Offset Strategy

Hamersley Residential Development and Conservation (EPBC 2018/8324, EPA 2251)

Project No: EP24-129(05)

Prepared for BAI Communications
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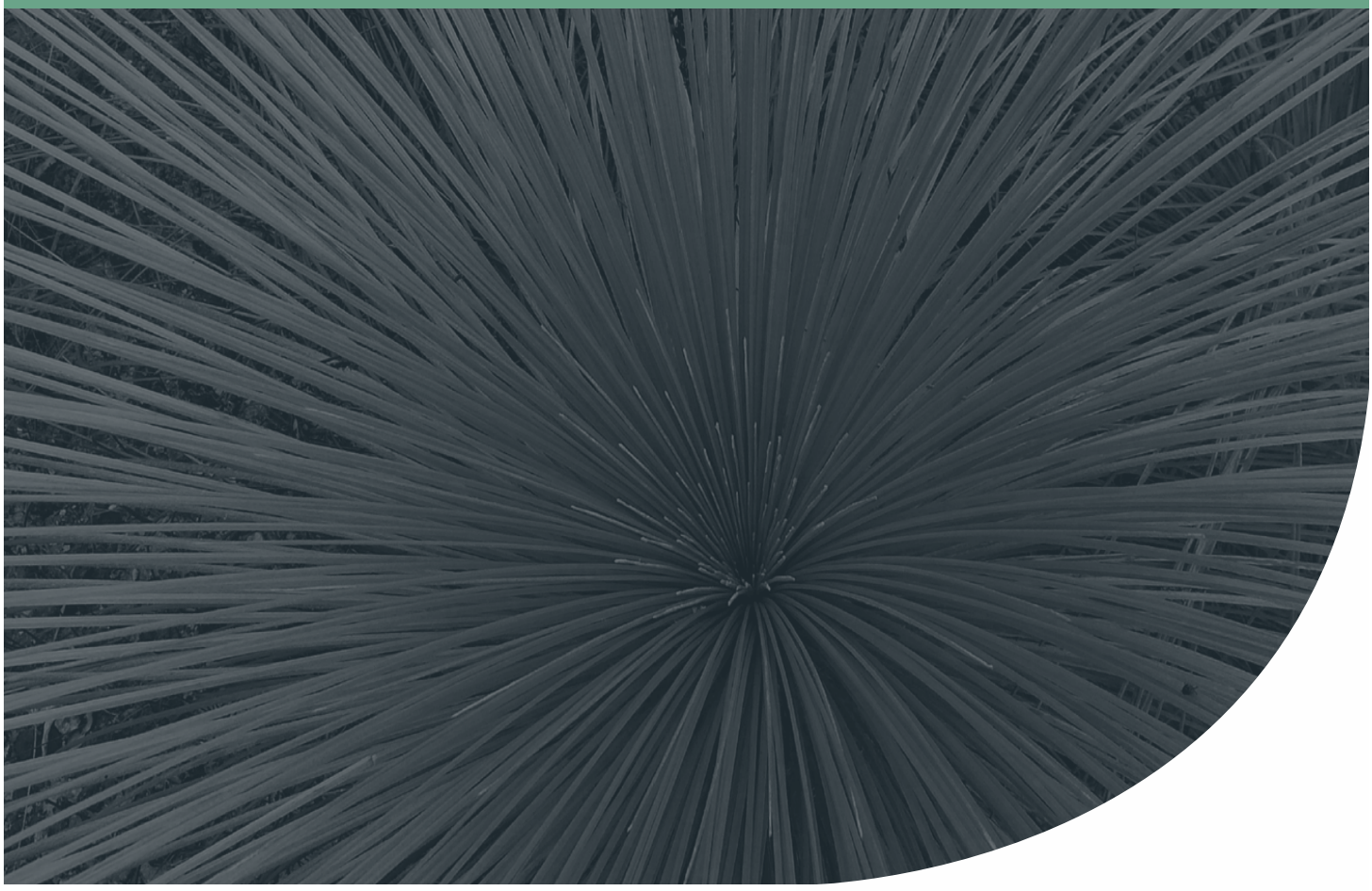

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Executive Summary

Digital 4 Pty Ltd (herein referred to as the 'proponent') are proposing the Hamersley Residential Development and Conservation project within Lot 802 Erindale Road, and Lot 1 and 803 Wanneroo Road, Hamersley in the City of Stirling, Western Australia (herein referred to as 'the proposed development'). The proposed development envelope is approximately 33.21 ha and includes 13.55 ha for residential development within Lot 802 Erindale Road and the western portion of Lot 803 Wanneroo Road ('the residential development'), and 19.66 ha for a conservation area within Lot 803 and the eastern portion of Lot 1 Wanneroo Road ('the conservation area').

Implementation of the proposed development is anticipated to result in significant residual impacts to the following threatened and priority species and communities, relevant to both the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) matters of national environmental significance (MNES) and the *Environmental Protection Act 1986* (EP Act) environmental factors:

- Banksia woodlands of the Swan Coastal Ecological Community – Endangered under the EPBC Act and Priority 3 (P3) under the Western Australia (WA) policy framework
- Carnaby's black cockatoo (CBC) (*Zanda latirostris*) – Endangered under the BC Act and EPBC Act
- Forest red-tailed black cockatoo (FRTBC) (*Calyptorhynchus banksii naso*) – Vulnerable under the BC Act and EPBC Act.

An offset pursuant to the EPBC Act and EP Act is anticipated to be required to compensate the direct and permanent impact on the above threatened and priority species and communities within the proposed development envelope.

This Offset Strategy has been prepared to support the environmental assessment and approvals for the proposed development pursuant to the EPBC Act and EP Act with consideration to the principles of the *EPBC Act Environmental Offsets Policy* (Commonwealth of Australia 2012) and *WA Environmental Offsets Policy* (Government of Western Australia 2011), through the identification of multiple potential offset sites and associated proposed management to demonstrate that there are ample restoration offset opportunities available to sufficiently fulfill the offset requirements for the proposal. It should be noted that there have been surplus offset gain opportunities available (i.e. multiple sites and restoration approaches) to adequately respond to the identified residual impacts, and there will be refinement of these and potentially other similar offset sites being investigated to specify the ultimate offset site (or combination of offset sites). The ultimate offset site will be documented in an Offset Proposal at future stages of the assessment process once a preferred site is selected and progressed. The Offset Strategy is intended to demonstrate that sufficient specific and tangible restoration offset opportunities are available (and hence reducing the risk of there being offset scarcity to respond to the residual impacts) but also enabling the ultimate offset proposal to be refined and finalised to support the respective assessment processes and capture a degree of flexibility for the assessment outcomes.

This document provides context for the residual impacts associated with the proposed development as well as outlining the onsite offset approach within the conservation area and potential offsite restoration area opportunities. Furthermore, it provides an assessment of any risks that may prevent

the proponent from achieving the proposed environmental outcomes and restoration (offset) objectives.

The ultimate offset objective is to conduct intensive habitat restoration including establishing plant species representative of banksia woodland vegetation to compensate for the residual adverse impacts on threatened and priority species and communities as a result of the proposed development.

Habitat restoration will be undertaken within the conservation area (within Lot 1 and Lot 803), contributing a minor part of the offset requirements for the proposed development. Additional offsite restoration area/s are proposed to fulfill the total offset requirements and counterbalance 100% of the identified significant residual impacts. Habitat restoration will be achieved through weed management, fencing, revegetation of locally endemic species and species associated with banksia type woodlands to improve the quality and extent of Banksia Woodlands TEC/PEC and black cockatoo foraging habitat.

Overall, the ultimate proposed offset is expected to result in a net positive environmental outcome for Banksia Woodlands TEC and black cockatoo foraging habitat in accordance with the Nature Positive Plan: better for the environment, better for business (DCCEEW 2022), as well as compensate for the residual impacts to the EP Act environment factors identified above.

The spatial extent of the ultimate proposed offset will comprise a combination of onsite and offsite restoration and is anticipated to compensate at least 100% (based on the Offset Assessment Guide) for the residual impacts of the proposed development. The proposed offsets will be consistent with the principles of the *EPBC Act Environmental Offsets Policy* (Commonwealth of Australia 2012) and *WA Environmental Offsets Policy* (Government of Western Australia 2011).

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Abbreviation Tables

Table A1: Abbreviations – Organisations

Organisations	
DBCA	Department of Biodiversity Conservation and Attractions
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DPIRD	Department of Primary Industries and Regional Development
DWER	Department of Water and Environmental Regulation
EPA	Environmental Protection Authority

Table A2: Abbreviations – General terms

General terms	
APZ	Asset Protection Zone
CAMP	Conservation Area Management Plan
CBC	Carnaby's Black Cockatoo
CEMP	Construction Environment Management Plan
ERD	Environmental Review Document
FCT	Floristic Community Type
HQS	Habitat Quality Score
MNES	Matters of National Environmental Significance
MRS	Metropolitan Region Scheme
NPP	Nature Positive Plan
P2	Priority 2
P3	Priority 3
P4	Priority 4
PD	Preliminary Documentation
PEC	Priority Ecological Community
SRE	Short Range Endemic
TEC	Threatened Ecological Community
WA	Western Australia

Table A3: Abbreviations –Legislation

Legislation	
BC Act	Biodiversity Conservation Act 2016
EP Act	Environmental Protection Act 1986
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999

Table A4: Abbreviations – units of measurement

Units of measurement	
ha	Hectare

1 Introduction

1.1 Proposed development

Digital 4 Pty Ltd (herein referred to as the 'proponent') are proposing the Hamersley Residential Development and Conservation project within Lot 802 Erindale Road, and Lot 1 and 803 Wanneroo Road, Hamersley in the City of Stirling, Western Australia (herein referred to as the 'proposed development'). The proposed development envelope is approximately 33.21 ha and includes 13.55 ha for residential development within Lot 802 Erindale Road and the western portion of Lot 803 Wanneroo Road ('the residential development'), and 19.66 ha for a conservation area within Lot 803 and the eastern portion of Lot 1 Wanneroo Road (the 'conservation area'). The residential development area and the conservation area are collectively referred to as 'the site' and are shown in **Figure 1**.

The residential development includes the following activities:

- The clearing of existing vegetation, comprising 12.29 ha of native vegetation.
- Bulk earthworks, including cutting and filling of the land.
- Civil construction works, including the construction of residential lots, roads, services infrastructure (such as sewer, water, gas, electricity, and communications) and all other associated construction works to establish a residential estate, to the point that completed residential lots are ready for individual dwellings to be built by home builders/lot purchasers.
- The provision of public open space and an Asset Protection Zone (APZ) containing vegetation to be managed to low threat to provide sufficient setback requirements to the bushfire risks associated with the retained vegetation in the conservation area.

The conservation area (within Lot 1 and Lot 803) will be retained, protected and managed for conservation purposes, including revegetation and restoration efforts across eleven suitable restoration areas. The restoration and rehabilitation proposed to be undertaken in the conservation area will provide rehabilitation credits for environmental factors (pursuant to the EP Act) and minor onsite offset contributions applicable for each of the impacted MNES (pursuant to the EPBC Act).

The proponent is progressing environmental assessment and approvals for the proposed development pursuant to the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the *Environmental Protection Act 1986* (EP Act). It should be noted that this offset strategy has been prepared to satisfy both EPBC Act and EP Act requirements and as such 'the proposed development' is equivalent to the 'proposed action' for the purposes of the EPBC Act and the 'proposal' for the purposes of the EP Act. Additionally, 'the site' is equivalent to the 'project area' for the purposes of the EPBC Act and 'development envelope' for the purposes of the EP Act.

1.2 Purpose

As a result of implementation of the proposed development, significant residual impacts are anticipated following the application of the mitigation hierarchy. This Offset Strategy has been prepared to identify potential offset sites and associated actions and management to sufficiently counterbalance the identified significant residual impacts.

The Offset Strategy is a supporting document to the Environmental Review Document (ERD) (Emerge Associates 2025f) prepared for the assessment of the EP Act environmental factors relevant to the proposed development, as well as the Preliminary Documentation (PD) (Emerge Associates 2025g) report prepared for the assessment of EPBC Act Matters of National Environmental Significance (MNES) relevant to the proposed development. It will inform the Environmental Protection Authority (EPA) and the Department of Climate Change, Energy, the Environment and Water (DCCEEW) assessment of the proposed development and statutory environmental approvals processes.

This Offset Strategy has been prepared in accordance with the following key policies and guidelines:

- EPBC Act Environmental Offsets Policy (Commonwealth of Australia 2012).
- WA Environmental Offsets Policy (Government of Western Australia 2011)
- WA Environmental Offsets Guidelines (Government of Western Australia 2014).

This Offset Strategy has been developed to satisfy the anticipated offset requirements pursuant to both the EPBC Act relevant MNES and the EP Act environmental factors, through the identification of potential offset sites and associated proposed management to demonstrate that there are ample restoration offset opportunities available to sufficiently fulfill the offset requirements for the proposal. It should be noted that there have been surplus offset gain opportunities available (i.e. multiple sites and restoration approaches) to adequately respond to the identified residual impacts, and there will be refinement of these and potentially other similar offset sites being investigated to specify the ultimate offset site (or combination of offset sites) which will be documented in an Offset Proposal at future stages of the assessment process. The offset strategy is intended to demonstrate that sufficient specific and tangible restoration offset opportunities are available (and hence reducing the risk of there being offset scarcity to respond to the residual impacts) but also enabling the ultimate offset proposal to be refined and finalised to support the respective assessment processes and capture a degree of flexibility for the assessment outcomes.

This Offset Strategy provides context of the relevant MNES and environmental factors and the associated residual impacts (**Section 2**) as well as outlining the offset site approach and potential restoration area opportunities (**Section 3**) and a risks assessment to inform appropriate management (**Section 4**).

It should be noted that this Offset Strategy has been informed by the most recent survey information (Emerge Associates 2025a, d) to address outstanding EPA and DCCEEW comments on historical versions of the assessment and supporting documentation and variations in environmental values recorded in historical survey reports.

2 Environmental Impacts

Implementation of the proposed development will result in environmental impacts to EPBC Act MNES and EP Act environmental factors through the removal of native vegetation within the residential development area. The relevant MNES and environmental factors to the proposed development are outlined in **Section 2.1** and **Section 2.2**, respectively. The anticipated significant residual impacts requiring offset consideration are outlined in **Section 2.3** below.

2.1 EPBC Act MNES

The following EPBC MNES, relevant to threatened species and communities, have been identified by DCCEEW based on relevance to the proposed development:

- Banksia woodlands of the Swan Coastal Plain Threatened Ecological Community (TEC) (Banksia Woodlands TEC) – Endangered under the EPBC Act
- Carnaby's black cockatoo (CBC) (*Zanda latirostris*) – Endangered under the EPBC Act
- Forest red-tailed black cockatoo (FRTBC) (*Calyptorhynchus banksii naso*) – Vulnerable under the EPBC Act.

2.2 EP Act environmental factors

The following EP Act environmental factors, relevant to 'flora and vegetation' and 'terrestrial fauna', have been identified by EPA as relevant to the proposed development:

- Flora and vegetation:
  - Banksia woodlands of the Swan Coastal Plain Priority Ecological Community (PEC) – Priority 3 (P3) under the Western Australia (WA) policy framework. The description, area and condition thresholds that apply to the EPBC-listed TEC of the same name, also apply to this PEC and as such, it is herein referred to as 'Banksia Woodlands TEC/PEC'.
  - '*Banksia attenuata* woodlands over species rich dense shrublands' (Swan Coastal Plain (SCP) 20a) TEC - Endangered under the *Biodiversity Conservation Act 2016* (BC Act), Endangered pursuant to the EPBC Act as it forms part of the Banksia Woodlands TEC.
  - 'Low lying *Banksia attenuata* woodlands or shrublands' Priority Ecological Community (PEC) (SCP21c) - P3 under the WA policy framework, Endangered pursuant to the EPBC Act as it forms part of the Banksia Woodlands TEC.
  - Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plains PEC – P3 under the WA policy framework, Critically Endangered pursuant to the EPBC Act. The description, area and condition thresholds that apply to the EPBC-listed TEC of the same name, also apply to this PEC and as such, it is herein referred to as 'Tuart Woodlands TEC/PEC')
  - *Acacia benthamii* - Priority 2 (P2) under the WA policy framework
  - *Jacksonia sericea* - Priority 4 (P4) under the WA policy framework
- Terrestrial fauna:
  - Carnaby's black cockatoo (CBC) (*Zanda latirostris*) – Endangered under the BC Act and EPBC Act

- Forest red-tailed black cockatoo (FRTBC) (*Calyptorhynchus banksii naso*) – Vulnerable under the BC Act and EPBC Act
- Quenda (*Isoodon fusciventer*) - P4 under the WA policy framework
- Cemetery springtail (*Australotomurus morbidus*) – P3 under the WA policy framework
- Woolybush bee (*Hylaeus globuliferus*) - P3 under the WA policy framework
- Swan Coastal Plain shield-backed trapdoor spider (trapdoor spider) (*Idiosoma sigillatum*)- P3 under the WA policy framework
- Graceful sunmoth (*Synemon gratiosa*) - P4 under the WA policy framework
- Black-striped snake (*Neelaps calonotos*) - P3 under the WA policy framework
- Four 'potential' short range endemic (SRE) species.

2.3 Residual impacts

Based on the outcomes of the environmental impact assessment undertaken as part of the PD report (Emerge Associates 2025g) and the ERD (Emerge Associates 2025f) prepared for the assessment of EPBC Act MNES and EP Act environmental factors, as well as previous correspondence with DCCEEW and EPA, significant residual impacts are anticipated to the following MNES and environmental factors:

- 12.29 ha of Banksia Woodlands TEC/PEC with a habitat quality score (HQS) of 5.6 in the residential development envelope and 6.5 for the conservation area.
- 12.30 ha of 'high' quality primary and secondary foraging habitat with a HQS of 8 for CBC
- 7.45 ha of 'high' quality primary and secondary foraging habitat with a HQS of 7 for FRTBC.

3 Proposed Offset Strategy

In order to counterbalance the predicted residual impacts of the proposed development on the Banksia Woodlands TEC/PEC and CBC and FRTBC foraging habitat, an offset is proposed in accordance with the *EPBC Act 1999 Environmental Offsets Policy* (Commonwealth of Australia 2012) and the *WA Environmental Offsets Policy* (Government of Western Australia 2011). The total offset requirements are proposed to be fulfilled through restoration works within the onsite conservation area as well as the restoration and protection of additional offsite restoration areas.

This offset strategy has been prepared on behalf of the proponent to outline the proposed offset opportunities for the proposed development, which can be considered by both DCCEEW and EPA to support the assessment of the proposed development throughout the statutory environmental approvals process.

3.1 Background context for offset approach

DCCEEW's environmental legislation and policy framework is currently going through a reform process, which is influencing offset planning. In the past, the DCCEEW Offsets Policy allowed for the use of 'averted loss' offsets, which involved implementation of measures to protect and manage existing MNES habitat to reduce the risk that the habitat will be permanently lost in the future. Such approaches do not necessarily involve the creation of new habitat or improvement of existing habitat, which can mean the net quantum or quality of MNES habitat across a proposed action and its offset can result in a net-loss.

The DCCEEW's *Nature Positive Plan: better for the environment, better for business* (NPP) (2022) recommends that proposed offsets counterbalance residual impacts of proposed actions (subsequent the application of the mitigation hierarchy) and should be based on the principle of habitat restoration and protection. In the NPP, 'nature positive' is defined as "a term used to describe circumstances where nature, species and ecosystems is being repaired and is regenerating rather than being in decline". Presently, the DCCEEW's general preference has shifted to offsets based on restoration activities which provide net-positive environmental outcomes for MNES.

Based on the current reforms to the environmental legislative and policy framework and the DCCEEW's resulting offset expectations, Emerge Associates on behalf of the proponent have investigated offset opportunities which are based on habitat restoration, including revegetation and threat abatement measures, which will provide a net-positive environmental outcome for the Banksia Woodlands TEC/PEC, CBC and FRTBC as a result of implementing the proposed development. Restoration of habitat is considered a broad term by the DCCEEW (2022) and is described as removing or managing threats such as removal of pests, weeds and disease (threat abatement), improving the general condition of existing remnant vegetation and habitat, in addition to planting specific vegetation and habitat missing from the landscape (revegetation).

The proposed offset strategy has also been prepared to align with the WA Government's environmental offset principles and considers EP Act environmental factors impacted by the proposed development. The EPA acknowledge 'adverted loss' offsets and is more commonly accepted to contribute to offset requirements by EPA.

While the proposed offsets have been primarily guided by federal requirements and focus on the establishment of Banksia Woodlands TEC/PEC and black cockatoo habitat, the restoration effort approach will simultaneously achieve offset requirements for the state listed Banksia Woodlands PEC, and black cockatoo habitat.

No further significant residual impacts are anticipated for other protected species and communities pursuant to the EP Act and as such the offset approach does not specifically target them. However, it is noted that the proposed conservation area will support the retention, restoration and long-term protection of species and habitat for the below listed priority flora and fauna species, which are also impacted by the proposed development, including:

- *97 Acacia benthamii* (P2 under the WA policy framework) individuals
- *1,333 Jacksonia sericea* (P4 under the WA policy framework) individuals
- 16.37 ha of native fauna habitat type (associated with the banksia woodland habitat type) providing suitable habitat for quenda, trapdoor spider and potential suitable habitat for black-striped snake and four potential SRE species.

Further detail on the environmental values preserved within the conservation area is provided within **Section 3.4.1** and the associated specific offset contributions is discussed in **Section 3.4.3**.

In addition to the conservation area, the proposed offsite offsets will create further habitat suitable for the priority flora and fauna species listed above through the establishment of Banksia Woodland type vegetation.

Emerge Associates, on behalf of the proponent, have explored a number of suitable offsite restoration areas that either support degraded Banksia Woodlands TEC/PEC or likely black cockatoo foraging habitat, or presently don't support vegetation classified as the Banksia Woodlands TEC/PEC or likely black cockatoo foraging habitat but would have prior to significant historic disturbance. These areas could accommodate offsets based on the potential for habitat restoration through short term intensive restoration activities and long-term maintenance measures.

In respect to offset approaches based on intensive on-ground restoration, various potential restoration areas were initially identified that provide opportunities for intensive on ground restoration of native vegetation and material improvements in the respective habitat quality scores. For the purpose of the offset strategy, the initial potential restoration areas have been narrowed down to one onsite restoration area (the conservation area) and four potential offsite restoration areas. These restoration areas have been explored further and considered as part of this offset strategy to demonstrate how these would fulfill to the proponent's anticipated offset requirements. It is important to note that the proposed offsite restoration areas will be refined from this offset strategy and finalised as an offset proposal once the current discussions with relevant land holders and land managers are concluded in parallel with this assessment to provide certainty on the offset requirements in relation to their ongoing land management requirements. It is also possible that other similarly suitable restoration offset options arise from ongoing investigations with other relevant land owners/managers and form part of the ultimate offset proposal, however to support the assessment in the meantime the offset strategy presents surplus restoration offset opportunities (based on their respective quantitative metrics) than the minimum offset requirements.

The offset strategy and approach have been prepared with consideration to the threats and restoration objectives outlined in the recovery plans and conservation advice for the relevant species and communities including:

- *Forest Black Cockatoo (Baudin's Cockatoo - Calyptorhynchus baudinii) and Forest Red-tailed Black Cockatoo (Calyptorhynchus banksii naso) Recovery Plan* (DEC 2007)
- *Carnaby's Cockatoo (Calyptorhynchus latirostris) Recovery Plan* (DEC 2013)
- *Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain ecological community* (DoEE 2016a).

The offset strategy and restoration approach considers the recovery plans and conservation advice through restoration objectives, providing a net-positive environmental gain for black cockatoos through creation of new and/or improvements to existing black cockatoo habitat and Banksia Woodlands TEC/PEC.

3.2 Banksia Woodlands TEC/PEC context

The DBCA Banksia Woodland TEC/PEC extent was validated with the Department of Primary Industries and Regional Development's (DPIRD) *Native Vegetation Extent* dataset (DPIRD 2023) to determine the likely extent of the Banksia Woodlands TEC/PEC within 12 km of the site. Comparison of the buffered DBCA search results to DPIRDs current native vegetation extent dataset determined that approximately 3,170 ha of the Banksia Woodlands TEC/PEC may occur within 12 km from the site.

It is acknowledged that the actual existing Banksia Woodlands type vegetation extent is likely to be higher, as patches of native vegetation exist outside the mapped native vegetation and Banksia Woodlands TEC/PEC DBCA publicly available database, with these areas potentially meeting the criteria of the Banksia Woodlands TEC/PEC (requires ground-truthing to confirm). This includes areas where existing native vegetation has not been mapped by DBCA and are located in close proximity to mapped Banksia Woodlands occurrences. In this respect, it is likely that the mapped TEC/PEC extent is much broader as it may include natural native vegetation regrowth within any cleared areas likely having formed part of the historical TEC/PEC extent. Therefore, the potential offset opportunities for habitat restoration based offset approaches for the Banksia Woodlands TEC/PEC extend beyond the DBCA mapped Banksia Woodlands TEC/PEC and native vegetation extent. Such areas that contain remnant native vegetation or are completely devoid of native vegetation but occur in the natural occurrence range of Banksia Woodland type vegetation have been considered to be suitable for restoration activities. Predictive spatial modelling of likely occurrences of Banksia Woodland type vegetation was utilised to assist in the identification of areas that Banksia Woodlands TEC/PEC is likely to occur or has historically occurred and would be suitable for restoration.

3.3 Black cockatoo context

Black cockatoo modelled distribution (Johnstone *et al.* 2011) was utilised to assist in the identification of areas that black cockatoo habitat is likely to be utilised by the species and would be suitable for restoration. This mapping includes areas within the distribution ranges where existing native vegetation does not currently occur.

The Department of Primary Industries and Regional Development (DPIRD) native vegetation extent (DPIRD 2023) was overlaid with the black cockatoo modelled distributions to identify areas that are currently degraded or cleared of vegetation and therefore present opportunity for black cockatoo habitat restoration. Historically, the extent of black cockatoo habitat was likely once much broader than the current native vegetation extent within the species mapped distributions, as cleared areas may once have supported suitable habitat and formed part of the species' historical range.

Accordingly, potential offset opportunities for black cockatoo habitat restoration extend beyond the existing extent of native vegetation within the species' mapped distributions. Areas containing degraded remnant vegetation or those currently devoid of native vegetation but located within the modelled distribution of CBC and FRTBC have been considered suitable for restoration offset opportunities.

3.4 Conservation area

The overall offset approach for the conservation area involves undertaking revegetation works within restoration areas to achieve a net positive conservation outcome for CBC, FRTBC and Banksia Woodlands TEC/PEC habitat quality. While the remainder of the conservation area will be managed to rehabilitate existing environmental values in accordance with the CAMP, these management outcomes have not been considered to contribute to the offset requirements. The existing environmental values and restoration suitability is further discussed in **Section 3.4.1** and **Section 3.4.2** respectively. Based on this, the conservation area offset contributions are discussed in **Section 3.4.3**.

Current land uses and site operations have been considered in the development of this offset strategy to ensure the conservation efforts can be achieved in parallel with current site uses. A portion of Lot 801 and Lot 1 is currently utilised by the proponent for broadcasting purposes. The broadcasting facility plays a critical role in delivering Australian Broadcasting Corporation (ABC) services, including ABC News Radio, Local Radio, and Radio National. These broadcasts serve not only the Perth metropolitan area but also reach regional communities. The location of the broadcasting facility and future conservation area is uniquely suited to this purpose.

It is noted that the conservation area holds commercial value for continued broadcasting or related uses and may have presented opportunities for upgrades or intensification of its existing functions. Additionally, the site offers opportunity to repurpose the conservation area aligned with its Urban zoning under the Metropolitan Region Scheme (MRS), which the proponent has previously considered. However, taking into account the ecological survey findings as part of a broader residential development and conservation initiative to provide conservation certainty and a better balance between development and the environment, the proponent has committed to foregoing any future expansion of usage or development in the conservation area (19.66 ha), which is surplus to current broadcasting requirements, to form the onsite conservation area (**Figure 1**).

Onsite conservation and restoration will be achieved through a staged approach, carefully managing current operations to align with the objectives outlined in the Conservation Area Management Plan (CAMP) (Emerge Associates 2025c). The broadcasting transmission infrastructure currently in operation within the conservation area will continue to operate in parallel with implementation of the offset strategy and CAMP and associated management actions. Ultimately, broadcasting

activities will cease in the future, although the exact timing is unknown, and all broadcasting infrastructure will be fully decommissioned in a manner consistent with the conservation objectives. Detailed liaison with the facility's operations team has been undertaken to understand the operational requirements and ensure continued operations and decommissioning will not impact conservation works. The proponents understands and commits to this restricting any intensification of current site uses.

Under the provisions of the *National Transmission Network Sales Act*, all broadcasting related activities within the site, including the replacement and upgrading of infrastructure, are "immune" from state laws. While provision will be made to enable continuation of the current land use and operations in parallel with the proposal's conservation area, the formal designation of the conservation area, together with the implementation of the CAMP, will secure the conservation area for protection and ecological restoration of cleared and degraded land. The proponent is effectively surrendering the use of the land from more intensive broadcasting related uses and effectively overrides its immunity from state planning and environmental regulations. Such immunity would otherwise conflict with the long-term conservation objectives for the land. To afford the conservation area long term protection, a conservation covenant will be enacted with a notice placed on the titles of Lot 803 and Lot 1. Once the completion criteria detailed within the CAMP (Emerge Associates 2025c) are met the conservation area will be ceded to a public authority free of charge for ongoing future management.

Further details on current site uses and management actions to achieve conservation and restoration within the conservation area are provided in the CAMP.

