



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 9487/1
Permit Holder:	Network Expansion West Alliance
Duration of Permit:	From 18 August 2022 to 18 August 2027

ADVICE NOTE

The funds referred to in condition 7 of this permit are intended to contribute towards the purchase and conservation in perpetuity of 1.15 hectares of native vegetation in Very Good (Keighery, 1994) condition or better, that comprises significant foraging habitat for *Zanda latirostris* (previously *Calyptorhynchus latirostris*) (Carnaby's cockatoo) on the Swan Coastal Plain.

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 establishing an access track.

2. Land on which clearing is to be done

Lot 17 on Plan 17935, Eglinton
Lot 9006 on Deposited Plan 421398, Eglinton
Beonaddy Road reserve (PIN 11749607), Eglinton

3. Clearing authorised

The permit holder must not clear more than 0.52 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

PART II – MANAGEMENT CONDITIONS

4. 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.

5. 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.

6. Directional clearing

The permit holder must conduct clearing activities in a slow, progressive manner in one direction to allow fauna to move into adjacent *native vegetation* ahead of the clearing activity.

7. Offsets – monetary contributions to the Offsets Fund

Prior to undertaking any clearing authorised under this permit, the permit holder must provide documentary evidence to the *CEO* that funding of \$4,416 has been transferred to the Department of Water and Environmental Regulation for the purpose of establishing or maintaining native vegetation as an environmental offset for the clearing activities authorised under this permit.

PART III - RECORD KEEPING AND REPORTING

8. Records that must be kept

The permit holder must maintain records relating to the listed relevant matters in accordance with the specifications detailed in Table 1.

Table 1: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	<ul style="list-style-type: none"> (a) the species composition, structure, and density of the cleared area; (b) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), 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);

No.	Relevant matter	Specifications
		(e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 4; and (f) actions taken to minimise the risk of the introduction and spread of <i>weeds</i> and <i>dieback</i> in accordance with condition 5; and (g) actions taken to undertake directional clearing in accordance with condition 6.

9. Reporting

The permit holder must provide to the *CEO* the records required under condition 8 of this permit when requested by the *CEO*.

DEFINITIONS

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

Table 2: Definitions

Term	Definition
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the <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.
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.
department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
EP Act	<i>Environmental Protection Act 1986</i> (WA)
mulch	means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation.
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
weeds	means any plant – <ul style="list-style-type: none"> (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

A handwritten signature in black ink, appearing to read 'Mathew Gannaway', written over a horizontal line.

Mathew Gannaway
MANAGER
NATIVE VEGETATION REGULATION

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

25 July 2022

Schedule 1

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

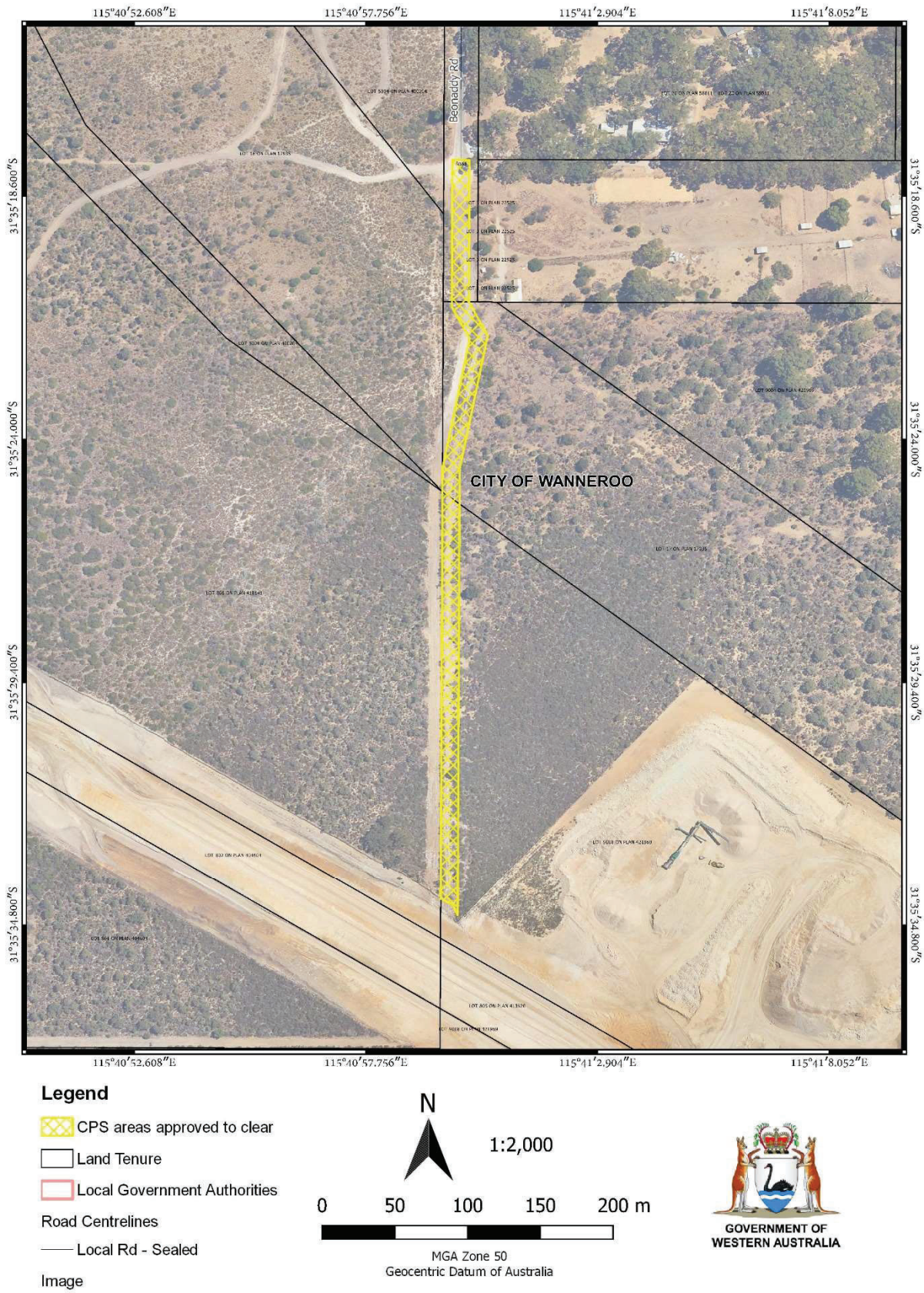


Figure 1: Map of the boundary of the area within which clearing may occur



Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 9487/1
Permit type:	Purpose permit
Applicant name:	Network Expansion West Alliance
Application received:	11 November 2021
Application area:	0.52 hectares of native vegetation
Purpose of clearing:	Establishing an access track
Method of clearing:	Mechanical
Property:	Lot 17 on Plan 17935 Lot 9006 on Deposited Plan 421398 Beonaddy Road reserve (PIN 11749607)
Location (LGA area/s):	City of Wanneroo
Localities (suburb/s):	Eglinton

1.2. Description of clearing activities

The vegetation proposed to be cleared is contained within a single contiguous area to the north of the existing development envelope for the Yanchep Rail Extension (YRE) Project (see Figure 1, Section 1.5). The application involves the clearing of native vegetation to facilitate maintenance of an existing track and the creation of a new, cleared track for the entry in and out of the Urban Quarter stockpile as part of the Yanchep Rail Extension project, to allow for:

- the hauling of bulk material (i.e., sand, limestone, etc.) out of the stockpile site (in accordance with Development Approval 30-50410-1 for Lot 9001 on Plan 413782),
- the delivery of rail infrastructure and bridge components, and general construction access into the Project Development Envelope; and
- a reduction in congestion of vehicle and plant movement through the Project Development Envelope.

The proposed clearing will support the operation of the YRE Project but is separate to the proposals assessed by the Western Australian Environmental Protection Authority (EPA) and approved under Ministerial Statements 1100 and 1129.

1.3. Decision on application

Decision:	Granted
Decision date:	25 July 2022
Decision area:	0.52 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 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 proposed clearing is to facilitate maintenance of an existing track and the creation of a new, cleared track for the entry in and out of the Urban Quarter stockpile, which will support the construction of Part 1 of the Yanchep Rail Extension project. This project will support existing communities north of the existing Joondalup train station with improved transport connections and has been formally assessed and approved by the Environmental Protection Authority (EPA) (Ministerial statement MS1100). The proposed access track is separate to the YRE Project proposal, but is adjacent to the area approved under Ministerial Statement 1100.

