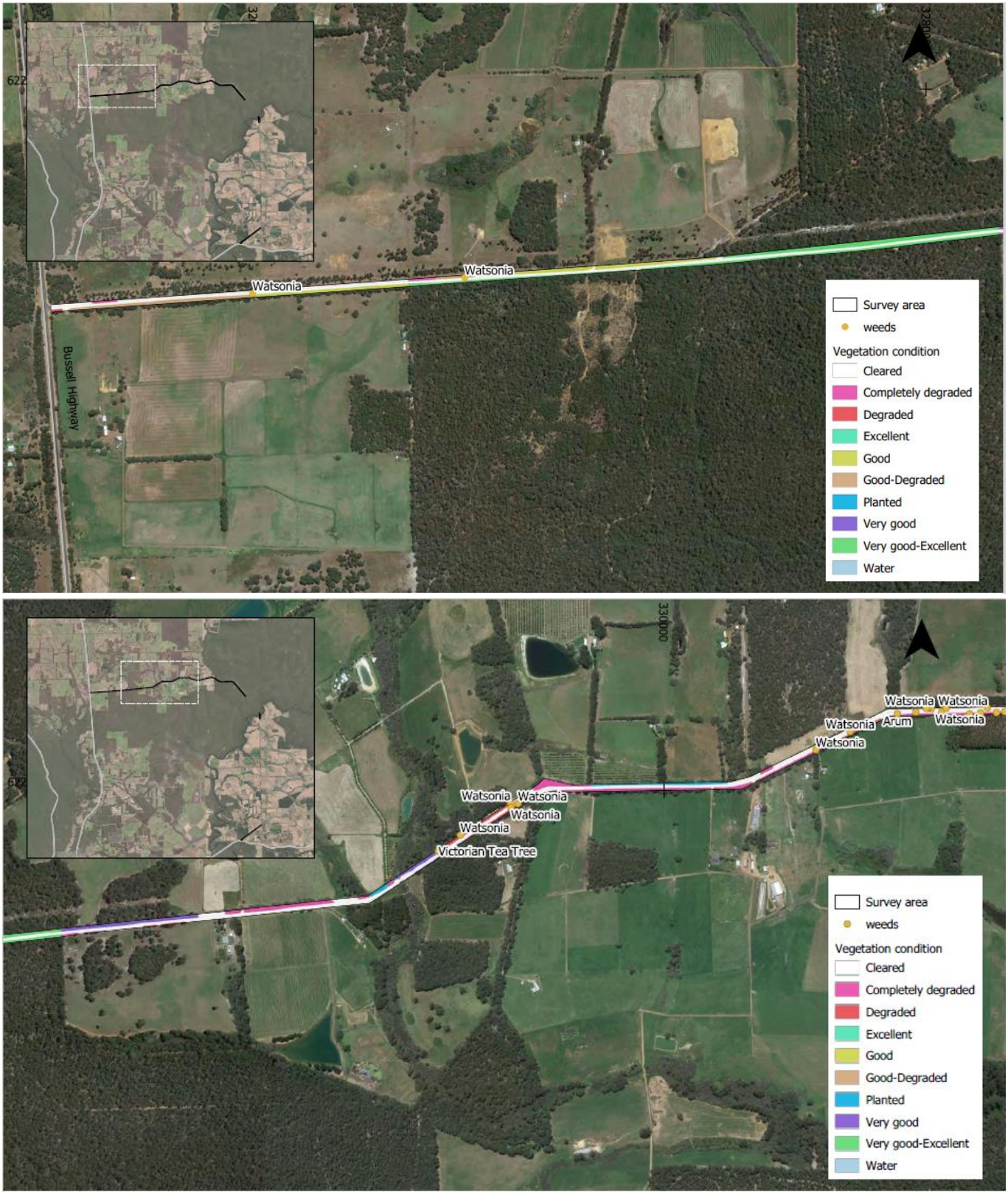


Figure 11. Vegetation condition mapped within the Warner Glen Road reserve.