3.4.1 Conservation area existing values

The conservation area is proposed to be managed for threat abatement, alongside rehabilitation and restoration efforts in accordance with the CAMP (Emerge Associates 2025c) to protect and retain the existing environmental values. Restoration activities will contribute to restoration-based offsets under the EPBC Act and revegetation-based outcomes under the EP Act, specifically relating to black cockatoo habitat and Banksia Woodlands TEC/PEC.

The remainder of the conservation area (not subject to rehabilitation and restoration efforts) will be subject to threat abatement measures in accordance with the CAMP to support the rehabilitation of existing values; however, this management will not contribute to the formal offset. The CAMP further details the conservation area values, proposed restoration, associated management actions, and completion criteria.

The environmental values present within the conservation area, relevant to both EPBC Act MNES and EP Act environmental factors, were identified in the Detailed Flora and Vegetation Assessment (Emerge Associates 2025e) and the Basic Fauna and Targeted Black Cockatoo Assessment (Emerge Associates 2025a). Emerge Associates (2025b) undertook a Black Cockatoo and Banksia Woodlands of the Swan Coastal Plan Threatened Ecological Community Habitat Quality Score Assessment (herein referred to as 'HQS assessment') and assigned a HQS out of 10 to further assess impacts on black cockatoos and inform associated offsets. The HQS for black cockatoos impacted by the proposed development was calculated using the *Habitat scoring system for WA black cockatoo foraging habitat* provided by DCCEEW, with inputs comprising the projected foliage cover of black cockatoo

foraging plants, publicly available databases and results from Emerge Associates (2025a). The HQS for Banksia Woodlands TEC/PEC impacted by the proposed development was calculated using the *Banksia woodland TEC habitat quality scoring framework* based on Woodman Environmental (2018) provided by DCCEEW. Vegetation condition derived from Emerge Associates (2025e) was the key input to the Banksia Woodlands TEC scoring framework. An adjusted HQS for Banksia Woodlands TEC/PEC was applied to account for the impact recent fire disturbance had on vegetation condition and the likely regeneration over time (Emerge Associates 2025e).

The retention of vegetation and habitat within the 19.66 ha of conservation area will result in the conservation and protection of the following environmental values:

- 16.37 ha of native vegetation units associated with the 'Karrakatta complex - central and south' vegetation complex in varying condition including:
  - 2.60 ha of 'excellent' condition vegetation
  - 11.11 ha of 'very good' condition vegetation
  - 1.03 ha of 'good' condition vegetation
  - 1.62 ha of 'degraded' condition vegetation
  - 3.29 ha of 'completely degraded' vegetation
- 16.08 ha of Banksia woodlands of the Swan Coastal Plain TEC/PEC with a HQS of 6.5
- 1.87 ha of SCP 20a 'Banksia attenuata woodland over species rich dense shrublands' PEC
- 0.02 ha of SCP21c 'low lying Banksia attenuata woodlands or shrublands' PEC
- 16.41 ha of 'high' quality CBC foraging habitat with a HQS of 8
- 15.75 ha of 'high' quality FRTBC foraging habitat with a HQS of 7
- 3.35 ha of FRTBC roosting habitat
- 19 black cockatoo habitat trees
- 97 *Acacia benthamii* plants
- 1,333 *Jacksonia sericea* plants
- 16.37 ha of suitable habitat for quenda (*Isoodon fusciventer*), associated with the 'banksia woodland' fauna habitat type
- 16.37 ha of suitable habitat for trapdoor spider (*Idiosoma sigillatum*), associated with the 'banksia woodland' fauna habitat type
- 16.37 ha of potentially suitable habitat (associated with the 'banksia woodland' fauna habitat type for the black-striped snake (*Neelaps calonotos*).

3.4.2 Restoration areas

Emerge Associates (2025b) undertook a HQS assessment of the conservation area to determine the HQS for CBC, FRTBC and Banksia Woodlands TEC/PEC. The HQS assessment also identified the extent of areas suitable for restoration works (proposed management areas) within the conservation area. The HQS assessment methodology and proposed management areas have been used to determine the restoration areas and restoration treatment types. The HQS assessment undertaken by Emerge Associates (2025b) identified eleven proposed management areas that have the potential for restoration efforts to increase the quality and/or extent of black cockatoo habitat and Banksia Woodlands TEC/PEC (**Figure 2**).

To better understand the potential for restoration, a HQS was assigned to each of the eleven restoration areas. It is recognised that habitat quality assessments are usually applied to whole sites

for impact assessment purposes, however, they have been used in this context to give a baseline HQS to demonstrate improvement in habitat quality, following management actions.

Further details on the restoration areas, efforts and outcomes are discussed in the CAMP (Emerge Associates 2025c). The proposed restoration efforts and outcomes, as outlined within the CAMP, aim to improve the overall vegetation condition and HQS for CBC, FRTBC and Banksia Woodlands TEC/PEC within the restoration areas, which has been used to inform the conservation area offset and revegetation contributions. The identified restoration areas account for 3.15 ha of the conservation area.

3.4.3 Conservation area offset contributions

Table 1, and **Table 3** outline the values used to inform preliminary calculations and determine the offset contributions for each of the impacted MNES, as well as the rehabilitation credits for environmental factors (Banksia Woodlands TEC/PEC, CBC and FTRBC) using the DCCEEW and DWER offset calculators, respectively. The completed offset calculators are provided in **Appendix A** (DWER) and **Appendix B** (DCCEEW).

The calculator inputs provided in **Table 1** relate to the offset contributions (DCCEEW) and rehabilitation credits (DWER) achieved through restoration. These inputs include current and future HQS for the restoration areas, based on the average across all restoration areas. The future HQS reflects the anticipated increase in habitat quality following the implementation of restoration.

The percentage of impact offset for MNES has been calculated and provided in **Table 2,** while the rehabilitation credits for EP Act environmental factors have been calculated and provided in **Table 3**. In **Table 3**, the offset contribution of the restoration area has been calculated based on the rehabilitation credit to allow for direct comparison with the DCCEEW offset contributions shown in **Table 2**.

While under the relevant policy framework of the EP Act the conservation area has been considered an avoidance measure, the commitments associated with decommissioning (to avoid future impacts) and the establishment of a conservation covenant also represent an averted loss that could reasonably be recognised for the purposes of offset contributions. Additionally, and beyond the policy requirements for avoidance, the conservation area will be vested in a public authority for conservation purposes ensuring long-term avoidance and retention of the onsite conservation area. However, for transparency, this averted loss has not been included in the proposed offset metrics.

As a result of the difference in conservation status between MNES and EP Act environmental factors, the conservation area offset contributions for EPBC Act MNES is less than that for EP Act environmental factors. To take a conservative approach, the lowest offset contribution will be used to inform the remaining offset required. As such, the conservation area will provide 2.3% of the total offset requirements for the implementation of the proposed development, with a minimum of 97.7% remaining. Considering the remaining offsets required will be driven by the EPBC Act MNES offset calculator and contribution requirements, the remaining EP Act offset requirements will be overachieved. The remaining offset required will be satisfied through offsite restoration areas.

Table 1: DCCEEW offset calculator and DWER rehabilitation credit calculator inputs for restoration-based offsets within the conservation area

Relevant species/ community	Extent (ha) suitable for restoration	Restoration approach	Future extent (ha)	Current quality score	Future quality score	Time until ecological benefit (years)	Confidence in outcome
Banksia woodlands TEC/PEC	3.15 ha	• Intensive revegetation of Banksia and other native species representative of Banksia Woodlands across the restoration area, so as to result in vegetation that would constitute Banksia Woodland TEC as per the conservation advice (DoEE 2016b). • Revegetation of Banksia species will also achieve provision of black cockatoo foraging plant species as outlined in the black cockatoo referral guidelines (DAWE 2022). • Management for threat abatement including weed management, pest control and fencing • Long term protection and maintenance as part of the City of Stirling's conservation estate	3.15 ha	3.7	5.4	10	80%
Carnaby's black cockatoo	3.15 ha		3.15 ha	5.7	7.0	10	80%
Forest red-tailed black cockatoo	3.15 ha		3.15 ha	4.7	6.3	10	80%

Table 2: Conservation area offset contributions for DCCEEW offset

Relevant species and community	Offset contribution	Minimum remaining offset required
Banksia woodlands TEC/PEC	3.0%	97.0%
Carnaby's black cockatoo	2.3%	97.7%
Forest red-tailed black cockatoo	4.8%	95.2%

Table 3: Conservation area rehabilitation credits and offset contributions for DWER offset

Relevant species and community	Total quantum of impact	Rehabilitation credit	Significant residual impact	Offset contribution	Minimum remaining offset required
Banksia woodlands TEC/PEC	6.88	0.42	6.46	6.1%	93.9%
Carnaby's black cockatoo	9.84	0.29	9.55	2.9%	97.1%
Forest red-tailed black cockatoo	5.22	0.40	4.82	7.7%	92.3%

As noted in **Section 3.1**, while no other significant residual impacts are anticipated for the remaining protected species and communities pursuant to the EP Act and the offset approach does not specifically target them, implementation of threat abatement measures throughout the entire conservation area would provide additional benefits for these species. Although these measures will not contribute to the formal offset, it is estimated that implementing the CAMP throughout the conservation area would offset approximately 20% and 70% of the impacts to priority flora species (*Acacia benthamii* and *Jacksonia sericea*) and priority fauna habitat (suitable habitat for quenda and trapdoor spider and potential suitable habitat for black-striped snake), respectively. These calculations are shown in **Table 4** below.

Table 4: DWER offset calculator inputs for additional anticipated offset contributions for priority flora species and fauna habitat within the conservation area

Relevant species/ community	Extent impacted	Extent for conservation	Conservation approach	Future extent	Current quality score	Future quality score	Time until ecological benefit (years)	Confidence in outcome	Duration of offset implementation (years)	Risk of future loss without offset (%)	Risk of future loss with offset (%)	Offset contribution
Priority fauna habitat (suitable habitat for quenda and trapdoor spider and potential suitable habitat for black-striped snake)	12.29 ha	16.37 ha	• Management for threat abatement including weed management, pest control and fencing • Long term protection and maintenance as part of the City of Stirling's conservation estate	16.51 ha	7	7	1	80%	20	15	0	20%
Priority flora (*Acacia benthamii* and *Jacksonia sericea*)	*1,639 total priority flora individuals (80 Acacia benthamii and* 1,559 *Jacksonia sericea)*	1,430 total (97 *Acacia benthamii* and 1,333 *Jacksonia sericea)*		1,430 total individuals	N/A	N/A	1	80%	20	N/A	N/A	70%

3.5 Offsite restoration areas

Various potential offsite restoration areas were initially identified that provide opportunities for intensive on ground restoration of native vegetation and material improvements in the respective ecological quality scores. For the purposes of the offset strategy, the initial potential restoration areas have been narrowed down to four potential areas for the purposes of inclusion within this offset strategy. These areas have been explored further and considered as part of this offset strategy to demonstrate that there is ample restoration offset opportunities available to exceed the proponent's offset requirements. It is important to note that the restoration areas, will be further assessed and refined, and the ultimate offset site/s will be determined once the current discussions with relevant land holders and land managers are concluded in parallel with this assessment to provide certainty on the offset requirements in relation to their ongoing land management requirements. The ultimate offset site will be documented in the form of an offset proposal. There may be additional suitable opportunities included in the ultimate offset proposal, but the sites were not sufficiently progressed with the relevant land managers/owners to allow inclusion in this offset strategy.

3.5.1 Restoration area exploration methodology

Emerge Associates, on behalf of the proponent, have explored several suitable restoration areas that don't currently support vegetation classified as the Banksia Woodlands TEC/PEC and black cockatoo habitat or support low quality habitat for these species and community. These areas can accommodate offsets based on habitat restoration through short term intensive restoration activities and long-term maintenance measures.

Using the DCCEEW offset calculator, the offset requirements will be satisfied through the onsite offset (the conservation area), accounting for 2.3% and an offsite offset, accounting for at least the remaining 97.7% of the total requirements. Using the DWER offset calculator, the offset requirements will be satisfied through the onsite rehabilitation credits, accounting for 2.9% and an offsite offset, accounting for at least the remaining 97.1%. These calculations indicate that the offset required to counterbalance residual impacts to EPBC Act MNES is slightly higher than that required to counterbalance residual impacts to EP Act environmental factors. As a result, the offset outcomes for EP Act environmental factors will be greater than what is required.

To take a conservative approach, the lowest offset contribution between the two calculators has been used to inform the offset required. As a result, the remaining offset requirement of at least 97.7% will be satisfied through either one or a combination of the proposed offsite restoration areas detailed in **Section 3.6** below.

It is important to note a key distinction between the DWER and DCCEEW offset metrics. The DWER calculator incorporates onsite rehabilitation by providing a rehabilitation credit, which reduces the overall offset requirement. In this case, restoration works within the conservation area have been treated as onsite rehabilitation and used to reduce the total offset required. In contrast, the DCCEEW calculator accounts for restoration within the conservation area as a separate contribution. This is reflected in the offset contributions for each offsite restoration area provided in **Section 3.6.**

The preference is for restoration areas to be as close to the proposed development as possible, comprising the same vegetation complex and where possible, nearby or signs of being historically the same floristic community type (FCT). However, to maximise the opportunities considered to respond to the key relevant impacts, searches further from the impact site have also been explored but which still address the key underlying environmental value.

As part of the process of exploring restoration opportunities, Emerge Associates developed and utilised the following methodology to identify the initial potentially suitable restoration areas:

- Exploration of potential restoration areas within the City of Stirling (i.e. within the proposed development's local government area).
- Exploration of State government Department of Biodiversity, Conservation and Attractions (DBCA) controlled and managed land within proximity to the proposed development impact area.

The exploration of these potential restoration areas was focussed on land which contained the following attributes:

- Land parcels that are largely devoid of native vegetation and/or appear to be of low quality but are within the predictive spatial mapping of likely occurrences of Banksia Woodland type vegetation and black cockatoo habitat.
- Land parcels that are located within or near areas of mapped native vegetation in addition to meeting specific landform characteristics including suitable soils based on publicly available soil mapping and topography suitable for on-ground management such as revegetation of Banksia Woodland species and habitat for identified threatened and priority species and communities.

Potential restoration areas that have been identified to not meet the above suitability criteria have been excluded from the list of identified areas. It is noted that Emerge Associates identified multiple areas initially considered to be potentially suitable that were then determined not to be suitable for the habitat restoration offset approach based on soil data, topography and proximity to the predictive spatial mapping of likely occurrences of banksia woodland type vegetation and black cockatoo habitat.

3.6 Offsite restoration area opportunities

The proponent, and more recently Emerge Associates, have engaged with the City of Stirling (the City) to explore restoration offset area opportunities in the local government area. Throughout consultation with the City, it was noted that in general, there is precedent for the City to potentially consider requests for restoration offset opportunities within bushland areas under its control and management. It is understood that ongoing third-party investment in ecological restoration activities within their reserves is broadly supported by the City.

As part of preliminary investigations, Emerge Associates conducted a review of the City's Biodiversity Strategy and various reserve management plans to identify opportunities for potential restoration areas. Based on this assessment, three areas (within two reserves) within the City have been identified as suitable for restoration although further detailed investigations will be required. These

areas are further discussed in **Sections 3.6.1**, **3.6.2** and **3.6.3** below and shown in **Figure 3**, **Figure 4** and **Figure 5**.

The proponent's preference is to provide restoration and offset contributions within the City, primarily due to the proximity of the proposed development's environmental impacts and the added value of delivering localised, nature-positive outcomes in accordance with DCCEEW (2022). However, the City has advised that it will not engage in discussions regarding implementation or subsequent planning considerations until the completion of the relevant environmental assessments, noting that the City currently do not support the proposed development.

As a result, while the shortlisted City reserves remain under consideration as potential restoration areas, they will be subject to further discussions at a later stage in the assessment process. In parallel, alternative opportunities managed and controlled by the DBCA have also been evaluated as potential offset sites.

Emerge Associates has initiated engagement with DBCA to explore additional offset opportunities in support of the development. Through ongoing consultation, DBCA has noted the following:

- DBCA has expressed interest for the restoration of Banksia Woodlands TEC/PEC and black cockatoo habitat within land that is managed by the DBCA Regional Parks Unit.
- Land managed by DBCA within Jandakot Regional Park has been identified as suitable for restoration. The restoration areas are further discussed in **Section 3.6.4** shown in **Figure 6.**

The potential restoration area identified within Jandakot Regional Park is considered suitable and has been presented for offset strategy purposes, noting it satisfies varying portions of the total offset requirements relevant to the EPBC Act MNES and EP Act environmental factors (as detailed in **Section 3.6.4.5** below). Ongoing discussions with DBCA have identified other suitable DBCA-managed sites that could also contribute toward meeting the offset requirements. While the Jandakot site is presented as the primary option within this strategy based on its suitability and availability at this stage, additional DBCA managed sites remain available and may be progressed in consultation with DBCA as the proposal advances. In the event that the City managed sites are not progressed, the Jandakot site and/or a combination of alternative DBCA-managed sites will be pursued to meet the offset requirements.

While four potential restoration areas are identified in this report, the final offset site will be subject to further detailed assessment and will be confirmed and documented in an offset proposal.

The parameters to determine the suitability of the potential offsite restoration areas included the following:

- Land parcels (one site or a combination of sites) that are of sufficient size that could collectively or individually accommodate at least 97.7% of the required offset.
- Land parcels that are located within or near areas of mapped native vegetation and/or the Banksia Woodlands TEC/PEC in addition to meeting specific landform characteristics including suitable soils based on publicly available soil mapping and topography suitable for on-ground management such as revegetation works of Banksia woodland species.
- Land parcels that are in the natural distribution range of Banksia Woodlands TEC/PEC.
- Land parcels that are in the distribution range of black cockatoo habitat.

- Land parcels that are in predominantly degraded condition comprising cleared land, or land with existing native vegetation that include species associated with Banksia Woodlands TEC/PEC and black cockatoo habitat and/or historically could have been Banksia Woodlands TEC/PEC and black cockatoo habitat.
- Large landholdings with existing remnant vegetation that appeared to be in good condition and provide limited restoration opportunities have been ruled out.

3.6.1 Restoration area 1: Carine Open Space

Potential restoration area 1 is situated within the suburb of Carine in the City of Stirling, approximately 2 km west of the proposed development. The area is currently zoned 'Regional open space' under the MRS. Restoration area 1 is within Carine Open Space and extends over approximately 21.7 ha. The potential restoration area comprises recreational zones that have been identified in the Carine ROS Environmental Management Plan as areas appropriate for infill planting and restoration (Ecoscape 2011) (**Plate 1**). These recreation zones have been previously cleared with only scattered trees remaining. The location of restoration area 1 is shown in **Figure 3**.

Plate 1: Excerpt of Carine Regional Open Space restorations areas derived from Ecoscape (2011).

3.6.1.1 Suitability for restoration

Based on information obtained during desktop assessment and review of publicly available information, the area is within the 'Karrakatta – Central and South' vegetation complex. Areas outside restoration area 1, directly surrounding the swamps within Carine Open Space are likely wetland type vegetation and would not be suitable for the proposed restoration. The Carine Open Space Environmental Management Plan (Ecoscape 2011) outlined vegetation communities across part of the study area and this did not capture the restoration area. It was noted that further detailed assessments would be required to refine the boundaries of the vegetation communities and identify appropriate plant species for revegetation. However, two of the vegetation communities identified comprised banksia type vegetation and associated species, suggesting the area likely previously contained banksia woodland type vegetation and therefore has potential for restoration of Banksia Woodland TEC/PEC and CBC and FRTBC habitat. The vegetation communities comprising banksia were described as (Ecoscape 2011):

- *Eucalyptus rudis, Melaleuca rhaphiophylla, Banksia littoralis* Low Closed Forest over *Acacia saligna* Tall Open Shrubland
- *Corymbia calophylla, Eucalyptus gomphocephala* Woodland over *Banksia grandis* Low Open Woodland over *Jacksonia furcellata* Tall Shrubland over *Grevillea vestita* Shrubland over **Pelargonium capitatum, *Acetosa vulgaris* Open Herbland and *Dianella revoluta, Ficinia nodosa* Very Open Sedgeland and **Avena barbata* Very open Grassland.

Based on review of the management plan, desktop information and aerial imagery and with consideration to the cleared nature of the restoration area, the restoration area is not considered to currently meet the Banksia Woodlands TEC/PEC conservation advice criteria or provide black cockatoo habitat. As such, for the purpose of offset calculations, an existing quality score of 0 out of 10 has been assumed for Banksia Woodlands TEC/PEC and CBC and FRTBC habitat. If required, following site surveys and assessment of the potential restoration area, the restoration area extent and HQS will be refined if required, pending detailed assessment outcomes.

As the City has not committed to the implementation of any restoration works until completion of the environmental assessment and statutory approvals process, no site visit has been conducted. Once the environmental assessment and statutory approvals process is complete, and the proposed restoration works have been endorsed by the City, site surveys will be undertaken to further understand the extent of the area suitable for restoration, as well as refine and inform the restoration approach where required.

Establishing plant species representative of banksia woodland and black cockatoo foraging habitat throughout the restoration area could create approximately 21.2 ha of the Banksia Woodlands TEC/PEC and 12.1 ha of CBC habitat and FRTBC habitat, with anticipated future habitat quality score of 7, 9 and 9 respectively.

The restoration area includes some scattered trees, some or all of which are likely to provide black cockatoo foraging habitat. As such, these areas have been excluded from the total restoration area extent available for black cockatoo restoration to account for the existing vegetation providing potential foraging habitat. Although the same restoration area is proposed for both Banksia Woodlands TEC/PEC and black cockatoo habitat offset requirements, the extent suitable for restoration differs slightly and has been considered for the purposes of calculations, as shown in **Table 5**. The exclusion of existing scattered trees from the total restoration area for black cockatoos

accounts for 43% (9.1 ha) of the total restoration area, as shown in **Figure 3**. The exclusion of these trees means that the extent suitable for restoration comprises solely of cleared paddocks, which provides the most opportunity for restoration. A start score of 0 for both black cockatoo species has been applied to the 12.1 ha of cleared paddocks available for restoration for black cockatoos.

The concept for establishing restoration area 1 has been summarised in **Table 5**.

Table 5: DCCEEW and DWER Offset calculator inputs for restoration area 1

Relevant species and community	Extent (ha) suitable for restoration	Restoration approach	Future extent (ha)	Current quality score	Future quality score	Time until ecological benefit (years)	Confidence in outcome
Banksia woodlands TEC/PEC	21.2 ha	• Intensive revegetation of Banksia and other native species representative of Banksia Woodlands across the restoration area, so as to result in vegetation that would constitute Banksia Woodland TEC as per the conservation advice (DoEE 2016b). • Revegetation of Banksia species will also achieve provision of black cockatoo foraging plant species as outlined in the black cockatoo referral guidelines (DAWE 2022). • Management for threat abatement including weed management, pest control and fencing. • Long term protection and maintenance as part of the City of Stirling's conservation estate.	21.2 ha	0	7	10	80%
Carnaby's black cockatoo	12.1 ha		12.1 ha	0	9	10	80%
Forest red-tailed black cockatoo	12.1 ha		12.1 ha	0	9	10	80%

The values within **Table 5** have been used for preliminary calculations to determine the offset contribution for each of the impacted MNES and environmental factors using the DCCEEW and DWER offset calculators as a guide to determine appropriate offset contributions. The completed offset calculators are provided in **Appendix A** (DWER) and **Appendix B** (DCCEEW).

No risk of loss has been applied to either calculation for restoration area 1 considering the land is already within the City's reserves and therefore under some form of protection and management. However, current management of Carine Open Space does not include specific management for the benefit of Banksia Woodland TEC/PEC or black cockatoo habitat (Ecoscape 2011).

The percentage of impact offset, relevant to Banksia Woodlands TEC/PE, CBC and FRTBC, is provided in **Table 6**. To take a conservative approach, the lowest offset contribution will be used to inform the additional offset required. As such, restoration area 1 will provide up to 78.6% of the impact offset.

Table 6: Restoration area 1 offset contribution

Relevant species and community	Offset contribution (DCCEEW)	Offset contribution (EPA)	Minimum remaining offset required (DCCEWW)	Minimum remaining offset required (EPA)
Banksia woodlands TEC/PEC	142.9%	182.0%	0%	0%
Carnaby's black cockatoo	78.6%	81.0%	21.4%	19.0%
Forest red-tailed black cockatoo	163.8%	177.2%	0%	0%

3.6.2 Restoration area 2: Trigg Bushland Reserve – Sector 4

Potential restoration area 2 is situated within the suburb of Trigg in the City of Stirling, approximately 5 km southwest of the proposed development. The area is currently zoned 'Regional open space' under the MRS. Restoration area 2 comprises Sector 4 within Trigg Bushland Reserve and extends over approximately 22.4 ha. However, exact areas appropriate for infill planting would need to be determined based on surveys.

The location of restoration area 2 is shown in **Figure 4**.

3.6.2.1 Suitability for restoration

Based on information obtained during desktop assessment and review of publicly available information, the area is within the 'Cottesloe Complex-Central and South' vegetation complex. Vegetation units within restoration area 2 were mapped as 'open Eucalypt, Corymbia and Banksia Woodland' and described as 'Open Woodland of *Eucalyptus gomphocephala, Corymbia calophylla, Eucalyptus marginata, Banksia attenuata, B. menziesii and B. grandis* over *Xanthorrhoea preissii*, mixed shrubs and sedges' (Natural Area Consulting 2015). This vegetation suggests potential suitability for restoration of Banksia woodland vegetation and black cockatoo habitat to increase or provide additional habitat within the area. Therefore, restoration area 2 lies within a different vegetation complex than the proposed development site but the landform and key vegetation types are generally consistent.

Based on review of the management plan, desktop information and aerial imagery, the vegetation present is considered likely to provide minimal black cockatoo habitat and is not considered likely to currently meet the Banksia Woodlands TEC/PEC conservation advice criteria. With consideration to the current vegetation present, for the purpose of offset calculations, an existing quality score of 0 out of 10 has been assumed for Banksia Woodlands TEC/PEC and a start score of 4 has been assumed for CBC and FRTBC habitat. Following further detailed on ground site assessment of the potential restoration area, the restoration area extent and HQS will be refined, if required based on survey results.

As noted above in regard to restoration area 1, due to the City not committing to the implementation of the proposed restoration works until completion of the environmental assessment and statutory approvals process, no site visit has been conducted. Once the environmental assessment and statutory approvals process is complete, and the proposed restoration works have been endorsed by the City, site surveys will be undertaken to further understand the extent of the area suitable for restoration, as well as refine and inform the restoration approach.

Establishing species representative of banksia woodland and black cockatoo habitat throughout the restoration area could create approximately 22.4 ha of the Banksia Woodlands TEC/PEC, CBC habitat and FRTBC habitat with a future habitat quality score of 7, 8 and 8 respectively. The concept for establishing of offsite restoration offset area 2 has been summarised in **Table 7.**

Table 7: Offset calculator inputs for restoration area 2

Relevant species and community	Extent (ha) suitable for restoration	Restoration approach	Future extent (ha)	Current quality score	Future quality score	Time until ecological benefit (years)	Confidence in outcome
Banksia woodlands TEC/PEC	22.4 ha	• Intensive revegetation of Banksia and other native species representative of Banksia Woodlands across the restoration area, so as to result in vegetation that would constitute Banksia Woodland TEC as per the conservation advice (DoEE 2016b). • Revegetation of Banksia species will also achieve provision of black cockatoo foraging plant species as outlined in the black cockatoo referral guidelines (DAWE 2022). • Management for threat abatement including weed management, pest control and fencing. • Long term protection and maintenance as part of the City of Stirling's conservation estate.	22.4 ha	0	7	10	80%
Carnaby's black cockatoo	22.4 ha		22.4 ha	5	8	10	80%
Forest red-tailed black cockatoo	22.4 ha		22.4 ha	5	8	10	80%

The values within **Table 7** have been used for preliminary calculations to determine the offset contribution for each of the impacted MNES and environmental factors using the DCCEEW and DWER offset calculators as a guide. The completed offset calculators are provided in **Appendix A** (DWER) and **Appendix B** (DCCEEW).

No risk of loss has been applied to either calculation for restoration area 2 considering the land is already within the City's reserves and therefore under some form of protection and management.

The percentage of impact offset, relevant to Banksia Woodlands TEC/PEC, CBC and FRTBC, has been calculated and provided in **Table** . To take a conservative approach, the lowest offset contribution will be used to inform the additional offset required. As such, offsite restoration area 2 will provide up to 48.5% of the impact offset, counterbalancing just under half the total impact of the proposed development.

Table 2: Restoration area 2 offset contribution

Relevant species and community	Offset contribution (DCCEEW)	Offset contribution (EPA)	Minimum remaining offset required (DCCEEW)	Minimum remaining offset required (EPA))
Banksia woodlands TEC/PEC	151.0%	192.3%	0%	0%
Carnaby's black cockatoo	48.5%	50.0%	51.5%	50%
Forest red-tailed black cockatoo	101.05%	109.3%	0%	0%

3.6.3 Restoration area 3: Trigg Bushland Reserve– Sector 5

Potential restoration area 3 is situated in the suburb of Karrinyup within the City of Stirling, approximately 4.5 km south-west of the proposed development. The area is currently zoned 'Regional open space' under the MRS. Restoration area 3 comprises Sector 5 within Trigg Bushland Reserve and extends over approximately 39.5 ha.

The location of restoration area 3 is shown in **Figure 5**.

3.6.3.1 Suitability for restoration

Based on information obtained during desktop assessment and review of publicly available information, the area within the 'Cottesloe Complex-Central and South' vegetation complex. Vegetation is described as '*Eucalyptus gomphocephala* and *Eucalyptus marginata* Woodland, with *Allocasuarina fraseriana* and *Banksia prionotes* over mixed shrubs and sedges' which suggests potential suitability for restoration of Banksia woodland vegetation and black cockatoo habitat to increase or provide additional habitat within the area. Restoration area 3 lies within a different vegetation complex than the proposed development site but the landform and key vegetation types are generally consistent.

