



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 10801/1
Permit Holder:	City of Kalamunda
Duration of Permit:	From 26 July 2025 to 26 July 2037

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 extension of Ray Owen Reserve oval.

2. Land on which clearing is to be done

Lot 580 on Deposited Plan 71883, Lesmurdie Lot 581 on Deposited Plan 71883, Lesmurdie

3. Clearing authorised

The permit holder must not clear more than 0.27 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 26 July 2030.

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. Directional clearing

The permit holder must:

- (a) conduct *clearing* activities in a slow, progressive manner towards adjacent *native vegetation*; and
- (b) allow a reasonable time for fauna present within the area being *cleared* to move into adjacent *native vegetation* ahead of the *clearing* activity.

8. Offset - Revegetation

- (a) Within 24 months of commencing *clearing* authorised under this permit, at an *optimal time* and no later than 26 July 2032, the permit holder must *revegetate* the area cross-hatched red on Figure 2 of Schedule 1, by implementing and adhering to the CPS 10801/1 Clearing Permit Application Offset Proposal, City of Kalamunda (June, 2025), prepared by Emerge Associates, including but not limited to the following actions:
 - (i) undertake best practice soil preparation techniques including ripping and mulching to promote plant survival;
 - (ii) deliberately *planting* and/or *direct seeding native vegetation* that will result in the minimum completion criteria detailed in Table 1 of Schedule 2 of this permit and ensuring only *local provenance* seeds and propagating material are used;
 - (iii) undertake *weed* control activities to achieve and maintain the minimum completion criteria specified on Table 1 of Schedule 2.
 - (iv) undertake monitoring of the areas *revegetated* under condition 8 of this permit by an *environmental specialist* in accordance with Table 1 of Schedule 2 until the completion criteria listed in Table 1 of Schedule 2 have been met.
- (b) The permit holder must undertake *remedial actions* for areas *revegetated*, where monitoring indicates that the *revegetation* has not met the completion criteria specified in Table 1 of Schedule 2, including:
 - (i) revegetate 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 2 and ensuring only local provenance seeds and propagating material are used;
 - (ii) additional weed control activities;
 - (iii) annual monitoring of the *revegetated* areas by an *environmental specialist*, until the completion criteria are met; and

(iv)where an *environmental specialist* has determined that the completion criteria, outlined in Schedule 2 has been met, that determination shall be submitted to the *CEO* within three months of the determination being made by the *environmental specialist*.

PART III - RECORD KEEPING AND REPORTING

9. 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	(a) the species composition, structure, and density of the cleared area;	
	activities generally	 (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 <i>weeds</i> and <i>dieback</i> in accordance with condition 6; and	
		(g) actions taken in accordance with condition 7 of this permit.	
2.	In relation to the <i>revegetation</i> of areas pursuant to condition 8 of this permit	 (a) a description of the <i>revegetation</i> activities undertaken each year, once commenced, outlined in a report produced by an <i>environmental specialist</i>; 	
		 (b) the location and size of the areas <i>revegetated</i> (in hectares) recorded using a GPS unit set to GDA 2020, expressing the geographical coordinates in Eastings and Northings or decimal degrees; 	
		(c) the date that <i>revegetation</i> works began;	
		 (d) the baseline data recorded for the area to be <i>revegetated</i>, including species richness, species density, vegetation structure and weed cover; 	
		(e) the species composition, structure, density of the areas <i>revegetated</i> recorded annually;	
		(f) results of annual monitoring against the	

No.	Relevant matter	Specifications
		completion criteria;
		(g) the date completion criteria area considered to have been met; and
		(h) any other actions in accordance with condition 8.

10. Reporting

The permit holder must provide to the *CEO* the records required under condition 9 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	meansoneormoreofthefollowingspecies:(a)Calyptorhynchuslateriosis(Carnaby'scockatoo);(b)Calyptorhynchusbaudinii(Baudin'scockatoo);and/or(c)Calyptorhynchusbanksii naso(forest red-tailed black cockatoo).	
СЕО	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.	
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.	
fill	means material used to increase the ground level, or to fill a depression.	
dieback	means the effect of <i>Phytophthora</i> species on native vegetation.	
Direct seeding	direct seeding means a method of re-establishing vegetation through the establishment of a seed bed and the introduction of seeds of the desired plant species	
department	means the department established under section 35 of the <i>Public Sector</i> <i>Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.	
EP Act	Environmental Protection Act 1986 (WA)	
Local provenance	means native vegetation seeds and propagating material from natural sources within 25 kilometres and the same Interim Biogeographic Regionalisation for Australia (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.	

Term	Definition	
native vegetation	has the meaning given under section $3(1)$ and section $51A$ of the EP Act.	
Optimal time	means the period between April and June	
planting	means the re-establishment of vegetation by creating soil conditions and planting seedlings of the desired species	
Remedial action/s	remedial action/s means for the purpose of this permit, any activity that is required to ensure successful re-establishment of understorey to its pre- clearing composition, structure and density, and may include a combination of soil treatments and revegetation.	
revegetate/revegetated/	means the re-establishment of a cover of local provenance native	
revegetation	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.	
rehabilitate/rehabilitated/ rehabilitation	means actively managing an area containing native vegetation in order to improve the ecological function of that area.	
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

