Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 9515/1
Permit type:	Purpose permit
Applicant name:	City of Wanneroo
Application received:	29 October 2021
Application area:	0.585 hectares of native vegetation
Purpose of clearing:	Drainage upgrades
Method of clearing:	Mechanical Clearing
Property:	Lot 41 on Diagram 84271
Location (LGA area/s):	Neerabup
Localities (suburb/s):	City of Wanneroo

1.2. Description of clearing activities

The City of Wanneroo (City) is proposing to undertake the clearing of 0.585 hectares of native vegetation within Lot 41 on Diagram 84271 for the purpose of drainage upgrades to accommodate the Neerabup industrial Area (NIA) development (City of Wanneroo, 2021). The application area is within the NIA that is a general industrial estate within the suburb of Neerabup, located approximately 30 kilometres north of the Perth Central Business District.

The vegetation proposed to be cleared is contained within a single contiguous area (see Figure 1, Section 1.5).

Lot 41 currently acts as a drainage area to the existing industrial area, located west of Mather Drive. A larger capacity for stormwater captures will be required to service future subdivisions in the greater industrial area and along Mather Drive (City of Wanneroo, 2022a).

1.3. Decision on application

Decision:	Granted
Decision date:	3 September 2024
Decision area:	0.585 hectares of native vegetation, as depicted in Section 1.5, below.

1.4. Reasons for decision

This clearing permit application was submitted, accepted, assessed and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). The Department of Water and Environmental Regulation (department) advertised the application for 21 days and no submissions were received.

In making this decision, the Delegated Officer had regard for:

- avoidance and minimisation actions implemented by the applicant along with consideration of alternative sites;
- site characteristics and analysis of flora, fauna and ecological communities recorded/mapped within the local area (a 10 kilometres radius buffer from the application area);

- the 10 Clearing Principles set out in Schedule 5 of the EP Act (see Appendix C);
- a detailed assessment of the clearing impacts on environmental values (see Section 3.2);
- available datasets at the time of the assessment (see Appendix H);
- other matters considered relevant to the assessment (see Section 3.3). This included:
    - the application area was approved under the EPBC Act (EPBC 2007/3479) on 02 June 2014, which include conditions to offset impacts to black cockatoo foraging habitat.
    - The application area forms part of the overall NIA.
    - The application area was supposed to form part of the clearing permit CPS 6359/1 to align with the application area applied under the EPBC approval 2007/3479. However, the City made an error in its application to the department on 21 March 2017 by excluding Lot 41 from the CPS 6359/1 clearing permit application.
- the additional information obtained during the assessment. Including the findings of:
    - fauna assessment undertaken by Natural Area (2021a);
    - flora and vegetation report undertaken by Natural Area (2021b);
    - black cockatoo habitat assessment conducted by Ecoscape (2020a); and
    - an environmental impact assessment (Natural Area, 2021c).
- expert advice received from the Department of Planning, Land and Heritage (DPLH);

After consideration of the above information, as well as the avoidance, minimisation and mitigation actions taken by the applicant, the Delegated Officer determined that the clearing would result in the following significant residual impacts:

- the loss of approximately 0.585 hectares of native vegetation within Bush Forever Site 295; and
- the loss of approximately 0.585 hectares of native vegetation likely to be utilised by *Zanda latirostris* (Carnaby's black cockatoo) and *Calyptorhynchus banksii naso* (Forest red-tailed black cockatoo).

To address the above significant residual impacts and applying the WA environmental offsets metric (the offsets metric) along with the environmental offsets metric guideline, and consistent with the WA Environmental Offsets Policy (2011) (the Offsets Policy) and Western Australia's Environmental Offsets Guidelines (2014) (the Offsets Guidelines), the Delegated Officer determined that the following offsets would address 100 per cent of the significant residual impacts of the clearing on the Carnaby's, Forest red tailed black cockatoos and the loss of vegetation within a Bush Forever site.

- Conservation of 5.92 hectares of Carnaby's cockatoo and Forest red-tailed black cockatoos foraging habitat in excellent (Keighery, 1996) condition located within Lot 901 on Deposited Plan 409610, Bindoon.
- Addition of 1.17 hectares of native vegetation into Bush Forever 295 in accordance with the State Planing Policy 2,8 (SPP 2.8).

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

In addition to the above, The Delegated Officer also determined that the proposed clearing will result in:

- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values;
- potential land degradation in the form of wind erosion; and
- increased likelihood of mortality of fauna utilising the application area at the time of clearing.

The Delegated Officer determined that the proposed clearing is unlikely to have any long-term adverse impacts on the environment, and that management, mitigation and offset measures conditioned on the permit will mitigate and offset any potential impacts. The Delegated Officer decided to grant a clearing permit subject to conditions to:

- avoid, minimise to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds;
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity;
- conservation of 5.92 hectares of Carnaby's cockatoo and Forest red-tailed black cockatoos foraging habitat in excellent (Keighery, 1996) condition; and
- addition of 1.17 hectares of native vegetation into Bush Forever 295 in accordance with the State Planning Policy 2.8 (SPP 2.8).

Noting the applicant's requirements under the permit conditions to provide an offset to counterbalance the significant residual impacts by 100 per cent, the Delegated Officer considered that the impacts of the proposed clearing are

unlikely to have any long-term adverse impacts on the environmental values and that the abovementioned management practices will adequately counterbalance any potential impacts.

In addition to the above, the Delegated Officer also took into consideration the following when making the decision to grant the clearing permit application.