Based on review of the management plan, desktop information and aerial imagery, the vegetation present is considered likely to provide minimal black cockatoo habitat and is not considered likely to currently meet the Banksia Woodlands TEC/PEC conservation advice criteria. With consideration to

the current vegetation present, for the purpose of offset calculations, an existing quality score of 0 out of 10 has been assumed for Banksia Woodlands TEC/PEC and a start score of 4 has been assumed for CBC and FRTBC habitat. Following further detailed on ground site assessment of the potential restoration area, the restoration area extent and HQS will be refined, if required based on survey results.

As noted above in regard to restoration area 1 and 2, due to the City not committing to the implementation of the proposed restoration works until completion of the environmental assessment and statutory approvals process, no site visit has been conducted. Once the environmental assessment and statutory approvals process is complete, and the proposed restoration works have been endorsed by the City, site surveys will be undertaken to further understand the extent of the area suitable for restoration, as well as refine and inform the restoration approach.

Establishing species representative of banksia woodland and black cockatoo habitat across the area could create up to approximately 39.5 ha of the Banksia Woodlands TEC/PEC, CBC habitat and FRTBC habitat with a future habitat quality score of 7, 8 and 8 respectively. The concept for establishing restoration area 3 has been summarised in **Table 8**.

Table 8: Offset calculator inputs for restoration area 3

Relevant species and community	Extent (ha) suitable for restoration	Restoration approach	Future extent (ha)	Current quality score	Future quality score	Time until ecological benefit (years)	Confidence in outcome
Banksia woodlands TEC/PEC	39.5 ha	• Intensive revegetation of Banksia and other native species representative of Banksia Woodlands across the restoration area, so as to result in vegetation that would constitute Banksia Woodland TEC as per the conservation advice (DoEE 2016b). • Revegetation of Banksia species will also achieve provision of black cockatoo foraging plant species as outlined in the black cockatoo referral guidelines (DAWE 2022). • Management for threat abatement including weed management, pest control and fencing • Long term protection and maintenance as part of the City of Stirling's conservation estate.	39.5 ha	0	7	10	80%
Carnaby's black cockatoo	39.5 ha		39.5 ha	4	8	10	80%
Forest red-tailed black cockatoo	39.5 ha		39.5 ha	4	8	10	80%

The values within **Table 8** have been used for preliminary calculations to determine the offset contribution for each of the impacted MNES and environmental factors using the DCCEEW and DWER offset calculator. The completed offset calculators are provided in **Appendix A** (DWER) and **Appendix B** (DCCEEW).

No risk of loss has been applied to either calculation for restoration area 3 considering the land is already within the City's reserves and therefore under some form of protection and management.

The percentage of impact offset, relevant to Banksia Woodland TEC/PEC, CBC and FRTBC, has been calculated and provided in **Table 9**. To take a conservative approach, the lowest offset contribution will be used to inform the additional offset required. As such, restoration area 3 will provide up to 114.0% of the impact offset, counterbalancing the total impact of the proposed development.

Table 9: Restoration area 3 offset contribution

Relevant species and community	Offset contribution (DCCEEW)	Offset contribution (EPA)	Minimum remaining offset required (DCCEEW)	Minimum remaining offset required (EPA)
Banksia woodlands TEC/PEC	266.2%	339.1%	0%	0%
Carnaby's black cockatoo	114.0%	117.5%	0%	0%
Forest red-tailed black cockatoo	237.6%	257.1%	0%	0%

3.6.4 Restoration area 4: Jandakot Regional Park

Proposed restoration area 4 is situated within the suburb of Forrestdale in the City of Armadale, approximately 35 km south southeast of the proposed development.

The area is currently zoned 'Regional open space' under the MRS. Restoration area 4 is within Jandakot Regional Park and extends over approximately 19.6 ha.

The location of restoration area 4 is shown in **Figure 6**.

3.6.4.1 Suitability of restoration

Based on information obtained during desktop assessment and review of publicly available information, the area within the 'Bassendean Complex-Central and South' vegetation complex. Vegetation is described as 'woodland of *Eucalyptus marginata* (Jarrah), *Allocasuarina fraseriana* (Sheoak), Banksia species to low woodland of Melaleuca species, and sedgelands on the moister sites' which suggests potential suitability for restoration of Banksia woodland vegetation and black cockatoo habitat to increase or provide additional habitat within the area. Restoration area 4 lies within a different vegetation complex than the proposed development site but the landform and key vegetation types are generally consistent.

A preliminary site assessment was undertaken, which indicate restoration area 4 is suitable and has potential to achieve positive outcomes for the MNES and environmental factors impacted through implementation of the proposal. The preference is to provide restoration and offset contributions

locally, primarily due to the proximity of the proposed development's environmental impacts. However, despite the distance of restoration area 4 from the impact site, the restoration area is within the mapped distribution of CBC and FRTBC and preliminary site assessments indicate restoration area 4 is suitable to support the proposed restoration works targeted at black cockatoos and Banksia Woodlands TEC/PEC with the potential to achieve positive outcomes for the MNES and environmental factors impacted through implementation of the proposal.

As noted above, the strategic use of more distant sites is acceptable under both State and Commonwealth offset frameworks when closer alternatives have also been considered, provided that the site is relevant to the environmental value being impacted and can deliver the required environmental outcomes. As such, restoration area 4 has been considered as part of this Offset Strategy.

Vegetation units identified within both restoration area 4 and the proposed development site comprise key species including *Banksia attenuata* and other banksia species. The preliminary site assessment determined that restoration area 4 is in predominantly degraded condition featuring some overstorey trees, limited mid-storey and understorey vegetation, and areas that are completed degraded with limited native species. The vegetation present within restoration area 4 has been described in **Table 10.**

Table 10: Restoration area 4 vegetation description

Vegetation description	Area (ha)
Open woodland of *Adenanthos cygnorum* over weeds and bare ground	7.15
Open woodland of *Banksia attenuata* and *Banksia menziesii* over scattered native plants, weeds and bare ground	7.58
Woodland of *Eucalyptus rudis* over heavily disturbed understory of dense weedy grasses	1.15
Closed shrubland *Kunzea glabrescens* and *Adenanthos cygnorum* over bare ground and weeds	0.38
Heavily disturbed areas dominated by weedy grasses, especially *Ehrharta calycina*	3.80

One portion of restoration area 4 (0.38 ha) contains dense vegetation dominated by *Kunzea* species with no potential for supporting Banksia Woodland TEC/PEC or black cockatoo habitat. As a result, this portion has been excluded from the proposed offset area.

Restoration area 4 does not currently represent banksia woodland TEC/PEC as it does not meet condition thresholds as outlined in the Banksia Woodlands TEC/PEC conservation advice criteria. However, some scattered banksia trees and understorey plants associated with the Banksia Woodland TEC/PEC were recorded.

Restoration area 4 likely provides limited suitable nesting trees for black cockatoos and minimal native primary foraging habitat for CBC in the form of banksia species were present. However, it currently does not support either primary or secondary foraging habitat for FRTBC.

The proposed restoration area is predominantly in a degraded condition and has been separated into three zones based on vegetation condition, current HQS and future restoration approaches: zone A is representative of vegetation in degraded and degraded to good condition, and zone B and C are representative of vegetation in degraded - completely degraded condition (**Figure 6**).

Based on the preliminary site assessment results, all restoration areas have a start HQS of 0 for Banksia Woodlands TEC/PEC and FRTBC habitat. Restoration areas for CBC habitat has a start HQS of 0 HQS for all restoration areas, except zone A which was scored a start score of 7 for CBC only.

3.6.4.2 Restoration area 4A

Establishing species representative of banksia woodland within existing vegetation and increasing cover of primary foraging habitat for black cockatoos throughout restoration area 4A could create approximately 7.6 ha of the Banksia Woodlands TEC/PEC with a future habitat quality score of 7 and CBC habitat and FRTBC habitat that increase the availability of primary foraging habitat for both species with a future quality score of 9 for both species.

The concept for the approach and outcome of each relevant value within restoration zone 4A, has been summarised in **Table 11**.

3.6.4.3 Restoration area 4B

Establishing species representative of banksia woodland within existing vegetation and increasing cover of primary foraging habitat for black cockatoos throughout restoration area 4B could create approximately 3.7 ha of the Banksia Woodlands TEC/PEC with a future habitat quality score of 7 and 3.2 ha CBC habitat and FRTBC habitat that increase the availability of primary foraging habitat for both species with a future quality score of 9 for both species.

Restoration area 4B includes some scattered trees, some or all of which are likely to provide black cockatoo foraging habitat. As such, these areas have been excluded from the total restoration area extent available for black cockatoo restoration to account for the existing vegetation providing potential foraging habitat. Although the same restoration area is proposed for both Banksia Woodlands TEC/PEC and black cockatoo habitat offset requirements, the extent suitable for restoration differs slightly and has been considered for the purposes of calculations, as shown in **Table 12.** The exclusion of existing scattered trees from the total restoration area for black cockatoos accounts for 14% (0.5 ha) of the total restoration area, as shown in **Figure 6**. The exclusion of these trees means that the extent suitable for restoration comprises solely of cleared paddocks, which provides the most opportunity for restoration. A start score of 0 for both black cockatoo species has been applied to the 3.2 ha of cleared paddocks available for restoration for black cockatoos.

The concept for the approach and outcome of each relevant value within restoration zone 4B, has been summarised in **Table 12**.

3.6.4.4 Restoration area 4C

Establishing species representative of banksia woodland within existing vegetation and increasing cover of primary foraging habitat for black cockatoos throughout restoration area 4C could create approximately 8.3 ha of the Banksia Woodlands TEC/PEC with a future habitat quality score of 7 and CBC habitat and FRTBC habitat that increase the availability of primary foraging habitat for both species with a future quality score of 9 for both species.

The concept for the approach and outcome of each relevant value within restoration zone 4C, has been summarised in **Table 13**.

Table 11: Offset calculator inputs and restoration approach for restoration area 4A

Relevant species and community	Extent (ha) suitable for restoration	Restoration approach	Future extent (ha)	Current quality score	Future quality score	Time until ecological benefit (years)	Confidence in outcome
Banksia woodlands TEC/PEC	7.6 ha	• Intensive revegetation of Banksia and other native species representative of Banksia Woodlands across the restoration area, so as to result in vegetation that would constitute Banksia Woodland TEC as per the conservation advice (DoEE 2016b). • Revegetation of Banksia species will also achieve provision of black cockatoo foraging plant species as outlined in the black cockatoo referral guidelines (DAWE 2022). • Management for threat abatement including weed management, pest control and fencing • Long term protection and maintenance as part of the City of Stirling's conservation estate	7.6 ha	0	7	10	80%
Carnaby's black cockatoo	7.6 ha		7.6 ha	7	9	10	80%
Forest red-tailed black cockatoo	7.6 ha		7.6 ha	0	9	10	80%

Table 12: Offset calculator inputs and restoration approach for restoration area 4B

Relevant species and community	Extent (ha) suitable for restoration	Restoration approach	Future extent (ha)	Current quality score	Future quality score	Time until ecological benefit (years)	Confidence in outcome
Banksia woodlands TEC/PEC	3.7 ha	• Intensive revegetation of Banksia and other native species representative of Banksia Woodlands across the restoration area, so as to result in vegetation that would constitute Banksia Woodland TEC as per the conservation advice (DoEE 2016b). • Revegetation of Banksia species will also achieve provision of black cockatoo foraging plant species as outlined in the black cockatoo referral guidelines (DAWE 2022). • Management for threat abatement including weed management, pest control and fencing • Long term protection and maintenance as part of the City of Stirling's conservation estate	3.7 ha	0	7	10	80%
Carnaby's black cockatoo	3.2 ha		3.2 ha	0	9	10	80%
Forest red-tailed black cockatoo	3.2 ha		3.2 ha	0	9	10	80%

Table 13: Offset calculator inputs and restoration approach for restoration area 4C

Relevant species and community	Extent (ha) suitable for restoration	Restoration approach	Future extent (ha)	Current quality score	Future quality score	Time until ecological benefit (years)	Confidence in outcome
Banksia woodlands TEC/PEC	8.3 ha	• Intensive revegetation of Banksia and other native species representative of Banksia Woodlands across the restoration area, so as to result in vegetation that would constitute Banksia Woodland TEC as per the conservation advice (DoEE 2016b). • Revegetation of Banksia species will also achieve provision of black cockatoo foraging plant species as outlined in the black cockatoo referral guidelines (DAWE 2022). • Management for threat abatement including weed management, pest control and fencing. • Long term protection and maintenance as part of the City of Stirling's conservation estate.	8.3 ha	0	7	10	80%
Carnaby's black cockatoo	8.3 ha		8.3 ha	0	9	10	80%
Forest red-tailed black cockatoo	8.3 ha		8.3 ha	0	9	10	80%

3.6.4.5 Indicative offset contributions

The values within **Table 11, Table 12** and **Table 13** have been used for preliminary calculations to determine the offset contribution for each of the impacted MNES and environmental factors using the DCCEEW and DWER offset calculator. The completed offset calculators are provided in **Appendix A** (DWER) and **Appendix B** (DCCEEW).

No risk of loss has been applied to either calculation for restoration area 4 considering the land is already within DBCA's reserves and therefore already under some form of protection and management. However, current management is not specific for Banksia Woodland TEC/PEC or black cockatoo habitat.

The percentage of impact offset, relevant to Banksia Woodland TEC/PEC, CBC and FRTBC, has been calculated and provided in **Table 14**. To take a conservative approach, the lowest offset contribution will be used to inform the additional offset required. As such, restoration area 4 will provide up to 85.7% of the impact offset.

Table 14: Restoration area 4 offset contribution

Relevant species and community	Offset contribution (DCCEEW)	Offset contribution (EPA)	Minimum remaining offset required (DCCEEW)	Minimum remaining offset required (EPA)
Banksia woodlands TEC/PEC	132.1%	168.3%	0%	0%
Carnaby's black cockatoo	85.7%	88.3%	14.3%	11.7%
Forest red-tailed black cockatoo	258.5%	279.7%	0%	0%

4 Risk Assessment

A risk assessment has been prepared and identifies any risk that may prevent the proponent from achieving the expected environmental outcomes and restoration (offset) objectives for each proposed restoration area. Specific risks relevant to the conservation area are broadly considered below and further detailed in the CAMP. Specific risks relevant to the offsite restoration area/s will be refined and finalised once the current discussions with relevant land holders and land managers are concluded in parallel with this assessment and detailed in an Offset Management plan prior to the implementation of the proposed development. It is noted that any expected environmental outcomes, objectives and the proponent's restoration obligations will ultimately be subject to DCCEEW and EPA's assessment and approval and will be further detailed and conditioned in the form of an Offset (Restoration Action) Management Plan prior to the implementation of the proposed development.

Each risk has been assessed against the Risk Matrix outlined below and provided in **Table 15**. The risk matrix uses the risk categories outlined in the Department of Water and Environmental Regulation's Risk Assessments Guidelines (DWER 2020) utilising the *Australian Standard (AS) 4360:2004: Risk Management and AS 31000:2009 Risk Management – Principles and Guidelines*.

Table 16 and **Table 17** provide the criteria to assess the 'consequences' and 'likelihood' of a risk event occurring.

The risk assessment is provided in **Table 18** and includes the initial and residual risk ratings, the identified controls (if required), management triggers, monitoring mechanisms and corrective actions if required. While risks associated with both offsite and onsite restoration efforts have been assessed and included in **Table 18**, a detailed risk assessment which includes specific risks associated with the conservation areas is included in the CAMP (Emerge Associates 2025c). A more detailed risk assessment will also be prepared for offsite restoration areas as part of the future offset management plan. The offset management plan will be prepared once offsets are finalised and will outline more specific risks relevant to the offsets implemented.

The outcome of the risk assessment demonstrates an overall reduction of risk (where the initial risk rating doesn't remain) when comparing initial risk to the residual risk subsequent the implementation of mitigation measures.

Table 15: Risk Assessment Matrix (AS 4360)

	Consequence/Impact				
Probability/Likelihood	**Slight (A)**	**Minor (B)**	**Moderate (C)**	**Major (D)**	**Severe (E)**
Almost certain (5)	Low	Moderate	High	Extreme	Extreme
Likely (4)	Low	Low	Moderate	High	Extreme
Possible (3)	Low	Low	Moderate	High	Extreme
Unlikely (2)	Very Low	Low	Low	Moderate	High
Rare (1)	Very Low	Very Low	Low	Moderate	Moderate

Table 16: Criteria to assess the consequence of a risk event occurring (based on DWER 2020)

Consequence	Criteria
Severe	• Onsite impacts: **catastrophic** • Offsite impacts local scale: **high level or above** • Offsite impacts wider scale: **mid-level or above** • **Mid to long-term or permanent impact to an area of high conservation value or special significance** • **Specific Consequence Criteria (for environment) are significantly exceeded**
Major	• Onsite impacts**: high level** • Offsite impacts local scale**: mid-level** • Offsite impacts wider scale**: low level** • **Short-term impact to an area of high conservation value or special significance** • **Specific Consequence Criteria (for environment) are exceeded**
Moderate	• Onsite impacts**: mid-level** • Offsite impacts local scale**: low level** • Offsite impacts wider scale**: minimal** • **Specific Consequence Criteria (for environment) are at risk of not being met**
Minor	• Onsite impacts: **low level** • Offsite impacts local scale: **minimal** • Offsite impacts wider scale: **not detectable** • **Specific Consequence Criteria (for environment) likely to be met**
Slight	• Onsite impact: **minimal** • **Specific Consequence Criteria (for environment) met**

Table 17: Criteria to assess the likelihood of a risk even occurring (based on DWER 2020)

Likelihood	Criteria
Almost certain	The risk event is expected to occur in most circumstances.
Likely	The risk event will probably occur in most circumstances.
Possible	The risk event could occur at some time.
Unlikely	The risk event will probably not occur in most circumstances.
Rare	The risk event may only occur in exceptional circumstances.

Table 18: Risk Assessment and Management

Risk ID #, Event or Consequence	Description	Initial Risk			Risk mitigation strategies	Residual Risk			Management Trigger	Monitoring mechanisms and corrective actions
		Likelihood	Consequence	Risk Rating		Likelihood	Consequence	Risk Rating		
1) Offset scarcity	Offset sites are not available to respond to residual impacts	Unlikely	Moderate	Moderate	Investigation and understanding of relevant MNES and environmental factors to understand distributions and associated offset site potential ranges. It was found that environmental values requiring offsets are widely distributed and reasonably common, and liaison to date with land managers confirms availability of various potentially suitable offset sites. Multiple options have been identified, exceeding the minimum requirements to ensure adequate offset coverage. Suitable land should be explored close to the impact site however, this can be extended to the entire distribution ranges as required.	Unlikely	Slight	Very Low	Suitable offset site cannot be identified to enable progression of assessment	Progress and resolve offset proposal through assessment process.

Table 18: Risk Assessment and Management (continued)

Risk ID #, Event or Consequence	Description	Initial Risk			Risk mitigation strategies	Residual Risk			Management Trigger	Monitoring mechanisms and corrective actions
		Likelihood	Consequence	Risk Rating		Likelihood	Consequence	Risk Rating		
2) Offset sites are not of sufficient size	Offset opportunities identified are considered inappropriate at a later stage of the assessment process, following further detailed assessments and/or restoration management actions are not supported by land owners.	Unlikely	Moderate	Moderate	Undertake initial investigations across broad and current information sources, based on desktop assessments and preliminary site assessments to confirm offset site relevance in terms of habitat suitability and restoration area extent. Design an adaptive offset approach to allow substitution with equivalent sites if required. to the minimum requirements to allow opportunity to refine restoration areas based on detailed assessments. Identify a range of suitable offset sites to maintain flexibility. Continue engagement with land managers to understand site availability. Offset sites should be targeted for land parcels under ownership by public authorities such as local government and DBCA, and various options including within other local government areas and acquisition of private land can also be explored as an alternative pathway. Consider excess offset contributions	Unlikely	Slight	Very Low	Suitable offset option is not considered appropriate after detailed assessments and/or land manager unsupportive of restoration outcomes once refined, and remaining offset site options are unlikely to meet the total offset contributions.	Explore alternative pathways, undertake detailed site assessments and broaden offset site search area. Continued and frequent engagement with land owners.

Table 18: Risk Assessment and Management (continued)

Risk ID #, Event or Consequence	Description	Initial Risk			Risk mitigation strategies	Residual Risk			Management Trigger	Monitoring mechanisms and corrective actions
		Likelihood	Consequence	Risk Rating		Likelihood	Consequence	Risk Rating		
3) Pest Animals	Pest animals such as foxes, rabbits and rats may destroy tube stock.	Possible	Moderate	Moderate	Standard restoration monitoring and if required engagement of local pest control authorities. Management actions, timing and performance targets specific to the conservation area are detailed within Table 14 of the CAMP (Emerge Associates 2025c).	Unlikely	Moderate	Low	Damaged tube stock/vegetation from uncontrolled pests	Standard monitoring required to identify any potential pest animals present. Should a high number of pests be recorded, more frequent monitoring and pest control measures may be required. Undertake or improve fencing maintenance or where no fencing exists, install fencing. Discuss alternative methods with pest control authorities.
4) Weeds and diseases	Introduction of new weeds and diseases within the restoration areas.	Unlikely	Minor	Low	Standard environmental management to control potential spread of weeds and diseases to and from the restoration areas. Implement appropriate vehicle and tools hygiene measures. All vehicles/machinery and tools are required to undergo a weed inspection and hygiene check confirming they are weed free. Chemical and mechanical control of weeds will be undertaken during the restoration activities. Management actions, timing and performance targets specific to the conservation area are detailed within Table 14 of the CAMP (Emerge Associates 2025c).	Unlikely	Slight	Very Low	An increase in dominant weed species within the restoration areas. Signs of diseases such as dieback within or surrounding the restoration areas. Vehicles and tools not cleaned prior to entering the restoration areas.	Visual observation of increases in dominant weed species and/or signs of disease such as dieback. Reassess environmental training of restoration personnel. Check record if cleaning vehicles/tools was undertaken. Undertake additional or alternative weed control events.

Table 18: Risk Assessment and Management (continued)

Risk ID #, Event or Consequence	Description	Initial Risk			Risk mitigation strategies	Residual Risk			Management Trigger	Monitoring mechanisms and corrective actions
		Likelihood	Consequence	Risk Rating		Likelihood	Consequence	Risk Rating		
5) Climate change	Changes to climate with the potential to impact the long-term success of the restoration area/s including as a result of extreme temperatures, drought, storms, solar radiation and increasing risk of bushfires.	Possible	Major	High	Limited mitigation measures; however, restoration (i.e. planting of tube stock) should be undertaken during colder and wetter months to avoid significant impacts as a result of summer droughts. Update any management plans to include latest climate data and predictions.	Possible	Moderate	Moderate	Frequent extreme weather events such as droughts. Offset fails to achieve targeted completion criteria. Significant plant death within restoration areas.	Continual review in line with the completion criteria and latest climate data/predictions.
6) Destruction of the restoration areas	Destruction of habitat, modification or loss, fragmentation as a result of illegal clearing and unauthorised vehicle access.	Unlikely	Minor	Low	Restoration areas will be fenced (where not already) to avoid unauthorised clearing and vehicle access. Any necessary clearing would be for bushfire management purposes such as to maintain firebreaks and reducing fuel load. Management actions, timing and performance targets specific to the conservation area are detailed within Table 14 of the CAMP (Emerge Associates 2025c).	Unlikely	Slight	Very Low	Unauthorised vehicle access or vegetation clearing.	Continual review in line with the completion criteria and detection of prohibited activities within the restoration areas. Re-assess management plan and land management requirements to prevent further damage and unauthorised access.

Table 18: Risk Assessment and Management (continued)

Risk ID #, Event or Consequence	Description	Initial Risk			Risk mitigation strategies	Residual Risk			Management Trigger	Monitoring mechanisms and corrective actions
		Likelihood	Consequence	Risk Rating		Likelihood	Consequence	Risk Rating		
7) Restoration offset fails to achieve performance targets (Continued below)	The restoration areas do not meet the proponent's offset obligations that were the key rationale for the decision approval of the proposed action (impact site). This includes not meeting the relevant restoration targets for example as a result of the inability for the proponent or restoration specialist to obtain seed/plant material, unexpected dry spells resulting in plant death etc.	Unlikely	Major	Moderate	All legal/conditioned requirements will ensure the proponent remains committed to the proper management of the restoration areas to achieve the completion criteria targets to be determined. Completion criteria specific to offsite restoration areas will be detailed within an offset management plan once offsets are finalised. Completion criteria specific to the conservation area are detailed within the CAMP (Emerge Associates 2025c). Annual audit reports on the compliance with the restoration obligations and trajectory of the conditioned environmental outcomes to be achieved.	Unlikely	Minor	Low	Regular audits demonstrating that completion criteria cannot be achieved and/or target timeframes cannot be met. The restoration does not comply with the obligations outlined in the approved offset Management Plan.	Continual review in line with the completion criteria. Reassess management plan and contingency measures such as reviewing and adjusting watering frequency/amount of water etc. Review why obligations and targets have not or cannot be achieved. Notify DCCEEW and DWER and discuss potential solutions.

Table 18: Risk Assessment and Management (continued)

Risk ID #, Event or Consequence	Description	Initial Risk			Risk mitigation strategies	Residual Risk			Management Trigger	Monitoring mechanisms and corrective actions
		Likelihood	Consequence	Risk Rating		Likelihood	Consequence	Risk Rating		
8) Increased fire risk or uncontrolled fires	A bushfire may degrade or destroy a portion or the entire restoration area/s.	Possible	Major	High	Development and implementation of fire management strategies/plan for the restoration areas (if not already in place by landowners) to be maintained throughout the entire extent of the restoration period. Application of the relevant local government fire hazard reduction notices including construction of firebreaks around the restoration boundary (where required), and fuel load management such as weed control to minimise impacts from external bushfires and reduce overall bushfire hazard. Management actions, timing and performance targets specific to the conservation area are detailed within Table 14 of the CAMP (Emerge Associates 2025c).	Possible	Moderate	Moderate	Unplanned fire within the restoration area/s. Bushfire mitigation measures such as firebreaks or fuel load control not being achieved. Significant weed coverage increasing potential fuel loads.	Monitoring required prior to every bushfire season (routine inspection) to include assessment of dominant weeds adding to the fuel load and fire break implementation. Re-assessment of fire management plan to reduce future risk.
9) Commercial risks associated with delivery of the offset by the proponent	The risk commercial factors resulting in the proponent not achieving all offset obligations.	Rare	Slight	Very Low	BAI Communications was established in 2002 and has delivered over 741 transmission sites across the country. The proponents vast portfolio of historical, ongoing and future projects including within the City and across Australia minimises any commercial risks associated with the delivery of the offset.	Rare	Slight	Very Low	Given the very low risk, there is no management trigger identified.	Given the very low risk, there is no monitoring mechanism and corrective actions proposed.

5 Preliminary Assessment Against Relevant Legislation

5.1 EPBC Act Environmental Offset Policy

The restoration offset approach and potential offset options presented in this strategy would enable finalisation of an offset proposal that would be consistent with the principles of the *EPBC Act Environmental Offsets Policy*, as outlined in **Table 19** below.

Table 19: Assessment of proposed offsets against principles of the EPBC Act Offsets Policy

EPBC Act Environmental Offsets Policy principles	Assessment of proposed offset against principle
Deliver an overall conservation outcome that improves or maintains the viability of the aspect of the environment that is protected by national environment law and affected by the proposed action	A proposed offset based on a habitat restoration program would result in a net positive environmental outcome for the Banksia Woodlands TEC/PEC and black cockatoo habitat. The restoration areas would be protected in perpetuity. The proposed offsets will be tailored specifically to Banksia Woodlands TEC/PEC and black cockatoos so that an improved habitat and conservation outcome can be achieved. Ultimately the proposed restoration areas are anticipated to result in net-positive environmental outcomes for Banksia Woodlands TEC/PEC and black cockatoos by creating new habitat.
Be built around direct offsets but may include other compensatory measures	The restoration area options will be used to propose a minimum of 100% direct offsets, with no compensatory measures.
Be in proportion to the level of statutory protection that applies to the protected matter	In consideration of the proposed offset areas the listing status of the relevant MNES have been taken into consideration and includes Banksia Woodlands TEC/PEC and black cockatoos. Additionally the completed *Offset Assessment Guide* accounts for the listing status of the Banksia Woodlands TEC.
Be of a size and scale proportionate to the residual impacts on the protected matter	It is reasonable to assume that the identified restoration areas could satisfy the offset requirements of the proposed development for Banksia Woodlands TEC/PEC and black cockatoos. Attributes impacted by the proposed development on Banksia Woodlands TEC/PEC and black cockatoos have been detailed including the nature of the impact (permanent), the risk of loss and the time it will take to achieve a conservation gain. The offset calculator utilised to guide and justify the size and scale of the offset requirements to the relevant MNES is the metric provided by DCCEEW and in line with EPBC Act Environmental Offsets Policy. Multiple offset options are presented which account for an excess of the minimum offset requirements in regard to size and scale.
Effectively account for and manage the risks of the offset not succeeding	The proposed offset would incorporate a direct offset being habitat restoration, and accounts for risks associated with implementation of the offset sites (as discussed in Section 4).
Be additional to what is already required, determined by law or planning regulations or agreed to under other schemes or programs (this does not preclude the recognition of state or territory offsets that may be suitable as offsets under the EPBC Act for the same action, see section 7.6)	The conservation area is currently not managed for conservation purposes for the Banksia Woodlands TEC/PEC or black cockatoo habitat and offsite restoration areas occur at different extents by the City/DBCA, and do not specify if current management is specific for improving Banksia Woodlands TEC/PEC or black cockatoo habitat.