Officer delegated under Section 20 of the Environmental Protection Act 1986

2 July 2025

Schedule 1

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

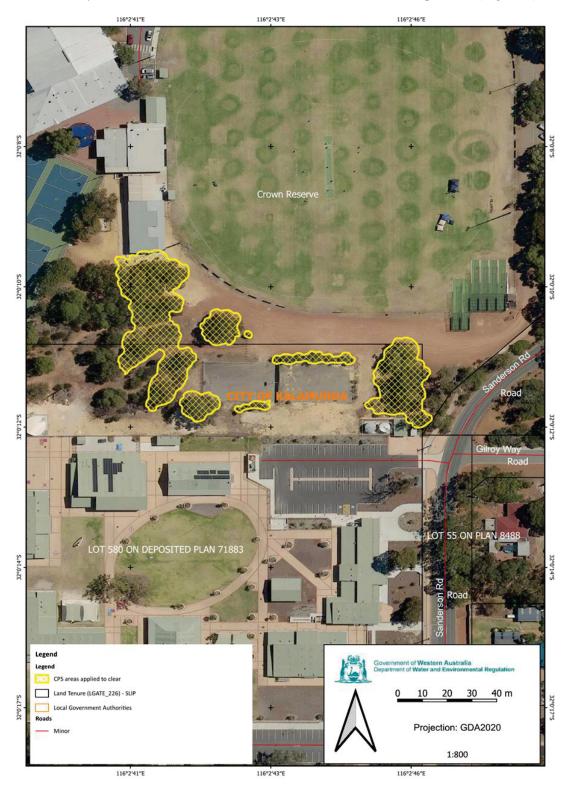


Figure 1: Map of the boundary of the area within which clearing may occur

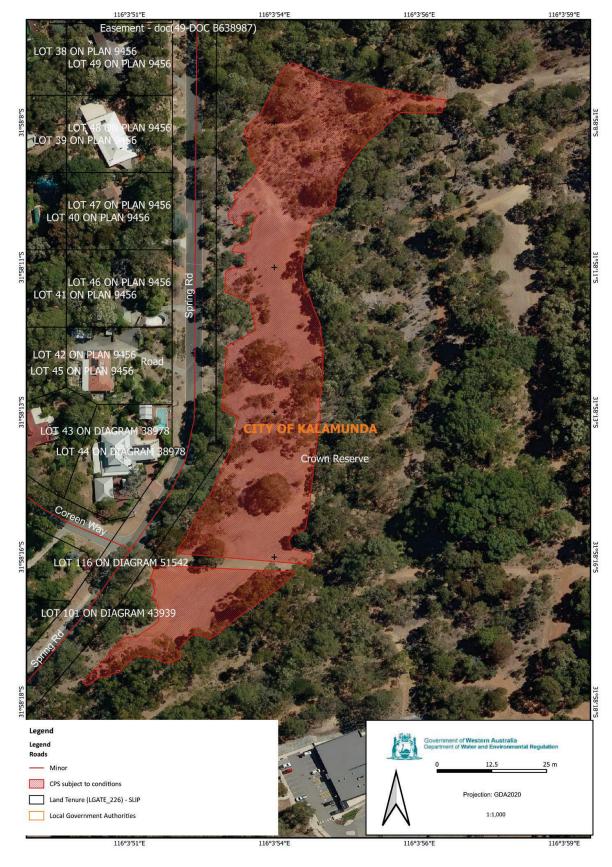


Figure 2: Map of the boundary of the area within which revegetation under condition 8 must occur

Schedule 2

Table 1: Comp	letion Criteria
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Aspect	Attribute	Measure	Target
Flora,	Vegetation	Trees/large shrubs	100 individuals
vegetation and habitat values	cover	Upper/Mid story and Lower Mid Story species	1000 individuals
	Survival rate of black cockatoo foraging species	Presence and growth of Corymbia calophylla, Eucalyptus marginata, Banksia grandis and Banksia sessilis	Corymbia calophylla, Eucalyptus marginata,
	Survival rate of other species		at least 50% survival of other species after 5 years.
Weeds	Weed species presence and abundance	List of weed species and approximate percentage cover to be no more prevalent that prior to revegetation and no exceeding 15% cover.	
	Declared weeds	No declared weeds to be present	0% cover



Clearing Permit Decision Report

Application details and outcome

1.1.	Permit	app	lication	details
		app	noation	actans

Permit number:	CPS 10801/1
Permit type:	Purpose permit
Applicant name:	City of Kalamunda
Application received:	9 October 2024
Application area:	0.27 hectares of native vegetation
Purpose of clearing:	Extension of Ray Owen Reserve oval
Method of clearing:	Mechanical
Property:	Lot 580 on Deposited Plan 71883
	Lot 581 on Deposited Plan 71883
Location (LGA area/s):	City of Kalamunda
Localities (suburb/s):	Lesmurdie

1.2. Description of clearing activities

The vegetation proposed to be cleared comprises 0.27 hectares of remnant native vegetation, within and surrounding the Lesmurdie Primary School site (see Figure 1, Section 1.5). The application area is adjacent to the Mundy Regional Park, which incorporates Ray Owen reserve and the Ray Owen Sports facilities.

The applicant has advised that the proposed clearing relates to expansion of Ray Owen reserve oval which will be purposed as a training ground.

1.3. Decision on application

Decision:	Granted
Decision date:	2 July 2025
Decision area:	0.27 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 flora, fauna and vegetation survey (see 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 Delegated Officer also took into consideration that the purpose of the oval expansion is to use as a training ground (City of Kalamunda, 2024a).

The assessment identified that the proposed clearing will result in:

 the loss of approximately 0.27 hectares of native vegetation that is suitable foraging habitat for all three threatened and vulnerable black cockatoo species,

- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values and
- impacts to fauna through mechanical clearing activities should they occur on site at the time of clearing.

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 is unlikely to lead long-term adverse impacts on environmental values and that the impacts of clearing can be minimised and managed to unlikely lead to an unacceptable risk to environmental values. The applicant has suitably demonstrated avoidance and minimisation measures and provided an offset to counterbalance the impacts to black cockatoo foraging habitat (see Section 4).

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

- avoid, minimise to reduce the impacts and extent of clearing,
- Take hygiene steps to minimise the risk of the introduction and spread of weeds,
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity,
- revegetate a minimum area of 0.79 hectares of native vegetation within nearby Jorgensen Park (see Figure 2) with black cockatoo foraging species, to offset the significant residual impacts remaining after the clearing.