- The purpose of the clearing is consistent with the planning framework as the application area is zoned:
  - 'Industrial' under the Metropolitan Regional Scheme (MRS).
  - 'Industrial Development' under the District Planning Scheme No. 2 (DPS 2).
  - 'Drainage/waterways' under the Structure Plan No.17
- Necessity of the clearing within the application area;
  - A large capacity for stormwater capture will be required to service future subdivisions in the greater Neerabup industrial area and along Mather Drive. The proposed clearing will facilitate the capture of stormwater drainage for the adjacent land to enable the servicing of future subdivisions (City of Wanneroo, 2022a).
  - According to the catchment area data for the proposed Lot 41 drainage basin, the current basin area (0.0750 hectares) is required to be increased to 0.578 hectares. The existing drainage area caters for an Effective Impervious Area (EIA) of 0.9 hectares. However, given the future subdivision works proposed, the drainage basin would need to cater for an EIA of 6.95 hectares (City of Wanneroo, 2022a).
  - The location of drainage basin's and/or sumps are determined by the topography of the land, with basins or sumps being located at the topographic low point within a catchment area. The catchment area of a subdivision is the entire area contributing to stormwater flow to a point including all public land such as road reserves, public carparks, public buildings and commercial property in suburban areas. The application area is the topographic low point of the surrounding area and therefore the drainage area cannot be moved to an alternative location (City of Wanneroo, 2022a).
- according to the calculations, the offsets conditioned on the clearing permit will counterbalance 100 per cent of the significant residual impacts of the proposed clearing.

1.5. Site map

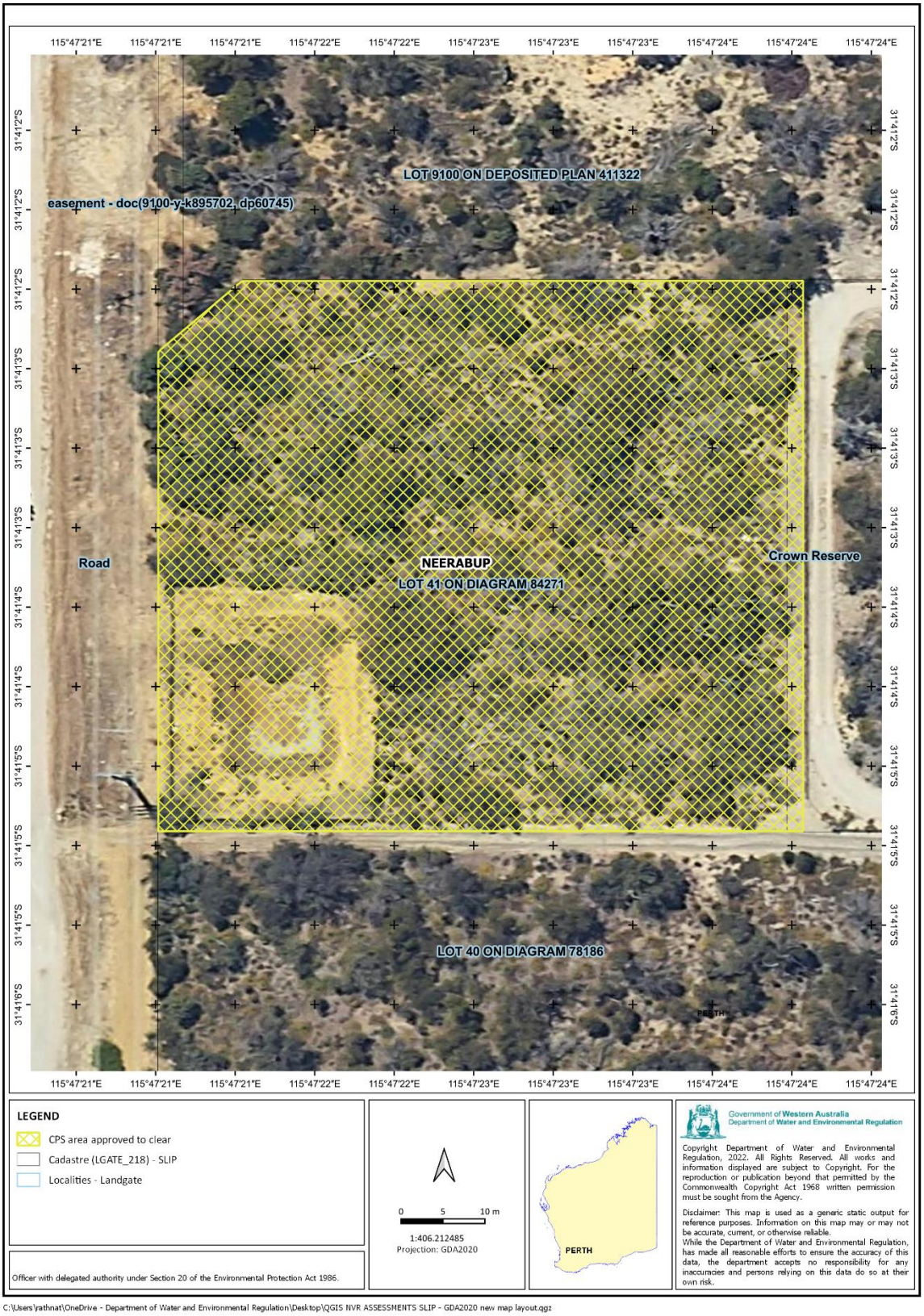

Figure 1 Map of the application area

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

2 Legislative context

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

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the polluter pays principle
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Planning and Development Act 2005* (WA) (P&D Act)
- *Soil and Land Conservation Act 1945* (WA)

Relevant policies considered during the assessment include:

- *Environmental Offsets Policy* (2011)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- *Environmental Offsets Guidelines* (August 2014)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2016)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

The City has provided the following information following the Department's request for avoidance, minimisation and mitigation measures.