Table 19: Assessment of proposed offsets against principles of the EPBC Act Offsets Policy (Continued)

EPBC Act Environmental Offsets Policy principles	Assessment of proposed offset against principle
Be efficient, effective, timely, transparent, scientifically robust and reasonable	The proposed restoration areas are either already or will be managed by local government or DBCA, increasing the efficiency and effectiveness of the offset. Given a public authority is involved in implementing the offset, there is a high level of transparency. It is acknowledged that restoration type offset proposal will require longer time to meet the offset obligations and targets; however, this will result in a net-positive environmental outcome.
Have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced.	A future Offset Management Plan or Proposal, outlining the specific offset site and future EPBC Act approval annual compliance reporting provide mechanisms to measure, monitor, audit and enforce the restoration offsets.

5.2 EP Act

The offset is considered to be consistent with the principles of the Government of Western Australia (2011) WA Environmental Offsets Policy as outlined in **Table 20**.

Table 20: Assessment of the proposed offsets against principles of the WA Environmental Offsets Policy

WA Environmental Offset Policy Principles	Application to this Offset strategy
Environmental offsets will only be considered after avoidance and mitigation options have been pursued	The proponent has rigorously applied the impact mitigation sequence through avoidance, minimisation and mitigation to reduce impacts of the proposed development, as outlined in the ERD (Emerge Associates 2025f). This has included material avoidance in the form of commitment to the long-term protection and management of the conservation area and associated environmental values and mitigation through implementation of future management plans, including the CAMP and CEMP. As such, offsets are considered to mitigate significant residual impacts, after avoidance and mitigation.
Environmental offsets are not appropriate for all project	The proposed development has been determined to have significant residual impacts to Banksia Woodlands TEC/PEC, CBC and FRTBC habitat; therefore, an environmental offset is deemed appropriate. The offset will be implemented to achieve a net-positive environmental outcome through a restoration approach.
Environmental offsets will be cost-effective as well as relevant and proportionate to the significance of the environmental value being impacted	The proposed restoration-based offset costs are known and can be addressed through the implementation of the proposed development. There is knowledge and expertise available to deliver the restoration outcomes and metrics have been calculated and guided by the DWER offsets calculator in line with the WA Environmental Offsets Policy (Government of Western Australia 2011). The proposed offsets are targeted to address the identified residual impacts.
Environmental offsets will be based on sound environmental information and knowledge	Sufficient information is available as to the likely occurrence of threatened and priority species and communities impacted by the proposed development, such that the benefit of the offset can be reasonably forecast. The restoration methodology are well known, studied and trialled by historic work and are relatively simple, as such outcomes are not considered unrealistic.

Table 20: Assessment of the proposed offsets against principles of the WA Environmental Offsets Policy (continued)

WA Environmental Offset Policy Principles	Application to this Offset strategy
Environmental offsets will be applied within a framework of adaptive management	Monitoring and evaluation of offset outcomes against completion criteria ensures that where management does not, or is not predicted to, meet the objectives and targets, an adaptive response will be required.
Environmental offsets will be focussed on longer term strategic outcomes	The offset site revegetation targeting Banksia Woodland PEC and black cockatoo habitat, in a location that will be managed for conservation in perpetuity, is considered to be a long-term strategic outcome. Sites have been investigated that are within existing conservation tenure and identified for restoration and protection. Restoration outcomes are proposed within land already intended for conservation purposes, as determined by other parties or planning processes such as areas zoned as conservation or parks and recreation with existing intent of conservation and restoration (i.e. through management plans etc).

6 Conclusion

The proposed Offset Strategy includes onsite restoration within the conservation area, as well as four potential offsite restoration areas which combined represent 329.1% of the total offset requirement for the proposed development. Although multiple potential offsite restoration areas have been presented within the Offset Strategy, contributing holistically 329.1%, one or a combination of sites will be progressed in order to meet at least 100% of the offset requirements.

Offset options will be refined alongside the environmental assessment processes for the proposed development. An offset proposal will be determined as ongoing discussions with land managers regarding site availability and suitability and further ecological assessments are undertaken. As the offset options are subject to other matters and yet to be finalised, potential restoration offset opportunities and outcome surplus to the required offset have been identified to ensure options are available and provide adequate coverage for compliance with offset requirements.

Based on the offset sites identified to date, restoration within the conservation area accounts for 2.3% of the total DCCEEW offset requirement and provides a rehabilitation credit of 0.29 ha for EP Act offset requirements. One of or a combination of the potential offsite restoration areas identified will account for the remaining total offset requirements.

While not necessary to achieve the required offset, restoration within the conservation area and implementation of the CAMP will deliver quantitative and specific outcomes for the additional EP Act environmental factors (flora and vegetation and terrestrial fauna), including approximately 20% of the required offset for priority flora species (*Acacia benthamii* and *Jacksonia sericea*) and 70% of the requires offset for priority fauna habitat (suitable habitat for quenda and trapdoor spider and potential suitable habitat for black-striped snake).

As a result, implementation of the CAMP will provide significant additional benefits for EP Act environmental factors, even though offset outcomes are predominantly driven by EPBC Act MNES.

The offset proposal will outline the ultimate offset site (or combination of sites) in parallel to the progression of the assessment process.

7 References

Commonwealth of Australia 2012, *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*, Canberra, Australia.

Department of Agriculture, Water and the Environment (DAWE) 2022, *Referral guideline for 3 WA threatened black cockatoo species: Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-tailed Black-cockatoo*, Canberra.

Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2022, *Nature Positive Plan: better for the environment, better for business*.

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Figures

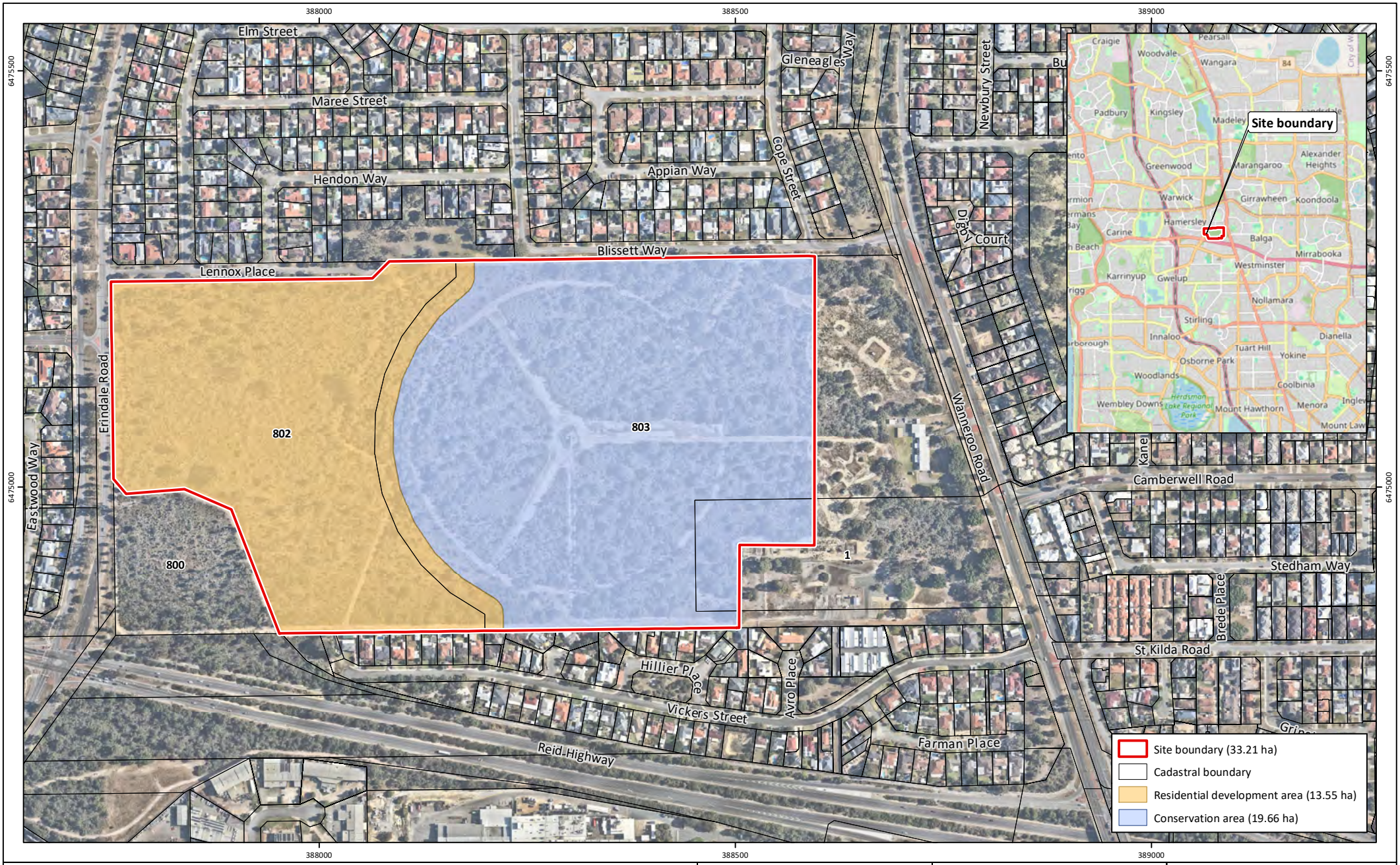

Figure 1: Site Location

Project:	Offset Strategy Hamersley Residential Development and Conservation
Client:	BAI Communications

Plan Number:
EP24-129(05)--F84a

Drawn:	CTH
Date:	27/05/2025
Checked:	CIB
Approved:	EKB
Date:	30/05/2025

Scale: 1:6,000@A4

GDA2020 MGA Zone 50

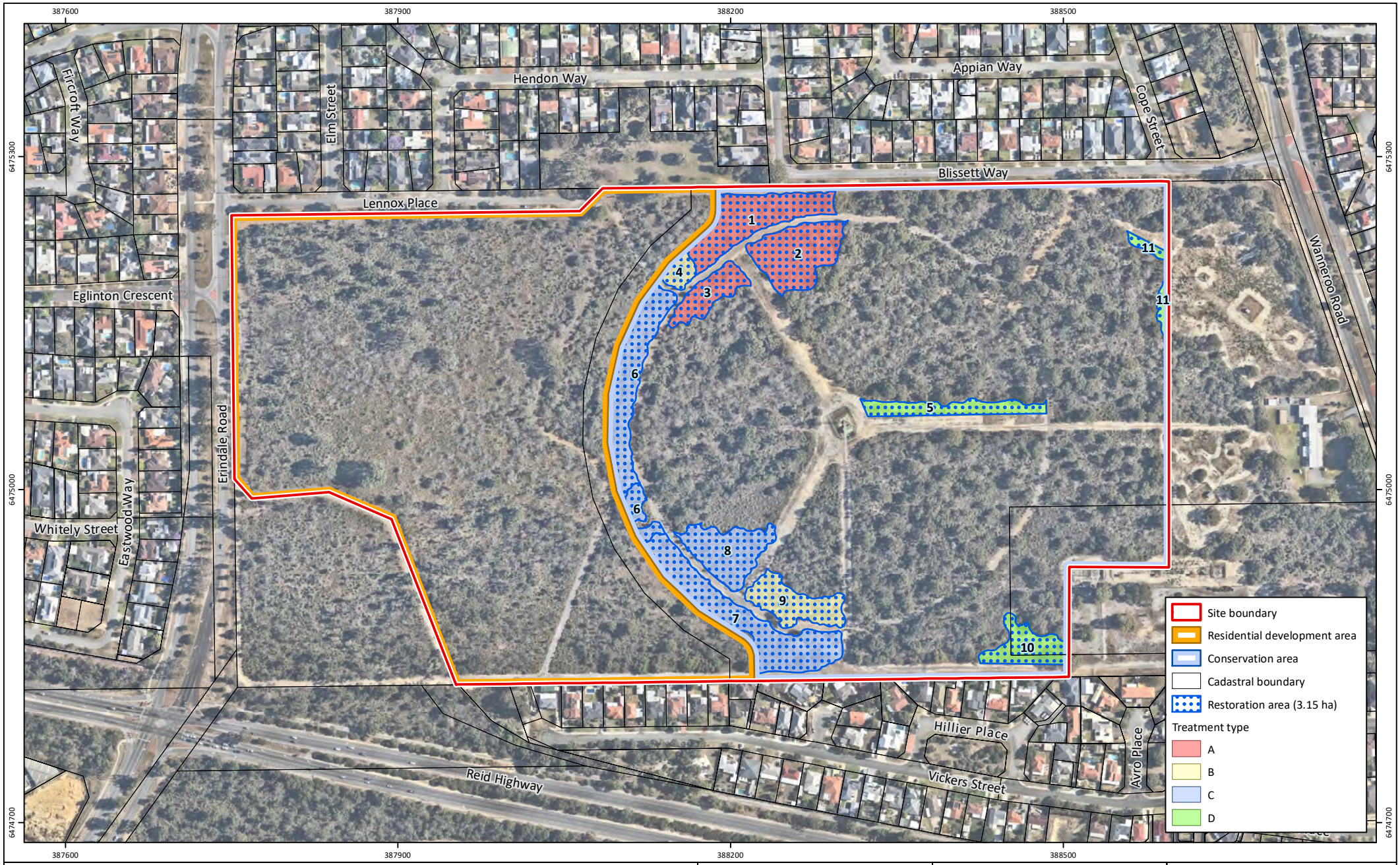

Figure 2: Restoration Areas

Project:	Offset Strategy Hamersley Residential Development and Conservation
Client:	BAI Communications

Plan Number:
EP24-129(05)--F85b

Drawn:	CTH
Date:	27/05/2025
Checked:	CIB
Approved:	EKB
Date:	28/11/2025

N

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Metres

Scale: 1:4,500@A4

GDA2020 MGA Zone 50

emerge ASSOCIATES

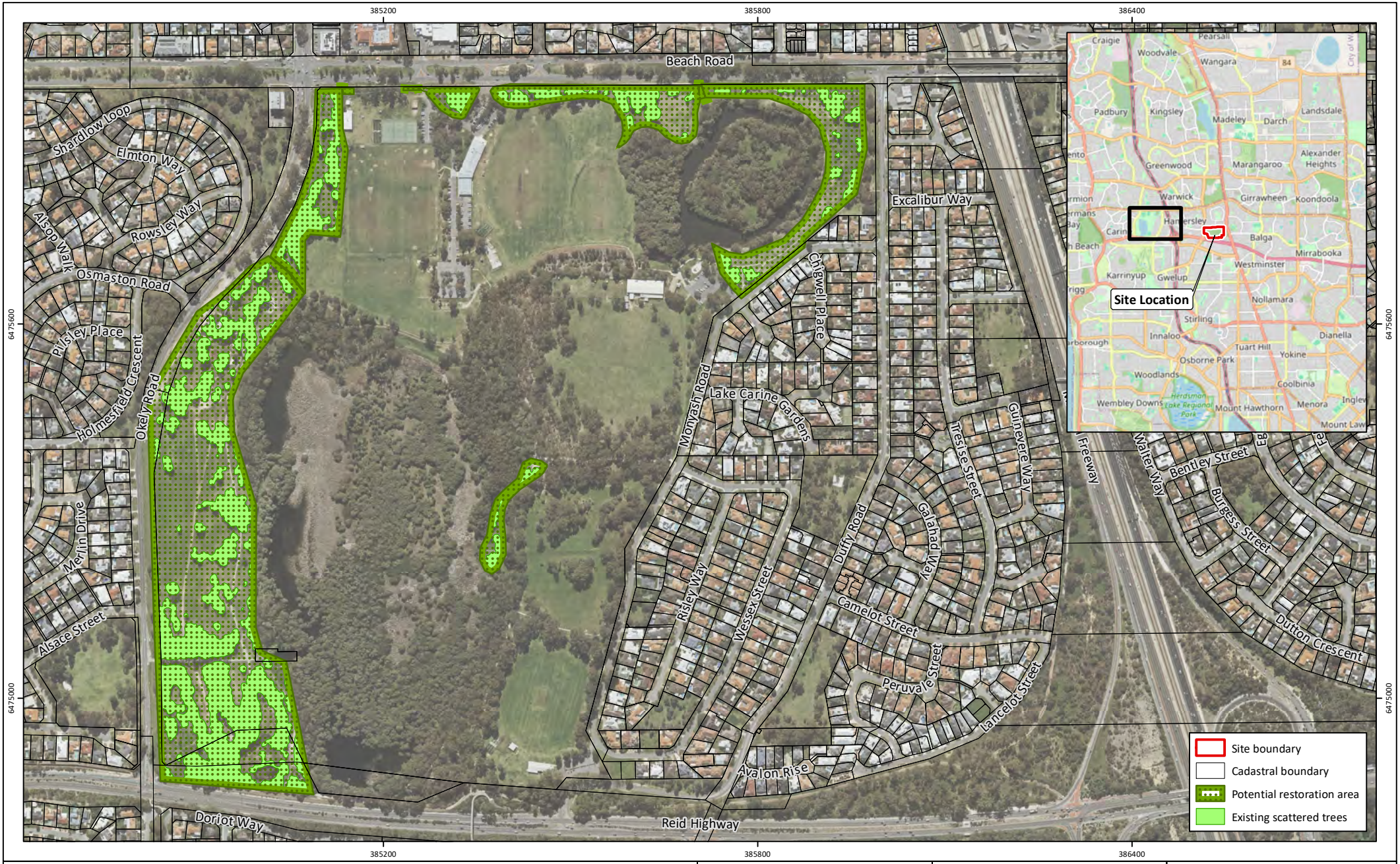

Figure 3: Restoration Area 1 - Carine Open Space

Project:	Offset Strategy Hamersley Residential Development and Conservation
Client:	BAI Communications

Plan Number:
EP24-129(05)--F86b

Drawn:	GAR
Date:	21/10/2025
Checked:	CIB
Approved:	EKB
Date:	07/11/2025

N

0 100 200 300
Metres

Scale: 1:8,000@A4

GDA2020 MGA Zone 50

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Figure 4: Restoration Area 2 - Trigg Bushland Reserve (Sector 4)

Project:	Offset Strategy Hamersley Residential Development and Conservation
Client:	BAI Communications

Plan Number:
EP24-129(05)--F88b

Drawn:	CTH
Date:	27/05/2025
Checked:	CIB
Approved:	EKB
Date:	28/11/2025

N

0 100 200
Metres

Scale: 1:5,000@A4

GDA2020 MGA Zone 50

emerge ASSOCIATES

Figure 5: Restoration Area 3 - Trigg Bushland Reserve (Sector 5)

Project:	Offset Strategy Hamersley Residential Development and Conservation
Client:	BAI Communications

Plan Number:
EP24-129(05)--F89a

Drawn:	CTH
Date:	27/05/2025
Checked:	CIB
Approved:	EKB
Date:	25/06/2025

N

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Metres

Scale: 1:6,000@A4

GDA2020 MGA Zone 50

emerge ASSOCIATES

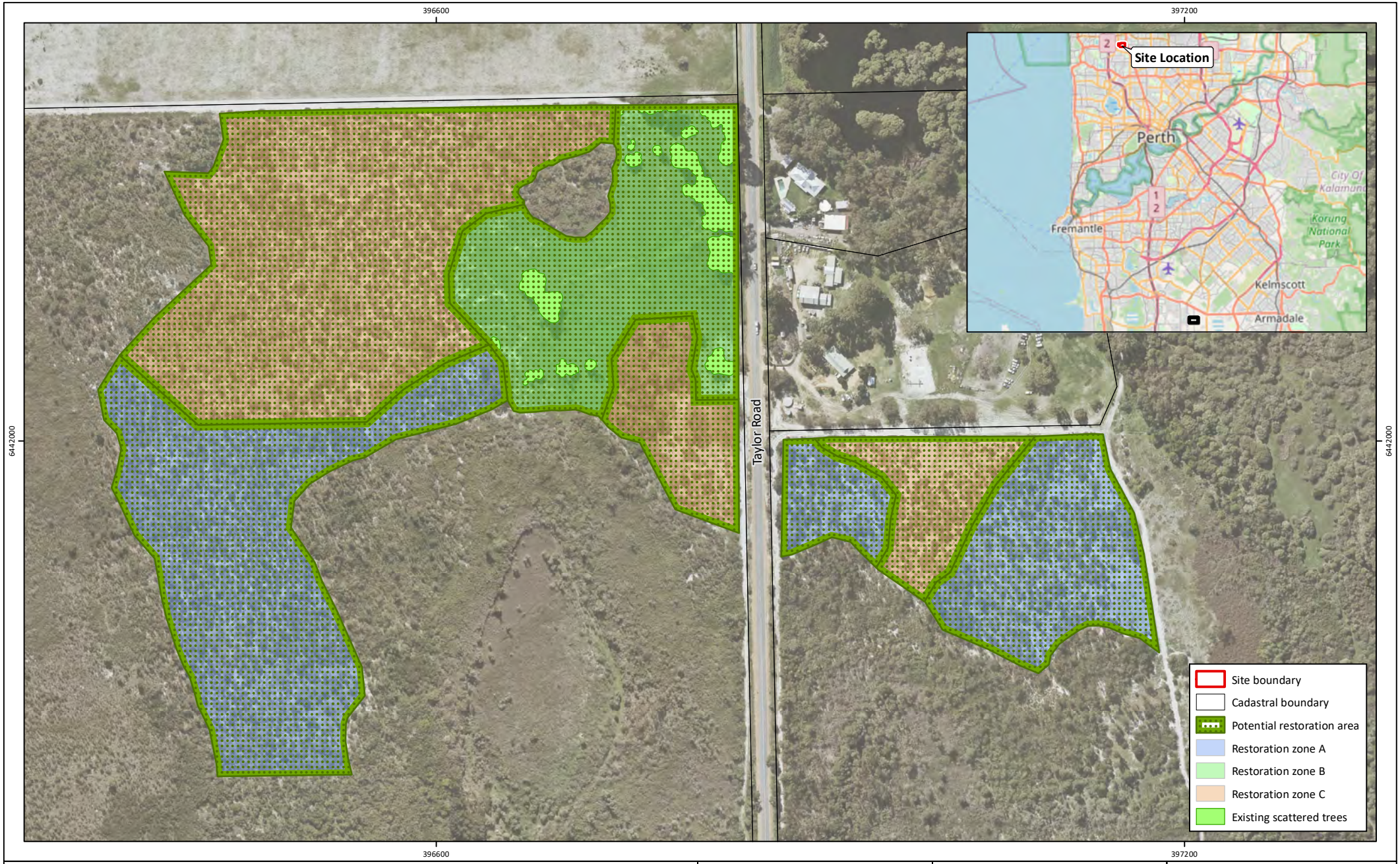

Figure 6: **Restoration Area 4 - Jandakot Regional Park**

Project: Offset Strategy
Hamersley Residential Development and Conservation
Client: BAI Communications

Plan Number:
EP24-129(05)--F96
Drawn: GAR
Date: 21/10/2025
Checked: CIB
Approved: EKB
Date: 07/11/2025

N

0 50 100 150
Metres
Scale: 1:4,000@A4
GDA2020 MGA Zone 50

emerge ASSOCIATES

Appendix A

DWER Offset Calculators

Restoration Area 1: Carine Open Space

Step 1: Determining conservation significance

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

(Or, if appropriate, manual data entry permitted)

***Area / feature* (Impact site)**

Conservation significance determination for the environmental value impacted		
Conservation significance	**Description**	Banksia woodlands of the Swan Coastal Plain PEC
	Type of environmental value	Ecological community
	Conservation significance of environmental value	Priority ecological community
	Conservation significance score	**0.1%**

Please select *area* or *feature* for the calculations	**Area**

Step 2: Calculating significant residual impact

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Banksia woodlands of the Swan Coastal Plain PEC

***Area* (impact site)**

Part A: Significant impact calculation *Area*

	Description		
Significant impact	Permanent loss through vegetation clearing for residential development	Significant impact (hectares)	12.29
		Quality (scale)	5.60
		Total quantum of impact	6.88

Part B: Rehabilitation credit calculation *Area* (onsite)

	Description				
Rehabilitation Credit	Onsite restoration in accordance with the Conservation Area Management Plan	Proposed rehabilitation (area in hectares)	3.15	Time until ecological benefit (years)	10.00
		Current quality of rehabilitation site (scale)	3.70	Confidence in rehabilitation result (%)	80.0%
		Future quality WITHOUT rehabilitation (scale)	3.70	Rehabilitation credit	0.42
		Future quality WITH rehabilitation (scale)	5.40		

Part C: Significant residual impact calculation *Area*

Significant residual impact	Total quantum of impact	6.88
	Rehabilitation credit	0.42
	Significant residual impact	6.46

WA Environmental Offsets Calculator

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Banksia woodlands of the Swan Coastal Plain PEC	Significant impact (step 2, part A)	12.29
		Rehabilitation credit (step 2, part B)	0.42
		Significant residual impact (step 2, part C)	6.46

Area **(offset site)**

Offset calculation *Area*							
Offsets calculation	**Description**	**Proposed offset (area in hectares)**	21.20	**Duration of offset implementation (maximum 20 years)**	10.00	**Offset value**	**11.75**
	Restoration Area 1: Carine Open Space	**Current quality of offset site (scale)**	0.00	**Time until offset site secured (years)**	0.00		**182.0%**
		Future quality WITHOUT offset (scale)	0.00	**Risk of future loss WITHOUT offset (%)**	0.0%		
		Future quality WITH offset (scale)	7.00	**Risk of future loss WITH offset (%)**	0.0%		
		Time until ecological benefit (years)	10.00				
		Confidence in offset result (%)	80.0%			**OFFSET ADEQUATE?**	**NO**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Banksia woodlands of the Swan Coastal Plain PEC		Banksia woodlands of the Swan Coastal Plain PEC identified during the Detailed Flora and Vegetation Assesment completed by Emerge Associates.
Type of environmental value	Ecological community		
Conservation significance of environmental value	Priority ecological community		
Landscape-level value impacted	yes/no		
Significant impact			
Description	Permanent loss through vegetation clearing for residential development		BAI Communications and Digital 4 Pty Ltd are proposing the Hamersley Residential Development and Conservation project within Lot 802 Erindale Road, and Lot 1 and 803 Wanneroo Road, Hamersley.
Significant impact (hectares) / Type of feature	12.29		The extent of Banksia woodlands PEC was determined by Emerge Associates as part of a Detailed Flora and Vegetation Assessment.
Quality (scale) / Number	5.60		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Rehabilitation credit			
Description	Onsite restoration in accordance with the Conservation Area Management Plan		Revegetation works within restoration areas will be undertaken in accordance with the Conservation Area Management Plan to achieve a net positive conservation outcome for CBC, FRTBC and Banksia Woodlands TEC/PEC habitat quality.
Proposed rehabilitation (area in hectares)	3.15		The total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of rehabilitation site / Start number (of type of feature)	3.70		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	3.70		The conservation area is not currently subject to any management, so habitat quality is expected to remain at its current score without rehabilitation.
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	5.40		Quality score has been determined based on the existing vegetation and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Confidence in rehabilitation result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Offset			
Description	Restoration Area 1: Carine Open Space		The restoration approach for the offset includes: - Intensive revegetation of Banksia and other native species representative of Banksia Woodlands across the restoration area, so as to result in vegetation that would constitute Banksia Woodland TEC as per the conservation advice (DoEE 2016). - Revegetation of Banksia species will also achieve provision of black cockatoo foraging plant species as outlined in the black cockatoo referral guidelines (DAWE 2022). - Management for threat abatement including weed management, pest control and fencing.
Proposed offset (area in hectares)	21.20		The total total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of offset site / Start number (of type of feature)	0.00		The proposed restoration area does not currently support Banksia woodland PEC.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	0.00		Without restoration, no ecological improvement is expected.
Future quality WITH offset (scale) / Future number WITH offset	7.00		The future quality score has been determined based on the existing vegetation, potential for improvement, and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Ecological recovery of Banksia woodlands typically takes about 10 years to achieve meaningful vegetation structure and species composition.
Confidence in offset result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Duration of offset implementation (maximum 20 years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Time until offset site secured (years)	0.00		The proposed offset area is within the City of Stirlings reserves with further discussions regarding approach and outcomes finalised throughout the assessment process to avoid delays in securing the site.