1.5. Site map

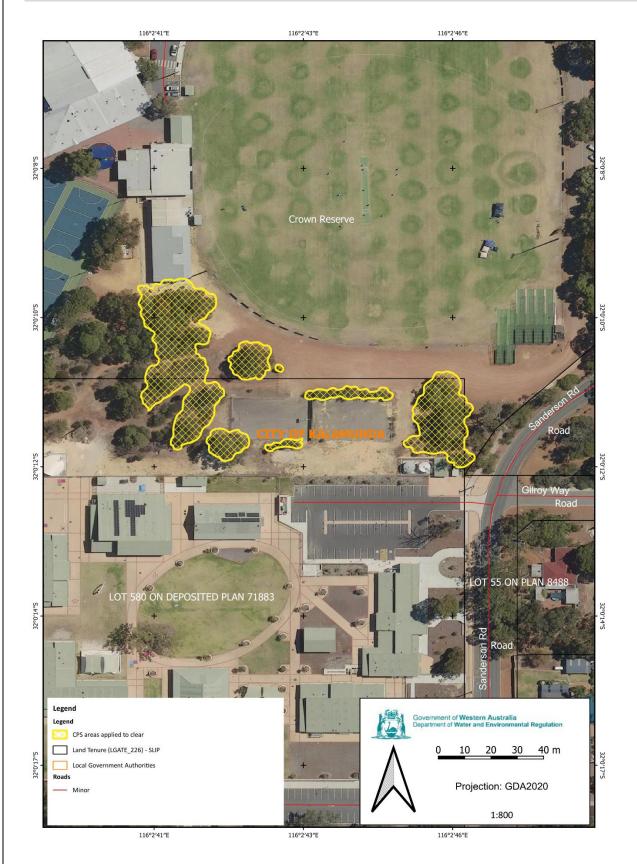
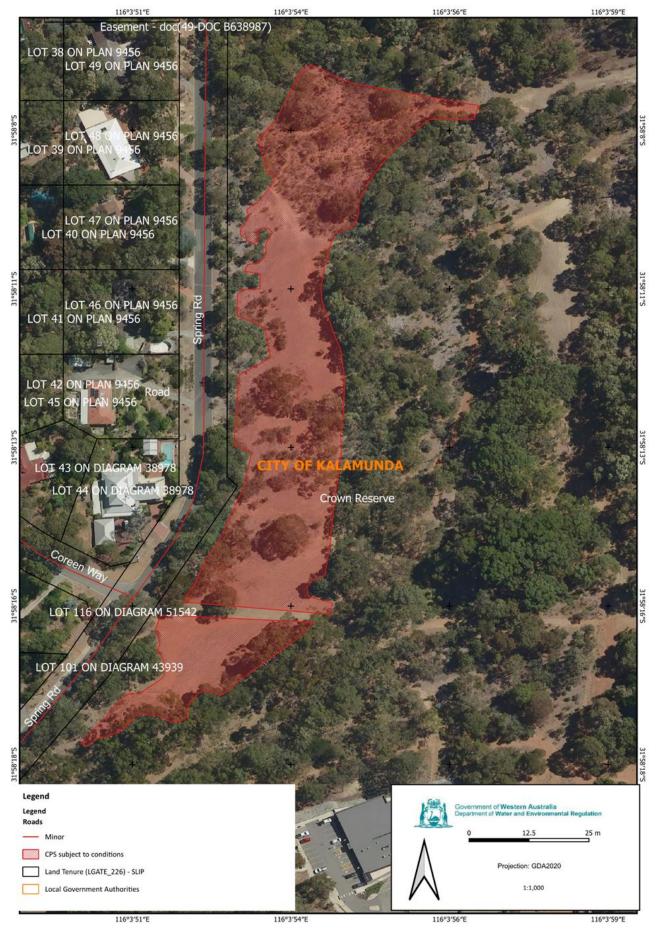


Figure 1 Map of the application area

The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.





The area cross-hatched red indicates area within which the offset condition apply.

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)
- Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act)
- Planning and Development Act 2005 (WA) (P&D 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

Evidence provided by the applicant (the City of Kalamunda, the City), demonstrating that early conceptual planning stages have implemented numerous changes to the design in the effort to minimise impacts to the extended vegetation to the west of the application area. This includes the avoidance of clearing approximately 0.25 hectares of native vegetation and three potential breeding habitat trees. In addition, the City has assured that the construction will be monitored. Other areas of Ray Owen reserve are managed by the applicant for conservation purposes including weed control, rehabilitation and protection (City of Kalamunda, 2024a).

On 13 May 2025, in response to the further information request for further avoidance and mitigation measures, the City confirmed that avoidance of 19 retained trees as depicted in the map (see Appendix F). This includes the tree directly adjacent to Sanderson Road which was determined to be outside the footprint of the proposed works and therefore can be retained as an additional avoidance measure. Additionally, the City confirms that there are other areas on the site which could have been selected which would result in significantly more trees removed. These options include extending the oval north, and construction of another oval in the Southwest corner. Both options were discounted for many reasons included the larger clearing impacts (City of Kalamunda, 2025).

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 black cockatoo foraging habitat was necessary.

City of Kalamunda proposed to undertake revegetation by planting 0.85 hectares of primary black cockatoo foraging plant species within Jorgensen Park at 2 Cresent Road Kalamunda (Reserve 50554). 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, adjacent flora and 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 principle (b)

Assessment

According to available datasets there are records of 36 species of conservation listed fauna within the local area (10-kilometre radius).

Of these, the application area may contain suitable habitat for up to six species. This presumption is based on the suitability of habitat for these species within the application area and the number of records within the local area:

- Carnaby's cockatoo (Calyptorhynchus latirostris) (endangered)
- Baudin's cockatoo (Calyptorhynchus baudinii) (endangered)
- forest red-tailed black cockatoo (Calyptorhynchus banksii naso) (vulnerable)
- quenda (Isoodon obesulus subsp. fusciventer) (Priority 4).
- Chuditch (Dasyurus geoffroii) (vulnerable)
- south-western brush-tailed phascogale (*Phascogale tapoatafa wambenger*) (Conservation dependant)

Emerge Associates has undertaken ecological surveys across the site on 2 May and 1 September 2024. Emerge has identified that the vegetation within the application area is moderate to high quality foraging habitat for black cockatoos. In addition, Emerge noted that the application area is likely to support quenda along with other common and widespread native fauna (Emerge, 2024).