The assessment identified that the proposed clearing will result in:

- the loss of 0.259 hectares of significant foraging habitat for Carnaby's cockatoo,
- the loss of 0.1 hectares of vegetation within a patch of the Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region (Banksia Woodlands) ecological community, and
- the potential introduction and spread of weeds and dieback into adjacent vegetation that is representative of the Banksia Woodlands ecological community, which could impact on the quality of the adjacent vegetation and its habitat values.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined that some of the impacts of the proposed clearing, including impacts to a linear area of 0.1 hectares on the edge of a patch of the Banksia Woodlands ecological community, the potential for direct impacts to individual fauna, and the potential to facilitate the introduction of weeds and dieback into adjacent vegetation, can be minimised and managed to unlikely lead to an unacceptable risk to environmental values. However, impacts to foraging habitat for Carnaby's cockatoo remained significant even after the application of minimisation and mitigation measures and constituted a significant residual impact. The Delegated Officer determined that the applicant's commitment to provide a monetary offset contribution to fund the acquisition and conservation in perpetuity of 1.15 hectares of native vegetation in a Very Good (Keighery, 1994) condition was sufficient to counterbalance the significant residual impacts to foraging habitat for Carnaby's cockatoo (see Section 4).

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

- avoid, minimise, and reduce the impacts and extent of clearing,
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback,
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity, and
- provide a monetary offset contribution, which will be used to fund the acquisition and conservation in perpetuity of 1.15 hectares of native vegetation in a Very Good (Keighery, 1994) condition that provides suitable foraging habitat for Carnaby's cockatoo.

1.5. Site map

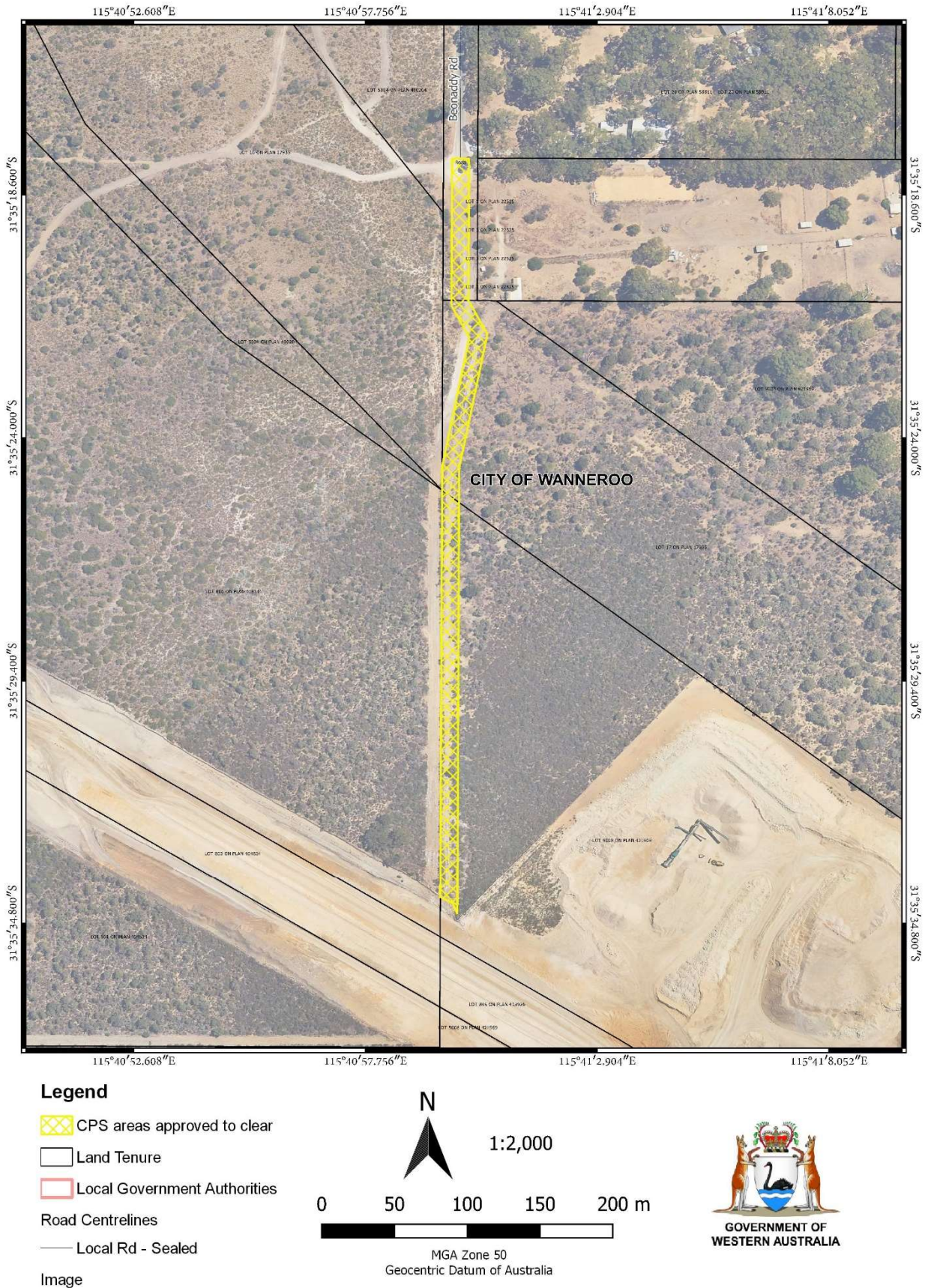


Figure 1 The area crosshatched yellow indicates the area authorised to be cleared under the granted clearing permit.

2 Legislative context

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

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.4), 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, and
- 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)
- *Metropolitan Water Supply, Sewerage, and Drainage Act 1909* (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 Vertebrate Fauna Surveys for Environmental Impact Assessment* (EPA, 2020)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

Project background

The YRE Project forms part of METRONET, a state government program of projects to increase the size of Perth's railway network, with an aim to support the planning of integrated station precincts and the growth of the Perth metropolitan region (NEWest, 2021). The YRE Project is an extension to the Northern Suburbs Railway (also known as the Joondalup line) to support existing communities with improved transport connections and create new communities through integrated station precincts (NEWest, 2021). The greater YRE Project including 14.5 km of railway beyond the existing Butler Station, new stations at Alkimos, Eglinton and Yanchep, and associated infrastructure was assessed by the EPA in two parts and was approved under Ministerial Statements 1100 (Part 1 - Butler to Eglinton) and 1129 (Part 2 – Eglinton to Yanchep) (NEWest, 2021). The proposed access track is separate to the YRE Project proposal, but is adjacent to the area approved under Ministerial Statement 1100 and will support the operation of Part 1 of the project by facilitating entry in and out of the Urban Quarter stockpile, haulage of bulk material from the stockpile, delivery of rail infrastructure and bridge components, and reducing congestion of vehicle and plant movement through the development envelope (NEWest, 2021).

Avoidance

Supporting documentation was submitted by the applicant, indicating that haulage of material in and out of the Urban Quarter stockpile was originally planned to occur through the development envelope of the YRE Project (NEWest, 2021). However, on review, the earthworks and construction of the rail, station and bridge infrastructure will limit access along the length of the development envelope and may result in safety and efficacy issues during the transport of materials and movement of vehicles (NEWest, 2021). Therefore, it was determined that an alternative route was required to allow efficient haulage of material and safer entering and exiting of the worksite (NEWest, 2021).

The applicant advised that a desktop review was undertaken as part of the initial planning phase, to identify alternative routes for the haulage of materials (NEWest, 2021). The location of the proposed access track was selected based on the findings of the desktop review and the fact that it would reduce the total extent of vegetation required to be cleared by utilising an existing access track, rather than creating a track within an intact remnant (NEWest, 2021). The applicant advised that the extent of the clearing would be limited to only that required for access and would be minimised, where practicable (NEWest, 2021).

Mitigation

The applicant advised that the following management measures would be implemented to minimise potential impacts to environmental values during ground disturbance and clearing of native vegetation:

- Survey personnel will flag/demarcate clearing areas prior to works commencing,
- The applicant will issue internal ground disturbance permits prior to any clearing works,
- Pre-start meetings will be held with machinery operators to highlight the requirements to stay within the approved clearing footprint and minimise impacts to vegetation, where possible,
- Clearing and survey works will be supervised by environmental personnel,
- Weed management protocols will be implemented during clearing and construction to control the spread of weed species to areas outside of the approved clearing footprint,
- Banksia trees within the approved clearing footprint will be pruned as opposed to cleared, where practicable, to minimise impacts to the Banksia Woodlands ecological community, and
- A crushed limestone layer will be applied to the access track to prevent ongoing degradation by plant and light vehicle movement (NEWest, 2021).