Risk of future loss WITHOUT offset (%)	0.0%		The proposed offset area is already within the City of Stirlings reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Risk of future loss WITH offset (%)	0.0%		The proposed offset area is already within the City of Stirlings reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Offset ratio (Conservation area only)	N/A		

Step 1: Determining conservation significance

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

(Or, if appropriate, manual data entry permitted)

Area / feature **(Impact site)**

Conservation significance determination for the environmental value impacted		
Conservation significance	**Description**	Carnaby's Black Cockatoo
	Type of environmental value	Species (flora/fauna)
	Conservation significance of environmental value	Rare/threatened species - endangered
	Conservation significance score	**1.2%**

Please select *area* or *feature* for the calculations	**Area**

Step 2: Calculating significant residual impact

Key:	
	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Carnaby's Black Cockatoo

***Area* (impact site)**

Part A: Significant impact calculation *Area*

Significant impact	Description	Quantum of impact	
	Permanent loss through vegetation clearing for residential development	**Significant impact (hectares)**	12.30
		Quality (scale)	8.00
		Total quantum of impact	**9.84**

Part B: Rehabilitation credit calculation *Area* (onsite)

Rehabilitation Credit	Description				
		Proposed rehabilitation (area in hectares)	3.15	**Time until ecological benefit (years)**	10.00
	Onsite restoration in accordance with the Conservation Area Management Plan	**Current quality of rehabilitation site (scale)**	5.70	**Confidence in rehabilitation result (%)**	80.0%
		Future quality WITHOUT rehabilitation (scale)	5.70	**Rehabilitation credit**	**0.29**
		Future quality WITH rehabilitation (scale)	7.00		

Part C: Significant residual impact calculation *Area*

Significant residual impact		
	Total quantum of impact	**9.84**
	Rehabilitation credit	**0.29**
	Significant residual impact	**9.55**

WA Environmental Offsets Calculator

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Carnaby's Black Cockatoo	Significant impact (step 2, part A)	12.30
		Rehabilitation credit (step 2, part B)	0.29
		Significant residual impact (step 2, part C)	9.55

***Area* (offset site)**

Offset calculation *Area*							
Offsets calculation	**Description**	**Proposed offset (area in hectares)**	12.10	**Duration of offset implementation (maximum 20 years)**	10.00	**Offset value**	**7.73**
	Restoration Area 1: Carine Open Space	**Current quality of offset site (scale)**	0.00	**Time until offset site secured (years)**	0.00		**81.0%**
		Future quality WITHOUT offset (scale)	0.00	**Risk of future loss WITHOUT offset (%)**	0.0%		
		Future quality WITH offset (scale)	9.00	**Risk of future loss WITH offset (%)**	0.0%		
		Time until ecological benefit (years)	10.00				
		Confidence in offset result (%)	80.0%			**OFFSET ADEQUATE?**	**NO**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Carnaby's Black Cockatoo		Carnaby's black cockatoo habitat was identified during the Detailed Flora and Vegetation Assesment completed by Emerge Associates.
Type of environmental value	Species (flora/fauna)		
Conservation significance of environmental value	Rare/threatened species - endangered		
Landscape-level value impacted	yes/no		
Significant impact			
Description	Permanent loss through vegetation clearing for residential development		BAI Communications and Digital 4 Pty Ltd are proposing the Hamersley Residential Development and Conservation project within Lot 802 Erindale Road, and Lot 1 and 803 Wanneroo Road, Hamersley.
Significant impact (hectares) / Type of feature	12.30		The extent of Carnaby's black cockatoo habitat was determined by Emerge Associates as part of a Basic Fauna and Targetted Black Cockatoo Assessment.
Quality (scale) / Number	8.00		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Rehabilitation credit			
Description	Onsite restoration in accordance with the Conservation Area Management Plan		Revegetation works within restoration areas will be undertaken in accordance with the Conservation Area Management Plan to achieve a net positive conservation outcome for CBC, FRTBC and Banksia Woodlands TEC/PEC habitat quality.
Proposed rehabilitation (area in hectares)	3.15		The total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of rehabilitation site / Start number (of type of feature)	5.70		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	5.70		The conservation area is not currently subject to any management, so habitat quality is expected to remain at its current score without rehabilitation.
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	7.00		The future quality score has been determined based on the existing vegetation, potential for improvement and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Confidence in rehabilitation result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Offset			
Description	Restoration Area 1: Carine Open Space		The restoration approach for the offset includes: - Intensive revegetation of Banksia and other native species representative of Banksia Woodlands across the restoration area, so as to result in vegetation that would constitute Banksia Woodland TEC as per the conservation advice (DoEE 2016). - Revegetation of Banksia species will also achieve provision of black cockatoo foraging plant species as outlined in the black cockatoo referral guidelines (DAWE 2022). - Management for threat abatement including weed management, pest control and fencing.
Proposed offset (area in hectares)	12.10		The total total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of offset site / Start number (of type of feature)	0.00		Based on desktop assessment, the proposed restoration area does not currently support habitat for Carnaby's black cockatoo.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	0.00		Without restoration, no ecological improvement is expected.
Future quality WITH offset (scale) / Future number WITH offset	9.00		The future quality score has been determined based on the existing vegetation, potential for improvement, and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Ecological recovery of black cockatoo habitat typically takes about 10 years to achieve meaningful vegetation structure and species composition.
Confidence in offset result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Duration of offset implementation (maximum 20 years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Time until offset site secured (years)	0.00		The proposed offset area is within the City of Stirlings reserves with further discussions regarding approach and outcomes finalised throughout the assessment process to avoid delays in securing the site.

Risk of future loss WITHOUT offset (%)	0.0%		The proposed offset area is already within the City of Stirlings reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Risk of future loss WITH offset (%)	0.0%		
Offset ratio (Conservation area only)	N/A		

Step 1: Determining conservation significance

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

(Or, if appropriate, manual data entry permitted)

***Area / feature* (Impact site)**

Conservation significance determination for the environmental value impacted		
Conservation significance	**Description**	Forest red-tailed black cockatoo
	Type of environmental value	Species (flora/fauna)
	Conservation significance of environmental value	Rare/threatened Species - vulnerable
	Conservation significance score	**0.2%**

Please select *area* or *feature* for the calculations	**Area**

Step 2: Calculating significant residual impact

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Forest red-tailed black cockatoo

***Area* (impact site)**

Part A: Significant impact calculation *Area*

Significant impact	Description	Quantum of impact	
	Permanent loss through vegetation clearing for residential development	**Significant impact (hectares)**	7.45
		Quality (scale)	7.00
		Total quantum of impact	**5.22**

Part B: Rehabilitation credit calculation *Area* (onsite)

Rehabilitation Credit	Description				
		Proposed rehabilitation (area in hectares)	3.15	**Time until ecological benefit (years)**	10.00
	Onsite restoration in accordance with the Conservation Area Management Plan	**Current quality of rehabilitation site (scale)**	4.70	**Confidence in rehabilitation result (%)**	80.0%
		Future quality WITHOUT rehabilitation (scale)	4.70	**Rehabilitation credit**	**0.40**
		Future quality WITH rehabilitation (scale)	6.30		

Part C: Significant residual impact calculation *Area*

Significant residual impact		
	Total quantum of impact	**5.22**
	Rehabilitation credit	**0.40**
	Significant residual impact	**4.82**

WA Environmental Offsets Calculator

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Forest red-tailed black cockatoo	Significant impact (step 2, part A)	7.45
		Rehabilitation credit (step 2, part B)	0.40
		Significant residual impact (step 2, part C)	4.82

Area **(offset site)**

Offset calculation *Area*							
Offsets calculation	**Description**	**Proposed offset (area in hectares)**	12.10	**Duration of offset implementation (maximum 20 years)**	10.00	**Offset value**	**8.54**
	Restoration Area 1: Carine Open Space	**Current quality of offset site (scale)**	0.00	**Time until offset site secured (years)**	0.00		**177.2%**
		Future quality WITHOUT offset (scale)	0.00	**Risk of future loss WITHOUT offset (%)**	0.0%		
		Future quality WITH offset (scale)	9.00	**Risk of future loss WITH offset (%)**	0.0%		
		Time until ecological benefit (years)	10.00				
		Confidence in offset result (%)	80.0%			**OFFSET ADEQUATE?**	**NO**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Forest red-tailed black cockatoo		Forest red-tailed black cockatoo habitat was identified during the Detailed Flora and Vegetation Assesment completed by Emerge Associates.
Type of environmental value	Species (flora/fauna)		
Conservation significance of environmental value	Rare/threatened Species - vulnerable		
Landscape-level value impacted	yes/no		
Significant impact			
Description	Permanent loss through vegetation clearing for residential development		BAI Communications and Digital 4 Pty Ltd are proposing the Hamersley Residential Development and Conservation project within Lot 802 Erindale Road, and Lot 1 and 803 Wanneroo Road, Hamersley.
Significant impact (hectares) / Type of feature	7.45		The extent of forest red-tailed black cockatoo habitat was determined by Emerge Associates as part of a Basic Fauna and Targetted Black Cockatoo Assessment.
Quality (scale) / Number	7.00		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Rehabilitation credit			
Description	Onsite restoration in accordance with the Conservation Area Management Plan		Revegetation works within restoration areas will be undertaken in accordance with the Conservation Area Management Plan to achieve a net positive conservation outcome for CBC, FRTBC and Banksia Woodlands TEC/PEC habitat quality.
Proposed rehabilitation (area in hectares)	3.15		The total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of rehabilitation site / Start number (of type of feature)	4.70		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	4.70		The conservation area is not currently subject to any management, so habitat quality is expected to remain at its current score without rehabilitation.
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	6.30		The future quality score has been determined based on the existing vegetation, potential for improvement and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Confidence in rehabilitation result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Offset			
Description	Restoration Area 1: Carine Open Space		The restoration approach for the offset includes: - Intensive revegetation of Banksia and other native species representative of Banksia Woodlands across the restoration area, so as to result in vegetation that would constitute Banksia Woodland TEC as per the conservation advice (DoEE 2016). - Revegetation of Banksia species will also achieve provision of black cockatoo foraging plant species as outlined in the black cockatoo referral guidelines (DAWE 2022). - Management for threat abatement including weed management, pest control and fencing.
Proposed offset (area in hectares)	12.10		The total total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of offset site / Start number (of type of feature)	0.00		Based on desktop assessment, the proposed restoration area does not currently support habitat for forest red-tailed black cockatoo.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	0.00		Without restoration, no ecological improvement is expected.
Future quality WITH offset (scale) / Future number WITH offset	9.00		The future quality score has been determined based on the existing vegetation, potential for improvement, and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Ecological recovery of black cockatoo habitat typically takes about 10 years to achieve meaningful vegetation structure and species composition.
Confidence in offset result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Duration of offset implementation (maximum 20 years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Time until offset site secured (years)	0.00		The proposed offset area is within the City of Stirlings reserves with further discussions regarding approach and outcomes finalised throughout the assessment process to avoid delays in securing the site.

Risk of future loss WITHOUT offset (%)	0.0%		The proposed offset area is already within the City of Stirlings reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Risk of future loss WITH offset (%)	0.0%		The proposed offset area is already within the City of Stirlings reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Offset ratio (Conservation area only)	N/A		

Restoration Area 2: Trigg Bushland Reserve (Sector 4)

Step 1: Determining conservation significance

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

(Or, if appropriate, manual data entry permitted)

***Area / feature* (Impact site)**

Conservation significance determination for the environmental value impacted		
Conservation significance	**Description**	Banksia woodlands of the Swan Coastal Plain PEC
	Type of environmental value	Ecological community
	Conservation significance of environmental value	Priority ecological community
	Conservation significance score	**0.1%**

Please select *area* or *feature* for the calculations	**Area**

Step 2: Calculating significant residual impact

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Banksia woodlands of the Swan Coastal Plain PEC

***Area* (impact site)**

Part A: Significant impact calculation *Area*

	Description		
Significant impact	Permanent loss through vegetation clearing for residential development	**Significant impact (hectares)**	12.29
		Quality (scale)	5.60
		Total quantum of impact	**6.88**

Part B: Rehabilitation credit calculation *Area* (onsite)

	Description				
Rehabilitation Credit	Onsite restoration in accordance with the Conservation Area Management Plan	**Proposed rehabilitation (area in hectares)**	3.15	**Time until ecological benefit (years)**	10.00
		Current quality of rehabilitation site (scale)	3.70	**Confidence in rehabilitation result (%)**	80.0%
		Future quality WITHOUT rehabilitation (scale)	3.70	**Rehabilitation credit**	**0.42**
		Future quality WITH rehabilitation (scale)	5.40		

Part C: Significant residual impact calculation *Area*

Significant residual impact	**Total quantum of impact**	**6.88**
	Rehabilitation credit	**0.42**
	Significant residual impact	**6.46**

WA Environmental Offsets Calculator

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Banksia woodlands of the Swan Coastal Plain PEC	Significant impact (step 2, part A)	12.29
		Rehabilitation credit (step 2, part B)	0.42
		Significant residual impact (step 2, part C)	6.46

Area **(offset site)**

Offset calculation *Area*							
Offsets calculation	**Description**	**Proposed offset (area in hectares)**	22.40	**Duration of offset implementation (maximum 20 years)**	10.00	**Offset value**	**12.42**
	Restoration Area 2: Trigg Bushland Reserve Sector 4	**Current quality of offset site (scale)**	0.00	**Time until offset site secured (years)**	0.00		**192.3%**
		Future quality WITHOUT offset (scale)	0.00	**Risk of future loss WITHOUT offset (%)**	0.0%		
		Future quality WITH offset (scale)	7.00	**Risk of future loss WITH offset (%)**	0.0%		
		Time until ecological benefit (years)	10.00				
		Confidence in offset result (%)	80.0%			**OFFSET ADEQUATE?**	**NO**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Banksia woodlands of the Swan Coastal Plain PEC		Banksia woodlands of the Swan Coastal Plain PEC identified during the Detailed Flora and Vegetation Assesment completed by Emerge Associates.
Type of environmental value	Ecological community		
Conservation significance of environmental value	Priority ecological community		
Landscape-level value impacted	yes/no		
Significant impact			
Description	Permanent loss through vegetation clearing for residential development		BAI Communications and Digital 4 Pty Ltd are proposing the Hamersley Residential Development and Conservation project within Lot 802 Erindale Road, and Lot 1 and 803 Wanneroo Road, Hamersley.
Significant impact (hectares) / Type of feature	12.29		The extent of Banksia woodlands PEC was determined by Emerge Associates as part of a Detailed Flora and Vegetation Assessment.
Quality (scale) / Number	5.60		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Rehabilitation credit			
Description	Onsite restoration in accordance with the Conservation Area Management Plan		Revegetation works within restoration areas will be undertaken in accordance with the Conservation Area Management Plan to achieve a net positive conservation outcome for CBC, FRTBC and Banksia Woodlands TEC/PEC habitat quality.
Proposed rehabilitation (area in hectares)	3.15		The total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of rehabilitation site / Start number (of type of feature)	3.70		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	3.70		The conservation area is not currently subject to any management, so habitat quality is expected to remain at its current score without rehabilitation.
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	5.40		Quality score has been determined based on the existing vegetation and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Confidence in rehabilitation result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Offset			
Description	Restoration Area 2: Trigg Bushland Reserve Sector 4		The restoration approach for the offset includes: - Intensive revegetation of Banksia and other native species representative of Banksia Woodlands across the restoration area, so as to result in vegetation that would constitute Banksia Woodland TEC as per the conservation advice (DoEE 2016). - Revegetation of Banksia species will also achieve provision of black cockatoo foraging plant species as outlined in the black cockatoo referral guidelines (DAWE 2022). - Management for threat abatement including weed management, pest control and fencing.
Proposed offset (area in hectares)	22.40		The total total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of offset site / Start number (of type of feature)	0.00		The proposed restoration area does not currently support Banksia woodland PEC.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	0.00		Without restoration, no ecological improvement is expected.
Future quality WITH offset (scale) / Future number WITH offset	7.00		The future quality score has been determined based on the existing vegetation, potential for improvement, and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Ecological recovery of Banksia woodlands typically takes about 10 years to achieve meaningful vegetation structure and species composition.
Confidence in offset result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Duration of offset implementation (maximum 20 years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Time until offset site secured (years)	0.00		The proposed offset area is within the City of Stirlings reserves with further discussions regarding approach and outcomes finalised throughout the assessment process to avoid delays in securing the site.

Risk of future loss WITHOUT offset (%)	0.0%		The proposed offset area is already within the City of Stirlings reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Risk of future loss WITH offset (%)	0.0%		The proposed offset area is already within the City of Stirlings reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Offset ratio (Conservation area only)	N/A		

Step 1: Determining conservation significance

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

(Or, if appropriate, manual data entry permitted)

Area / feature **(Impact site)**

Conservation significance determination for the environmental value impacted		
Conservation significance	**Description**	Carnaby's Black Cockatoo
	Type of environmental value	Species (flora/fauna)
	Conservation significance of environmental value	Rare/threatened species - endangered
	Conservation significance score	**1.2%**

Please select *area* or *feature* for the calculations	**Area**

Step 2: Calculating significant residual impact

Key:	
	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Carnaby's Black Cockatoo

***Area* (impact site)**

Part A: Significant impact calculation *Area*

Significant impact	Description	Quantum of impact	
	Permanent loss through vegetation clearing for residential development	**Significant impact (hectares)**	12.30
		Quality (scale)	8.00
		Total quantum of impact	**9.84**

Part B: Rehabilitation credit calculation *Area* (onsite)

Rehabilitation Credit	Description				
		Proposed rehabilitation (area in hectares)	3.15	**Time until ecological benefit (years)**	10.00
	Onsite restoration in accordance with the Conservation Area Management Plan	**Current quality of rehabilitation site (scale)**	5.70	**Confidence in rehabilitation result (%)**	80.0%
		Future quality WITHOUT rehabilitation (scale)	5.70	**Rehabilitation credit**	**0.29**
		Future quality WITH rehabilitation (scale)	7.00		

Part C: Significant residual impact calculation *Area*

Significant residual impact		
	Total quantum of impact	**9.84**
	Rehabilitation credit	**0.29**
	Significant residual impact	**9.55**

WA Environmental Offsets Calculator

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Carnaby's Black Cockatoo	Significant impact (step 2, part A)	12.30
		Rehabilitation credit (step 2, part B)	0.29
		Significant residual impact (step 2, part C)	9.55

Area **(offset site)**

Offset calculation *Area*							
Offsets calculation	**Description**	**Proposed offset (area in hectares)**	22.40	**Duration of offset implementation (maximum 20 years)**	10.00	**Offset value**	**4.77**
	Restoration Area 2: Trigg Bushland Reserve - Sector 4	**Current quality of offset site (scale)**	5.00	**Time until offset site secured (years)**	0.00		**50.0%**
		Future quality WITHOUT offset (scale)	5.00	**Risk of future loss WITHOUT offset (%)**	0.0%		
		Future quality WITH offset (scale)	8.00	**Risk of future loss WITH offset (%)**	0.0%		
		Time until ecological benefit (years)	10.00				
		Confidence in offset result (%)	80.0%			**OFFSET ADEQUATE?**	**NO**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Carnaby's Black Cockatoo		Carnaby's black cockatoo habitat was identified during the Detailed Flora and Vegetation Assesment completed by Emerge Associates.
Type of environmental value	Species (flora/fauna)		
Conservation significance of environmental value	Rare/threatened species - endangered		
Landscape-level value impacted	yes/no		
Significant impact			
Description	Permanent loss through vegetation clearing for residential development		BAI Communications and Digital 4 Pty Ltd are proposing the Hamersley Residential Development and Conservation project within Lot 802 Erindale Road, and Lot 1 and 803 Wanneroo Road, Hamersley.
Significant impact (hectares) / Type of feature	12.30		The extent of Carnaby's black cockatoo habitat was determined by Emerge Associates as part of a Basic Fauna and Targetted Black Cockatoo Assessment.
Quality (scale) / Number	8.00		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Rehabilitation credit			
Description	Onsite restoration in accordance with the Conservation Area Management Plan		Revegetation works within restoration areas will be undertaken in accordance with the Conservation Area Management Plan to achieve a net positive conservation outcome for CBC, FRTBC and Banksia Woodlands TEC/PEC habitat quality.
Proposed rehabilitation (area in hectares)	3.15		The total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of rehabilitation site / Start number (of type of feature)	5.70		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	5.70		The conservation area is not currently subject to any management, so habitat quality is expected to remain at its current score without rehabilitation.
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	7.00		The future quality score has been determined based on the existing vegetation, potential for improvement and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Confidence in rehabilitation result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Offset			
Description	Restoration Area 2: Trigg Bushland Reserve - Sector 4		The restoration approach for the offset includes: - Intensive revegetation of Banksia and other native species representative of Banksia Woodlands across the restoration area, so as to result in vegetation that would constitute Banksia Woodland TEC as per the conservation advice (DoEE 2016). - Revegetation of Banksia species will also achieve provision of black cockatoo foraging plant species as outlined in the black cockatoo referral guidelines (DAWE 2022). - Management for threat abatement including weed management, pest control and fencing.
Proposed offset (area in hectares)	22.40		The total total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of offset site / Start number (of type of feature)	5.00		Based on desktop assessment, the proposed restoration currently supports habitat for Carnaby's black cockatoo in degraded condition with potential for improvement through restoration works.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	5.00		Without restoration, no ecological improvement is expected.
Future quality WITH offset (scale) / Future number WITH offset	8.00		The future quality score has been determined based on the existing vegetation, potential for improvement, and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Ecological recovery of black cockatoo habitat typically takes about 10 years to achieve meaningful vegetation structure and species composition.
Confidence in offset result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Duration of offset implementation (maximum 20 years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Time until offset site secured (years)	0.00		The proposed offset area is within the City of Stirlings reserves with further discussions regarding approach and outcomes finalised throughout the assessment process to avoid delays in securing the site.

Risk of future loss WITHOUT offset (%)	0.0%		The proposed offset area is already within the City of Stirlings reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Risk of future loss WITH offset (%)	0.0%		
Offset ratio (Conservation area only)	N/A		

Step 1: Determining conservation significance

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

(Or, if appropriate, manual data entry permitted)

***Area / feature* (Impact site)**

Conservation significance determination for the environmental value impacted		
Conservation significance	**Description**	Forest red-tailed black cockatoo
	Type of environmental value	Species (flora/fauna)
	Conservation significance of environmental value	Rare/threatened Species - vulnerable
	Conservation significance score	**0.2%**

Please select *area* or *feature* for the calculations	**Area**

Step 2: Calculating significant residual impact

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Forest red-tailed black cockatoo

***Area* (impact site)**

Part A: Significant impact calculation *Area*

Significant impact	Description	Quantum of impact	
	Permanent loss through vegetation clearing for residential development	**Significant impact (hectares)**	7.45
		Quality (scale)	7.00
		Total quantum of impact	**5.22**

Part B: Rehabilitation credit calculation *Area* (onsite)

Rehabilitation Credit	Description				
		Proposed rehabilitation (area in hectares)	3.15	**Time until ecological benefit (years)**	10.00
	Onsite restoration in accordance with the Conservation Area Management Plan	**Current quality of rehabilitation site (scale)**	4.70	**Confidence in rehabilitation result (%)**	80.0%
		Future quality WITHOUT rehabilitation (scale)	4.70	**Rehabilitation credit**	**0.40**
		Future quality WITH rehabilitation (scale)	6.30		

Part C: Significant residual impact calculation *Area*

Significant residual impact		
	Total quantum of impact	**5.22**
	Rehabilitation credit	**0.40**
	Significant residual impact	**4.82**

WA Environmental Offsets Calculator

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Forest red-tailed black cockatoo	Significant impact (step 2, part A)	7.45
		Rehabilitation credit (step 2, part B)	0.40
		Significant residual impact (step 2, part C)	4.82

Area **(offset site)**

Offset calculation *Area*							
Offsets calculation	**Description**	**Proposed offset (area in hectares)**	22.40	**Duration of offset implementation (maximum 20 years)**	10.00	**Offset value**	**5.27**
	Restoration Area 2: Trigg Bushland Reserve - Sector 4	**Current quality of offset site (scale)**	5.00	**Time until offset site secured (years)**	0.00		**109.3%**
		Future quality WITHOUT offset (scale)	5.00	**Risk of future loss WITHOUT offset (%)**	0.0%		
		Future quality WITH offset (scale)	8.00	**Risk of future loss WITH offset (%)**	0.0%		
		Time until ecological benefit (years)	10.00				
		Confidence in offset result (%)	80.0%			**OFFSET ADEQUATE?**	**YES**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Forest red-tailed black cockatoo		Forest red-tailed black cockatoo habitat was identified during the Detailed Flora and Vegetation Assesment completed by Emerge Associates.
Type of environmental value	Species (flora/fauna)		
Conservation significance of environmental value	Rare/threatened Species - vulnerable		
Landscape-level value impacted	yes/no		
Significant impact			
Description	Permanent loss through vegetation clearing for residential development		BAI Communications and Digital 4 Pty Ltd are proposing the Hamersley Residential Development and Conservation project within Lot 802 Erindale Road, and Lot 1 and 803 Wanneroo Road, Hamersley.
Significant impact (hectares) / Type of feature	7.45		The extent of forest red-tailed black cockatoo habitat was determined by Emerge Associates as part of a Basic Fauna and Targetted Black Cockatoo Assessment.
Quality (scale) / Number	7.00		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Rehabilitation credit			
Description	Onsite restoration in accordance with the Conservation Area Management Plan		Revegetation works within restoration areas will be undertaken in accordance with the Conservation Area Management Plan to achieve a net positive conservation outcome for CBC, FRTBC and Banksia Woodlands TEC/PEC habitat quality.
Proposed rehabilitation (area in hectares)	3.15		The total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of rehabilitation site / Start number (of type of feature)	4.70		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	4.70		The conservation area is not currently subject to any management, so habitat quality is expected to remain at its current score without rehabilitation.
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	6.30		The future quality score has been determined based on the existing vegetation, potential for improvement and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Confidence in rehabilitation result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Offset			
Description	Restoration Area 2: Trigg Bushland Reserve - Sector 4		The restoration approach for the offset includes: - Intensive revegetation of Banksia and other native species representative of Banksia Woodlands across the restoration area, so as to result in vegetation that would constitute Banksia Woodland TEC as per the conservation advice (DoEE 2016). - Revegetation of Banksia species will also achieve provision of black cockatoo foraging plant species as outlined in the black cockatoo referral guidelines (DAWE 2022). - Management for threat abatement including weed management, pest control and fencing.
Proposed offset (area in hectares)	22.40		The total total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of offset site / Start number (of type of feature)	5.00		Based on desktop assessment, the proposed restoration area does not currently support habitat for forest red-tailed black cockatoo.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	5.00		Without restoration, no ecological improvement is expected.
Future quality WITH offset (scale) / Future number WITH offset	8.00		The future quality score has been determined based on the existing vegetation, potential for improvement, and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Ecological recovery of black cockatoo habitat typically takes about 10 years to achieve meaningful vegetation structure and species composition.
Confidence in offset result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Duration of offset implementation (maximum 20 years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Time until offset site secured (years)	0.00		The proposed offset area is within the City of Stirlings reserves with further discussions regarding approach and outcomes finalised throughout the assessment process to avoid delays in securing the site.

Risk of future loss WITHOUT offset (%)	0.0%		The proposed offset area is already within the City of Stirlings reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Risk of future loss WITH offset (%)	0.0%		The proposed offset area is already within the City of Stirlings reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Offset ratio (Conservation area only)	N/A		

Restoration Area 3: Trigg Bushland Reserve (Sector 5)

Step 1: Determining conservation significance

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

(Or, if appropriate, manual data entry permitted)

***Area / feature* (Impact site)**

Conservation significance determination for the environmental value impacted		
Conservation significance	**Description**	Banksia woodlands of the Swan Coastal Plain PEC
	Type of environmental value	Ecological community
	Conservation significance of environmental value	Priority ecological community
	Conservation significance score	**0.1%**

Please select *area* or *feature* for the calculations	**Area**

Step 2: Calculating significant residual impact

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Banksia woodlands of the Swan Coastal Plain PEC

***Area* (impact site)**

Part A: Significant impact calculation *Area*

	Description		
Significant impact	Permanent loss through vegetation clearing for residential development	**Significant impact (hectares)**	12.29
		Quality (scale)	5.60
		Total quantum of impact	**6.88**

Part B: Rehabilitation credit calculation *Area* (onsite)

	Description				
Rehabilitation Credit	Onsite restoration in accordance with the Conservation Area Management Plan	**Proposed rehabilitation (area in hectares)**	3.15	**Time until ecological benefit (years)**	10.00
		Current quality of rehabilitation site (scale)	3.70	**Confidence in rehabilitation result (%)**	80.0%
		Future quality WITHOUT rehabilitation (scale)	3.70	**Rehabilitation credit**	**0.42**
		Future quality WITH rehabilitation (scale)	5.40		

Part C: Significant residual impact calculation *Area*

Significant residual impact	**Total quantum of impact**	**6.88**
	Rehabilitation credit	**0.42**
	Significant residual impact	**6.46**

WA Environmental Offsets Calculator

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Banksia woodlands of the Swan Coastal Plain PEC	Significant impact (step 2, part A)	12.29
		Rehabilitation credit (step 2, part B)	0.42
		Significant residual impact (step 2, part C)	6.46

***Area* (offset site)**

Offset calculation *Area*							
Offsets calculation	**Description**	**Proposed offset (area in hectares)**	39.50	**Duration of offset implementation (maximum 20 years)**	10.00	**Offset value**	**21.90**
	Restoration Area 3: Trigg Bushland Reserve Sector 5	**Current quality of offset site (scale)**	0.00	**Time until offset site secured (years)**	0.00		**339.1%**
		Future quality WITHOUT offset (scale)	0.00	**Risk of future loss WITHOUT offset (%)**	0.0%		
		Future quality WITH offset (scale)	7.00	**Risk of future loss WITH offset (%)**	0.0%		
		Time until ecological benefit (years)	10.00				
		Confidence in offset result (%)	80.0%			**OFFSET ADEQUATE?**	**YES**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Banksia woodlands of the Swan Coastal Plain PEC		Banksia woodlands of the Swan Coastal Plain PEC identified during the Detailed Flora and Vegetation Assesment completed by Emerge Associates.
Type of environmental value	Ecological community		
Conservation significance of environmental value	Priority ecological community		
Landscape-level value impacted	yes/no		
Significant impact			
Description	Permanent loss through vegetation clearing for residential development		BAI Communications and Digital 4 Pty Ltd are proposing the Hamersley Residential Development and Conservation project within Lot 802 Erindale Road, and Lot 1 and 803 Wanneroo Road, Hamersley.
Significant impact (hectares) / Type of feature	12.29		The extent of Banksia woodlands PEC was determined by Emerge Associates as part of a Detailed Flora and Vegetation Assessment.
Quality (scale) / Number	5.60		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Rehabilitation credit			
Description	Onsite restoration in accordance with the Conservation Area Management Plan		Revegetation works within restoration areas will be undertaken in accordance with the Conservation Area Management Plan to achieve a net positive conservation outcome for CBC, FRTBC and Banksia Woodlands TEC/PEC habitat quality.
Proposed rehabilitation (area in hectares)	3.15		The total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of rehabilitation site / Start number (of type of feature)	3.70		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	3.70		The conservation area is not currently subject to any management, so habitat quality is expected to remain at its current score without rehabilitation.
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	5.40		Quality score has been determined based on the existing vegetation and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Confidence in rehabilitation result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Offset			
Description	Restoration Area 3: Trigg Bushland Reserve Sector 5		The restoration approach for the offset includes: - Intensive revegetation of Banksia and other native species representative of Banksia Woodlands across the restoration area, so as to result in vegetation that would constitute Banksia Woodland TEC as per the conservation advice (DoEE 2016). - Revegetation of Banksia species will also achieve provision of black cockatoo foraging plant species as outlined in the black cockatoo referral guidelines (DAWE 2022). - Management for threat abatement including weed management, pest control and fencing.
Proposed offset (area in hectares)	39.50		The total total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of offset site / Start number (of type of feature)	0.00		The proposed restoration area does not currently support Banksia woodland PEC.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	0.00		Without restoration, no ecological improvement is expected.
Future quality WITH offset (scale) / Future number WITH offset	7.00		The future quality score has been determined based on the existing vegetation, potential for improvement, and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Ecological recovery of Banksia woodlands typically takes about 10 years to achieve meaningful vegetation structure and species composition.
Confidence in offset result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Duration of offset implementation (maximum 20 years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Time until offset site secured (years)	0.00		The proposed offset area is within the City of Stirlings reserves with further discussions regarding approach and outcomes finalised throughout the assessment process to avoid delays in securing the site.