Black cockatoos

The proposed clearing is located within the mapped distribution areas of all three threatened black cockatoo species. Within a 10-kilometre radius of the application area, there are 1,027 records of Carnaby's cockatoo, 110 records of Baudin's cockatoo and 125 records of forest-red tailed black cockatoos, with the closest distance of approximately 1.5, 1.16 and 1.32 kilometres, respectively, from the application area. While habitat requirements for these species of black cockatoo differ, the requirements in general can be categorised as breeding habitat, foraging habitat and night roosting habitat.

Breeding habitat

Suitable breeding habitat for black cockatoos includes trees which either have a suitable nest hollow or are of a suitable Diameter Breast Height (DBH) to develop a nest hollow. For most tree species a suitable DBH is 500 millimetres (Commonwealth of Australia, 2012). Emerge has identified nine habitat trees (mature *Corymbia calophylla* -marri) which have Diameter Breast Height (BDH) more than 50 centimeters within the proposed clearing area of which none contain hollows suitable for use by back cockatoos for nesting. A targeted black cockatoo hollow inspection determined that no trees contain hollows that were potentially suitable for use by breeding black cockatoos within the application area (Emerge, 2024).

Roosting habitat

Night-roosts are usually located in the tallest trees of an area, and in close proximity to both a food supply and a water source (DAFF,2024). According to the available databases, the application area is not mapped as a known roost site. Tall Eucalyptus trees near a permanent watercourse within close proximity to high quality foraging habitat are identified as the trees that provide preferable roosting habitat for the black cockatoos (DAFF,2024).

The closest known roost site is located 1.3 kilometres to the northeast of the application area. Noting that the Mundy Regional Park and the Korung Nationl parks are in close proximity to the proposed clearing area, there are enough high-quality vegetation and the water sources outside of the application area. As the vegetation is parkland cleared it is unlikely to be good quality breeding and roosting habitat due to the lack of understorey cover and close proximity of residential houses, the school and recreational areas within Ray Owen Reserve. The application area has been significantly disturbed through historic activities. Emerge has noted that no evidence of roosting such as branch clippings, droppings or feathers was observed within the application area (Emerge, 2024).

Foraging habitat

Food resources within the range of breeding sites and roost sites are important to sustain black cockatoo populations. Foraging resources are therefore, viewed in the context of known breeding and night roosting sites. It is considered that foraging habitat within 6 to 12 kilometres of a known roosting and a breeding site are a significant food source (DAFF,2024). According to the available databases, 29 known black cockatoo roosting sites are mapped within the six-kilometre radius buffer of the application area and 11 confirmed breeding sites are recorded within the 10-

kilometre radius buffer of the application area. The closest confirmed breeding site is located 9.17 kilometres from the application area. Based on the above, the department's assessment has identified that the trees which are proposed to be cleared may provide potential food sources for black cockatoos within the local area, given the distance to the known roost sites and the confirmed breeding site.

The application area comprise *Corymbia calophylla* (marri) over an understory of mixed native herbs and sedges, and *Banksia sessilis* over predominately non-native grasses and shrubs or bare ground. Noting the presence of primary foraging species and that the survey by Emerge concluded that overstory within the application area may provide suitable medium to high quality foraging habitat for black cockatoos (Emerge, 2024), it is considered that 0.27 hectares of native vegetation within the application area is likely to provide medium to high quality foraging habitat for all three species of black cockatoos, in close proximity to other known roosting and breeding habitat.

It is therefore considered that the proposed clearing is likely to have a significant residual impact on critical foraging habitat for black cockatoos.

Quenda

Quenda prefers dense scrubby, often swampy, vegetation with dense cover up to one metre high. It also occurs in woodlands and may use less ideal habitat where this habitat occurs adjacent to the thicker, more desirable vegetation (Department of Environment and Conservation (DEC), 2012).

This species has previously been recorded approximately 300 metres from application area. The Fauna Survey identified quenda diggings adjacent to the application area (Natural Area, 2021b). Quenda are also known to be a common visitor to the school grounds (Natural Area, 2021b). The Fauna Survey notes that this species is likely a transient feeder within the site noting a lack of dense understorey to provide permanent habitat (Natural Area, 2021b).

Noting the lack of preferred dense riparian habitat within the application area and extent of potentially suitable habitat within the local area, including within Korung National Park which comprises around 6000 hectares and contains areas of higher quality riparian habitat, the proposed clearing is unlikely to impact on significant habitat for this species.

While the proposed clearing is not likely to impact on significant habitat for quenda, the species may be subject to individual harm should they be present at the time of clearing.

Chuditch

The chuditch is the largest carnivorous marsupial within Western Australia. They are considered as Vulnerable under *the Environment Protection and Biodiversity Conservation Act 1999* and the *Biodiversity Conservation Act 2016*. Chuditch uses a range of habitats including forest, mallee shrublands, woodland and desert, with the densest populations found in riparian jarrah forest. Chuditch requires adequate numbers of suitable den and refuge sites (horizontal hollow logs or earth burrows) and sufficient prey biomass (large invertebrates, reptiles and small mammals) to survive. They are capable of travelling long distances and have large home ranges, and even at their most abundant, chuditch are generally present in low numbers. For this reason, they require habitats that are of a suitable size and not excessively fragmented (DCCEEW, 2024). Given that the proposed clearing area is within a highly disturbed area and due to absence of dense and hollow bearing trees, it is unlikely to provide significant habitat for this species.

Southwestern brush-tailed phascogale

They inhabit a variety of forest types. Ideal habitat for this species consists of dry sclerophyll forest and open woodland (jarrah, marri, and mixed jarrah karri) that contain hollow bearing trees and sparse ground cover. Their many nesting sites include hollow tree limbs, rotten stumps and even birds' nests. In the south-west, this species is typically found in jarrah forest (Scarff, et al., 1998; Rhind, 2004). The application area may provide suitable habitat, however, the fauna survey did not record any evidence of this species utilising the application area (Emerge, 2024). However, this species could use the application area for dispersal. Although the surrounding vegetation is connected, the application area alone consists of scattered trees with open canopies, increasing the chance of predation. Based on the above, it is not likely that this species would prefer using the application area, noting the availability of better condition vegetation adjacent to the application area to the west that would provide better habitat connectivity for the phascogale.