The clearing area for the proposed drainage basin within Lot 41, Neerabup cannot be reduced for the following reasons:

- The existing Lot 41 drainage area is approximately 750 m^2 which caters for a total Effective Impervious Area (EIA) of 0.9 hectares. The catchment area data for the proposed Lot 41 drainage basin demonstrates the basin is catering for an EIA of 6.95 hectares, seven times the amount of the existing drainage area. To accommodate the increased EIA requirements, the drainage basin area is required to be increased to 5,775 m^2. As the total area of Lot 41 is 5,879 m^2 (0.588 hectares), the proposed 5,775 m^2 Lot 41 drainage basin, and the working space of the construction machinery, will impact the whole land parcel and therefore 0.585 hectares is required to be cleared (City of Wanneroo, 2022a).
- The City could not reduce the catchment area for the Lot 41 drainage basin as the existing industrial area west of Lot 41 has set the levels for both Mather Drive and the Lot 9001 subdivision (City of Wanneroo, 2022a).

The following opportunities were considered by the City. However, these options were not deemed feasible:

- Stormwater infiltration within the road reserve (i.e. street scale infiltration) was considered limited due to the nature of an industrial area with the navigation of heavy vehicles. Difficult if median swales were installed(City of Wanneroo, 2022a).
- Utilisation of bottomless manholes was considered. However, the volumes of storage provided using this measure relative to storage requirements, is relatively minor and would be subject to ongoing maintenance. In addition, there would be no treatment of stormwater in bottomless manholes, where a drainage basin has a requirement for a Gross Pollutant Traps (GPT) (City of Wanneroo, 2022a).
- The movement of a drainage basin to an area other than the topographic low point would require a complete re-design of the entire Lot 9001 subdivision, including the existing industrial estate to the west of the application area and the surrounding road network. At this stage of the NIA development, it is not feasible, or effective, for the City to re-design the catchment area (City of Wanneroo, 2022a).

The City will ensure impacts to environmental values are minimised in the following ways (City of Wanneroo, 2022a):

- clear demarcation of clearing boundaries with adequate flagging prior to clearing activities commencing;
- adequate hygiene procedures for vehicles and machinery entering the site to ensure weed seed, contaminants and diseases are not transported into the site;
- collection of seed, cuttings and plant salvage where feasible within the application area for utilisation within suitable City revegetation areas / nearby projects; and
- clearing of vegetation in a manner suitable to ensure any fauna can escape into surrounding bushland areas (e.g. Mather Reserve which adjoins the application area to the east).

Addition to the above, A construction Environmental Management Plan (CEMP) was prepared and being implemented by the City to comply with condition two of the EPBC 2007/3479 approval for each stage of the development. The CEMP aim to address the following:

- measures to avoid and mitigate any potential impacts to black cockatoos
- limit any potential spread of weeds and dieback
- demarcation conservation area to limit illegal access
- dust and erosion control measures
- changes in hydrological flow.
- use of a qualified fauna handler during all site activities and if native animals are at risk of being impacted, halt construction until fauna have moved on or are removed by a qualified fauna handler

After consideration of avoidance and mitigation measures, it was determined that an offset to counterbalance the significant residual impacts to black cockatoo foraging habitat and the loss of vegetation within Bush Forever were necessary. In accordance with the Government of Western Australia's *Environmental Offsets Policy* and *Environmental Offsets Guidelines*, these significant residual impacts have been addressed through the conditioning of environmental offset requirements on the permit. The nature and suitability of the offset provided are summarised in Section 4.

3.2. Assessment of impacts on environmental values

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

The assessment against the clearing principles (see Appendix C) identified that the impacts of the proposed clearing present a risk to biological values (fauna, adjacent flora and vegetation) and conservation areas. The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

3.2.1. Biological values (flora and vegetation) - Clearing Principles (a, c and d)

Assessment

According to the information available to the department through the supporting information provided by Natural area consulting (Natural Area, 2021b) and Ecoscape (Ecosacpe, 2020a), one vegetation type was recorded within the application area. That is *Eucalyptus marginata, Banksia attenuata* and *Allocasuarina fraseriana* Woodland. This consisted of *Eucalyptus marginata, Banksia attenuata* and *Allocasuarina fraseriana* Woodland over *Hibbertia hypericoides, Xanthorrhoea preissii* and mixed shrubland. Understory species comprised of *Mesomelaena pseudostygia*, mixed native herbs and sedges with weedy grasses present in more disturbed areas.

During the surveys, the vegetation condition was determined as mostly Excellent (Keighery, 1994) condition, with cleared areas around the periphery and areas within the drainage sump classed as completely degraded (Keighery, 1994) containing mostly weed species. No weeds of national significance listed by the Australian Government or declared pests listed under the *Biosecurity and Agriculture Management Act 2007* (WA) were recorded within the application area. The most common weed species recorded were from the Asteraceae (daisies) and Poaceae (grasses) families (Natural Area, 2021b), (Ecoscape, 2020a).

Flora

According to the desktop assessment 30 conservation significance flora species were identified from the local area, which consists of four threatened flora species and 26 priority flora species. The closest recorded flora species to the application area is the Priority two, *Poranthera moorokatta* located 1.5 kilometres from the application area. In forming a view on the likelihood of these species occurring within the application area, the preferred habitat types of these species and their recorded proximity to the application area were considered, along with the vegetation/soil types and landforms within the application area. According to the flora and vegetation assessment report by Natural Area

(2021b) and the Departments desktop assessment, the application area contained habitat suitable for six species of conservation significance, based on the soil type, vegetation type, drainage and location.