Risk of future loss WITHOUT offset (%)	0.0%		The proposed offset area is already within the City of Stirlings reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Risk of future loss WITH offset (%)	0.0%		The proposed offset area is already within the City of Stirlings reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Offset ratio (Conservation area only)	N/A		

Step 1: Determining conservation significance

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

(Or, if appropriate, manual data entry permitted)

Area / feature **(Impact site)**

Conservation significance determination for the environmental value impacted		
Conservation significance	**Description**	Carnaby's Black Cockatoo
	Type of environmental value	Species (flora/fauna)
	Conservation significance of environmental value	Rare/threatened species - endangered
	Conservation significance score	**1.2%**

Please select *area* or *feature* for the calculations	**Area**

Step 2: Calculating significant residual impact

Key:
- Data to be entered
- Drop-down selection
- Automatically-generated scores

Environmental value (step 1)	Carnaby's Black Cockatoo

***Area* (impact site)**

Part A: Significant impact calculation *Area*

Significant impact	Description	Quantum of impact	
	Permanent loss through vegetation clearing for residential developmen	Significant impact (hectares)	12.30
		Quality (scale)	8.00
		Total quantum of impact	9.84

Part B: Rehabilitation credit calculation *Area* (onsite)

Rehabilitation Credit	Description				
		Proposed rehabilitation (area in hectares)	3.15	Time until ecological benefit (years)	10.00
	Onsite restoration in accordance with the Conservation Area Management Plan	Current quality of rehabilitation site (scale)	5.70	Confidence in rehabilitation result (%)	80.0%
		Future quality WITHOUT rehabilitation (scale)	5.70	Rehabilitation credit	0.29
		Future quality WITH rehabilitation (scale)	7.00		

Part C: Significant residual impact calculation *Area*

Significant residual impact		
	Total quantum of impact	9.84
	Rehabilitation credit	0.29
	Significant residual impact	9.55

WA Environmental Offsets Calculator

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Carnaby's Black Cockatoo	Significant impact (step 2, part A)	12.30
		Rehabilitation credit (step 2, part B)	0.29
		Significant residual impact (step 2, part C)	9.55

Area **(offset site)**

Offset calculation *Area*							
Offsets calculation	**Description**	**Proposed offset (area in hectares)**	39.50	**Duration of offset implementation (maximum 20 years)**	10.00	**Offset value**	**11.22**
	Restoration Area 3: Trigg Bushland Reserve - Sector 5	**Current quality of offset site (scale)**	4.00	**Time until offset site secured (years)**	0.00		**117.5%**
		Future quality WITHOUT offset (scale)	4.00	**Risk of future loss WITHOUT offset (%)**	0.0%		
		Future quality WITH offset (scale)	8.00	**Risk of future loss WITH offset (%)**	0.0%		
		Time until ecological benefit (years)	10.00				
		Confidence in offset result (%)	80.0%			**OFFSET ADEQUATE?**	**YES**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Carnaby's Black Cockatoo		Carnaby's black cockatoo habitat was identified during the Detailed Flora and Vegetation Assesment completed by Emerge Associates.
Type of environmental value	Species (flora/fauna)		
Conservation significance of environmental value	Rare/threatened species - endangered		
Landscape-level value impacted	yes/no		
Significant impact			
Description	Permanent loss through vegetation clearing for residential developmen		BAI Communications and Digital 4 Pty Ltd are proposing the Hamersley Residential Development and Conservation project within Lot 802 Erindale Road, and Lot 1 and 803 Wanneroo Road, Hamersley.
Significant impact (hectares) / Type of feature	12.30		The extent of Carnaby's black cockatoo habitat was determined by Emerge Associates as part of a Basic Fauna and Targetted Black Cockatoo Assessment.
Quality (scale) / Number	8.00		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Rehabilitation credit			
Description	Onsite restoration in accordance with the Conservation Area Management Plan		Revegetation works within restoration areas will be undertaken in accordance with the Conservation Area Management Plan to achieve a net positive conservation outcome for CBC, FRTBC and Banksia Woodlands TEC/PEC habitat quality.
Proposed rehabilitation (area in hectares)	3.15		The total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of rehabilitation site / Start number (of type of feature)	5.70		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	5.70		The conservation area is not currently subject to any management, so habitat quality is expected to remain at its current score without rehabilitation.
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	7.00		The future quality score has been determined based on the existing vegetation, potential for improvement and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Confidence in rehabilitation result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Offset			
Description	Restoration Area 3: Trigg Bushland Reserve - Sector 5		The restoration approach for the offset includes: - Intensive revegetation of Banksia and other native species representative of Banksia Woodlands across the restoration area, so as to result in vegetation that would constitute Banksia Woodland TEC as per the conservation advice (DoEE 2016). - Revegetation of Banksia species will also achieve provision of black cockatoo foraging plant species as outlined in the black cockatoo referral guidelines (DAWE 2022). - Management for threat abatement including weed management, pest control and fencing.
Proposed offset (area in hectares)	39.50		The total total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of offset site / Start number (of type of feature)	4.00		Based on desktop assessment, the proposed restoration currently supports habitat for Carnaby's black cockatoo in degraded condition with potential for improvement through restoration works.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	4.00		Without restoration, no ecological improvement is expected.
Future quality WITH offset (scale) / Future number WITH offset	8.00		The future quality score has been determined based on the existing vegetation, potential for improvement, and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Ecological recovery of black cockatoo habitat typically takes about 10 years to achieve meaningful vegetation structure and species composition.
Confidence in offset result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Duration of offset implementation (maximum 20 years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Time until offset site secured (years)	0.00		The proposed offset area is within the City of Stirlings reserves with further discussions regarding approach and outcomes finalised throughout the assessment process to avoid delays in securing the site.

Risk of future loss WITHOUT offset (%)	0.0%		The proposed offset area is already within the City of Stirlings reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Risk of future loss WITH offset (%)	0.0%		
Offset ratio (Conservation area only)	N/A		

Step 1: Determining conservation significance

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

(Or, if appropriate, manual data entry permitted)

***Area / feature* (Impact site)**

Conservation significance determination for the environmental value impacted		
Conservation significance	**Description**	Forest red-tailed black cockatoo
	Type of environmental value	Species (flora/fauna)
	Conservation significance of environmental value	Rare/threatened Species - vulnerable
	Conservation significance score	**0.2%**

Please select *area* or *feature* for the calculations	**Area**

Step 2: Calculating significant residual impact

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Forest red-tailed black cockatoo

***Area* (impact site)**

Part A: Significant impact calculation *Area*

Significant impact	Description	Quantum of impact	
	Permanent loss through vegetation clearing for residential development	**Significant impact (hectares)**	7.45
		Quality (scale)	7.00
		Total quantum of impact	**5.22**

Part B: Rehabilitation credit calculation *Area* (onsite)

Rehabilitation Credit	Description				
		Proposed rehabilitation (area in hectares)	3.15	**Time until ecological benefit (years)**	10.00
	Onsite restoration in accordance with the Conservation Area Management Plan	**Current quality of rehabilitation site (scale)**	4.70	**Confidence in rehabilitation result (%)**	80.0%
		Future quality WITHOUT rehabilitation (scale)	4.70	**Rehabilitation credit**	**0.40**
		Future quality WITH rehabilitation (scale)	6.30		

Part C: Significant residual impact calculation *Area*

Significant residual impact		
	Total quantum of impact	**5.22**
	Rehabilitation credit	**0.40**
	Significant residual impact	**4.82**

WA Environmental Offsets Calculator

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Forest red-tailed black cockatoo	Significant impact (step 2, part A)	7.45
		Rehabilitation credit (step 2, part B)	0.40
		Significant residual impact (step 2, part C)	4.82

Area **(offset site)**

Offset calculation *Area*							
Offsets calculation	**Description**	**Proposed offset (area in hectares)**	39.50	**Duration of offset implementation (maximum 20 years)**	10.00	**Offset value**	**12.39**
	Restoration Area 3: Trigg Bushland Reserve - Sector 5	**Current quality of offset site (scale)**	4.00	**Time until offset site secured (years)**	0.00		**257.1%**
		Future quality WITHOUT offset (scale)	4.00	**Risk of future loss WITHOUT offset (%)**	0.0%		
		Future quality WITH offset (scale)	8.00	**Risk of future loss WITH offset (%)**	0.0%		
		Time until ecological benefit (years)	10.00				
		Confidence in offset result (%)	80.0%			**OFFSET ADEQUATE?**	**YES**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Forest red-tailed black cockatoo		Forest red-tailed black cockatoo habitat was identified during the Detailed Flora and Vegetation Assesment completed by Emerge Associates.
Type of environmental value	Species (flora/fauna)		
Conservation significance of environmental value	Rare/threatened Species - vulnerable		
Landscape-level value impacted	yes/no		
Significant impact			
Description	Permanent loss through vegetation clearing for residential development		BAI Communications and Digital 4 Pty Ltd are proposing the Hamersley Residential Development and Conservation project within Lot 802 Erindale Road, and Lot 1 and 803 Wanneroo Road, Hamersley.
Significant impact (hectares) / Type of feature	7.45		The extent of forest red-tailed black cockatoo habitat was determined by Emerge Associates as part of a Basic Fauna and Targetted Black Cockatoo Assessment.
Quality (scale) / Number	7.00		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Rehabilitation credit			
Description	Onsite restoration in accordance with the Conservation Area Management Plan		Revegetation works within restoration areas will be undertaken in accordance with the Conservation Area Management Plan to achieve a net positive conservation outcome for CBC, FRTBC and Banksia Woodlands TEC/PEC habitat quality.
Proposed rehabilitation (area in hectares)	3.15		The total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of rehabilitation site / Start number (of type of feature)	4.70		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	4.70		The conservation area is not currently subject to any management, so habitat quality is expected to remain at its current score without rehabilitation.
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	6.30		The future quality score has been determined based on the existing vegetation, potential for improvement and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Confidence in rehabilitation result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Offset			
Description	Restoration Area 3: Trigg Bushland Reserve - Sector 5		The restoration approach for the offset includes: - Intensive revegetation of Banksia and other native species representative of Banksia Woodlands across the restoration area, so as to result in vegetation that would constitute Banksia Woodland TEC as per the conservation advice (DoEE 2016). - Revegetation of Banksia species will also achieve provision of black cockatoo foraging plant species as outlined in the black cockatoo referral guidelines (DAWE 2022). - Management for threat abatement including weed management, pest control and fencing.
Proposed offset (area in hectares)	39.50		The total total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of offset site / Start number (of type of feature)	4.00		Based on desktop assessment, the proposed restoration area does not currently support habitat for forest red-tailed black cockatoo.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	4.00		Without restoration, no ecological improvement is expected.
Future quality WITH offset (scale) / Future number WITH offset	8.00		The future quality score has been determined based on the existing vegetation, potential for improvement, and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Ecological recovery of black cockatoo habitat typically takes about 10 years to achieve meaningful vegetation structure and species composition.
Confidence in offset result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Duration of offset implementation (maximum 20 years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Time until offset site secured (years)	0.00		The proposed offset area is within the City of Stirlings reserves with further discussions regarding approach and outcomes finalised throughout the assessment process to avoid delays in securing the site.

Risk of future loss WITHOUT offset (%)	0.0%		The proposed offset area is already within the City of Stirlings reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Risk of future loss WITH offset (%)	0.0%		The proposed offset area is already within the City of Stirlings reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Offset ratio (Conservation area only)	N/A		

Restoration Area 4: Jandakot Regional Park

Step 1: Determining conservation significance

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

(Or, if appropriate, manual data entry permitted)

***Area / feature* (Impact site)**

Conservation significance determination for the environmental value impacted		
Conservation significance	**Description**	Banksia woodlands of the Swan Coastal Plain PEC
	Type of environmental value	Ecological community
	Conservation significance of environmental value	Priority ecological community
	Conservation significance score	**0.1%**

Please select *area* or *feature* for the calculations	**Area**

Step 2: Calculating significant residual impact

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Banksia woodlands of the Swan Coastal Plain PEC

***Area* (impact site)**

Part A: Significant impact calculation *Area*

	Description		
Significant impact	Permanent loss through vegetation clearing for residential development	**Significant impact (hectares)**	12.29
		Quality (scale)	5.60
		Total quantum of impact	**6.88**

Part B: Rehabilitation credit calculation *Area* (onsite)

	Description				
Rehabilitation Credit	Onsite restoration in accordance with the Conservation Area Management Plan	**Proposed rehabilitation (area in hectares)**	3.15	**Time until ecological benefit (years)**	10.00
		Current quality of rehabilitation site (scale)	3.70	**Confidence in rehabilitation result (%)**	80.0%
		Future quality WITHOUT rehabilitation (scale)	3.70	**Rehabilitation credit**	**0.42**
		Future quality WITH rehabilitation (scale)	5.40		

Part C: Significant residual impact calculation *Area*

Significant residual impact	**Total quantum of impact**	**6.88**
	Rehabilitation credit	**0.42**
	Significant residual impact	**6.46**

WA Environmental Offsets Calculator

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Banksia woodlands of the Swan Coastal Plain PEC	Significant impact (step 2, part A)	12.29
		Rehabilitation credit (step 2, part B)	0.42
		Significant residual impact (step 2, part C)	6.46

Area **(offset site)**

Offset calculation *Area*							
Offsets calculation	**Description**	**Proposed offset (area in hectares)**	7.60	**Duration of offset implementation (maximum 20 years)**	10.00	**Offset value**	**4.21**
	Restoration Area 4: Jandakot Regional Park - Zone A	**Current quality of offset site (scale)**	0.00	**Time until offset site secured (years)**	0.00		**65.2%**
		Future quality WITHOUT offset (scale)	0.00	**Risk of future loss WITHOUT offset (%)**	0.0%		
		Future quality WITH offset (scale)	7.00	**Risk of future loss WITH offset (%)**	0.0%		
		Time until ecological benefit (years)	10.00				
		Confidence in offset result (%)	80.0%			**OFFSET ADEQUATE?**	**NO**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Banksia woodlands of the Swan Coastal Plain PEC		Banksia woodlands of the Swan Coastal Plain PEC identified during the Detailed Flora and Vegetation Assesment completed by Emerge Associates.
Type of environmental value	Ecological community		
Conservation significance of environmental value	Priority ecological community		
Landscape-level value impacted	yes/no		
Significant impact			
Description	Permanent loss through vegetation clearing for residential development		BAI Communications and Digital 4 Pty Ltd are proposing the Hamersley Residential Development and Conservation project within Lot 802 Erindale Road, and Lot 1 and 803 Wanneroo Road, Hamersley.
Significant impact (hectares) / Type of feature	12.29		The extent of Banksia woodlands PEC was determined by Emerge Associates as part of a Detailed Flora and Vegetation Assessment.
Quality (scale) / Number	5.60		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Rehabilitation credit			
Description	Onsite restoration in accordance with the Conservation Area Management Plan		Revegetation works within restoration areas will be undertaken in accordance with the Conservation Area Management Plan to achieve a net positive conservation outcome for CBC, FRTBC and Banksia Woodlands TEC/PEC habitat quality.
Proposed rehabilitation (area in hectares)	3.15		The total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of rehabilitation site / Start number (of type of feature)	3.70		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	3.70		The conservation area is not currently subject to any management, so habitat quality is expected to remain at its current score without rehabilitation.
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	5.40		Quality score has been determined based on the existing vegetation and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Confidence in rehabilitation result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Offset			
Description	Restoration Area 4: Jandakot Regional Park - Zone A		The restoration approach for the offset includes: - Intensive revegetation of Banksia and other native species representative of Banksia Woodlands across the restoration area, so as to result in vegetation that would constitute Banksia Woodland TEC as per the conservation advice (DoEE 2016). - Revegetation of Banksia species will also achieve provision of black cockatoo foraging plant species as outlined in the black cockatoo referral guidelines (DAWE 2022). - Management for threat abatement including weed management, pest control and fencing.
Proposed offset (area in hectares)	7.60		The total total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of offset site / Start number (of type of feature)	0.00		The proposed restoration area does not currently support Banksia woodland PEC.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	0.00		Without restoration, no ecological improvement is expected.
Future quality WITH offset (scale) / Future number WITH offset	7.00		The future quality score has been determined based on the existing vegetation, potential for improvement, and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Ecological recovery of Banksia woodlands typically takes about 10 years to achieve meaningful vegetation structure and species composition.
Confidence in offset result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Duration of offset implementation (maximum 20 years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Time until offset site secured (years)	0.00		The proposed offset area is within the DBCA's reserves with further discussions regarding approach and outcomes finalised throughout the assessment process to avoid delays in securing the site.

Risk of future loss WITHOUT offset (%)	0.0%		The proposed offset area is already within the DBCA's reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Risk of future loss WITH offset (%)	0.0%		The proposed offset area is already within the DBCA's reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Offset ratio (Conservation area only)	N/A		

Step 1: Determining conservation significance

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

(Or, if appropriate, manual data entry permitted)

***Area / feature* (Impact site)**

Conservation significance determination for the environmental value impacted		
Conservation significance	**Description**	Banksia woodlands of the Swan Coastal Plain PEC
	Type of environmental value	Ecological community
	Conservation significance of environmental value	Priority ecological community
	Conservation significance score	**0.1%**

Please select *area* or *feature* for the calculations	**Area**

Step 2: Calculating significant residual impact

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Banksia woodlands of the Swan Coastal Plain PEC

***Area* (impact site)**

Part A: Significant impact calculation *Area*

	Description		
Significant impact	Permanent loss through vegetation clearing for residential development	**Significant impact (hectares)**	12.29
		Quality (scale)	5.60
		Total quantum of impact	**6.88**

Part B: Rehabilitation credit calculation *Area* (onsite)

	Description				
Rehabilitation Credit	Onsite restoration in accordance with the Conservation Area Management Plan	**Proposed rehabilitation (area in hectares)**	3.15	**Time until ecological benefit (years)**	10.00
		Current quality of rehabilitation site (scale)	3.70	**Confidence in rehabilitation result (%)**	80.0%
		Future quality WITHOUT rehabilitation (scale)	3.70	**Rehabilitation credit**	**0.42**
		Future quality WITH rehabilitation (scale)	5.40		

Part C: Significant residual impact calculation *Area*

Significant residual impact	**Total quantum of impact**	**6.88**
	Rehabilitation credit	**0.42**
	Significant residual impact	**6.46**

WA Environmental Offsets Calculator

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Banksia woodlands of the Swan Coastal Plain PEC	Significant impact (step 2, part A)	12.29
		Rehabilitation credit (step 2, part B)	0.42
		Significant residual impact (step 2, part C)	6.46

Area **(offset site)**

Offset calculation *Area*							
Offsets calculation	**Description**	**Proposed offset (area in hectares)**	3.70	**Duration of offset implementation (maximum 20 years)**	10.00	**Offset value**	**2.05**
	Restoration Area 4: Jandakot Regional Park - Zone B	**Current quality of offset site (scale)**	0.00	**Time until offset site secured (years)**	0.00		**31.8%**
		Future quality WITHOUT offset (scale)	0.00	**Risk of future loss WITHOUT offset (%)**	0.0%		
		Future quality WITH offset (scale)	7.00	**Risk of future loss WITH offset (%)**	0.0%		
		Time until ecological benefit (years)	10.00				
		Confidence in offset result (%)	80.0%			**OFFSET ADEQUATE?**	**NO**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Banksia woodlands of the Swan Coastal Plain PEC		Banksia woodlands of the Swan Coastal Plain PEC identified during the Detailed Flora and Vegetation Assesment completed by Emerge Associates.
Type of environmental value	Ecological community		
Conservation significance of environmental value	Priority ecological community		
Landscape-level value impacted	yes/no		
Significant impact			
Description	Permanent loss through vegetation clearing for residential development		BAI Communications and Digital 4 Pty Ltd are proposing the Hamersley Residential Development and Conservation project within Lot 802 Erindale Road, and Lot 1 and 803 Wanneroo Road, Hamersley.
Significant impact (hectares) / Type of feature	12.29		The extent of Banksia woodlands PEC was determined by Emerge Associates as part of a Detailed Flora and Vegetation Assessment.
Quality (scale) / Number	5.60		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Rehabilitation credit			
Description	Onsite restoration in accordance with the Conservation Area Management Plan		Revegetation works within restoration areas will be undertaken in accordance with the Conservation Area Management Plan to achieve a net positive conservation outcome for CBC, FRTBC and Banksia Woodlands TEC/PEC habitat quality.
Proposed rehabilitation (area in hectares)	3.15		The total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of rehabilitation site / Start number (of type of feature)	3.70		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	3.70		The conservation area is not currently subject to any management, so habitat quality is expected to remain at its current score without rehabilitation.
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	5.40		Quality score has been determined based on the existing vegetation and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Confidence in rehabilitation result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Offset			
Description	Restoration Area 4: Jandakot Regional Park - Zone B		The restoration approach for the offset includes: - Intensive revegetation of Banksia and other native species representative of Banksia Woodlands across the restoration area, so as to result in vegetation that would constitute Banksia Woodland TEC as per the conservation advice (DoEE 2016). - Revegetation of Banksia species will also achieve provision of black cockatoo foraging plant species as outlined in the black cockatoo referral guidelines (DAWE 2022). - Management for threat abatement including weed management, pest control and fencing.
Proposed offset (area in hectares)	3.70		The total total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of offset site / Start number (of type of feature)	0.00		The proposed restoration area does not currently support Banksia woodland PEC.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	0.00		Without restoration, no ecological improvement is expected.
Future quality WITH offset (scale) / Future number WITH offset	7.00		The future quality score has been determined based on the existing vegetation, potential for improvement, and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Ecological recovery of Banksia woodlands typically takes about 10 years to achieve meaningful vegetation structure and species composition.
Confidence in offset result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Duration of offset implementation (maximum 20 years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Time until offset site secured (years)	0.00		The proposed offset area is within the DBCA's reserves with further discussions regarding approach and outcomes finalised throughout the assessment process to avoid delays in securing the site.

Risk of future loss WITHOUT offset (%)	0.0%		The proposed offset area is already within the DBCA's reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Risk of future loss WITH offset (%)	0.0%		The proposed offset area is already within the DBCA's reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Offset ratio (Conservation area only)	N/A		

Step 1: Determining conservation significance

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

(Or, if appropriate, manual data entry permitted)

***Area / feature* (Impact site)**

Conservation significance determination for the environmental value impacted		
Conservation significance	**Description**	Banksia woodlands of the Swan Coastal Plain PEC
	Type of environmental value	Ecological community
	Conservation significance of environmental value	Priority ecological community
	Conservation significance score	**0.1%**

Please select *area* or *feature* for the calculations	**Area**

Step 2: Calculating significant residual impact

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Banksia woodlands of the Swan Coastal Plain PEC

***Area* (impact site)**

Part A: Significant impact calculation *Area*

	Description		
Significant impact	Permanent loss through vegetation clearing for residential development	**Significant impact (hectares)**	12.29
		Quality (scale)	5.60
		Total quantum of impact	**6.88**

Part B: Rehabilitation credit calculation *Area* (onsite)

	Description				
Rehabilitation Credit	Onsite restoration in accordance with the Conservation Area Management Plan	**Proposed rehabilitation (area in hectares)**	3.15	**Time until ecological benefit (years)**	10.00
		Current quality of rehabilitation site (scale)	3.70	**Confidence in rehabilitation result (%)**	80.0%
		Future quality WITHOUT rehabilitation (scale)	3.70	**Rehabilitation credit**	**0.42**
		Future quality WITH rehabilitation (scale)	5.40		

Part C: Significant residual impact calculation *Area*

Significant residual impact	**Total quantum of impact**	**6.88**
	Rehabilitation credit	**0.42**
	Significant residual impact	**6.46**

WA Environmental Offsets Calculator

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Banksia woodlands of the Swan Coastal Plain PEC	Significant impact (step 2, part A)	12.29
		Rehabilitation credit (step 2, part B)	0.42
		Significant residual impact (step 2, part C)	6.46

Area **(offset site)**

Offset calculation
Area

Offsets calculation							
	Description	**Proposed offset (area in hectares)**	8.30	**Duration of offset implementation (maximum 20 years)**	10.00	**Offset value**	**4.60**
	Restoration Area 4: Jandakot Regional Park - Zone C	**Current quality of offset site (scale)**	0.00	**Time until offset site secured (years)**	0.00		**71.3%**
		Future quality WITHOUT offset (scale)	0.00	**Risk of future loss WITHOUT offset (%)**	0.0%		
		Future quality WITH offset (scale)	7.00	**Risk of future loss WITH offset (%)**	0.0%		
		Time until ecological benefit (years)	10.00				
		Confidence in offset result (%)	80.0%			**OFFSET ADEQUATE?**	**NO**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Banksia woodlands of the Swan Coastal Plain PEC		Banksia woodlands of the Swan Coastal Plain PEC identified during the Detailed Flora and Vegetation Assesment completed by Emerge Associates.
Type of environmental value	Ecological community		
Conservation significance of environmental value	Priority ecological community		
Landscape-level value impacted	yes/no		
Significant impact			
Description	Permanent loss through vegetation clearing for residential development		BAI Communications and Digital 4 Pty Ltd are proposing the Hamersley Residential Development and Conservation project within Lot 802 Erindale Road, and Lot 1 and 803 Wanneroo Road, Hamersley.
Significant impact (hectares) / Type of feature	12.29		The extent of Banksia woodlands PEC was determined by Emerge Associates as part of a Detailed Flora and Vegetation Assessment.
Quality (scale) / Number	5.60		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Rehabilitation credit			
Description	Onsite restoration in accordance with the Conservation Area		Revegetation works within restoration areas will be undertaken in accordance with the Conservation Area Management Plan to achieve a net positive conservation outcome for CBC, FRTBC and Banksia Woodlands TEC/PEC
Proposed rehabilitation (area in hectares)	3.15		The total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of rehabilitation site / Start number (of type of feature)	3.70		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	3.70		The conservation area is not currently subject to any management, so habitat quality is expected to remain at its current score without rehabilitation.
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	5.40		Quality score has been determined based on the existing vegetation and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Confidence in rehabilitation result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Offset			
Description	Restoration Area 4: Jandakot Regional Park - Zone 5B		The restoration approach for the offset includes: - Intensive revegetation of Banksia and other native species representative of Banksia Woodlands across the restoration area, so as to result in vegetation that would constitute Banksia Woodland TEC as per the conservation advice (DoEE 2016). - Revegetation of Banksia species will also achieve provision of black cockatoo foraging plant species as outlined in the black cockatoo referral guidelines (DAWE 2022). - Management for threat abatement including weed management, pest control and fencing.
Proposed offset (area in hectares)	8.30		The total total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of offset site / Start number (of type of feature)	0.00		The proposed restoration area does not currently support Banksia woodland PEC.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	0.00		Without restoration, no ecological improvement is expected.
Future quality WITH offset (scale) / Future number WITH offset	7.00		The future quality score has been determined based on the existing vegetation, potential for improvement, and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Ecological recovery of Banksia woodlands typically takes about 10 years to achieve meaningful vegetation structure and species composition.
Confidence in offset result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Duration of offset implementation (maximum 20 years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Time until offset site secured (years)	0.00		The proposed offset area is within the DBCA's reserves with further discussions regarding approach and outcomes finalised throughout the assessment process to avoid delays in securing the site.