Conclusion

Based on the above assessment of impacts on conservation significant fauna, the proposed clearing will result in:

- the loss of 0.27 hectares of high-quality foraging habitat for black cockatoos, and
- impacts to individuals of quenda and other potential fauna if present at the time of clearing.

For the reasons set out above, it is considered that the impacts of the proposed clearing on black cockatoos constitutes a significant residual impact that requires an offset. Impacts to other fauna species identified above can be managed by slow, progressive and directional clearing.

Conditions

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

- revegetation of 0.85 hectares within Jorgensen Park at 2 Cresent Road Kalamunda (Reserve 50554). (See Section 4 and Appendix F for details).
- directional clearing, to allow fauna present at the time of clearing, to move into adjacent vegetation.

3.3. Relevant planning instruments and other matters

On 27 November 2024, in accordance with section 51E(4A) of the EP Act, the department invited comments from the regional park unit, Department of Biodiversity, Conservation and Attractions (DBCA), in relation to the grant of the clearing permit within their own interested lands. DBCA's Swan Region office responded with no comments to make in relation to the proposed clearing and confirmed that subject lands are not within the current regional park boundaries (DBCA, 2024).

On 19 February 2025, the department requested further information in relation to the transfer of a portion of Lot 580 on Deposited Plan 71883 (Crown Reserve 26126) from the Department of Education to the City of Kalamunda. In response to the above, the City of Kalamunda requested to change the permit type from an area permit to a purpose permit (City of Kalamunda, 2025)

A clearing permit (CPS 9253/1) was granted on the 10 September 2021 for vegetation removal to the south of the site, which includes a portion of vegetation within this application. The clearing permit has since expired (10 September 2023).

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 approximately 0.27 hectares of native vegetation that provides medium to high quality foraging habitats for *Zanda latirostris* (Carnaby's black cockatoo), *Zanda baudinii* (Baudin's black cockatoo) and *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo), with nine potential breeding trees within close proximity to known roosting and breeding locations.

The applicant proposed an environmental offset to counterbalance the above impacts, comprising:

• revegetation of 0.85 hectares of land from completely degraded "Dwellingup 2' vegetation complex to provide high quality foraging habitats for the three species of black cockatoos in close proximity to the application area.

The proposed offset area is located within Jorgensen Park at Cresent Road Kalamunda (Reserve 50554). The site has been selected as it is a known roosting site for the three species of black cockatoos. The reserve is vested to the City of Kalamunda, and it is vested for the recreation and conservation since 2024 (Emerge, 2025). This offset will provide increased connectivity and black cockatoo foraging habitat locally over the medium to long term. The objective of the revegetation is to ensure a long-term successful revegetation outcome with appropriate ground preparation and ongoing management measures to maximise the success of the revegetation. Conditions were implemented on the clearing permit to reflect this.

The Delegated Officer considers the proposed offset adequately counterbalances the significant residual impacts listed above. The Delegated Officer had consideration for the Government of Western Australia's Offsets Policy (2011) and Offset Guidelines (2014), and WA Environmental Offsets Metric in making this determination.

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
Partial response provided in response to DWER's further information request (City of Kalamunda, 2025)	The delegated officer satisfied with the responses provided for the Item 1 and 3 of the further information requests sent by the department, where additional avoidance and minimisation measures were provided and the application was changed to a purpose permit to resolve the landownership issue for an area permit.
Offset proposal provided in response to DWER's further information request (Emerge, 2025)	Environmental value (fauna)- clearing principle (b), in section 3.2.1 of this report. The Delegated officer considers the City of Kalamunda has adequately provided revegetation measures to mitigate the impacts to conservation significant fauna

Appendix B. Site characteristics

B.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared is part of a 0.27-hectare of small, isolated patch of remnant vegetation within a highly cleared landscape and immediately surrounding Lesmurdie Primary School and Ray Oven reserve within the Lesmurdie suburban area.
	It is adjacent to an isolated patch of remnant vegetation, with the western boundary of the application area bordering to a patch of remnant vegetation within the City of Kalamunda.
	Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 46.81 per cent of the original native vegetation cover.
Ecological linkage	There are no mapped ecological linkages within the application area, and the application area does not provide significant linkage values. However, application area is surrounded by the Perth Regional Ecological linkage and provides a stepping stone vegetation for fauna movement across the surrounding landscape.
Conservation areas	The application area is not mapped within a conservation area. The closest conservation area is the Mundy Regional Park, located approximately 930 meters west to the application area.
Vegetation description	Ecological survey conducted by the Emerge associates (2024), indicates the vegetation within the proposed clearing area consists of two vegetation units:
	 Cs: Corymbia calophylla (Marri) over an understory of mixed native herbs and sedges
	Bs: Banksia sessilis over predominately non-native grasses and shrubs or bare ground
	The survey descriptions and maps are available in Appendix F.
	This is consistent with the mapped vegetation type of Dwellingup, D2 79 described as open forest of <i>Eucalyptus marginata</i> subsp. <i>marginata-Corymbia calophylla</i> on lateritic uplands in subhumid and semiarid zones.
	The mapped vegetation type retains approximately 82.5 per cent of the original extent (Government of Western Australia, 2019).
Vegetation condition	Vegetation survey provided by Emerge associate indicates the vegetation within the proposed clearing area is in good to degraded (Keighery, 1994) condition, described as:

Characteristic	Details
Gilaracteristic	0.25 hectares of native vegetation with representative of Cs vegetation in good
	to degraded condition
	0.02 hectares of native vegetation with representative of Bs vegetation in
	degraded condition
	The full Keighery (1994) condition rating scale is provided in Appendix D.
	The full survey descriptions and mapping are available in Appendix F.
Climate and landform	
	The climate is classified as Mediterranean, with dry hot summers and cool wet winters. The average annual rainfall is 752.7 mm, the majority falling between May and August. The mean annual maximum temperature is 32.1°C and mean annual minimum temperature is 18°C.
Soil description	The application area is mapped as the Dwellingup 2 Phase (255DpDW2) landform,
	described as very gently undulating terrain with well drained, shallow to moderately deep gravelly brownish sands, pale brown sands and earthy sands overlying lateritic duricrust (DPIRD 2019).
Land degradation risk	The Dwellingup 2 Phase landform unit generally presents a low risk of land
	degradation.
	The highest risk factor is wind erosion with 70 percent of the mapped soil unit having a high to extreme risk.
	Salinity mapping indicates the application area and surrounding area is mapped as a
	moderate to high salinity risk.
Waterbodies	There are no wetlands or watercourses mapped within the application area. The
	closest wetland or watercourse is a minor non-perennial watercourse located around 360 metres east of the application area.
Flora	There are no records of threatened or priority flora species within the application area,
	and none were identified during a Flora Survey of the application area (Emerge Associate, 2024).
	The elegent threatened flore record to the application area is Concentration
	The closest threatened flora record to the application area is <i>Conospermum undulatum</i> , located around 1.1km away.
	The closest priority flora species to the application area is <i>Senecio leucoglossus</i> (priority 4) located around 953 m away.
Ecological	There are no threatened or priority ecological communities (TEC/PEC) mapped within
communities	the application area. The closest TEC or PEC is the Central Northern Darling Scarp
	Granite Shrubland Community (Priority 4), located around 1.3km northwest.
Fauna	The desktop assessment identified that a total of 36 threatened or priority fauna species
	have been recorded within the local area, including 13 threatened fauna species, 14
	priority fauna species, 9 specially protected species. None of these records occur within the application area, with the closest record being a Quenda (<i>Isoodon fusciventer</i>)
	occurring approximately 300 metres from the application area.

B.2. Vegetation extent					
	Pre- European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre- European extent in all DBCA managed land
IBRA bioregion*					
Jarrah Forest	140,823.45	68,154.69	48.40	35,355.87	25.11
Vegetation complex					
Dwellingup, D2 79	86,128.33	71,055.96	82.50	58,975.34	68.47
Local area					
10km radius	31626.57	14883.06	46.81	-	-

**Government of Western Australia (2019b)

B.3. 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]
Zanda latirostris	EN	Y	Y	1.5	1027	Y
Zanda baudinii	EN	Y	Y	1.16	110	Y
Calyptorhynchus banksii naso	VU	Y	Y	1.32	125	Y
Isoodon fusciventer	P4	Y	Y	0.28	1805	Y
Dasyurus geoffroii	VU	Y	Y	0.84	46	N/A
Phascogale tapoatafa wambenger	CD	Y	Y	0.51	45	N/A

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

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."	Not likely to be at	No
Assessment:	variance	
The Flora and Fauna Surveys did not identify any threatened or priority flora or threatened or priority ecological communities within the application area (Emerge Associate, 2024). The native vegetation within the proposed clearing area does not contain a high level of biodiversity and is mostly in degraded condition due to the high level of historical disturbance. The proposed clearing is only significant as primary foraging habitats for black cockatoos.		
Noting the small extent of clearing proposed within the highly cleared landscape for school development, the lack of threaten and priority flora species and the lack of high-quality fauna habitat, it is unlikely that the clearing of 0.27 hectares in degraded condition will result in loss of biodiversity.		
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."	At variance	Yes Refer to Section 3.2.1, above.
Assessment:		
The area proposed to be cleared contains suitable primary foraging habitats for threatened black cockatoo species (see Appendix A.3).		
The application area is not likely to provide significant habitat for conservation significant fauna, given the abundance of better-quality vegetation within the broader local area, much of which is within Mundy Regional Park to the west and Korung National Park to the south-east.		
Given the degraded nature of the native vegetation within the application area due to the continuous historical disturbance only the overstory species will provide suitable primary foraging habitat for black cockatoos.		
Principle (c): "Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."	Not likely to be at	No
Assessment:	variance	
The area proposed to be cleared is not likely to contain suitable habitat for flora species listed under the BC Act, given the lack of understorey and highly degraded nature of the below canopy vegetation. The vegetation survey conducted by Emerge associate identified that the application area is in Degraded condition and consists of marri trees over weeds with no conservation significant flora species identified (Emerge associate, 2024).		
The area proposed to be cleared is unlikely to contain habitat for flora species listed under the BC Act.		
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."	Not likely to be at variance	No
Assessment:		
The application area is not considered to be representative of any known threatened ecological communities.		

Assessment against the clearing principles	Variance level	Is further consideration required?		
Environmental value: significant remnant vegetation and conservation areas				
<u>Principle (e):</u> "Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."	Not likely to be at variance	No		
Assessment:	variance			
The vegetation within the application area is representative of Dwellingup D2 complex, which retains 82.5 percent of its pre-European extent. The local area retains 46.81 per cent of its original vegetation extent, which is above the 30 per cent threshold outlined in the national objectives and targets for biodiversity conservation in Australia (Commonwealth of Australia 2001). Therefore, the application area is not considered to be within an extensively cleared landscape.				
The application area does not provide significant ecological linkage values in the local area.				
<u>Principle (h):</u> "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."	Not likely to be at variance	No		
Assessment:				
Given that there is no conservation area adjacent to the application area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.				
Environmental value: land and water resources				
<u>Principle (f):</u> "Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."	Not likely to be at	No		
Assessment:	variance			
There are no wetlands or watercourses within the application area, and riparian vegetation was not recorded during the Flora Survey (Emerge Associate, 2024). Therefore, the proposed clearing is unlikely to impact on an environment associated with a watercourse or wetland.				
<u>Principle (g):</u> "Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."	Not likely to be at	No		
Assessment:	variance			
The application area is mapped as the Dwellingup 2 landform unit, which is mapped as having a low risk of water erosion, nutrient export, and salinity. However, 70 percent of this soil unit is mapped as having a high to extreme risk of wind erosion.				
Noting the size of the application area and that it comprises scattered native vegetation around the existing school site, bordered by remnant vegetation to the west, significant wind erosion is unlikely.				
<u>Principle (i):</u> "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."	Not likely to be at variance	No		
Assessment:				
Given no watercourses or wetlands are recorded within or adjacent to the application area, the proposed clearing is unlikely to impact on surface or groundwater quality.				