Flora surveys of the application area did not identify any conservation significant flora species within the application area. Natural Area in its survey assessment, considers that habitat within the application area to be suitable for nine species based on the soil type, drainage and location (Natural Area, 2021b). Given that majority of the flora flowers during the spring period, the survey was conducted on 03 and 04 September 2020 and again on 29 and 30 October 2020 in accordance with EPA Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment. Despites some limitations that were encountered during the survey, Natural Area was able to estimate 80 to 90 per cent of flora species within the survey area (Natural Area, 2021b). Based on this, there is a high likelihood that any conservation significant flora species that may have occurred within the application area would have been identified during the survey, if present.

The survey identified 92 flora which include 11 species of weed within the application area. However, none of these flora species were conservation significant flora (Natural Area, 2021b). It is also noted that number of surveys were undertaken previously (in 2007 and 2013) that include the application area as part of the NIA development. These surveys also did not find rare flora species within the application area.

Ecological community

The application area is not mapped within a conservation significant ecological community. However, the following conservation significant ecological communities are mapped within the local area with a distance greater than 100 metres from the application area.

- *Banksia attenuata* woodlands over species rich dense shrublands (floristic community type 20a as originally described in Gibson et al. 1994) ecological community. – Endangered
- Banksia Woodlands of the Swan Coastal Plain - Endangered
- Tuart (*Eucalyptus gomphocephala*) Woodlands and Forests of the Swan Coastal Plain – Critically endangered

The survey undertaken by Natural Area consulting, also considered conservation significant ecological communities that may occur within the application area, including an assessment of the key diagnostic criteria for identifying ecological communities that are recorded within the surrounding area of the application area (Natural Area, 2021b).

According to the flora and vegetation survey report (Natural Area, 2021b), vegetation within the application area meets many of the key diagnostic characteristics of the Banksia Woodland of the Swan Coastal Plain TEC. These are listed below. However, based on the statistical analysis undertaken by Natural Area against Gibson *et. al.* data (1994), and the minimum requirement of a patch size in excellent condition (Keighery, 1994), the vegetation within the application area was not considered to be representative of the Banksia TEC.

- The application area is located on the Swan Coastal Plain, on the Spearwood Dune system, and consists of a low woodland dominated by the key diagnostic species, being *Banksia attenuata* and *Banksia menziesii*;
- represents vegetation in an excellent to good condition, with an intact vegetation structure, presence of non-aggressive weed species, high density of native plant species, and disturbance only affecting individual species; and
- represents a minimum patch size of 0.5 hectares of vegetation in excellent condition (must be a minimum of two hectares in good condition) when considered in isolation from surrounding vegetation.

It was identified that the vegetation within the application area is a subgroup of the Bankia woodland TEC (SCP 28 *Banksia attenuata* or *Banksia attenuata* – Eucalyptus Woodland) that does not have a conservation rating and is not considered a TEC or PEC. Therefore, this was not considered further.

Based on the information obtained through the flora and vegetation survey (Natural Area, 2021a), it was determined that the vegetation within the application area is not representative of Tuart (*Eucalyptus gomphocephala)* woodlands of the Swan Coastal Plain. A key diagnostic characteristic of this ecological community is the presence of Tuart trees. No Tuart trees were identified within the application area.

The survey results have concluded that no threatened or priority ecological communities are represented within the application area (Natural Area, 2021b).

The disturbance caused by the proposed clearing may impact adjacent native vegetation through an increase of weeds and Phytophthora dieback. This issue has been addressed by adding weed and dieback management condition on the Permit.

Fauna

See section 3.2.2 of the decision report.

Conclusion
For the reasons set out above, it is considered that no impact to conservation significant flora species and conservation significant ecological communities would occur as a result of the proposed clearing. However, the proposed clearing has the potential to introduce and spread weeds and dieback into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values.

Given the condition of the vegetation (Keighery, 1994) with high flora diversity, the presence of significant habitat for rare fauna and the linkage value of the vegetation, the application area is likely to support a high level of biodiversity. However, given the size of the proposed clearing and the intact remnant vegetation adjacent to the application area that is protected, with the offsets conditioned on the clearing permit, it is not likely that a significant residual impact of the clearing remains.

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

- The applicant will be required to take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback.

3.2.2. Biological values (fauna) - Clearing Principles (b)

Assessment
Fauna habitat within the application area was described as scattered clumps of native tree (predominantly Jarrah) and shrub cover. Banksia species *Banksia menziesii* and *B attenuata* are present at low density (Ecoscape, 2020a).

According to available databases, a total of 41 conservation significant fauna species have been recorded within the 10 kilometres radius local area. Noting the habitat requirements, distribution of the recorded species, the mapped vegetation type, the condition (Keighery, 1994) of the vegetation within the application area, as well as the findings of the fauna assessment (Natural Area Consulting, 2021a) and the black cockatoo habitat assessment (Ecosape, 2020a), the application area is likely to comprise suitable habitat for the following species:

- Carnaby's black cockatoo (*Zanda latirostris*)
- Forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*)
- Peregrine falcon (*Falco peregrinus*)
- Woolybush bee (*Hylaeus globuliferus*)
- Quenda, southwestern brown bandicoot (*Isoodon fusciventer*)
- Black-striped snake, black-striped burrowing snake (*Neelaps calonotos*)
- Western brush wallaby (*Notamacropus Irma*)

Carnaby’s black cockatoo and Forest red-tailed black cockatoo (FRTBC) – endangered/vulnerable

The application area is mapped within the modelled distribution of Carnaby’s cockatoo, and not within the distribution of the FRTBC. Carnaby’s and the Forest red-tailed black cockatoos are classified as threatened under the BC Act. Under the EPBC Act, the Carnaby’s are listed as Endangered, and the FRTBC are listed as Vulnerable. For the remaining of the decision report, the term ‘black cockatoos’ refer to Carnaby’s black cockatoos and FRTBC.