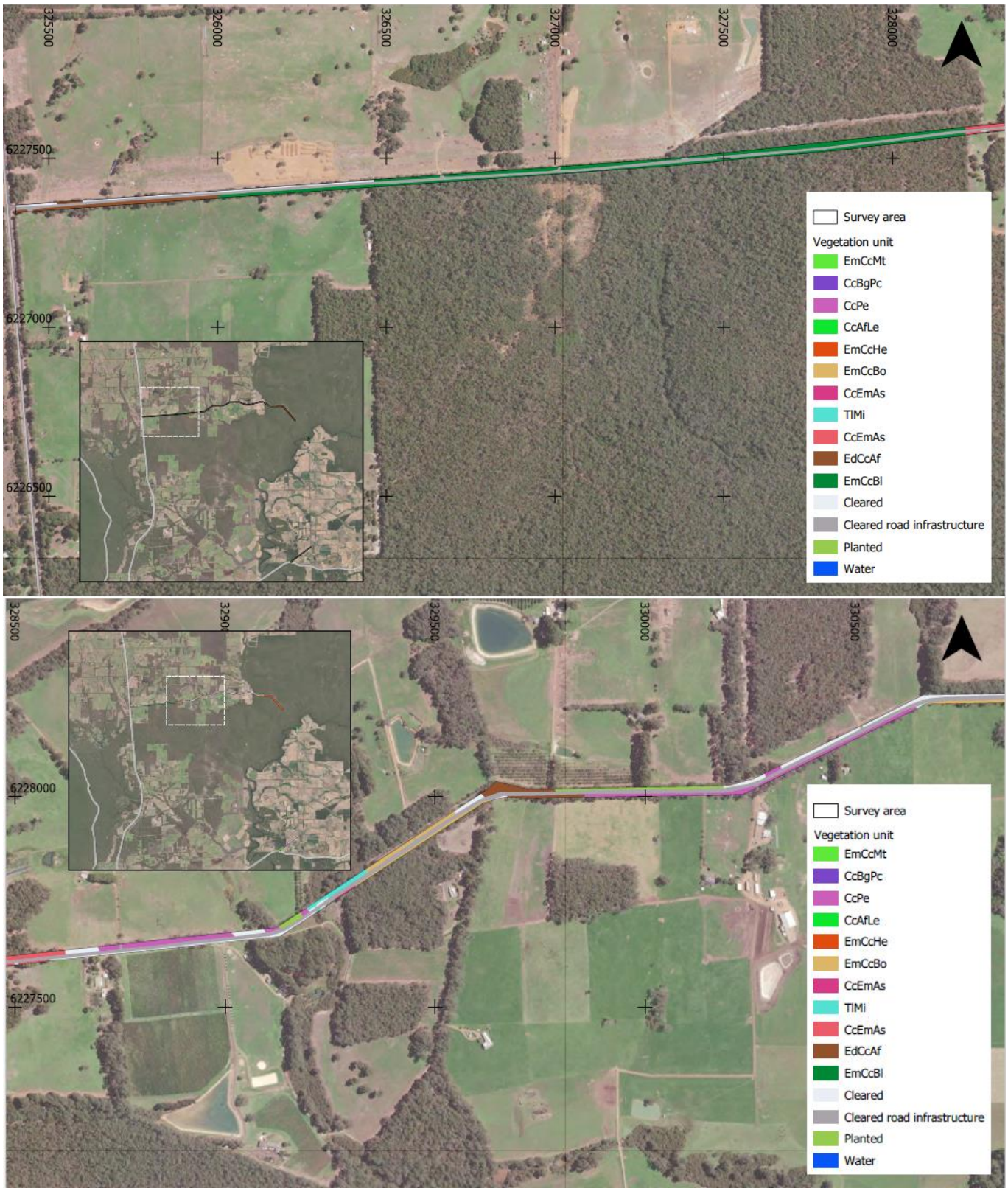


Figure 12. Vegetation types mapped within the Warner Glen Road reserve.

Appendix H. Sources of information

H.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)
- 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)

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