Assessment against the clearing principles	Variance level	Is further consideration required?
<u>Principle (j):</u> "Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."	Not likely to be at variance	No
Assessment:		
Given no watercourses or wetlands are recorded in or adjacent to the application area, and the relatively small size of the application area around the existing school site, the proposed clearing is unlikely to contribute to flooding.		

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.

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.		

Measuring vegetation condition for the South West and Interzone Botanical Province (Keighery, 1994)

Appendix E. Offset calculator value justification

Offset calculation and justification for significant residual impact to black cockatoo

Calculation	Score (Area)	Rationale			
Conservation significance					
Description	Black cockatoo foraging habitat	Application area contains moderate to high quality foraging habitat for <i>Zanda latirostris</i> (Carnaby's black cockatoo), <i>Zanda baudinii</i> (Baudin's cockatoo) and <i>Calyptorhynchus banksii naso</i> (forest red-tailed black cockatoo).			
Type of environmental value	Species (flora/fauna)	Known foraging habitat for Carnaby's, Baudin's and forest red- tailed black cockatoos.			
Conservation significance of environmental value	Rare/threatened species - endangered	Carnaby's and Baudin's cockatoo are listed as Endangered and forest-red tailed black cockatoo is listed as Vulnerable under both the EPBC Act and BC Act.			
Landscape level value impacted	Yes/No	No			
Significant impact					
Description	Black cockatoo foraging habitat	Removal of nine (9) mature <i>Corymbia calophylla</i> (marri) trees and <i>Banksia sessilis</i> , which provide foraging habitat for black cockatoos.			
Significant impact (hectares)	0.27	Based on information available from the supporting information (Emerge, 2024) the proposed clearing comprises 0.27 ha of moderate to high quality foraging habitat for all three species of black cockatoos			
Quality (scale)	7	Foraging habitat within the application area comprises nine mature marri trees, which is a preferred foraging species for all three species of black cockatoos. Banksia sessilis provides foraging habitat for Carnaby's and Baudin's cockatoo. 45 roosting sites and 11 breeding sites for white tailed black cockatoos were recorded within the 10 kilometres local area with the closest roost site approximately 1.3 kilometres from the application area.			
Rehabilitation credit					
N/A	N/A	Onsite revegetation will not be taking place.			
Offset					
Description	Revegetation of completely degraded areas	Revegetation of completely degraded areas with minimum black cockatoo foraging value, to improve the vegetation to provide high quality foraging habitat for black cockatoos.			
proposed offset (area in hectares)	0.79	The area required to be revegetated			
Current quality of offset site	1	Assuming the revegetation area is in Completely Degraded (Keighery, 1994) condition			

Calculation	Score (Area)	Rationale
Future quality WITHOUT offset	1	The quality of the offset site is not likely to change without revegetation/rehabilitation.
Future quality WITH offset	5	Assuming revegetation and rehabilitation will be undertaken in accordance with appropriate land preparation measures and completion criteria.
Time until ecological benefit (years)	15	It is assumed that the benefits of revegetation of black cockatoo foraging habitat will be available after 15 years.
Confidence in offset result (%)	80	There is a moderate level of confidence that the offset will achieve the predicted result.
Duration of offset implementation (maximum 20 years)	20	The offset will be implemented in perpetuity. The maximum value of 20 years has been applied.
Time until offset site secured (years)	3	The revegetation will occur within a minimum of 3 years of clearing.
Risk of future loss WITHOUT offset (%)	10	The offset site is vested for the purpose of 'recreation and conservation' which provides security.
Risk of future loss WITH offset (%)	10	No change to the vesting is required noting it includes conservation.