The seasonal movements of black cockatoos mean they require large areas of habitat for breeding, night roosting and foraging, as well as connectivity between these habitats to assist their movement through the landscape (Commonwealth of Australia, 2012). The assessment has considered the potential impacts of the proposed clearing on the black cockatoo birds.

Available databases indicate that there are 51 black cockatoo roost sited records within the local area with the closest being approximately 1.8 kilometres from the application area. There are 17 white-tailed black cockatoo breeding sites (14 artificial and 3 natural; 6 potential and 11 confirmed) within a 12 kilometre buffer from the application area, the closest being approximately 5.48 kilometres from the application area.

During the fauna survey, FRTBC were opportunistically observed within the application area (Natural Area, 2021b). Available databases indicate that there are six records of FRTBC in the local area. There are 636 records of Carnaby's cockatoo in the local area, with the closest being approximately 0.35 kilometres from the application area. It must be noted that Calyptorhynchus sp. (white-tailed black cockatoo) have been recorded in the local area. These records were obtained when the data collector could not definitively distinguish if Carnaby's black cockatoo or a *Zanda baudinii* (Baudin's black cockatoo) was spotted, therefore the white-tailed black cockatoo category was created to incorporate these records. There are 25 records of white-tailed black cockatoos in the local area, with the closest being approximately 4.12 kilometres from the application area.

Foraging habitat

Critical foraging habitat for black cockatoo species includes foraging material that is within an approximate six-to-12-kilometre radius of a nesting site and within six kilometres of a night roosting site. The preferred foraging habitat for each of the species is described below (DAWE, 2022):

- Carnaby's cockatoo – Native shrubland, kwongan heathland and woodland on seeds, flowers and nectar of native proteaceous plant species (Banksia spp., Hakea spp. and Grevillea spp.), as well as Callistemon spp. and Marri.
- Forest red-tailed black cockatoo – Primarily seeds of jarrah and marri in woodlands and forest, and edges of Karri forests, including Wandoo and Blackbutt. Forages on Allocasuarina cones, fruits of *Persoonia longifolia* (snottygobble) and *C. haematoxylon* (mountain marri). Other less important foods include Blackbutt, Bullich, *Allocasuarina fraseriana*, Hakea spp., Tuart, *E. decipiens* (redheart moit) and *E. lehmannii* (bushy yate).

Based on the results of a black cockatoo habitat assessment undertaken as part of the fauna survey, the entirety of the application area represents suitable foraging habitat for black cockatoos (Natural Area, 2021a). This is further supported by the black cockatoo habitat assessment undertaken by Ecoscape in 2020. The Fauna Survey noted that the mapped vegetation communities contained high densities of suitable foraging species for black cockatoos. Evidence of foraging by FRTBC in the form of chewed marri nuts was observed during the Ecoscape (2020a) habitat assessment. Further, Carnaby's foraging on grasses were captured through the trail cameras during the fauna survey by Natural Area (2021a).

Based on the above findings and the site context, it is considered that the application area provides high quality foraging habitat for black cockatoos. Clearing of this vegetation would result in a significant residual impact to the black cockatoo foraging habitat and require an offset to counterbalance the residual impacts.

Breeding/roosting habitat

Critical breeding habitat for black cockatoo includes woodland or forest, but also breeds in partially cleared woodland or forest, including isolated trees. Black cockatoos nest in hollows of live or dead trees (many eucalypt species may provide suitable hollows) particularly salmon gum, wandoo, tuart, jarrah, flooded gum (*E. rudis*), york gum, powderbark (*E. accedens*), karri, marri, bullich and blackbutt (*E. patens*) (DAWE, 2022). Whilst critical night roosting habitat includes any tall trees including several of these above species as preference (DAWE, 2022).

Roosting habitat is defined as a suitable tree (generally the tallest) or group of tall trees, native or introduced, usually close to an important water source, within an area of quality foraging habitat within the range of each black cockatoo species which provide black cockatoos with shelter during the heat of the day and safe resting places at night (DoEE, 2017). Individual night roosting sites need suitable foraging habitat and water within six kilometres (EPA, 2019). The black cockatoo habitat assessment attempted to locate roosting sites. However, no roosting activities were observed (Ecoscape, 2020a). Given the abundant remnant vegetation surrounding the application area which is likely to contain tall trees that provide roosting habitat for the black cockatoos, and noting the size of the application area, it is not likely that a significant residual impact would occur to black cockatoo roosting habitat from the prosed clearing.

During the survey, a total of 425 trees that met the Diameter at Brest Height (DBH) of 50 centimetres were recorded within the survey area. Five of the recorded habitat trees were identified within the application area. Two of the trees were classified as 'class 4' trees whilst three of the trees were classified as 'class 5' trees (Ecoscape, 2020a).

- **Class 4**: "Tree with large hollows or broken branches that might contain large hollows, but hollows or potential hollows are not vertical or near-vertical; thus, a tree with or likely to have hollows of sufficient size but not to have hollows of the angle preferred by black cockatoos."
- **Class 5**: "Tree lacking large hollows or broken branches that might have large hollows; a tree with more or less intact branches and a spreading crown."

Based on the above findings, the assessment found that the proposed clearing will not result in the removal of trees that consists of suitable hollows for black cockatoos. Therefore, no significant residual impact to black cockatoo breeding habitat will remain from the proposed clearing.