The applicant advised that once use of the access track as part of the Yanchep Rail Extension project ceases, the area will be handed back to the Urban Quarter developer (NEWest, 2022). The applicant advised that the Urban Quarter developer is intending to maintain the access track as a firebreak and access between future public open space and remnant vegetation (NEWest, 2022). Therefore, the clearing proposed will be permanent and there is no scope to revegetate the application area post-clearing (NEWest, 2022).

After consideration of the avoidance and mitigation measures, it was determined that an offset to counterbalance the significant residual impacts to significant foraging habitat for *Zanda latirostris* (previously *Calyptorhynchus latirostris*) (Carnaby's cockatoo) was necessary. In accordance with the Government of Western Australia's *Environmental Offsets Policy* and *Environmental Offsets Guidelines*, these significant residual impacts have been addressed through the conditioning of environmental offset requirements on the permit. The nature and suitability of the offset provided are summarised in Section 4.

3.2. Assessment of impacts on environmental values

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

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

Assessment

Noting the findings of the 'NEWest Alliance Flora and Vegetation Survey – Access Track' (Natural Area, 2022) which included a basic fauna survey, the site characteristics (see Appendix B), and the habitat preferences of the conservation significant fauna species recorded in the local area, the application area was considered to contain suitable habitat for the following species:

- Carnaby's cockatoo (listed as Endangered under the BC Act and EPBC Act),
- *Falco peregrinus* (Peregrine falcon) (listed as other specially protected fauna by DBCA),
- *Idiosoma sigillatum* (Swan Coastal Plain shield-backed trapdoor spider) (listed as Priority 3 by DBCA),
- *Isoodon fusciventer* (Quenda) (listed as Priority 4 by DBCA), and
- *Neelaps calonotos* (Black-striped burrowing snake) (listed as Priority 3 by DBCA).

The application area is approximately 10 kilometres north-west of the modelled occurrence range for *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo) and approximately 40 kilometres north-west of the modelled occurrence range for *Zanda baudinii* (previously *Calyptorhynchus baudinii*) (Baudin's cockatoo). Therefore, the application area is not considered likely to comprise suitable breeding, roosting or foraging habitat for these species.

The applicant may have notification responsibilities under the EPBC Act for impacts to Carnaby's cockatoo and its habitat, as set out in the EPBC Act referral guidelines for the species. The applicant has been advised to contact the federal Department of Climate Change, Energy, the Environment and Water (DCCEEW) to discuss EPBC Act referral requirements.

Carnaby's cockatoo

Breeding and roosting habitat

Carnaby's cockatoo is known to nest in hollows of live and dead trees, including *Corymbia calophylla* (marri), *Eucalyptus marginata* (jarrah), *Eucalyptus diversicolor* (karri), *Eucalyptus wandoo* (wandoo), *Eucalyptus salmonophloia* (salmon gum), *Eucalyptus gomocephala* (tuart), *Eucalyptus rudis* (flooded gum), and other *Eucalyptus* spp. (Commonwealth of Australia, 2022). 'Breeding habitat' for Carnaby's cockatoo includes trees of these species that either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow, where suitable DBH for nest hollows is 500 millimetres for most tree species (Commonwealth of Australia, 2022). Mature habitat trees of suitable size to provide breeding habitat for Carnaby's cockatoo may also represent suitable roosting habitat for the species (Commonwealth of Australia, 2022).

Carnaby's cockatoos generally forage within a 12- kilometre radius of their nesting site and a six-kilometre radius of their roosting site (EPA, 2019). As the application area is located within the modelled breeding range of Carnaby's cockatoo and contains known foraging species, it may provide suitable habitat for breeding and roosting if mature habitat trees are present. However, the flora and vegetation survey identified that no habitat trees with a DBH greater than 500 millimetres are present within the application area (Natural Area, 2022). As no suitable breeding or roosting trees will be cleared, the proposed clearing will not result in the loss of significant breeding or roosting habitat for Carnaby's cockatoo.

Foraging habitat

Carnaby's cockatoos forage on the seeds, nuts, and flowers of a variety of plants, including proteaceous species (*Banksia* spp., *Hakea* spp., and *Grevillea* spp.), as well as *Allocasuarina* and *Eucalyptus* species, marri, and a range of introduced species (Valentine and Stock, 2008). On the Swan Coastal Plain, it is noted that *Banksia* species (predominantly *Banksia attenuata*, *Banksia menziesii* and *Banksia sessilis*) are the most important natural food source for Carnaby's cockatoo, followed by marri (Groom, et al., 2014). The open *Banksia* spp. woodland and *Banksia sessilis* shrubland vegetation types within the application area are likely to provide varying densities of proteaceous species that comprise foraging habitat. Therefore, the application area is considered to contain 0.259 hectares of primary foraging habitat for Carnaby's cockatoo on the Swan Coastal Plain. The 0.261 hectares of *Acacia saligna* open shrubland within the application area is not considered to provide foraging habitat, given this vegetation type lacks recorded foraging species for Carnaby's cockatoo.

Evidence of foraging on *Banksia attenuata* cones was observed during the basic fauna survey in October 2021, indicating that the application area and adjacent remnant vegetation is currently utilised by Carnaby's cockatoo for foraging in the local area (Figure 2; Natural Area, 2022). As outlined above, foraging habitat within 12 kilometres of a breeding site and within six kilometres of a night roost are of particular importance for the species (EPA, 2019). According to available databases, the closest confirmed breeding site for Carnaby's cockatoo is approximately 20 kilometres south, making the foraging habitat within the application area unlikely to support significant breeding habitat for the species. However, there are ten recorded roost sites for Carnaby's cockatoo within a six-kilometre radius of the application area, making it suitable to support foraging by roosting individuals.



Figure 2. Foraging evidence on *Banksia attenuata* cones recorded within the application area for CPS 9487/1 (Natural Area, 2022).

Critical habitat for Carnaby's cockatoo is defined as any habitat that provides for feeding, watering, regular night roosting and potential for breeding (DPAW, 2013). As the application area includes 0.259 hectares of primary foraging habitat in proximity to known roost sites, it is likely to comprise critical habitat for Carnaby's cockatoo. It is

acknowledged that there are larger remnants of mapped black cockatoo foraging habitat in secure tenure in the local area, including within Yanchep National Park and Gngangara-Moore River State Forest. However, the clearing of foraging habitat on the Swan Coastal Plain is identified as a key threatening process for Carnaby's cockatoo, with the main factor limiting population growth of Carnaby's cockatoo being adult survival, related directly to bottlenecks in food resources on the Swan Coastal Plain and the ongoing removal of food resources (EPA, 2019; Williams, et al., 2017; Groom, 2015; DPAW, 2013; Stock, et al., 2013). In addition, maintaining foraging habitat irrespective of size and understorey condition has been noted as particularly important within the Perth Metropolitan Region, due to the role of these feeding areas in the survival of young birds and the maintenance of the population between breeding seasons, coupled with the lack of habitat remaining in this region and its connectivity values for migrating birds (Commonwealth of Australia, 2022). Therefore, the loss of 0.259 hectares of proteaceous foraging habitat with evidence of current use in proximity to known roost sites on the Swan Coastal Plain is considered a significant impact to critical habitat for Carnaby's cockatoo.

Peregrine falcon

The peregrine falcon typically nests on rocky ledges in tall, vertical cliff faces and gorges, or in tall trees associated with drainage lines, and can hunt in a range of habitat types including timbered watercourses, riverine environments, wetlands, plains, open woodlands, and pylons and spires of buildings (Australian Museum, 2021). Given its proximity to existing records and the transient nature of the species, the application area may provide suitable foraging habitat for the peregrine falcon but is unlikely to provide suitable nesting habitat. Noting that the peregrine falcon is a highly mobile species with a large home range that does not rely on specialist niche habitats, it is unlikely that the application area represents significant habitat for the species. Further, noting that the application proposes to clear a 0.52-hectare linear remnant and that larger remnants of secure, intact native vegetation exist in the vicinity (e.g., Yanchep National Park and Gngangara-Moore River State Forest), it is unlikely that the peregrine falcon would be reliant on the application area for foraging in the local area.