Risk of future loss WITHOUT offset (%)	0.0%		The proposed offset area is already within the DBCA's reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Risk of future loss WITH offset (%)	0.0%		The proposed offset area is already within the DBCA's reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Offset ratio (Conservation area only)	N/A		

Step 1: Determining conservation significance

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

(Or, if appropriate, manual data entry permitted)

Area / feature **(Impact site)**

Conservation significance determination for the environmental value impacted		
Conservation significance	**Description**	Carnaby's Black Cockatoo
	Type of environmental value	Species (flora/fauna)
	Conservation significance of environmental value	Rare/threatened species - endangered
	Conservation significance score	**1.2%**

Please select *area* or *feature* for the calculations	**Area**

Step 2: Calculating significant residual impact

Key:	
	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Carnaby's Black Cockatoo

***Area* (impact site)**

Part A: Significant impact calculation *Area*

Significant impact	Description	Quantum of impact	
	Permanent loss through vegetation clearing for residential development	**Significant impact (hectares)**	12.30
		Quality (scale)	8.00
		Total quantum of impact	**9.84**

Part B: Rehabilitation credit calculation *Area* (onsite)

Rehabilitation Credit	Description				
		Proposed rehabilitation (area in hectares)	3.15	**Time until ecological benefit (years)**	10.00
	Onsite restoration in accordance with the Conservation Area Management Plan	**Current quality of rehabilitation site (scale)**	5.70	**Confidence in rehabilitation result (%)**	80.0%
		Future quality WITHOUT rehabilitation (scale)	5.70	**Rehabilitation credit**	**0.29**
		Future quality WITH rehabilitation (scale)	7.00		

Part C: Significant residual impact calculation *Area*

Significant residual impact		
	Total quantum of impact	**9.84**
	Rehabilitation credit	**0.29**
	Significant residual impact	**9.55**

WA Environmental Offsets Calculator

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Carnaby's Black Cockatoo	Significant impact (step 2, part A)	12.30
		Rehabilitation credit (step 2, part B)	0.29
		Significant residual impact (step 2, part C)	9.55

Area **(offset site)**

Offset calculation *Area*							
Offsets calculation	**Description**	**Proposed offset (area in hectares)**	7.60	**Duration of offset implementation (maximum 20 years)**	10.00	**Offset value**	**1.09**
	Restoration Area 4: Jandakot Regional Park - Zone A	**Current quality of offset site (scale)**	7.00	**Time until offset site secured (years)**	0.00		**11.4%**
		Future quality WITHOUT offset (scale)	7.00	**Risk of future loss WITHOUT offset (%)**	0.0%		
		Future quality WITH offset (scale)	9.00	**Risk of future loss WITH offset (%)**	0.0%		
		Time until ecological benefit (years)	9.00				
		Confidence in offset result (%)	80.0%			**OFFSET ADEQUATE?**	**NO**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Carnaby's Black Cockatoo		Carnaby's black cockatoo habitat was identified during the Detailed Flora and Vegetation Assesment completed by Emerge Associates.
Type of environmental value	Species (flora/fauna)		
Conservation significance of environmental value	Rare/threatened species - endangered		
Landscape-level value impacted	yes/no		
Significant impact			
Description	Permanent loss through vegetation clearing for residential development		BAI Communications and Digital 4 Pty Ltd are proposing the Hamersley Residential Development and Conservation project within Lot 802 Erindale Road, and Lot 1 and 803 Wanneroo Road, Hamersley.
Significant impact (hectares) / Type of feature	12.30		The extent of Carnaby's black cockatoo habitat was determined by Emerge Associates as part of a Basic Fauna and Targetted Black Cockatoo Assessment.
Quality (scale) / Number	8.00		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Rehabilitation credit			
Description	Onsite restoration in accordance with the Conservation Area Management Plan		Revegetation works within restoration areas will be undertaken in accordance with the Conservation Area Management Plan to achieve a net positive conservation outcome for CBC, FRTBC and Banksia Woodlands TEC/PEC habitat quality.
Proposed rehabilitation (area in hectares)	3.15		The total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of rehabilitation site / Start number (of type of feature)	5.70		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	5.70		The conservation area is not currently subject to any management, so habitat quality is expected to remain at its current score without rehabilitation.
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	7.00		The future quality score has been determined based on the existing vegetation, potential for improvement and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Confidence in rehabilitation result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Offset			
Description	Restoration Area 4: Jandakot Regional Park - Zone A		The restoration approach for the offset includes: - Intensive revegetation of Banksia and other native species representative of Banksia Woodlands across the restoration area, so as to result in vegetation that would constitute Banksia Woodland TEC as per the conservation advice (DoEE 2016). - Revegetation of Banksia species will also achieve provision of black cockatoo foraging plant species as outlined in the black cockatoo referral guidelines (DAWE 2022). - Management for threat abatement including weed management, pest control and fencing.
Proposed offset (area in hectares)	7.60		The total total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of offset site / Start number (of type of feature)	7.00		Based on desktop assessment, the proposed restoration currently supports habitat for Carnaby's black cockatoo in degraded condition with potential for improvement through restoration works.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	7.00		Without restoration, no ecological improvement is expected.
Future quality WITH offset (scale) / Future number WITH offset	9.00		The future quality score has been determined based on the existing vegetation, potential for improvement, and outcomes of similar projects in the region.
Time until ecological benefit (years)	9.00		Ecological recovery of black cockatoo habitat typically takes about 10 years to achieve meaningful vegetation structure and species composition.
Confidence in offset result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Duration of offset implementation (maximum 20 years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Time until offset site secured (years)	0.00		The proposed offset area is within the City of Stirlings reserves with further discussions regarding approach and outcomes finalised throughout the assessment process to avoid delays in securing the site.

Risk of future loss WITHOUT offset (%)	0.0%		The proposed offset area is already within the City of Stirlings reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Risk of future loss WITH offset (%)	0.0%		
Offset ratio (Conservation area only)	N/A		

Step 1: Determining conservation significance

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

(Or, if appropriate, manual data entry permitted)

Area / feature **(Impact site)**

Conservation significance determination for the environmental value impacted		
Conservation significance	**Description**	Carnaby's Black Cockatoo
	Type of environmental value	Species (flora/fauna)
	Conservation significance of environmental value	Rare/threatened species - endangered
	Conservation significance score	**1.2%**

Please select *area* or *feature* for the calculations	**Area**

Step 2: Calculating significant residual impact

Key:	
	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Carnaby's Black Cockatoo

***Area* (impact site)**

Part A: Significant impact calculation *Area*

Significant impact	Description	Quantum of impact	
	Permanent loss through vegetation clearing for residential development	**Significant impact (hectares)**	12.30
		Quality (scale)	8.00
		Total quantum of impact	**9.84**

Part B: Rehabilitation credit calculation *Area* (onsite)

Rehabilitation Credit	Description				
		Proposed rehabilitation (area in hectares)	3.15	**Time until ecological benefit (years)**	10.00
	Onsite restoration in accordance with the Conservation Area Management Plan	**Current quality of rehabilitation site (scale)**	5.70	**Confidence in rehabilitation result (%)**	80.0%
		Future quality WITHOUT rehabilitation (scale)	5.70	**Rehabilitation credit**	**0.29**
		Future quality WITH rehabilitation (scale)	7.00		

Part C: Significant residual impact calculation *Area*

Significant residual impact		
	Total quantum of impact	**9.84**
	Rehabilitation credit	**0.29**
	Significant residual impact	**9.55**

WA Environmental Offsets Calculator

Step 3: Calculating offsets

Key:	
	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Carnaby's Black Cockatoo	Significant impact (step 2, part A)	12.30
		Rehabilitation credit (step 2, part B)	0.29
		Significant residual impact (step 2, part C)	9.55

***Area* (offset site)**

Offset calculation *Area*							
Offsets calculation	**Description**	**Proposed offset (area in hectares)**	3.20	**Duration of offset implementation (maximum 20 years)**	10.00	**Offset value**	**2.04**
	Restoration Area 4: Jandakot Regional Park - Zone B	**Current quality of offset site (scale)**	0.00	**Time until offset site secured (years)**	0.00		**21.4%**
		Future quality WITHOUT offset (scale)	0.00	**Risk of future loss WITHOUT offset (%)**	0.0%		
		Future quality WITH offset (scale)	9.00	**Risk of future loss WITH offset (%)**	0.0%		
		Time until ecological benefit (years)	10.00				
		Confidence in offset result (%)	80.0%			**OFFSET ADEQUATE?**	**NO**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Carnaby's Black Cockatoo		Carnaby's black cockatoo habitat was identified during the Detailed Flora and Vegetation Assesment completed by Emerge Associates.
Type of environmental value	Species (flora/fauna)		
Conservation significance of environmental value	Rare/threatened species - endangered		
Landscape-level value impacted	yes/no		
Significant impact			
Description	Permanent loss through vegetation clearing for residential development		BAI Communications and Digital 4 Pty Ltd are proposing the Hamersley Residential Development and Conservation project within Lot 802 Erindale Road, and Lot 1 and 803 Wanneroo Road, Hamersley.
Significant impact (hectares) / Type of feature	12.30		The extent of Carnaby's black cockatoo habitat was determined by Emerge Associates as part of a Basic Fauna and Targetted Black Cockatoo Assessment.
Quality (scale) / Number	8.00		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Rehabilitation credit			
Description	Onsite restoration in accordance with the Conservation Area Management Plan		Revegetation works within restoration areas will be undertaken in accordance with the Conservation Area Management Plan to achieve a net positive conservation outcome for CBC, FRTBC and Banksia Woodlands TEC/PEC habitat quality.
Proposed rehabilitation (area in hectares)	3.15		The total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of rehabilitation site / Start number (of type of feature)	5.70		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	5.70		The conservation area is not currently subject to any management, so habitat quality is expected to remain at its current score without rehabilitation.
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	7.00		The future quality score has been determined based on the existing vegetation, potential for improvement and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Confidence in rehabilitation result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Offset			
Description	Restoration Area 4: Jandakot Regional Park - Zone B		The restoration approach for the offset includes: - Intensive revegetation of Banksia and other native species representative of Banksia Woodlands across the restoration area, so as to result in vegetation that would constitute Banksia Woodland TEC as per the conservation advice (DoEE 2016). - Revegetation of Banksia species will also achieve provision of black cockatoo foraging plant species as outlined in the black cockatoo referral guidelines (DAWE 2022). - Management for threat abatement including weed management, pest control and fencing.
Proposed offset (area in hectares)	3.20		The total total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of offset site / Start number (of type of feature)	0.00		The proposed restoration does not currently support habitat for Carnaby's black cockatoo.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	0.00		Without restoration, no ecological improvement is expected.
Future quality WITH offset (scale) / Future number WITH offset	9.00		The future quality score has been determined based on the existing vegetation, potential for improvement, and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Ecological recovery of black cockatoo habitat typically takes about 10 years to achieve meaningful vegetation structure and species composition.
Confidence in offset result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Duration of offset implementation (maximum 20 years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Time until offset site secured (years)	0.00		The proposed offset area is within the City of Stirlings reserves with further discussions regarding approach and outcomes finalised throughout the assessment process to avoid delays in securing the site.

Risk of future loss WITHOUT offset (%)	0.0%		The proposed offset area is already within the City of Stirlings reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Risk of future loss WITH offset (%)	0.0%		
Offset ratio (Conservation area only)	N/A		

Step 1: Determining conservation significance

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

(Or, if appropriate, manual data entry permitted)

Area / feature **(Impact site)**

Conservation significance determination for the environmental value impacted		
Conservation significance	**Description**	Carnaby's Black Cockatoo
	Type of environmental value	Species (flora/fauna)
	Conservation significance of environmental value	Rare/threatened species - endangered
	Conservation significance score	**1.2%**

Please select *area* or *feature* for the calculations	**Area**

Step 2: Calculating significant residual impact

Key:	
	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Carnaby's Black Cockatoo

***Area* (impact site)**

Part A: Significant impact calculation *Area*

Significant impact	Description	Quantum of impact	
	Permanent loss through vegetation clearing for residential development	**Significant impact (hectares)**	12.30
		Quality (scale)	8.00
		Total quantum of impact	**9.84**

Part B: Rehabilitation credit calculation *Area* (onsite)

Rehabilitation Credit	Description				
		Proposed rehabilitation (area in hectares)	3.15	**Time until ecological benefit (years)**	10.00
	Onsite restoration in accordance with the Conservation Area Management Plan	**Current quality of rehabilitation site (scale)**	5.70	**Confidence in rehabilitation result (%)**	80.0%
		Future quality WITHOUT rehabilitation (scale)	5.70	**Rehabilitation credit**	**0.29**
		Future quality WITH rehabilitation (scale)	7.00		

Part C: Significant residual impact calculation *Area*

Significant residual impact		
	Total quantum of impact	**9.84**
	Rehabilitation credit	**0.29**
	Significant residual impact	**9.55**

WA Environmental Offsets Calculator

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Carnaby's Black Cockatoo	Significant impact (step 2, part A)	12.30
		Rehabilitation credit (step 2, part B)	0.29
		Significant residual impact (step 2, part C)	9.55

Area **(offset site)**

Offset calculation *Area*							
Offsets calculation	**Description**	**Proposed offset (area in hectares)**	8.30	**Duration of offset implementation (maximum 20 years)**	10.00	**Offset value**	**5.30**
	Restoration Area 4: Jandakot Regional Park - Zone C	**Current quality of offset site (scale)**	0.00	**Time until offset site secured (years)**	0.00		**55.5%**
		Future quality WITHOUT offset (scale)	0.00	**Risk of future loss WITHOUT offset (%)**	0.0%		
		Future quality WITH offset (scale)	9.00	**Risk of future loss WITH offset (%)**	0.0%		
		Time until ecological benefit (years)	10.00				
		Confidence in offset result (%)	80.0%			**OFFSET ADEQUATE?**	**NO**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Carnaby's Black Cockatoo		Carnaby's black cockatoo habitat was identified during the Detailed Flora and Vegetation Assesment completed by Emerge Associates.
Type of environmental value	Species (flora/fauna)		
Conservation significance of environmental value	Rare/threatened species - endangered		
Landscape-level value impacted	yes/no		
Significant impact			
Description	Permanent loss through vegetation clearing for residential development		BAI Communications and Digital 4 Pty Ltd are proposing the Hamersley Residential Development and Conservation project within Lot 802 Erindale Road, and Lot 1 and 803 Wanneroo Road, Hamersley.
Significant impact (hectares) / Type of feature	12.30		The extent of Carnaby's black cockatoo habitat was determined by Emerge Associates as part of a Basic Fauna and Targetted Black Cockatoo Assessment.
Quality (scale) / Number	8.00		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Rehabilitation credit			
Description	Onsite restoration in accordance with the Conservation Area Management Plan		Revegetation works within restoration areas will be undertaken in accordance with the Conservation Area Management Plan to achieve a net positive conservation outcome for CBC, FRTBC and Banksia Woodlands TEC/PEC habitat quality.
Proposed rehabilitation (area in hectares)	3.15		The total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of rehabilitation site / Start number (of type of feature)	5.70		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	5.70		The conservation area is not currently subject to any management, so habitat quality is expected to remain at its current score without rehabilitation.
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	7.00		The future quality score has been determined based on the existing vegetation, potential for improvement and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Confidence in rehabilitation result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Offset			
Description	Restoration Area 4: Jandakot Regional Park - Zone C		The restoration approach for the offset includes: - Intensive revegetation of Banksia and other native species representative of Banksia Woodlands across the restoration area, so as to result in vegetation that would constitute Banksia Woodland TEC as per the conservation advice (DoEE 2016). - Revegetation of Banksia species will also achieve provision of black cockatoo foraging plant species as outlined in the black cockatoo referral guidelines (DAWE 2022). - Management for threat abatement including weed management, pest control and fencing.
Proposed offset (area in hectares)	8.30		The total total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of offset site / Start number (of type of feature)	0.00		The proposed restoration does not currently support habitat for Carnaby's black cockatoo.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	0.00		Without restoration, no ecological improvement is expected.
Future quality WITH offset (scale) / Future number WITH offset	9.00		The future quality score has been determined based on the existing vegetation, potential for improvement, and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Ecological recovery of black cockatoo habitat typically takes about 10 years to achieve meaningful vegetation structure and species composition.
Confidence in offset result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Duration of offset implementation (maximum 20 years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Time until offset site secured (years)	0.00		The proposed offset area is within the City of Stirlings reserves with further discussions regarding approach and outcomes finalised throughout the assessment process to avoid delays in securing the site.

Risk of future loss WITHOUT offset (%)	0.0%		The proposed offset area is already within the City of Stirlings reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Risk of future loss WITH offset (%)	0.0%		The proposed offset area is already within DBCA's reserves and therefore already under some form of protection and management
Offset ratio (Conservation area only)	N/A		

Step 1: Determining conservation significance

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

(Or, if appropriate, manual data entry permitted)

***Area / feature* (Impact site)**

Conservation significance determination for the environmental value impacted		
Conservation significance	**Description**	Forest red-tailed black cockatoo
	Type of environmental value	Species (flora/fauna)
	Conservation significance of environmental value	Rare/threatened Species - vulnerable
	Conservation significance score	**0.2%**

Please select *area* or *feature* for the calculations	**Area**

Step 2: Calculating significant residual impact

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Forest red-tailed black cockatoo

***Area* (impact site)**

Part A: Significant impact calculation *Area*

Significant impact	Description	Quantum of impact	
	Permanent loss through vegetation clearing for residential development	**Significant impact (hectares)**	7.45
		Quality (scale)	7.00
		Total quantum of impact	**5.22**

Part B: Rehabilitation credit calculation *Area* (onsite)

Rehabilitation Credit	Description				
		Proposed rehabilitation (area in hectares)	3.15	**Time until ecological benefit (years)**	10.00
	Onsite restoration in accordance with the Conservation Area Management Plan	**Current quality of rehabilitation site (scale)**	4.70	**Confidence in rehabilitation result (%)**	80.0%
		Future quality WITHOUT rehabilitation (scale)	4.70	**Rehabilitation credit**	**0.40**
		Future quality WITH rehabilitation (scale)	6.30		

Part C: Significant residual impact calculation *Area*

Significant residual impact		
	Total quantum of impact	**5.22**
	Rehabilitation credit	**0.40**
	Significant residual impact	**4.82**

WA Environmental Offsets Calculator

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Forest red-tailed black cockatoo	Significant impact (step 2, part A)	7.45
		Rehabilitation credit (step 2, part B)	0.40
		Significant residual impact (step 2, part C)	4.82

Area **(offset site)**

Offset calculation
Area

Offsets calculation	**Description**	**Proposed offset (area in hectares)**	7.60	**Duration of offset implementation (maximum 20 years)**	10.00	**Offset value**	**5.36**
	Restoration Area 4: Jandakot Regional Park - Zone A	**Current quality of offset site (scale)**	0.00	**Time until offset site secured (years)**	0.00		**111.3%**
		Future quality WITHOUT offset (scale)	0.00	**Risk of future loss WITHOUT offset (%)**	0.0%		
		Future quality WITH offset (scale)	9.00	**Risk of future loss WITH offset (%)**	0.0%		
		Time until ecological benefit (years)	10.00				
		Confidence in offset result (%)	80.0%			**OFFSET ADEQUATE?**	**NO**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Forest red-tailed black cockatoo		Forest red-tailed black cockatoo habitat was identified during the Detailed Flora and Vegetation Assesment completed by Emerge Associates.
Type of environmental value	Species (flora/fauna)		
Conservation significance of environmental value	Rare/threatened Species - vulnerable		
Landscape-level value impacted	yes/no		
Significant impact			
Description	Permanent loss through vegetation clearing for residential development		BAI Communications and Digital 4 Pty Ltd are proposing the Hamersley Residential Development and Conservation project within Lot 802 Erindale Road, and Lot 1 and 803 Wanneroo Road, Hamersley.
Significant impact (hectares) / Type of feature	7.45		The extent of forest red-tailed black cockatoo habitat was determined by Emerge Associates as part of a Basic Fauna and Targetted Black Cockatoo Assessment.
Quality (scale) / Number	7.00		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Rehabilitation credit			
Description	Onsite restoration in accordance with the Conservation Area Management Plan		Revegetation works within restoration areas will be undertaken in accordance with the Conservation Area Management Plan to achieve a net positive conservation outcome for CBC, FRTBC and Banksia Woodlands TEC/PEC habitat quality.
Proposed rehabilitation (area in hectares)	3.15		The total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of rehabilitation site / Start number (of type of feature)	4.70		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	4.70		The conservation area is not currently subject to any management, so habitat quality is expected to remain at its current score without rehabilitation.
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	6.30		The future quality score has been determined based on the existing vegetation, potential for improvement and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Confidence in rehabilitation result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Offset			
Description	Restoration Area 4: Jandakot Regional Park - Zone A		The restoration approach for the offset includes: - Intensive revegetation of Banksia and other native species representative of Banksia Woodlands across the restoration area, so as to result in vegetation that would constitute Banksia Woodland TEC as per the conservation advice (DoEE 2016). - Revegetation of Banksia species will also achieve provision of black cockatoo foraging plant species as outlined in the black cockatoo referral guidelines (DAWE 2022). - Management for threat abatement including weed management, pest control and fencing.
Proposed offset (area in hectares)	7.60		The total total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of offset site / Start number (of type of feature)	0.00		The proposed restoration area does not currently support habitat for forest red-tailed black cockatoo.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	0.00		Without restoration, no ecological improvement is expected.
Future quality WITH offset (scale) / Future number WITH offset	9.00		The future quality score has been determined based on the existing vegetation, potential for improvement, and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Ecological recovery of black cockatoo habitat typically takes about 10 years to achieve meaningful vegetation structure and species composition.
Confidence in offset result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Duration of offset implementation (maximum 20 years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Time until offset site secured (years)	0.00		The proposed offset area is within DBCAs reserves with further discussions regarding approach and outcomes finalised throughout the assessment process to avoid delays in securing the site.

Risk of future loss WITHOUT offset (%)	0.0%		The proposed offset area is already within DBCAs reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Risk of future loss WITH offset (%)	0.0%		The proposed offset area is already within DBCAs reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Offset ratio (Conservation area only)	N/A		

Step 1: Determining conservation significance

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

(Or, if appropriate, manual data entry permitted)

***Area / feature* (Impact site)**

Conservation significance determination for the environmental value impacted		
Conservation significance	**Description**	Forest red-tailed black cockatoo
	Type of environmental value	Species (flora/fauna)
	Conservation significance of environmental value	Rare/threatened Species - vulnerable
	Conservation significance score	**0.2%**

Please select *area* or *feature* for the calculations	**Area**

Step 2: Calculating significant residual impact

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Forest red-tailed black cockatoo

***Area* (impact site)**

Part A: Significant impact calculation *Area*

Significant impact	Description	Quantum of impact	
	Permanent loss through vegetation clearing for residential development	**Significant impact (hectares)**	7.45
		Quality (scale)	7.00
		Total quantum of impact	**5.22**

Part B: Rehabilitation credit calculation *Area* (onsite)

Rehabilitation Credit	Description				
		Proposed rehabilitation (area in hectares)	3.15	**Time until ecological benefit (years)**	10.00
	Onsite restoration in accordance with the Conservation Area Management Plan	**Current quality of rehabilitation site (scale)**	4.70	**Confidence in rehabilitation result (%)**	80.0%
		Future quality WITHOUT rehabilitation (scale)	4.70	**Rehabilitation credit**	**0.40**
		Future quality WITH rehabilitation (scale)	6.30		

Part C: Significant residual impact calculation *Area*

Significant residual impact		
	Total quantum of impact	**5.22**
	Rehabilitation credit	**0.40**
	Significant residual impact	**4.82**

WA Environmental Offsets Calculator

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Forest red-tailed black cockatoo	Significant impact (step 2, part A)	7.45
		Rehabilitation credit (step 2, part B)	0.40
		Significant residual impact (step 2, part C)	4.82

Area **(offset site)**

Offset calculation *Area*							
Offsets calculation	**Description**	**Proposed offset (area in hectares)**	3.20	**Duration of offset implementation (maximum 20 years)**	10.00	**Offset value**	**2.26**
	Restoration Area 4: Jandakot Regional Park - Zone B	**Current quality of offset site (scale)**	0.00	**Time until offset site secured (years)**	0.00		**46.9%**
		Future quality WITHOUT offset (scale)	0.00	**Risk of future loss WITHOUT offset (%)**	0.0%		
		Future quality WITH offset (scale)	9.00	**Risk of future loss WITH offset (%)**	0.0%		
		Time until ecological benefit (years)	10.00				
		Confidence in offset result (%)	80.0%			**OFFSET ADEQUATE?**	**NO**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Forest red-tailed black cockatoo		Forest red-tailed black cockatoo habitat was identified during the Detailed Flora and Vegetation Assesment completed by Emerge Associates.
Type of environmental value	Species (flora/fauna)		
Conservation significance of environmental value	Rare/threatened Species - vulnerable		
Landscape-level value impacted	yes/no		
Significant impact			
Description	Permanent loss through vegetation clearing for residential development		BAI Communications and Digital 4 Pty Ltd are proposing the Hamersley Residential Development and Conservation project within Lot 802 Erindale Road, and Lot 1 and 803 Wanneroo Road, Hamersley.
Significant impact (hectares) / Type of feature	7.45		The extent of forest red-tailed black cockatoo habitat was determined by Emerge Associates as part of a Basic Fauna and Targetted Black Cockatoo Assessment.
Quality (scale) / Number	7.00		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Rehabilitation credit			
Description	Onsite restoration in accordance with the Conservation Area Management Plan		Revegetation works within restoration areas will be undertaken in accordance with the Conservation Area Management Plan to achieve a net positive conservation outcome for CBC, FRTBC and Banksia Woodlands TEC/PEC habitat quality.
Proposed rehabilitation (area in hectares)	3.15		The total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of rehabilitation site / Start number (of type of feature)	4.70		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	4.70		The conservation area is not currently subject to any management, so habitat quality is expected to remain at its current score without rehabilitation.
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	6.30		The future quality score has been determined based on the existing vegetation, potential for improvement and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Confidence in rehabilitation result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Offset			
Description	Restoration Area 4: Jandakot Regional Park - Zone B		The restoration approach for the offset includes: - Intensive revegetation of Banksia and other native species representative of Banksia Woodlands across the restoration area, so as to result in vegetation that would constitute Banksia Woodland TEC as per the conservation advice (DoEE 2016). - Revegetation of Banksia species will also achieve provision of black cockatoo foraging plant species as outlined in the black cockatoo referral guidelines (DAWE 2022). - Management for threat abatement including weed management, pest control and fencing.
Proposed offset (area in hectares)	3.20		The total total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of offset site / Start number (of type of feature)	0.00		The proposed restoration area does not currently support habitat for forest red-tailed black cockatoo.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	0.00		Without restoration, no ecological improvement is expected.
Future quality WITH offset (scale) / Future number WITH offset	9.00		The future quality score has been determined based on the existing vegetation, potential for improvement, and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Ecological recovery of black cockatoo habitat typically takes about 10 years to achieve meaningful vegetation structure and species composition.
Confidence in offset result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Duration of offset implementation (maximum 20 years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Time until offset site secured (years)	0.00		The proposed offset area is within DBCAs reserves with further discussions regarding approach and outcomes finalised throughout the assessment process to avoid delays in securing the site.

Risk of future loss WITHOUT offset (%)	0.0%		The proposed offset area is already within DBCAs reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Risk of future loss WITH offset (%)	0.0%		The proposed offset area is already within DBCAs reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Offset ratio (Conservation area only)	N/A		

Step 1: Determining conservation significance

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

(Or, if appropriate, manual data entry permitted)

***Area / feature* (Impact site)**

Conservation significance determination for the environmental value impacted		
Conservation significance	**Description**	Forest red-tailed black cockatoo
	Type of environmental value	Species (flora/fauna)
	Conservation significance of environmental value	Rare/threatened Species - vulnerable
	Conservation significance score	**0.2%**

Please select *area* or *feature* for the calculations	**Area**

Step 2: Calculating significant residual impact

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Forest red-tailed black cockatoo

***Area* (impact site)**

Part A: Significant impact calculation *Area*

Significant impact	Description	Quantum of impact	
	Permanent loss through vegetation clearing for residential developmen	**Significant impact (hectares)**	7.45
		Quality (scale)	7.00
		Total quantum of impact	**5.22**

Part B: Rehabilitation credit calculation *Area* (onsite)

Rehabilitation Credit	Description				
		Proposed rehabilitation (area in hectares)	3.15	**Time until ecological benefit (years)**	10.00
	Onsite restoration in accordance with the Conservation Area Management Plan	**Current quality of rehabilitation site (scale)**	4.70	**Confidence in rehabilitation result (%)**	80.0%
		Future quality WITHOUT rehabilitation (scale)	4.70	**Rehabilitation credit**	**0.40**
		Future quality WITH rehabilitation (scale)	6.30		

Part C: Significant residual impact calculation *Area*

Significant residual impact		
	Total quantum of impact	**5.22**
	Rehabilitation credit	**0.40**
	Significant residual impact	**4.82**

WA Environmental Offsets Calculator

Step 3: Calculating offsets

Key:	
	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Forest red-tailed black cockatoo	Significant impact (step 2, part A)	7.45
		Rehabilitation credit (step 2, part B)	0.40
		Significant residual impact (step 2, part C)	4.82

***Area* (offset site)**

Offset calculation *Area*							
Offsets calculation	**Description**	**Proposed offset (area in hectares)**	8.30	**Duration of offset implementation (maximum 20 years)**	10.00	**Offset value**	**5.86**
	Restoration Area 4: Jandakot Regional Park - Zone C	**Current quality of offset site (scale)**	0.00	**Time until offset site secured (years)**	0.00		**121.5%**
		Future quality WITHOUT offset (scale)	0.00	**Risk of future loss WITHOUT offset (%)**	0.0%		
		Future quality WITH offset (scale)	9.00	**Risk of future loss WITH offset (%)**	0.0%		
		Time until ecological benefit (years)	10.00				
		Confidence in offset result (%)	80.0%			**OFFSET ADEQUATE?**	**NO**

WA Environmental Offsets Calculator

Rationale for scores used in the offsets calculator

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	Forest red-tailed black cockatoo		Forest red-tailed black cockatoo habitat was identified during the Detailed Flora and Vegetation Assesment completed by Emerge Associates.
Type of environmental value	Species (flora/fauna)		
Conservation significance of environmental value	Rare/threatened Species - vulnerable		
Landscape-level value impacted	yes/no		
Significant impact			
Description	Permanent loss through vegetation clearing for residential developmen		BAI Communications and Digital 4 Pty Ltd are proposing the Hamersley Residential Development and Conservation project within Lot 802 Erindale Road, and Lot 1 and 803 Wanneroo Road, Hamersley.
Significant impact (hectares) / Type of feature	7.45		The extent of forest red-tailed black cockatoo habitat was determined by Emerge Associates as part of a Basic Fauna and Targetted Black Cockatoo Assessment.
Quality (scale) / Number	7.00		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Rehabilitation credit			
Description	Onsite restoration in accordance with the Conservation Area Management Plan		Revegetation works within restoration areas will be undertaken in accordance with the Conservation Area Management Plan to achieve a net positive conservation outcome for CBC, FRTBC and Banksia Woodlands TEC/PEC habitat quality.
Proposed rehabilitation (area in hectares)	3.15		The total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of rehabilitation site / Start number (of type of feature)	4.70		As determined by Emerge Associates as part of the Black Cockatoo and Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community Habitat Quality Score Assessment.
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	4.70		The conservation area is not currently subject to any management, so habitat quality is expected to remain at its current score without rehabilitation.
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	6.30		The future quality score has been determined based on the existing vegetation, potential for improvement and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Confidence in rehabilitation result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Offset			
Description	Restoration Area 4: Jandakot Regional Park - Zone C		The restoration approach for the offset includes: - Intensive revegetation of Banksia and other native species representative of Banksia Woodlands across the restoration area, so as to result in vegetation that would constitute Banksia Woodland TEC as per the conservation advice (DoEE 2016). - Revegetation of Banksia species will also achieve provision of black cockatoo foraging plant species as outlined in the black cockatoo referral guidelines (DAWE 2022). - Management for threat abatement including weed management, pest control and fencing.
Proposed offset (area in hectares)	8.30		The total total area identified as having the potential for restoration to increase black cockatoo habitat and Banksia woodlands PEC extent and condition.
Current quality of offset site / Start number (of type of feature)	0.00		The proposed restoration area does not currently support habitat for forest red-tailed black cockatoo.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	0.00		Without restoration, no ecological improvement is expected.
Future quality WITH offset (scale) / Future number WITH offset	9.00		The future quality score has been determined based on the existing vegetation, potential for improvement, and outcomes of similar projects in the region.
Time until ecological benefit (years)	10.00		Ecological recovery of black cockatoo habitat typically takes about 10 years to achieve meaningful vegetation structure and species composition.
Confidence in offset result (%)	0.8		Confidence in the rehabilitation result has been determined based on information obtained from desktop assessment and outcomes of similar projects in the region.
Duration of offset implementation (maximum 20 years)	10.00		Restoration and threat abatment measures will be implemented for a period of 10 years during which the future habitat quality score is anticipated to be achieved.
Time until offset site secured (years)	0.00		The proposed offset area is within DBCAs reserves with further discussions regarding approach and outcomes finalised throughout the assessment process to avoid delays in securing the site.