Quenda – Priority 4

Quendas are ground dwelling marsupials that tend to inhabit forest, woodland and heathland, usually with dense understorey vegetation, sometime wetland fringes. They forage for plant material, fungi and insects by digging in leaf litter and soil (DBCA, 2017). In their natural habitat, Quenda's live in dense understories in swampland areas, Banksia and Jarrah (*Eucalyptus marginata*) woodlands. However, Quendas have adapted to urban and suburban habitats in recent years (DBCA, 2017). According to available databases, the nearest record is approximately 5.70 kilometres from the application area with 184 records identified in the local area. Quenda was opportunistically observed within the survey area during the 2020 fauna assessment (Natural Area, 2021a). Given the extent of the clearing proposed, and the amount of remnant native vegetation immediately adjacent to the application area, it is not considered that the proposed clearing would result in a significant residual impact on the availability of habitat for Quenda.

However, given the Quenda were observed within the application area, it is important that the proposed clearing is undertaken from one direction towards the other to ensure that no Quenda individuals are impacted from the proposed clearing. Slow, progressive directional clearing methods would allow these species to disperse ahead of clearing should they occur.

woolybush bee – Priority 3

Woolybush bee, listed as Priority 3 by DBCA, favours flowers of *Adenanthos cygnorum* for feeding but has also been recorded on *Banksia attenuata* (Houston, 2018). Natural Area Consulting (2021b) identified B. *attenuata* within the application area but not *Adenanthos cygnorum*. Woolybush bee is highly mobile and have access to suitable habitat adjacent to the application area. The closest record of woolybush bee is recorded approximately 0.34 kilometres from the application area.

Noting the availability of similar habitat in the local area, the proposed clearing is not likely to have a significant impact on the conservation status of the woolybush bee.

black-striped snake - Priority 3

The black-striped snake primarily occurs in coastal dunes and sand plains with heath and banksia. The black-striped snake is known from 13 records within the local area (10-kilometre radius), with the nearest occurring approximately 5.47 kilometres from the application area.

The species is nocturnal, staying in loose sand during the day and prey upon small animals such as lizards and insects at night. This is a poorly known species and typically associated with Banksia woodlands in sandy soil that allow for burrowing (Atlas of Living Australia, N/A). Given the preferred habitat is present within the application area, it is likely that the black-striped snake may transverse the application area during the clearing activities.

Combined with the location and extent of the proposed clearing, it is unlikely that the proposed clearing will significantly impact on this species, and it is likely that any individuals that may be present at the time of clearing will retreat to the adjacent remnant vegetation that provides more suitable, protected habitat for the species. This species is considered to be mobile and provided they have access to adjacent vegetation; by clearing taking place in a directional manner, the clearing is unlikely to have a significant residual impact on the black-striped snake.

Peregrine falcon (*Falco peregrinus*)

The species is found in most habitats, from rainforests to the arid zone and at most altitudes, from the coast to alpine areas. It requires abundant prey and secure nest sites and prefers coastal and inland cliffs or open woodlands near water and may even be found nesting on high city buildings (Australian Museum, 2020). This species is widespread, highly mobile and is found in various habitats. The application area may comprise suitable habitat for this species, however, noting habitat preferences and the small extent of the proposed clearing, the application area is unlikely to comprise a significant habitat for this species.

western brush wallaby (*Notamacropus Irma*)

Western brush wallaby inhabits open forest or woodland, particularly favouring open, seasonally wet flats with low grasses and open scrubby thickets. It is also found in some areas of mallee and heathland. The species is highly

mobile and does not rely on specialist niche habitats (DBCA, 2012). The species has been recorded approximately 0.56 kilometres from the application area. Based on the habitat preference by the western brush wallaby, it is unlikely the application area consist of significant habitat for this species. By clearing taking place in a directional manner, the clearing is unlikely to have a significant residual impact on the western brush wallaby if present during the clearing activities.

Ecological Linkage

The application area is mapped within the Gnangara Ecological Linkage and 128 metres from the Perth Regional Ecological linkage. It is likely that the application area would be part of an ecological linkage. However, the application area is connected to the Mather Reserve that will continue to serve as an ecological linkage to facilitate fauna movement and genetic flow between the remnant bushland even in the absence of the vegetation within the application area. Noting this, and the small area of proposed clearing, it is not likely that the proposed clearing would severely impact on an ecological linkage within the local area.

Conclusion

Significant habitat refers to the resources (breeding, resting and feeding), connectivity or habitat area for a species or community that is critical for its survival. Based on this, the application area comprises of significant habitat for black cockatoos.

Noting the extent and the location of the application area, within a broader remnant, it is considered that the proposed clearing is unlikely to have a significant impact on other conservation significant fauna that were considered likely to occur within the application area. Although significant habitat is not present for these faunae, there is the potential for individuals to be present at the time of clearing. Slow, directional clearing to allow the movement of fauna that may be present at the time of clearing into adjacent vegetation will mitigate any impacts to fauna individuals.

The applicant has developed a Construction Environmental management Plan in order to manage impacts to fauna during the construction phase of the project.

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

- Directional clearing, which requires slow, progressive, one directional clearing to allow terrestrial fauna to disperse ahead of the clearing activity should they occur on site at the time of clearing.
- Offset – use of the banked offset site at Lot 901 on Deposited Plan 409610 Bindoon to offset the impacts to black cockatoo habitat.