Ground-dwelling fauna

The Swan Coastal Plain shield-backed trapdoor spider is associated with banksia woodland and heathland in sandy soils on the Swan Coastal Plain and is largely restricted to bushland remnants in the Greater Perth region (Rix et al., 2018). Quenda are ground-dwelling marsupials, typically associated with forest or woodlands near watercourses, where understorey consists of dense scrub and leaf litter is abundant (DEC, 2012). The black-striped burrowing snake is associated with deep sandy soils in Banksia and jarrah woodland on the Swan Coastal Plain (ALA, 2022).

Given the application area comprises remnant banksia woodland and acacia shrubland on the Swan Coastal Plain, it may provide suitable habitat for these three ground-dwelling species. However, no direct evidence of individuals or indirect evidence such as burrows or scats were identified during the basic fauna survey (Natural Area, 2022). It is also acknowledged that the application area is a 0.52-hectare narrow, linear area adjacent to a larger remnant of native vegetation to the east and that approximately 0.43 hectares (83 per cent) of the application area is in Degraded to Completely Degraded (Keighery, 1994) condition. Further, larger remnants of native vegetation in the conservation estate persist in the local area, which are likely to provide more suitable habitat for the Swan Coastal Plain shield-backed trapdoor spider, quenda, and the black-striped burrowing snake. Given the extent of the proposed clearing, the condition of the vegetation, and the proximity of the application area to larger remnants of suitable habitat, the application area is not considered likely to comprise significant habitat for these species.

Conclusion

Based on the above assessment, the proposed clearing will result in the loss of 0.259 hectares of significant foraging habitat for Carnaby's cockatoo. For the reasons set out above, it is considered that the impacts of the proposed clearing to significant foraging habitat for Carnaby's cockatoo constitutes a significant residual impact. In accordance with the Government of Western Australia's *Environmental Offsets Policy* and *Environmental Offsets Guidelines*, this significant residual impact has been addressed through the conditioning of environmental offset requirements, as outlined under Section 4.

It is considered that the potential for direct impacts to any ground-dwelling fauna that may be utilising the application area at the time of the proposed clearing can be managed through a directional clearing condition.

Conditions

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

- Directional clearing, which requires slow, progressive, one directional clearing to allow terrestrial fauna to disperse ahead of the clearing activity should they occur on site at the time of clearing,
- Offset – land acquisition, which requires a monetary contribution to fund the purchase and conservation in perpetuity of 1.15 hectares of significant foraging habitat for Carnaby's cockatoo in a Very Good (Keighery, 1994) condition.

3.2.2. Biological values (ecological communities) - Clearing Principles (a) and (d)

Assessment

The 'NEWest Alliance Flora and Vegetation Survey – Access Track' (Natural Area, 2022) identified that the open *Banksia* spp. woodland and *Banksia sessilis* shrubland vegetation types within the application area contain species that are representative of the Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region (Banksia Woodlands) ecological community, which is listed as a priority ecological community (PEC) by DBCA in Western Australia and is federally listed as a threatened ecological community (TEC) under the EPBC Act.

The approved conservation advice for the federally listed Banksia Woodlands TEC, notes that the key diagnostic criteria for the community include the presence of at least one of the four diagnostic *Banksia* species, and distinct low woodland to forest structure comprising a canopy co-dominated by *Banksia attenuata* or *Banksia menziesii*, where the emergent tree layer often includes marri, jarrah or tuart, over a diverse shrub or herbaceous understorey (TSSC, 2016). The community typically occurs on well drained, low nutrient soils on sandplain landforms, particularly deep Bassendean and Spearwood sands and occasionally on Quindalup sands, and is also common on sandy colluvium and aeolian sands of the Ridge Hill Shelf, Whicher Scarp and Dandaragan Plateau (TSSC, 2016).

Previously, occurrences of the Banksia Woodlands PEC were determined from the composition and location of the vegetation, where no specific patch size or condition thresholds applied. However, the description, area and condition thresholds have since been updated and are now aligned with those that apply to the federally listed Banksia Woodlands TEC (DBCA, 2022). The thresholds for patch size and condition for the Banksia Woodlands TEC state that a patch should meet at least Good (Keighery, 1994) condition to be considered part of the listed community, and minimum patch size is dependent on vegetation condition and its overall contribution to beta diversity, connectivity, and function of the ecological community across the landscape (TSSC, 2016).

The flora and vegetation survey identified that the vegetation within the application area itself would not meet the patch size and condition thresholds to be considered representative of the Banksia Woodlands TEC/PEC (Natural Area, 2022). However, the flora and vegetation survey noted that the larger remnant of native vegetation to the east of the application area within Lot 9006 on Deposited Plan 421398 was likely to meet the key diagnostic criteria for the Banksia Woodlands TEC, which was estimated as having a patch size of approximately 6.12 hectares (Natural Area, 2022). The open *Banksia* spp. woodland and *Banksia sessilis* shrubland vegetation types in the south-eastern portion of the application area are contiguous with the remnant vegetation within Lot 9006 on Deposited Plan 421398 and therefore, are likely to comprise a linear section of the larger patch of Banksia Woodlands TEC (Figure 3; Natural Area, 2022).

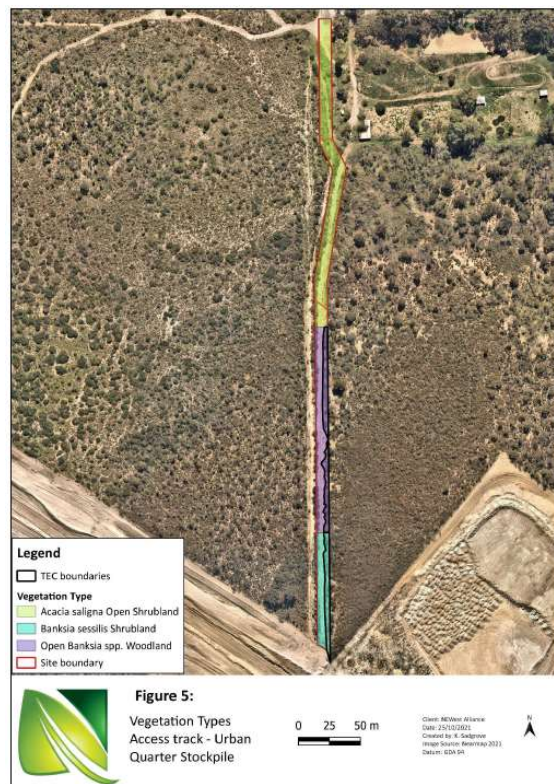


Figure 3. Boundaries of vegetation that is representative of the Banksia woodlands TEC within the application area for CPS 9487/1 (Natural Area, 2022).

The flora and vegetation survey notes that the south-eastern portion of the application area includes approximately 0.06 hectares of open *Banksia* spp. woodland in Completely Degraded to Very Good (Keighery, 1994) condition and approximately 0.04 hectares of *Banksia sessilis* shrubland in Degraded to Good (Keighery, 1994) condition within the larger patch of Banksia Woodlands TEC (Natural Area, 2022). However, the flora and vegetation survey indicates that the mapped open *Banksia* spp. woodland and *Banksia sessilis* shrubland vegetation types in the south-eastern portion of the application area contain few mature banksia trees, with most of the vegetation present in this area being regrowth of middle and understorey species (Natural Area, 2022). Noting that this area comprises scattered areas of regrowth that has been subject to historical and ongoing disturbance from the existing access track and adjacent fire break, it is unlikely that the vegetation within the application area is necessary for the maintenance of the greater patch of Banksia Woodlands TEC. Further, the applicant has advised that impacts to banksia trees within the eastern portion of the application area will be limited to pruning where possible, to mitigate impacts to the Banksia Woodlands TEC (NEWest, 2022). Given the extent, the narrow linear nature of the proposed clearing, and that mature banksia trees will be avoided from clearing where possible, impacts to the greater patch of Banksia Woodlands TEC resulting from the proposed clearing are not considered likely to be significant.

It is acknowledged that the proposed clearing has the potential to facilitate the spread of weeds and dieback into the greater patch of vegetation that is representative of the Banksia Woodland TEC, by exposing the eastern portion of the patch to edge effects. Noting the extent of the proposed clearing along a narrow linear footprint, a weed and dieback management condition is considered sufficient to minimise this risk.