Risk of future loss WITHOUT offset (%)	0.0%		The proposed offset area is already within DBCAs reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Risk of future loss WITH offset (%)	0.0%		The proposed offset area is already within DBCAs reserves and therefore already under some form of protection and management. As a result, no risk of loss has been assumed.
Offset ratio (Conservation area only)	N/A		

Appendix B

DCCEEW Offset Calculators

Conservation Area

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Banksia woodlands of the Swan Coastal
EPBC Act status	Endangered
Annual probability of extinction Based on IUCN category definitions	**1.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	Yes	Permanent loss through vegetation clearing for residential development	**Area**	12.29	Hectares	Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality	**6**	Scale 0-10	
			Total quantum of impact	7.37	Adjusted hectares	
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	Yes	7.37	Adjusted hectares	Onsite restoration within Conservation Area	**Risk-related time horizon (max. 20 years)**	10	**Start area (hectares)**	3.15	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	80%	0.00	0.00	0.22	3.03%	No	TBD	Values determined based on desktop assessment and site assessment (where possible)
									Future area without offset (adjusted hectares)	3.2	**Future area with offset (adjusted hectares)**	3.2								
					Time until ecological benefit	10	**Start quality (scale of 0-10)**	**4**	**Future quality without offset (scale of 0-10)**	**4**	**Future quality with offset (scale of 0-10)**	**5**	1.00	80%	0.80	0.71				
Threatened species habitat																				
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	0				$0.00		$0.00
Area of community	7.374	0.22	3.03%	**No**	TBD	#VALUE!	#VALUE!
					$0.00	**#VALUE!**	**#VALUE!**

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Carnaby's black cockatoo
EPBC Act status	Endangered
Annual probability of extinction Based on IUCN category definitions	**1.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Permanent loss through vegetation clearing for residential development	**Area**	12.3	Hectares	Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality	**8**	Scale 0-10	
			Total quantum of impact	9.84	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**	**0**	**Future quality without offset (scale of 0-10)**	**0**	**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	9.84	Adjusted hectares	Onsite Restoration within Conservation Area	**Time over which loss is averted (max. 20 years)**	10	**Start area (hectares)**	3.15	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	80%	0.00	0.00	0.22	2.27%	No	TBD	Values determined based on desktop assessment and site assessment (where possible).
									Future area without offset (adjusted hectares)	3.2	**Future area with offset (adjusted hectares)**	3.2								
					Time until ecological benefit	10	**Start quality (scale of 0-10)**	**6**	**Future quality without offset (scale of 0-10)**	**6**	**Future quality with offset (scale of 0-10)**	**7**	1.00	80%	0.80	0.71				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	9.84	0.22	2.27%	**No**	TBD	#VALUE!	#VALUE!
Area of community	0				$0.00		$0.00
					$0.00	**#VALUE!**	**#VALUE!**

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Forest red-tailed black cockatoo
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Permanent loss through vegetation clearing for residential development	**Area**	7.45	Hectares	Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality	**7**	Scale 0-10	
			Total quantum of impact	5.22	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**	**0**	**Future quality without offset (scale of 0-10)**	**0**	**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	5.22	Adjusted hectares	Onsite Restoration within Conservation Area	**Time over which loss is averted (max. 20 years)**	10	**Start area (hectares)**	3.15	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	80%	0.00	0.00	0.25	4.74%	No	TBD	Values determined based on desktop assessment and site assessment (where possible).
									Future area without offset (adjusted hectares)	3.2	**Future area with offset (adjusted hectares)**	3.2								
					Time until ecological benefit	10	**Start quality (scale of 0-10)**	**5**	**Future quality without offset (scale of 0-10)**	**5**	**Future quality with offset (scale of 0-10)**	**6**	1.00	80%	0.80	0.78				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	5.215	0.25	4.74%	**No**	TBD	#VALUE!	#VALUE!
Area of community	0				$0.00		$0.00
					$0.00	**#VALUE!**	**#VALUE!**

Restoration Area 1: Carine Open Space

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Banksia woodlands of the Swan Coastal
EPBC Act status	Endangered
Annual probability of extinction Based on IUCN category definitions	**1.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	Yes	Permanent loss through vegetation clearing for residential development	**Area**	12.29	Hectares	Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality	**6**	Scale 0-10	
			Total quantum of impact	7.37	Adjusted hectares	
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	Yes	7.37	Adjusted hectares	Restoration Area 1: Carine Open Space	**Risk-related time horizon (max. 20 years)**	10	**Start area (hectares)**	21.2	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	80%	0.00	0.00	10.54	142.89%	Yes	TBD	Values determined based on desktop assessment and site assessment (where possible).
									Future area without offset (adjusted hectares)	21.2	**Future area with offset (adjusted hectares)**	21.2								
					Time until ecological benefit	10	**Start quality (scale of 0-10)**	**0**	**Future quality without offset (scale of 0-10)**	**0**	**Future quality with offset (scale of 0-10)**	**7**	7.00	80%	5.60	4.97				
Threatened species habitat																				
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	0				$0.00		$0.00
Area of community	7.374	10.54	142.89%	**Yes**	TBD	N/A	$0.00
					$0.00	**$0.00**	**$0.00**

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Carnaby's black cockatoo
EPBC Act status	Endangered
Annual probability of extinction Based on IUCN category definitions	**1.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Permanent loss through vegetation clearing for residential development	**Area**	12.3	Hectares	Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality	**8**	Scale 0-10	
			Total quantum of impact	9.84	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**	**0**	**Future quality without offset (scale of 0-10)**	**0**	**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	9.84	Adjusted hectares	Restoration Area 1: Carine Open Space	**Time over which loss is averted (max. 20 years)**	10	**Start area (hectares)**	12.1	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	80%	0.00	0.00	7.73	78.58%	No	TBD	Values determined based on desktop assessment and site assessment (where possible).
									Future area without offset (adjusted hectares)	12.1	**Future area with offset (adjusted hectares)**	12.1								
					Time until ecological benefit	10	**Start quality (scale of 0-10)**	**0**	**Future quality without offset (scale of 0-10)**	**0**	**Future quality with offset (scale of 0-10)**	**9**	9.00	80%	7.20	6.39				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	9.84	7.73	78.58%	**No**	TBD	#VALUE!	#VALUE!
Area of community	0				$0.00		$0.00
					$0.00	**#VALUE!**	**#VALUE!**

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Forest red-tailed black cockatoo
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Permanent loss through vegetation clearing for residential development	**Area**	7.45	Hectares	Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality	**7**	Scale 0-10	
			Total quantum of impact	5.22	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**	**0**	**Future quality without offset (scale of 0-10)**	**0**	**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	5.22	Adjusted hectares	Restoration Area 1: Carine Open Space	**Time over which loss is averted (max. 20 years)**	10	**Start area (hectares)**	12.1	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	80%	0.00	0.00	8.54	163.75%	Yes	TBD	Values determined based on desktop assessment and site assessment (where possible).
									Future area without offset (adjusted hectares)	12.1	**Future area with offset (adjusted hectares)**	12.1								
					Time until ecological benefit	10	**Start quality (scale of 0-10)**	**0**	**Future quality without offset (scale of 0-10)**	**0**	**Future quality with offset (scale of 0-10)**	**9**	9.00	80%	7.20	7.06				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	5.215	8.54	163.75%	**Yes**	TBD	N/A	$0.00
Area of community	0				$0.00		$0.00
					$0.00	**$0.00**	**$0.00**

Restoration Area 2: Trigg Bushland Reserve (Sector 4)

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Banksia woodlands of the Swan Coastal
EPBC Act status	Endangered
Annual probability of extinction Based on IUCN category definitions	**1.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	Yes	Permanent loss through vegetation clearing for residential development	**Area**	12.29	Hectares	Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality	**6**	Scale 0-10	
			Total quantum of impact	7.37	Adjusted hectares	
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)		% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																					
Area of community	Yes	7.37	Adjusted hectares	Restoration Area 2: Trigg Bushland Reserve - Sector 4	**Risk-related time horizon (max. 20 years)**	10	**Start area (hectares)**	22.4	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	80%	0.00	0.00	11.13	150.98%	Yes	TBD	Values determined based on desktop assessment and site assessment (where possible).
									Future area without offset (adjusted hectares)	22.4	**Future area with offset (adjusted hectares)**	22.4									
					Time until ecological benefit	10	**Start quality (scale of 0-10)**	**0**	**Future quality without offset (scale of 0-10)**	**0**	**Future quality with offset (scale of 0-10)**	**7**	7.00	80%	5.60	4.97					
Threatened species habitat																					
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**										
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0									
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**										
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**		**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																				
Condition of habitat Change in habitat condition, but no change in extent	No																				
Threatened species																					
Birth rate e.g. Change in nest success	No																				
Mortality rate e.g Change in number of road kills per year	No																				
Number of individuals e.g. Individual plants/animals	No																				

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	0				$0.00		$0.00
Area of community	7.374	11.13	150.98%	**Yes**	TBD	N/A	$0.00
					$0.00	**$0.00**	**$0.00**

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Carnaby's black cockatoo
EPBC Act status	Endangered
Annual probability of extinction Based on IUCN category definitions	**1.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Permanent loss through vegetation clearing for residential development	**Area**	12.3	Hectares	Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality	**8**	Scale 0-10	
			Total quantum of impact	9.84	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**	**0**	**Future quality without offset (scale of 0-10)**	**0**	**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	9.84	Adjusted hectares	Restoration Area 2: Trigg Bushland Reserve - Sector 4	**Time over which loss is averted (max. 20 years)**	10	**Start area (hectares)**	22.4	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	80%	0.00	0.00	4.77	48.49%	No	TBD	Values determined based on desktop assessment and site assessment (where possible).
									Future area without offset (adjusted hectares)	22.4	**Future area with offset (adjusted hectares)**	22.4								
					Time until ecological benefit	10	**Start quality (scale of 0-10)**	**5**	**Future quality without offset (scale of 0-10)**	**5**	**Future quality with offset (scale of 0-10)**	**8**	3.00	80%	2.40	2.13				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	9.84	4.77	48.49%	**No**	TBD	#VALUE!	#VALUE!
Area of community	0				$0.00		$0.00
					$0.00	**#VALUE!**	**#VALUE!**

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Forest red-tailed black cockatoo
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Permanent loss through vegetation clearing for residential development	**Area**	7.45	Hectares	Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality	**7**	Scale 0-10	
			Total quantum of impact	5.22	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**	**0**	**Future quality without offset (scale of 0-10)**	**0**	**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	5.22	Adjusted hectares	Restoration Area 2: Trigg Bushland Reserve - Sector 4	**Time over which loss is averted (max. 20 years)**	10	**Start area (hectares)**	22.4	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	80%	0.00	0.00	5.27	101.05%	Yes	TBD	Values determined based on desktop assessment and site assessment (where possible).
									Future area without offset (adjusted hectares)	22.4	**Future area with offset (adjusted hectares)**	22.4								
					Time until ecological benefit	10	**Start quality (scale of 0-10)**	**5**	**Future quality without offset (scale of 0-10)**	**5**	**Future quality with offset (scale of 0-10)**	**8**	3.00	80%	2.40	2.35				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	5.215	5.27	101.05%	**Yes**	TBD	N/A	$0.00
Area of community	0				$0.00		$0.00
					$0.00	**$0.00**	**$0.00**

Restoration Area 3: Trigg Bushland Reserve (Sector 5)

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Banksia woodlands of the Swan Coastal
EPBC Act status	Endangered
Annual probability of extinction Based on IUCN category definitions	**1.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	Yes	Permanent loss through vegetation clearing for residential development	**Area**	12.29	Hectares	Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality	**6**	Scale 0-10	
			Total quantum of impact	7.37	Adjusted hectares	
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	Yes	7.37	Adjusted hectares	Restoration Area 3: Trigg Bushland Reserve - Sector 5	**Risk-related time horizon (max. 20 years)**	10	**Start area (hectares)**	39.5	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	80%	0.00	0.00	19.63	266.24%	Yes	TBD	Values determined based on desktop assessment and site assessment where possible).
									Future area without offset (adjusted hectares)	39.5	**Future area with offset (adjusted hectares)**	39.5								
					Time until ecological benefit	10	**Start quality (scale of 0-10)**	**0**	**Future quality without offset (scale of 0-10)**	**0**	**Future quality with offset (scale of 0-10)**	**7**	7.00	80%	5.60	4.97				
Threatened species habitat																				
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	0				$0.00		$0.00
Area of community	7.374	19.63	266.24%	**Yes**	TBD	N/A	$0.00
					$0.00	**$0.00**	**$0.00**

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Carnaby's black cockatoo
EPBC Act status	Endangered
Annual probability of extinction Based on IUCN category definitions	**1.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Impact calculator	Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
	Ecological communities						
	Area of community	No		**Area**			Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
				Quality			
				Total quantum of impact	0.00		
	Threatened species habitat						
	Area of habitat	Yes	Permanent loss through vegetation clearing for residential development	**Area**	12.3	Hectares	Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
				Quality	**8**	Scale 0-10	
				Total quantum of impact	9.84	Adjusted hectares	
	Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
	Number of features e.g. Nest hollows, habitat trees	No					
	Condition of habitat Change in habitat condition, but no change in extent	No					
	Threatened species						
	Birth rate e.g. Change in nest success	No					
	Mortality rate e.g Change in number of road kills per year	No					
	Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Offset calculator	Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
	Ecological Communities																				
	Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset** **Future area without offset (adjusted hectares)**	0% 0.0	**Risk of loss (%) with offset** **Future area with offset (adjusted hectares)**	0% 0.0								
						Time until ecological benefit		**Start quality (scale of 0-10)**	**0**	**Future quality without offset (scale of 0-10)**	**0**	**Future quality with offset (scale of 0-10)**								
	Threatened species habitat																				
	Area of habitat	Yes	9.84	Adjusted hectares	Restoration Area 3: Trigg Bushland Reserve - Sector 5	**Time over which loss is averted (max. 20 years)**	10	**Start area (hectares)**	39.5	**Risk of loss (%) without offset** **Future area without offset (adjusted hectares)**	0% 39.5	**Risk of loss (%) with offset** **Future area with offset (adjusted hectares)**	0% 39.5	0.00	80%	0.00	0.00	11.22	114.01%	Yes	TBD	Values determined based on desktop assessment and site assessment (where possible).
						Time until ecological benefit	10	**Start quality (scale of 0-10)**	**4**	**Future quality without offset (scale of 0-10)**	**4**	**Future quality with offset (scale of 0-10)**	**8**	4.00	80%	3.20	2.84				
	Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
	Number of features e.g. Nest hollows, habitat trees	No																			
	Condition of habitat Change in habitat condition, but no change in extent	No																			
	Threatened species																				
	Birth rate e.g. Change in nest success	No																			
	Mortality rate e.g Change in number of road kills per year	No																			
	Number of individuals e.g. Individual plants/animals	No																			

Summary

Summary	Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
						Direct offset ($)	Other compensatory measures ($)	Total ($)
	Birth rate	0				$0.00		$0.00
	Mortality rate	0				$0.00		$0.00
	Number of individuals	0				$0.00		$0.00
	Number of features	0				$0.00		$0.00
	Condition of habitat	0				$0.00		$0.00
	Area of habitat	9.84	11.22	114.01%	**Yes**	TBD	N/A	$0.00
	Area of community	0				$0.00		$0.00
						$0.00	**$0.00**	**$0.00**

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Forest red-tailed black cockatoo
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Permanent loss through vegetation clearing for residential development	**Area**	7.45	Hectares	Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality	**7**	Scale 0-10	
			Total quantum of impact	5.22	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**	**0**	**Future quality without offset (scale of 0-10)**	**0**	**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	5.22	Adjusted hectares	Restoration Area 3: Trigg Bushland Reserve - Sector 5	**Time over which loss is averted (max. 20 years)**	10	**Start area (hectares)**	39.5	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	80%	0.00	0.00	12.39	237.58%	Yes	TBD	Values determined based on desktop assessment and site assessment (where possible).
									Future area without offset (adjusted hectares)	39.5	**Future area with offset (adjusted hectares)**	39.5								
					Time until ecological benefit	10	**Start quality (scale of 0-10)**	**4**	**Future quality without offset (scale of 0-10)**	**4**	**Future quality with offset (scale of 0-10)**	**8**	4.00	80%	3.20	3.14				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	5.215	12.39	237.58%	**Yes**	TBD	N/A	$0.00
Area of community	0				$0.00		$0.00
					$0.00	**$0.00**	**$0.00**

Restoration Area 5: Jandakot Regional Park

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Banksia woodlands of the Swan Coastal
EPBC Act status	Endangered
Annual probability of extinction Based on IUCN category definitions	**1.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	Yes	Permanent loss through vegetation clearing for residential development	**Area**	12.29	Hectares	Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality	**6**	Scale 0-10	
			Total quantum of impact	7.37	Adjusted hectares	
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	Yes	7.37	Adjusted hectares	Restoration Area 5: Jandakot Regional Park 5A	**Risk-related time horizon (max. 20 years)**	10	**Start area (hectares)**	7.6	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	80%	0.00	0.00	51.23%	No	TBD	Values determined based on desktop assessment and site assessment (where possible)
									Future area without offset (adjusted hectares)	7.6	**Future area with offset (adjusted hectares)**	7.6								
					Time until ecological benefit	10	**Start quality (scale of 0-10)**	**0**	**Future quality without offset (scale of 0-10)**	**0**	**Future quality with offset (scale of 0-10)**	**7**	7.00	80%	5.60	4.97				
Threatened species habitat																				
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	0				$0.00		$0.00
Area of community	7.374	3.78	51.23%	**No**	TBD	#VALUE!	#VALUE!
					$0.00	**#VALUE!**	**#VALUE!**

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Banksia woodlands of the Swan Coastal
EPBC Act status	Endangered
Annual probability of extinction Based on IUCN category definitions	**1.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	Yes	Permanent loss through vegetation clearing for residential development	**Area**	12.29	Hectares	Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality	**6**	Scale 0-10	
			Total quantum of impact	7.37	Adjusted hectares	
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)		% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																					
Area of community	Yes	7.37	Adjusted hectares	Restoration Area 5: Jandakot Regional Park - 5B	**Risk-related time horizon (max. 20 years)**	10	**Start area (hectares)**	3.7	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	80%	0.00	0.00	1.84	24.94%	No	TBD	Values determined based on desktop assessment and site assessment (where possible).
									Future area without offset (adjusted hectares)	3.7	**Future area with offset (adjusted hectares)**	3.7									
					Time until ecological benefit	10	**Start quality (scale of 0-10)**	**0**	**Future quality without offset (scale of 0-10)**	**0**	**Future quality with offset (scale of 0-10)**	**7**	7.00	80%	5.60	4.97					
Threatened species habitat																					
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**										
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0									
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**										
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**		**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																				
Condition of habitat Change in habitat condition, but no change in extent	No																				
Threatened species																					
Birth rate e.g. Change in nest success	No																				
Mortality rate e.g Change in number of road kills per year	No																				
Number of individuals e.g. Individual plants/animals	No																				

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	0				$0.00		$0.00
Area of community	7.374	1.84	24.94%	**No**	TBD	#VALUE!	#VALUE!
					$0.00	**#VALUE!**	**#VALUE!**

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Banksia woodlands of the Swan Coastal
EPBC Act status	Endangered
Annual probability of extinction Based on IUCN category definitions	**1.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	Yes	Permanent loss through vegetation clearing for residential development	**Area**	12.29	Hectares	Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality	**6**	Scale 0-10	
			Total quantum of impact	7.37	Adjusted hectares	
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	Yes	7.37	Adjusted hectares	Restoration Area 5: Jandakot Regional Park 5C	**Risk-related time horizon (max. 20 years)**	10	**Start area (hectares)**	8.3	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	80%	0.00	0.00	4.13	55.94%	No	TBD	Values determined based on desktop assessment and site assessment (where possible).
									Future area without offset (adjusted hectares)	8.3	**Future area with offset (adjusted hectares)**	8.3								
					Time until ecological benefit	10	**Start quality (scale of 0-10)**	**0**	**Future quality without offset (scale of 0-10)**	**0**	**Future quality with offset (scale of 0-10)**	**7**	7.00	80%	5.60	4.97				
Threatened species habitat																				
Area of habitat	No				**Time over which loss is averted (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	0				$0.00		$0.00
Area of community	7.374	4.13	55.94%	**No**	TBD	#VALUE!	#VALUE!
					$0.00	**#VALUE!**	**#VALUE!**

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Carnaby's black cockatoo
EPBC Act status	Endangered
Annual probability of extinction Based on IUCN category definitions	**1.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Permanent loss through vegetation clearing for residential development	**Area**	12.3	Hectares	Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality	**8**	Scale 0-10	
			Total quantum of impact	9.84	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**	**0**	**Future quality without offset (scale of 0-10)**	**0**	**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	9.84	Adjusted hectares	Restoration Area 5: Jandakot Regional Park - 5A	**Time over which loss is averted (max. 20 years)**	10	**Start area (hectares)**	7.6	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	80%	0.00	0.00	1.08	10.97%	No	TBD	Values determined based on desktop assessment and site assessment (where possible).
									Future area without offset (adjusted hectares)	7.6	**Future area with offset (adjusted hectares)**	7.6								
					Time until ecological benefit	10	**Start quality (scale of 0-10)**	**7**	**Future quality without offset (scale of 0-10)**	**7**	**Future quality with offset (scale of 0-10)**	**9**	2.00	80%	1.60	1.42				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	9.84	1.08	10.97%	**No**	TBD	#VALUE!	#VALUE!
Area of community	0				$0.00		$0.00
					$0.00	**#VALUE!**	**#VALUE!**

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Carnaby's black cockatoo
EPBC Act status	Endangered
Annual probability of extinction Based on IUCN category definitions	**1.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Permanent loss through vegetation clearing for residential development	**Area**	12.3	Hectares	Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality	**8**	Scale 0-10	
			Total quantum of impact	9.84	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**	**0**	**Future quality without offset (scale of 0-10)**	**0**	**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	9.84	Adjusted hectares	Restoration Area 5: Jandakot Regional Park - 5B	**Time over which loss is averted (max. 20 years)**	10	**Start area (hectares)**	3.2	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	80%	0.00	0.00	2.04	20.78%	No	TBD	Values determined based on desktop assessment and site assessment (where possible).
									Future area without offset (adjusted hectares)	3.2	**Future area with offset (adjusted hectares)**	3.2								
					Time until ecological benefit	10	**Start quality (scale of 0-10)**	**0**	**Future quality without offset (scale of 0-10)**	**0**	**Future quality with offset (scale of 0-10)**	**9**	9.00	80%	7.20	6.39				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	9.84	2.04	20.78%	**No**	TBD	#VALUE!	#VALUE!
Area of community	0				$0.00		$0.00
					$0.00	**#VALUE!**	**#VALUE!**

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Carnaby's black cockatoo
EPBC Act status	Endangered
Annual probability of extinction Based on IUCN category definitions	**1.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Permanent loss through vegetation clearing for residential development	**Area**	12.3	Hectares	Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality	**8**	Scale 0-10	
			Total quantum of impact	9.84	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**	**0**	**Future quality without offset (scale of 0-10)**	**0**	**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	9.84	Adjusted hectares	Restoration Area 5: Jandakot Regional Park - 5C	**Time over which loss is averted (max. 20 years)**	10	**Start area (hectares)**	8.3	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	80%	0.00	0.00	5.30	53.90%	No	TBD	Values determined based on desktop assessment and site assessment (where possible).
									Future area without offset (adjusted hectares)	8.3	**Future area with offset (adjusted hectares)**	8.3								
					Time until ecological benefit	10	**Start quality (scale of 0-10)**	**0**	**Future quality without offset (scale of 0-10)**	**0**	**Future quality with offset (scale of 0-10)**	**9**	9.00	80%	7.20	6.39				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	9.84	5.30	53.90%	**No**	TBD	#VALUE!	#VALUE!
Area of community	0				$0.00		$0.00
					$0.00	**#VALUE!**	**#VALUE!**

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Forest red-tailed black cockatoo
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Permanent loss through vegetation clearing for residential development	**Area**	7.45	Hectares	Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality	**7**	Scale 0-10	
			Total quantum of impact	5.22	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**	**0**	**Future quality without offset (scale of 0-10)**	**0**	**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	5.22	Adjusted hectares	Restoration Area 5: Jandakot Regional Park - 5A	**Time over which loss is averted (max. 20 years)**	10	**Start area (hectares)**	7.6	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	80%	0.00	0.00	5.36	102.85%	Yes	TBD	Values determined based on desktop assessment and site assessment (where possible).
									Future area without offset (adjusted hectares)	7.6	**Future area with offset (adjusted hectares)**	7.6								
					Time until ecological benefit	10	**Start quality (scale of 0-10)**	**0**	**Future quality without offset (scale of 0-10)**	**0**	**Future quality with offset (scale of 0-10)**	**9**	9.00	80%	7.20	7.06				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	5.215	5.36	102.85%	**Yes**	TBD	N/A	$0.00
Area of community	0				$0.00		$0.00
					$0.00	**$0.00**	**$0.00**

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Forest red-tailed black cockatoo
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Permanent loss through vegetation clearing for residential development	**Area**	7.45	Hectares	Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality	**7**	Scale 0-10	
			Total quantum of impact	5.22	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**	**0**	**Future quality without offset (scale of 0-10)**	**0**	**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	5.22	Adjusted hectares	Restoration Area 5: Jandakot Regional Park - 5B	**Time over which loss is averted (max. 20 years)**	10	**Start area (hectares)**	3.2	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	80%	0.00	0.00	2.26	43.31%	No	TBD	Values determined based on desktop assessment and site assessment (where possible).
									Future area without offset (adjusted hectares)	3.2	**Future area with offset (adjusted hectares)**	3.2								
					Time until ecological benefit	10	**Start quality (scale of 0-10)**	**0**	**Future quality without offset (scale of 0-10)**	**0**	**Future quality with offset (scale of 0-10)**	**9**	9.00	80%	7.20	7.06				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	5.215	2.26	43.31%	**No**	TBD	#VALUE!	#VALUE!
Area of community	0				$0.00		$0.00
					$0.00	**#VALUE!**	**#VALUE!**

Offsets Assessment Guide

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2 October 2012

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Matter of National Environmental Significance	
Name	Forest red-tailed black cockatoo
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Permanent loss through vegetation clearing for residential development	**Area**	7.45	Hectares	Impact area and habitat quality determined by Emerege Associates as part of Detailed Flora and Vegetation Assessment and HQS Assessment
			Quality	**7**	Scale 0-10	
			Total quantum of impact	5.22	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%								
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**	**0**	**Future quality without offset (scale of 0-10)**	**0**	**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	5.22	Adjusted hectares	Restoration Area 5: Jandakot Regional Park - 5C	**Time over which loss is averted (max. 20 years)**	10	**Start area (hectares)**	8.3	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	80%	0.00	0.00	5.86	112.33%	Yes	TBD	Values determined based on desktop assessment and site assessment (where possible).
									Future area without offset (adjusted hectares)	8.3	**Future area with offset (adjusted hectares)**	8.3								
					Time until ecological benefit	10	**Start quality (scale of 0-10)**	**0**	**Future quality without offset (scale of 0-10)**	**0**	**Future quality with offset (scale of 0-10)**	**9**	9.00	80%	7.20	7.06				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	5.215	5.86	112.33%	**Yes**	TBD	N/A	$0.00
Area of community	0				$0.00		$0.00
					$0.00	**$0.00**	**$0.00**

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