3.2.3. conservation area - Clearing Principles (h)

Assessment
The proposed clearing area is within an Environmentally Sensitive Area and Bush Forever 295. Site 295 is described as low woodland to low open forest dominated by *Banksia attenuata* and *B. menziesii* with scattered to codominant *Eucalyptus todtiana, E. marginate, Nuytsia floribunda* and *Allocasuarina fraseriana.* Tall Closed Scrub to Tall Shrubland of *Adenanthos cygnorum.* Open to Closed Low Health consisting of *Hibbertia hypericoides, Daviesia triflora* and *Leucopogon conostephioides*. Majority of the application area (75%) consists of excellent (Keighery, 1994) vegetation condition, with areas of severe localised disturbance. According to the surveys undertaken within the application area, no threatened or priority listed flora species by the DBCA were recorded within the application area (Natural Area, 2021b). However, the habitat within the application area does provide significant habitat for conservation significant fauna species.

Given the predominately excellent condition (Keighery, 1994) of the vegetation and the foraging habitat it provides, it is considered that the proposed clearing does have a significant residual impact on the Bush Forever Site, in accordance with SPP 2.8.

SPP 2.8 sets out that:
'Proposals or decision-making' in respect of Bush Forever areas 'should:

(i) support a general presumption against the clearing of regionally significant bushland or other degrading activities, except where a proposal or decision –

a. is consistent with the overall purpose and intent of an existing Crown reserve or can be reasonably justified with regard to wider environmental, social, economic or recreational

needs, and all reasonable alternatives have been considered in order to avoid or minimise any direct loss of regionally significant bushland, and reasonable offset strategies are secured to offset any loss of regionally significant bushland, where appropriate and practical (clause 5.1.2.1(i)(e)).

The Policy also sets out that unavoidable adverse impacts on regionally significant bushland within a Bush Forever area should be offset at a ratio of at least 1:1 in habitat hectares, and at a ratio 2:1 when the conservation significance is deemed the highest (SPP 2.8 - Appendix 4).

The Department of Planning Lands and Heritage (DPLH) advised that to ensure the integrity of Bush Forever area 295 is not compromised, and in accordance with SPP 2.8 5.1.1 (ii) and 5.1.2.1 (e), a formal offset package should be prepared in accordance with the WA Environmental Offsets Policy (2011) and Appendix 4 of SPP 2.8. This will ensure there will be an environmental gain for the proposed clearing (DPLH, 2023). DPLH further recommended that the offset measures are provided onsite at Bush Forever area 295, and provide an environmental gain to what is being lost (DPLH, 2023). “

In addition to the above, it is also noted that as part of the Metropolitan Region Scheme (MRS) amendment by DPLH, the application area will be removed from Bush Forever given the zoning of the application area was changed from conservation into drainage/waterways as part of the City of Wanneroo’s structure plan (City of Wanneroo, 2022b). Therefore, the application area will no longer be classified as a Bush Forever site following the MRS amendment. However, the department must undertake the clearing permit assessment based on the information available to the department at the time of the clearing.

The department has therefore, requested for an offset to counterbalance the significant residual impact to clearing within Bush Forever site 295. Further information regarding the offset is detailed under section four (4) of the decision report.

Conclusion

Based on the above, it is likely that a significant residual impact would remain to areas of Bush Forever. It is determined that impacts to Bush Forever 295 can be addressed through adding areas of remnant vegetation into Bush Forever at a ratio of 1:2.

Conditions

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

- Avoid and minimise native vegetation clearing.
- Add 1.17 hectares of remnant vegetation within Lot 8001 on Deposited Plan 411322 into Bush Forever Site 295, to be conserved in perpetuity.

3.3. Relevant planning instruments and other matters

The City has advised the department that, in August 2015, the City Council agreed to proceed with the development of the City’s landholdings within the Neerabup Industrial Area (NIA) which included Lots’ 9000 (now 9100) and 9003 and part Lot 600. The development of the NIA includes extraction of sand and limestone, subdivision of the land creating Lots and assets to service these Lots (e.g. transport assets (roads and pathways) and drainage assets (pipes, pits, gross pollutant traps (GPT’s) and basins/sumps)). Industrial lots and transport assets create impervious surfaces within the NIA development area which require the support of a drainage network to ensure subdivision storm water is managed effectively (City of Wanneroo, 2021b).

The Lot 41 drainage sump and a small portion of the existing Mather Drive is the current catchment area in the existing NIA. The commencement of subdivision works for Lot 9100 of the NIA (located north of Lot 41) was scheduled for 2023, as well as planned road upgrades to Mather Drive. To facilitate these works, and to ensure that the ultimate development density based on the zoning of all of the City’s NIA landholdings is accommodated, a larger capacity drainage basin is required within Lot 41 (the natural low point of the land) to capture stormwater and ensure adequate servicing of the industrial area and the planned road upgrades to Mather Drive (City of Wanneroo, 2021b).

The clearing associated with the subdivision works proposed within Lot 9100 was assessed under the clearing permit CPS 6359/1, CPS 6359/2 and CPS 6359/3. When submitting the clearing permit application to the department (CPS 6359/3) for the NIA development, the City made an error, and as a result, the application area was not included within the clearing permit application. Further to this, it was not established that the application area was absent from the CPS 6359/3 permit until after approval had been received. The City then made the decision to apply for a separate clearing permit application for the purpose of drainage, which ultimately forms part of the project that relates to CPS 6359/3 (City of Wanneroo, 2021b).