Conclusion

Based on the above assessment, the proposed clearing will result in the loss of 0.1 hectares of vegetation within a patch of the Banksia Woodlands TEC and may facilitate the spread of weeds and dieback into the greater patch. However, clearing will be predominantly limited to regrowth of middle and understorey species and mature banksia trees will be avoided, where possible.

For the reasons set out above, it is considered that the impacts of the proposed clearing to the Banksia Woodlands TEC can be managed to be environmentally acceptable by taking steps to minimise the risk of the introduction and spread of weeds and dieback and does not constitute a significant residual impact.

Conditions

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

- Dieback and weed control, which ensures protocols are put in place to limit the introduction and transportation of dieback- and weed-affected materials.

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on DWER's website on 23 December 2021, inviting submissions from the public within a 21-day period. No submissions were received in relation to this application.

The City of Wanneroo was invited to provide comments on the proposed clearing under CPS 9487/1. No comments were received.

The proposed clearing is within a Priority 3 area of the Perth Coastal Underground Water Pollution Control Area proclaimed under the *Metropolitan Water Supply Sewerage and Drainage Act 1909*, which supplies drinking water to the Perth Integrated Water Supply System. The proposed clearing is not within any wellhead protection zones. The applicant should follow best management practices during the proposed clearing and associated works, as outlined in [Water Quality Protection Notice 83: Infrastructure corridors near sensitive water resources](#).

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 0.259 hectares of significant foraging habitat for Carnaby's cockatoo.

To counterbalance the above impacts, the applicant has committed to provide a monetary offset contribution for purchase of 1.15 hectares of land within the Shire of Gingin to address impacts specific to Carnaby's cockatoo foraging habitat.

In assessing whether the proposed offset is adequately proportionate to the significance of the habitat values being impacted, DWER undertook a calculation using the WA Environmental Offsets Metric. The calculation determined that the acquisition and conservation in perpetuity of 1.15 hectares of native vegetation in a Very Good (Keighery, 1994) condition that provides suitable foraging habitat for Carnaby's cockatoo is adequate to counterbalance the significant residual impacts.

In the assessment of the proposed offset, the Delegated Officer considered the impacts of the associated larger project, Part 1 of the Yanchep Rail Extension Project, which has been assessed and approved by the EPA. The significant residual impacts were determined by the applicant to include impacts to 17.4 hectares of critical habitat for Carnaby's cockatoo.

At the time of the assessment, it is considered that the following offsets proposed are currently being considered by the EPA:

- Land acquisition of 19.3 ha (Lot 21 Dayrell Road, Nowergup) of black cockatoo habitat; and
- Land acquisition of 37.02 ha (Lot 333 Mimegarra Road, Cataby) of black cockatoo foraging habitat.

Taking into account these proposed offsets for the related larger project, it has been established that a 50-hectare land value, in this instance, is appropriate and is consistent with the *Environmental Offsets Policy* (2011).

Based on unimproved land values for the Shire of Gingin, a 50-hectare parcel would have a market value of \$3,840. Therefore, a monetary contribution of \$4,416 would be required to fund the acquisition of 1.15 hectares of suitable native vegetation in Very Good (Keighery, 1994) condition that provides suitable foraging habitat for the Carnaby's cockatoo.

The Delegated Officer considers that the proposed offset is consistent with the *Environmental Offsets Policy* (2011) and the *Environmental Offsets Guidelines* (2014) and adequately counterbalances the significant residual impact to Carnaby's cockatoo foraging habitat. 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
<p>On 22 February 2022, the Department wrote to the applicant requesting clarification of the extent of impacts to the Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region (Banksia Woodlands) ecological community identified in the flora and vegetation survey provided in support of the application (Natural Area, 2021), as well as clarification as to the permanent nature of the clearing.</p> <p>The applicant responded to this request on 11 March 2022, providing a revised flora and vegetation survey report (Natural Area, 2022) indicating the extent of impacts to the Banksia Woodlands ecological community, and indicating that the proposed clearing would be permanent (NEWest, 2022). The applicant also provided additional details as to how impacts to the Banksia Woodlands ecological community would be avoided and minimised (NEWest, 2022).</p>	<p>The additional information provided was considered as follows:</p> <ul style="list-style-type: none"> • The revised flora and vegetation survey report and impacts to the Banksia Woodlands ecological community was considered in the detailed assessment of impacts to biological values (see Section 3.2.1), and • The permanent nature of the clearing and mitigation of impacts to the Banksia woodlands ecological community was considered in <i>Avoidance and mitigation measures</i> (see Section 3.1).
<p>On 8 June 2022, the Department wrote to the applicant requesting the identification of a satisfactory environmental offset to counterbalance the significant residual impact to 0.259 hectares of foraging habitat for Carnaby's cockatoo.</p> <p>The applicant responded to this request on 9 June 2022, proposing a monetary contribution to the offset fund to mitigate the residual impact to Carnaby's cockatoo foraging habitat.</p>	<p>The appropriateness of the proposed environmental offset was considered in <i>Suitability of offsets</i> (see Section 4) and in Appendix F.</p>

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 DWER at the time of this assessment. This information was used to inform the assessment of the clearing against the Clearing Principles, contained in Appendix C.

B.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared comprises two areas of native vegetation: an approximately 0.4-hectare isolated strip of remnant native vegetation and an approximately 0.12-hectare section of a 35-hectare patch of remnant vegetation, in the intensive land use zone of Western Australia. It encompasses an existing access track/fire break in the centre of the two areas of native vegetation and is adjacent to the existing Yanchep Rail Extension (YRE) Project development envelope to the south, Beonaddy Road to the north, and is surrounded by remnant native vegetation to the east and west. Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 63 per cent of the original native vegetation cover (see Appendix B.2).
Ecological linkage	The application area does not intersect any formally mapped ecological linkages. Several conceptual linkages associated with the Gnangara Mound Ecological Linkages (Brown et al., 2009) and Perth Regional Ecological Linkages (Del Marco et al., 2004) occur within one kilometre, but are separated from the application area by existing cleared land and access tracks. Given the application area consists of a linear strip of native vegetation encompassing an existing access track/fire break and adjacent to an expansive tract of remnant native vegetation, it is not considered to be contributing significantly to the values of the nearby mapped linkages or to any formal or informal ecological linkages in the local area.
Conservation areas	The closest conservation area is Yanchep National Park, located approximately 1.3 kilometres east of the application area, and separated from the application area by historically cleared land and access tracks.
Vegetation description	<p>A flora and vegetation survey undertaken by Natural Area Consulting Management Services (Natural Area) in October 2021 indicates that the vegetation within the proposed clearing area consists of three broad vegetation types:</p> <ul style="list-style-type: none"> • <i>Acacia saligna</i> open shrubland, described as open shrubland of <i>Acacia saligna</i> over an understorey of introduced grasses and herbs particularly <i>Pelargonium capitatum</i>, • Open <i>Banksia</i> spp. woodland, described as, and an open woodland of <i>Banksia attenuata</i> and <i>Banksia menziesii</i> trees over a middle storey of <i>Banksia sessilis</i> and <i>Hakea trifurcata</i> shrubs and an understorey of mixed introduced grasses and herbs, and • <i>Banksia sessilis</i> shrubland, described as shrubland of <i>Banksia sessilis</i> over an understorey of mixed introduced grasses and herbs (Natural Area, 2022). <p>Representative photos and the full survey descriptions and maps are available in Appendix F.</p> <p>This is inconsistent with the mapped Swan Coastal Plain vegetation type Cottesloe Complex – Central and South, which is described as a mosaic of woodland of <i>Eucalyptus gomphocephala</i> (tuart) and open forest of tuart - <i>Eucalyptus marginata</i> (jarrah) - <i>Corymbia calophylla</i> (marri), with closed heath on the limestone outcrops (Hedde et al., 1980).</p>
Vegetation condition	The flora and vegetation survey undertaken by Natural Area in October 2021 indicates that the vegetation within the proposed clearing area is in Very Good to Completely Degraded (Keighery, 1994)