Clearing Permit Decision Report

Appendix F. Excerpts of Ecological survey information and additional information



Figure 1: Site location and clearing application area



Figure 2: vegetation units

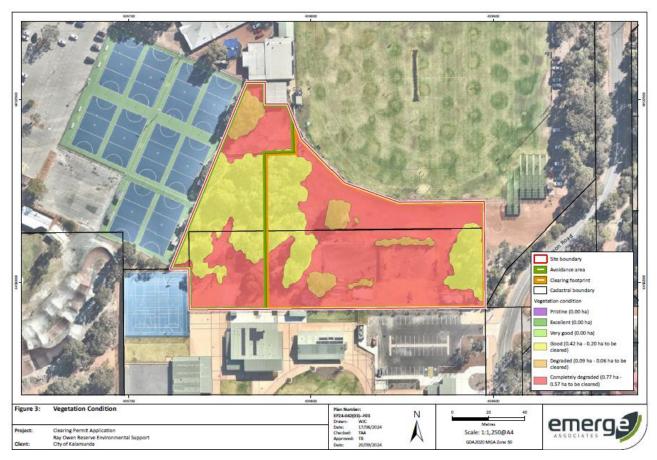


Figure 3: vegetation condition

CPS 10801/1, 2 July 2025

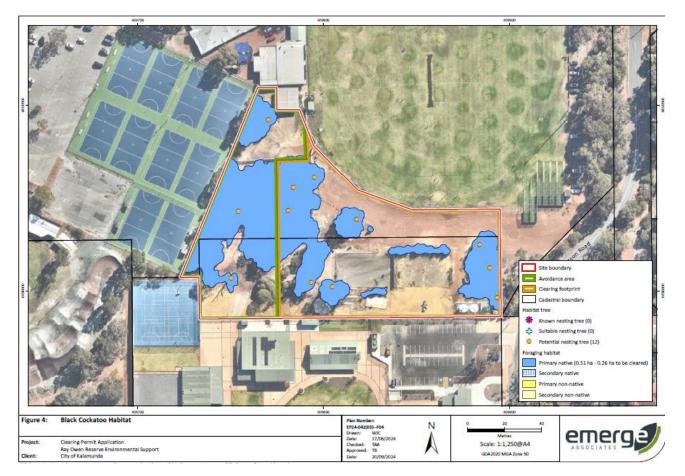


Figure 3: Black cockatoo habitat



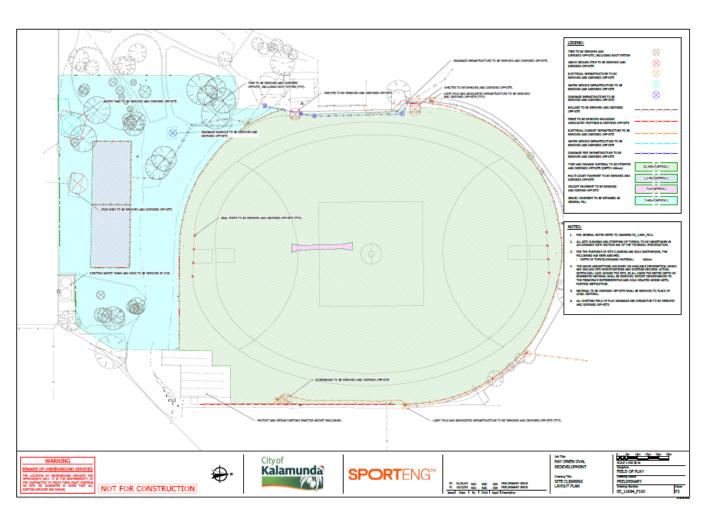


Figure 4: Site plan



Figure 5: Previous clearing permit approval (CPS 9253/1) which is partially mapped with the application area



Figure 6: Additional avoidance

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)
- 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
- Wheatbelt Wetlands Stage 1 (DBCA-021)

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

City of Kalamunda (2024a) *Clearing permit application CPS 10801/1*, received 09 October 2024 (DWER Ref: DWERDT1019764).

- City of Kalamunda(2024b) Supporting information for clearing permit application CPS 10801/1, received 09 October 2024 (DWER Ref: DWERDT1019749).
- City of Kalamunda (2025) *Initial response to the further information request for CPS 10801/1*, received 13 May 2025 (DWER Ref: DWERDT1128297).
- Emerge Associate (2025) Offset proposal for CPS 10801/1, received on 10 June 2025 (DWER Ref: DWERDT1147619).
- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
- Department of Agriculture, Fisheries and Forestry (DAFF),(2024), *EPBC Act referral guidelines for three threatened black cockatoo species*, Available from: <u>EPBC Act referral guidelines for three threatened black cockatoo species</u>
- Department of Biodiversity, Conservation and Attractions (DBCA,2024), *Regional Parks unit : Swan Region*, received 9 December 2024 (DWER Ref: DWERDT1047953)
- Department of Climate Change, Energy, the Environment and Water (DCCEEW) (2024), Adopted Recovery Plan for Dasyurus geoffroii (Western quoll/Chuditch), Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: <u>Chuditch (Dasyurus geoffroii) Recovery Plan 2012 - DCCEEW</u>
- Department of Environment Regulation (DER) (2013). A guide to the assessment of applications to clear native vegetation. Perth. Available from: https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2_assessment_native_veg.pdf.
- Department of Primary Industries and Regional Development (DPIRD) (2019). *NRInfo Digital Mapping. Department of Primary Industries and Regional Development.* Government of Western Australia. URL: https://maps.agric.wa.gov.au/nrm-info/ (accessed 19 February 2025).

Department of Water and Environmental Regulation (DWER) (2019). *Procedure: Native vegetation clearing permits*. Joondalup. Available from:

https://dwer.wa.gov.au/sites/default/files/Procedure_Native_vegetation_clearing_permits_v1.PDF.

- Environmental Protection Authority (EPA) (2016). *Technical Guidance Flora and Vegetation Surveys for Environmental Impact Assessment*. Available from: http://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey_Dec13.pdf.
- Environmental Protection Authority (EPA) (2016). *Technical Guidance Terrestrial Fauna Surveys*. Available from: <u>https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/Tech%20guidance-%20Terrestrial%20Fauna%20Surveys-Dec-2016.pdf</u>.
- Government of Western Australia (2019) 2018 South West Vegetation Complex Statistics. Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions, Perth, https://catalogue.data.wa.gov.au/dataset/dbca
- Heddle, E. M., Loneragan, O. W., and Havel, J. J. (1980) *Vegetation Complexes of the Darling System, Western Australia.* In Department of Conservation and Environment, Atlas of Natural Resources, Darling System, Western Australia.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Mattiske, E.M. and Havel, J.J. (1998) Vegetation Complexes of the South-west Forest Region of Western Australia. Maps and report prepared as part of the Regional Forest Agreement, Western Australia for the Department of Conservation and Land Management and Environment Australia.
- Molloy, S., Wood, J., Hall, S., Wallrodt, S. and Whisson, G. (2009) *South West Regional Ecological Linkages Technical Report*, Western Australian Local Government Association and Department of Environment and Conservation, Perth.
- Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68) *Atlas of Australian Soils*, Sheets 1 to 10, with explanatory data. CSIRO and Melbourne University Press: Melbourne.
- Rhind, S.G. (2004) Direct impacts of logging and forest management on the brush-tailed phascogale Phascogale tapoatafa and other arboreal marsupials in a jarrah forest of Western Australia. In: Lunney, D. (Ed.), Conservation of Australia's Forest Fauna. 2nd Edition. Royal Zoological Society of NSW, Mosman, pp. 639–655.
- Schoknecht, N., Tille, P. and Purdie, B. (2004) Soil-landscape mapping in South-Western Australia Overview of Methodology and outputs Resource Management Technical Report No. 280. Department of Agriculture.
- Shah, B. (2006) Conservation of Carnaby's Black-Cockatoo on the Swan Coastal Plain, Western Australia. December 2006. Carnaby's Black-Cockatoo Recovery Project. Birds Australia, Western Australia.
- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) *Native Vegetation in Western Australia, Extent, Type and Status*. Resource Management Technical Report 249. Department of Agriculture, Western Australia.
- Valentine, L.E. and Stock, W. (2008) Food Resources of Carnaby's Black Cockatoo (Calyptorhynchus latirostris) in the Gnangara Sustainability Strategy Study Area. Edith Cowan University and Department of Environment and Conservation. December 2008.
- Western Australian Herbarium (1998-). *FloraBase the Western Australian Flora*. Department of Biodiversity, Conservation and Attractions, Western Australia. https://florabase.dpaw.wa.gov.au/ (Accessed 12 February 2025)