Characteristic	Details
	<p>The full Keighery (1994) condition rating scale is provided in Appendix D. The full survey mapping is available in Appendix F.</p>
Climate and landform	<p>The application area occurs on slightly undulating topography, sloping down from 12 metres Australian Height Datum (m AHD) at the northern end of the site to 44 m AHD in the south (Natural Area, 2022).</p> <p>The application area occurs in a Mediterranean climate and has a mean annual maximum temperature of 25.6°C and a mean annual minimum temperature of 11.0°C. The mean annual rainfall rate of 800 millimetres and the annual evapotranspiration rate is 700 millimetres.</p>
Soil description and land degradation risk	<p>The soil within the application area is mapped as the following systems:</p> <ul style="list-style-type: none"> • Quindalup South oldest dune Phase (211Qu_Q1), described as the oldest phase, with dunes or remnants with low relief, where calcareous sands have organic staining to about 30 centimetres, overlying pale brown sand with definite cementation below 1 metre, • Karrakatta shallow soils Phase (211Sp_KIs), described as low hills and ridges with bare limestone or shallow siliceous or calcareous sand over limestone and including dense low shrub dominated by <i>Banksia sessilis</i>, <i>Melaleuca huegelii</i> and species of <i>Grevillea</i>, • Spearwood Sand Phase (211Sp_Sp), described as irregular banks of karst depressions, with some limestone outcrop. Primarily shallow brown sands with <i>Banksia</i> spp. woodland with emergent <i>Eucalyptus gomphocephala</i> and <i>Eucalyptus marginata</i> and dense shrub layer, and • Karrakatta Sand Yellow Phase (211Sp_Ky), described as low hilly to gently undulating terrain with yellow sand over limestone at 1-2 metres and including <i>Banksia</i> spp. woodland with scattered emergent <i>Eucalyptus gomphocephala</i> and <i>Eucalyptus marginata</i> and a dense shrub layer (DPIRD, 2022). <p>The soil types within the application area are mapped as having a low risk of land degradation resulting from water erosion, salinity, waterlogging, flooding, subsurface acidification, and phosphorus export, but as having a moderate to high risk of wind erosion (DPIRD, 2022).</p>
Waterbodies and hydrogeography	<p>The desktop assessment and aerial imagery indicated that the application area does not intersect any mapped wetlands or natural source of surface water. The closest natural watercourse is a non-perennial tributary of the Swan River System, located approximately five kilometres north of the application area and separated by historically cleared land and access tracks. The closest wetland to the application area is the Beonaddy Swamp, located approximately 350 metres east of the application area, separated by historically cleared residential land and access tracks.</p> <p>The application area is mapped within the Perth Groundwater Area, proclaimed under the <i>Rights in Water and Irrigation Act 1914</i> (the RIWI Act), and the Perth Coastal and Gwelup Underground Water Pollution Control Area, a Priority 3 Public Drinking Water Source Area (PDWSA) proclaimed under the <i>Metropolitan Water Supply Sewerage and Drainage Act 1909</i>. The application area does not transect any proclaimed surface water areas.</p> <p>Groundwater salinity within the application area is mapped at 500 to 1000 milligrams per litre total dissolved solids.</p>
Flora	<p>The desktop assessment identified that a total of 24 conservation significant flora species have been recorded within the local area, comprising two Priority 1 (P1) flora, six Priority 2 (P2) flora, nine Priority 3 (P3) flora, four Priority 4 (P4) flora, and three threatened flora (Western Australian Herbarium, 1998-). None of these existing records</p>

Characteristic	Details
	<p>occur within the application area, with the closest record being an occurrence of <i>Stylidium maritimum</i> (P3) approximately 1.5 kilometres from the application area.</p> <p>No threatened or priority flora species were identified within the application area during the flora and vegetation survey (Natural Area, 2022). The survey report noted that the application area was unlikely to provide suitable habitat for any threatened or priority flora species, given the condition of the vegetation and the ongoing disturbance from use of the existing access tracks (Natural Area, 2022). The flora and vegetation survey was undertaken during the 2021 spring season and the majority of the conservation significant flora species recorded in the local area are either perennial species or are annual species that would have been flowering at the time of the survey (WA Herbarium, 1998-).</p> <p>With consideration for the site characteristics set out above, relevant datasets (see Appendix G.1), the habitat preferences and conservation statuses of the aforementioned species, the distribution and extent of existing records, and biological survey information as summarised above (Natural Area, 2022), the application area is unlikely to provide suitable or significant habitat for threatened or priority flora species and impacts to flora species did not require further consideration.</p>
Ecological communities	<p>The desktop assessment identified that the closest mapped state-listed TEC is an occurrence of the <i>Melaleuca huegelii</i> - <i>Melaleuca systena</i> shrublands on limestone ridges (floristic community type 26a as originally described in Gibson et al. (1994)) (SCP26a) TEC, located approximately 400 metres west of the application area, separated by cleared land associated with the existing YRE Project development footprint and historical access tracks.</p> <p>The closest mapped state-listed PEC is an occurrence of the Tuart (<i>Eucalyptus gomphocephala</i>) woodlands and forests of the Swan Coastal Plain (Tuart Woodlands) PEC, located approximately 35 metres north-east of the application area, separated by historically cleared access tracks.</p> <p>The flora and vegetation survey identified that the patch of remnant vegetation to the east of the application area was likely to be representative of the Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region (Banksia Woodlands) TEC (Natural Area, 2022). With consideration for the site characteristics set out above, relevant datasets (see Appendix G.1), and biological survey information (Natural Area, 2022), impacts to this ecological community required further consideration (see Appendix B.4).</p>
Fauna	<p>The desktop assessment identified that a total of 42 threatened or priority fauna species have been recorded within the local area, including 18 threatened fauna species, 10 priority fauna species, 11 fauna species protected under international agreement, two other specially protected fauna species, and one extinct species (DBCA, 2007-). None of these existing records occur within the application area, with the closest record being an occurrence of Carnaby's cockatoo, approximately 180 metres from the application area.</p> <p>With consideration for the site characteristics set out above, relevant datasets (see Appendix G.1), the habitat preferences of the aforementioned species, and biological survey information (Natural Area, 2022), the application area may provide suitable habitat for five conservation significant fauna species and impacts to these species required further consideration (see Appendix B.3).</p>

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**					
Swan Coastal Plain	1,501,221.93	579,813.47	38.62	222,916.97	14.85
Vegetation complex*					
Cottesloe Complex-Central and South	45,299.61	14,567.87	32.16	6606.12	14.58
Local area (calculation - delete if not required)					
10-kilometre radius	21,040.87	13,326.11	63.33	-	-

*Government of Western Australia (2019a)

**Government of Western Australia (2019b)

B.3. Fauna analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix G.1), the distribution and extent of existing records, and biological survey information (Natural Area, 2022), impacts to the following conservation significant fauna required further consideration.

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 in local area (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Zanda latirostris</i> (previously <i>Calyptorhynchus latirostris</i>) (Carnaby's cockatoo)	EN	Y	Y	0.17	511	Y
<i>Falco peregrinus</i> (Peregrine falcon)	OS	Y	Y	7.5	6	Y
<i>Idiosoma sigillatum</i> (Swan Coastal Plain shield-backed trapdoor spider)	P3	N	Y	3.0	2	N
<i>Isoodon fusciventer</i> (quenda)	P4	N	Y	2.2	49	Y
<i>Neelaps calonotos</i> (Black-striped burrowing snake)	P3	N	Y	4.2	4	N

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority, OS: Other specially protected fauna

B.4. Ecological community analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix G.1), and biological survey information (Natural Area, 2022), impacts to the following conservation significant ecological communities required further consideration.

Community name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records in local area (total)	Are surveys adequate to identify? [Y, N, N/A]
Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region (Banksia Woodlands)	Priority 3	Y	Y	Y	1.9	82	Y

Community name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records in local area (total)	Are surveys adequate to identify? [Y, N, N/A]
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T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

Appendix C. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p>Principle (a): <i>“Native vegetation should not be cleared if it comprises a high level of biodiversity.”</i></p> <p>Assessment: The area proposed to be cleared contains significant foraging habitat for Carnaby’s cockatoo and occurs within a larger patch of remnant vegetation that is likely to be representative of the Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region ecological community.</p>	May be at variance	Yes <i>Refer to Sections 3.2.1 and 3.2.2, above.</i>
<p>Principle (b): <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.”</i></p> <p>Assessment: The area proposed to be cleared contains significant foraging habitat for Carnaby’s cockatoo.</p>	At variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p>Principle (c): <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p>Assessment: The area proposed to be cleared is unlikely to contain habitat for Threatened flora, based on the findings of a suitably timed flora and vegetation survey (Natural Area, 2022).</p>	Not likely to be at variance	No
<p>Principle (d): <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community.”</i></p> <p>Assessment: Based on the findings of the flora and vegetation survey (Natural Area, 2022), the area proposed to be cleared occurs within a larger patch of remnant vegetation that is likely to be representative of the Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region community, listed as a TEC under the Commonwealth EPBC Act.</p>	May be at variance	Yes <i>Refer to Section 3.2.2, above.</i>
Environmental value: significant remnant vegetation and conservation areas		
<p>Principle (e): <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p>Assessment: The extent of native vegetation within the Swan Coastal Plain IBRA Bioregion, the mapped Swan Coastal Plain vegetation type, and native vegetation in the local area is consistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.</p>	Not likely to be at variance	No
<p>Principle (h): <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.”</i></p> <p>Assessment: Given the distance to and separation from the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of conservation areas in the vicinity.</p>	Not likely to be at variance	No
Environmental value: land and water resources		

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Principle (f)</u>: <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment</u>: Given the distance to and separation from the nearest water courses and wetlands in the local area, the proposed clearing is unlikely to be within an environment associated with a watercourse or wetland.</p>	Not likely to be at variance	No
<p><u>Principle (g)</u>: <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment</u>: The mapped soils are moderately susceptible to wind erosion. However, it is noted that the proposal includes the clearing of 0.53 hectares of vegetation across a linear footprint and that a crushed limestone layer will be applied to the access track to ensure the sandy soils are not exposed to ongoing weathering or degradation. Noting the above and that the vegetation has been degraded through use of the adjacent access tracks and fire breaks, the proposed clearing is not likely to have an appreciable impact on land degradation.</p>	Not likely to be at variance	No
<p><u>Principle (i)</u>: <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.”</i></p> <p><u>Assessment</u>: Given the distance to and separation from the nearest water courses and wetlands in the local area, the proposed clearing is unlikely to impact surface or ground water quality.</p>	Not likely to be at variance	No
<p><u>Principle (j)</u>: <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment</u>: The mapped soils and topographic contours in the surrounding area do not indicate that the application area is susceptible to flooding or waterlogging. Noting this, the extent of the proposed clearing across a linear footprint, and the primarily degraded condition of the vegetation, the proposed clearing is unlikely to contribute to increased incidence or intensity of flooding.</p>	Not likely to be at variance	No

Appendix D. Vegetation condition rating scale

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

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

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

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

Appendix E. Offset calculator value justification

WA Environmental Offsets Calculator Rationale for scores used in the offset calculator

Calculation	Score (Area)	Rationale
Conservation significance		
Description	Carnaby's cockatoo foraging habitat	The proposed clearing will impact on 0.259 hectares of significant foraging habitat for Carnaby's cockatoo.
Type of environmental value	Species (flora/fauna)	Carnaby's cockatoo is listed as a threatened fauna species under the Commonwealth EPBC Act and state BC Act.
Conservation significance of environmental value	Rare/threatened species - endangered	Carnaby's cockatoo is listed as Endangered under both the EPBC Act and BC Act.
Landscape-level value impacted	yes/no	
Significant impact		
Description	Clearing of native vegetation that comprises significant foraging habitat for Carnaby's cockatoo.	Native vegetation that comprises significant foraging habitat for Carnaby's cockatoo is proposed to be cleared for the purpose of an access track to facilitate construction works on the Yanchep Rail Extension Project.
Significant impact (hectares) / Type of feature	0.259	0.259 hectares of quality foraging habitat for Carnaby's cockatoo occurs within the application area and is proposed to be cleared according to vegetation mapping from the <i>NEWest Alliance Flora and Vegetation Survey – Access Track (Natural Area, 2021)</i> .
Quality (scale) / Number	7.00	The <i>NEWest Alliance Flora and Vegetation Survey – Access Track (Natural Area, 2021)</i> identified that foraging habitat within the application area is in Completely Degraded to Very Good (Keighery, 1994) condition. However, the foraging habitat within the application area comprises <i>Banksia</i> spp. which are a primary foraging resource for Carnaby's cockatoo on the Swan Coastal Plain and evidence of individuals foraging within the application area was observed during the survey. The application is also located within 6 kilometres of 10 confirmed roost sites and may support foraging by roosting individuals.
Rehabilitation credit		
N/A	N/A	The applicant advised that once use of the access track as part of the Yanchep Rail Extension project ceases, the area will be handed back to the Urban Quarter developer and maintained as a firebreak and access between future public open space and remnant vegetation (NEWest, 2022). Therefore, the clearing will be permanent, and no on-site rehabilitation is proposed.
Offset		
Description	Land acquisition	A single offset involving the purchase and transfer into the conservation estate of an offset site that includes native vegetation that comprises significant foraging habitat for Carnaby's cockatoo.
Proposed offset (area in hectares)	1.15	The acquisition and conservation in perpetuity of 1.15 hectares of native vegetation that comprises significant foraging habitat for Carnaby's cockatoo is required to offset the residual impacts to this species.
Current quality of offset site / Start	8.00	It is assumed that the native vegetation that comprises significant foraging habitat for Carnaby's cockatoo within the offset site will be in Very Good (Keighery, 1994) condition.

Calculation	Score (Area)	Rationale
number (of type of feature)		
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	8.00	It is assumed that the offset site is currently rural-zoned freehold land and that the quality of native vegetation that comprises significant foraging habitat for Carnaby's cockatoo within the offset site is unlikely to change significantly over a one-year period.
Future quality WITH offset (scale) / Future number WITH offset	8.00	It is assumed that the offset site will be transferred into conservation estate following purchase and will be managed to maintain the quality of the existing values, including native vegetation that comprises significant foraging habitat for Carnaby's cockatoo.
Time until ecological benefit (years)	1.00	It is assumed that the offset site will be purchased within 1 year of clearing. It is also proposed that the land will be ceded to the conservation estate within this timeframe.
Confidence in offset result (%)	0.9	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 offsite site will be transferred into conservation estate following purchase and will be managed in perpetuity. Therefore, the maximum of 20 years is applied.
Time until offset site secured (years)	1.00	It is assumed that the offset site will be purchased and secured in conservation estate within 1 years of clearing.
Risk of future loss WITHOUT offset (%)	30.0%	It is assumed that the offset site to be acquired is currently zoned rural or similar and is not subject to any existing planning approvals.
Risk of future loss WITH offset (%)	10.0%	The future conservation (in perpetuity) of the offset site would result in a substantial increase in security and substantially reduce the risk of loss.
Offset ratio (Conservation area only)	N/A	
Landscape level values of offset?	N/A	

Appendix F. Biological survey information excerpts

The applicant commissioned the '*NEWest Alliance Flora and Vegetation Survey – Access Track*' (the flora and vegetation survey) to provide an indication of flora, vegetation, and black cockatoo habitat values in remnant native vegetation along an existing access track associated with the Urban Quarter Stockpile (Natural Area, 2022). The flora and vegetation survey included a desktop review, a detailed flora and vegetation survey, and a basic fauna survey (Natural Area, 2022). Survey descriptions and mapping excised from the flora and fauna surveys are available in Table 1 and Figures 3 to 5 below.

Desktop review

The desktop review for the detailed flora and vegetation survey and basic fauna survey was undertaken by experienced ecologists and involved the following:

- A review of DBCA's NatureMap and FloraBase databases and the Department of Agriculture, Water and Environment's (now DCCEEWS) Protected Matters Search Tool (utilising an approximate 5-kilometre radius surrounding the survey area) to gather records in the locality, and
- A likelihood analysis to determine the likely presence of threatened or priority flora, fauna or ecological communities based on nearby records and mapped community types (Natural Area, 2022).

Flora and vegetation survey

The methods of the flora and vegetation survey were in accordance with the *EPA Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016). The flora and vegetation assessment was undertaken by experienced ecologists and involved the following:

- Field surveys over two days between 1 and 15 October 2021, including comprehensive sampling of three transect lines (one per vegetation type) along the entire linear length of the survey alignment,
- Vegetation type and condition mapping for the survey area, using data collected from transects and opportunistic sampling,
- Targeted searches for significant flora identified in the likelihood of occurrence assessment, and
- Determining the presence of conservation significant ecological communities based on state and federal listing criteria (Natural Area, 2022).




Basic fauna survey

The methods of the terrestrial fauna assessment were in accordance with the *EPA Technical Guidance – Vertebrate Fauna Surveys for Environmental Impact Assessment* (EPA, 2020). The terrestrial fauna assessment was undertaken by experienced ecologists and involved the following:

- Field surveys over two days between 1 and 15 October 2021, involving traversing the survey area to record direct sightings or indirect evidence of fauna and potential fauna habitat (e.g., scats, tracks, diggings, burrows, foraging, and calls), and
- Identification of habitat trees with a diameter at breast height (DBH) of greater than 500 millimetres that may provide suitable breeding habitat for black cockatoo species (Natural Area, 2022).

Survey descriptions and mapping

Table 1. Vegetation type descriptions within the application area for CPS 9487/1 (Natural Area, 2022).

Vegetation Type	Description	Photograph
<i>Acacia saligna</i> Open Shrubland	Open shrubland of <i>Acacia saligna</i> over an understorey of introduced grasses and herbs particularly <i>Pelargonium capitatum</i> .	 A photograph showing a landscape with scattered trees and dense green grasses and herbs under a cloudy sky.
Open <i>Banksia</i> spp. Woodland	An open woodland of <i>Banksia attenuata</i> and <i>Banksia menziesii</i> trees over a middle storey of <i>Banksia sessilis</i> and <i>Hakea trifurcata</i> shrubs and an understorey of mixed introduced grasses and herbs.	 A photograph of a dirt road winding through a woodland with scattered trees and dense shrubs under a blue sky with light clouds.
<i>Banksia sessilis</i> Shrubland	Shrubland of <i>Banksia sessilis</i> over an understorey of mixed introduced grasses and herbs.	 A photograph showing a dense thicket of shrubs and trees with a grassy understorey under a cloudy sky.

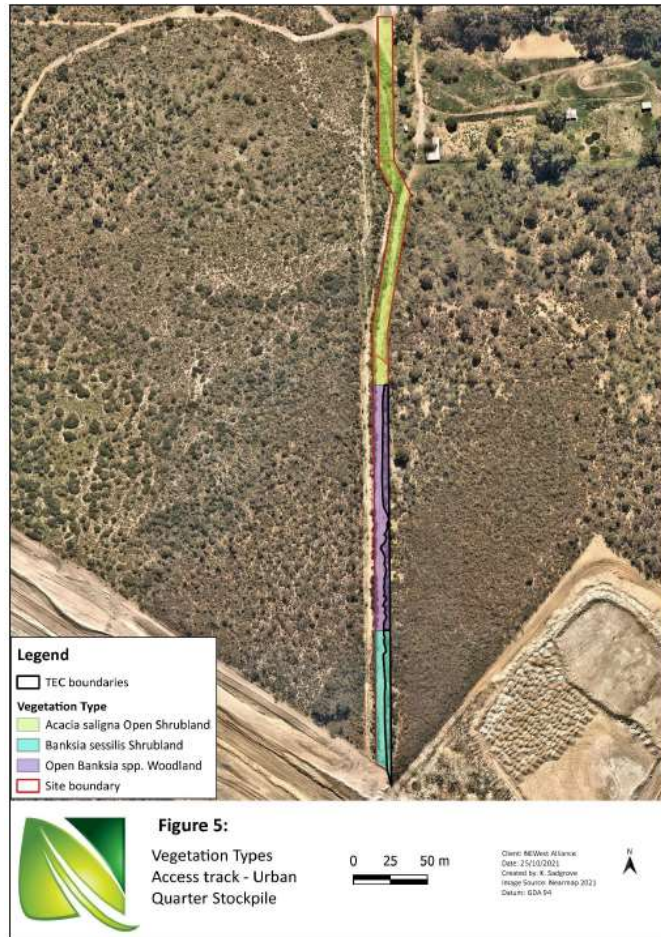


Figure 3. Vegetation type mapping within the application area for CPS 9487/1 (Natural Area, 2022).

(a)

(b)

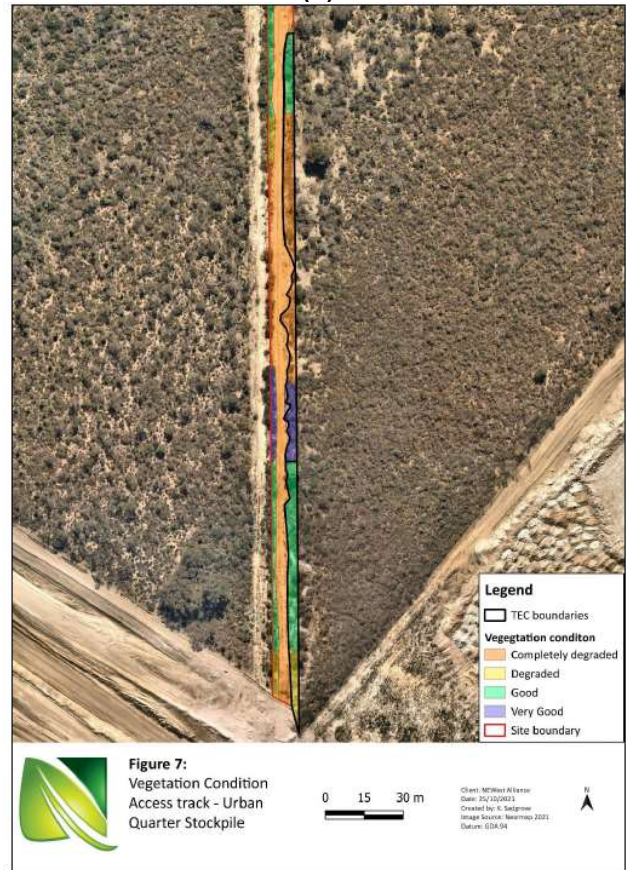
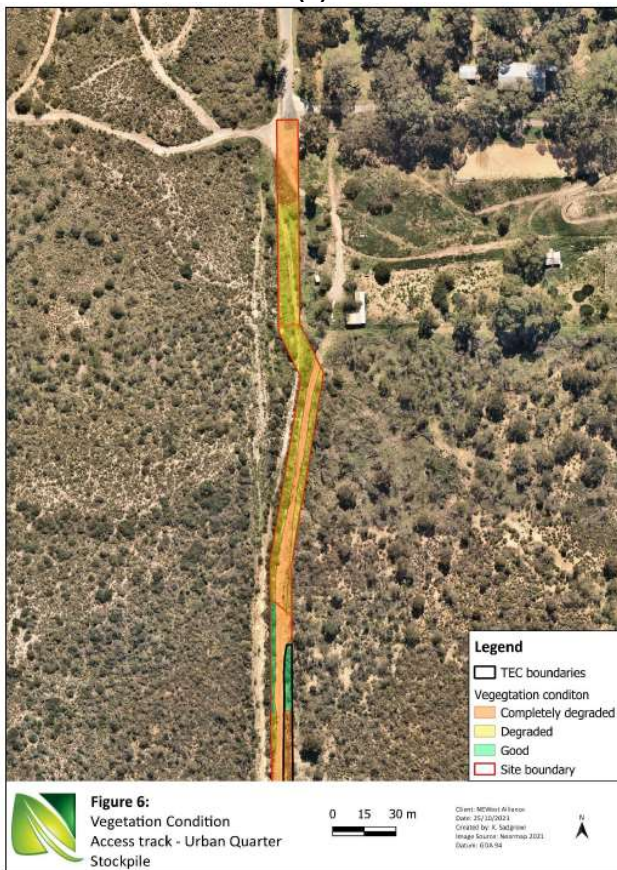


Figure 4(a-b). Vegetation condition mapping within the application area for CPS 9487/1 (Natural Area, 2022).



Figure 5. Location of black cockatoo foraging evidence within the application area for CPS 9487/1 (Natural Area, 2022).

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)
- Bush Forever Areas 2000 (DPLH-019)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- CAWSA Part 2A Clearing Control Catchments (DWER-004)
- Consanguineous Wetlands Suites (DBCA-020)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- DBCA Statewide Vegetation Statistics
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Geomorphic Wetlands, Swan Coastal Plain (DBCA-019)
- Groundwater Salinity Statewide (DWER-026)
- Hydrographic Catchments - Catchments (DWER-028)
- Hydrographic Catchments - Divisions (DWER-029)
- Hydrography, Linear (Hierarchy) (DWER-031)
- 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 (DPIRD-006)
- 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 (DPIRD-027)
- Soil Landscape Mapping – Systems (DPIRD-064)
- Vegetation Complexes - Swan Coastal Plain (DBCA-046)

Restricted GIS Databases used:

- Conservation Covenants Western Australia (DPIRD-023)
- Contaminated Sites Database - Restricted (DWER-073)
- 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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