Based on the information received from the City to a 'request for further information' letter, the application area is zoned 'Industrial' under the Metropolitan Regional Scheme (MRS) and has the implementation category in *State Planning Policy 2.8 – Bushland Policy for the Perth Metropolitan Region* (SPP 2.8) as Urban, industrial or resource development. Under the District Planning Scheme No. 2 (DPS 2), the application area is zoned as 'Industrial Development'. Within the City's structure plan No: 17, the application area was previously zoned 'reserved for conservation'. Under legislation, structure plans (e.g. ASP 17) means a plan for the coordination of future subdivision and zoning of an area of land. As the content of structure plans are due regard documents, the specifics contained within these plans should not be construed as 'binding', whereas the zoning and reservation provided for in the MRS and DPS 2 is legally binding. The City has recently advertised Amendment No. 172 to District Planning Scheme No. 2 (DPS 2). Amendment No. 172 is a broad amendment to align the Scheme with the State Government's Model Scheme provisions. One component of the amendment was to reclassify Lot 41 from 'Industrial Development' zone to 'Local Schemes Reserve – Drainage'. The reservation of Lot 41 for the purposes of 'drainage' in the DPS 2 will override the 'reserve for conservation' designation in ASP 17. According to the City's advice and the certified Amendment No. 202 to DSP document, it is noted that through the DPS amendment no.172, Lot 41 Mather Drive was reclassified to 'Local Scheme reserve – Drainage/Waterways, which is now consistent with the purpose of the proposed clearing. The Figure below gazetted on DPLH website reflects this change.

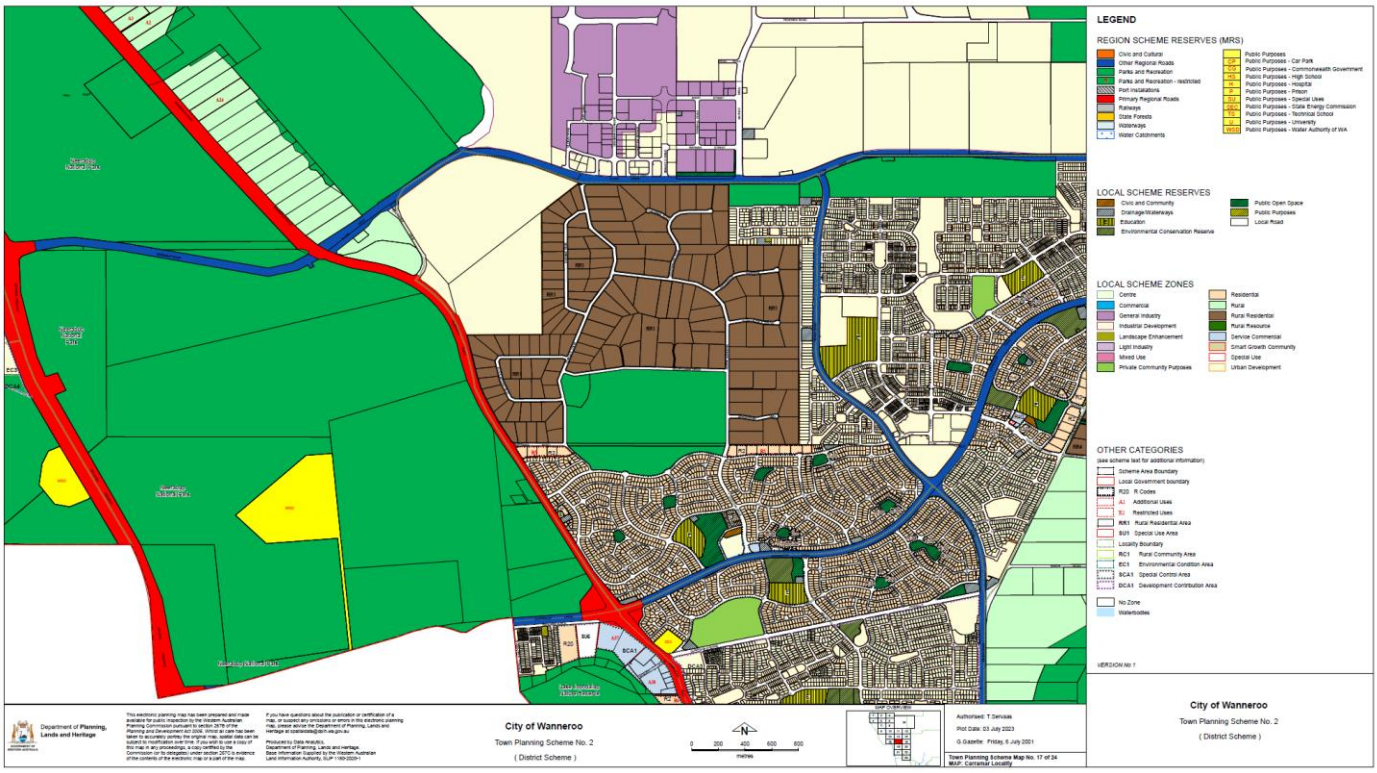

Figure 2: Map 17 of the DPS amendment No.172

The proposed clearing was referred to the Commonwealth Department Climate Change, Energy and the Environment and Water (DCCEEW) included under the broader Meridian Business Park Industrial development and was determined as a 'controlled action' due to its potential impacts to Carnaby's black cockatoos. The City received approval from DCCEEW in on 02 July 2014 through variations to conditions on EPBC 2007/3479 to clear native vegetation within Lot 9000 Flynn Drive, Lots 41 and 9003 Mather Drive and Part Lot 600 Wattle Avenue in Neerabup for the purposes of resources extraction and industrial development. Schedule 1 and Schedule 2 of EPBC 2007/3479 demarcate the City's proposed Neerabup Industrial Areas clearing areas (including Lot 41) and the environmental offset requirements.

No Aboriginal sites of significance have been mapped within the application area. It is the permit holder's responsibility to comply with the *Aboriginal Heritage Act 1972* (WA) and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

4 Suitability of offsets

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

- loss of approximately 0.585 hectares of native vegetation that provides high quality foraging habitat for Carnaby's black cockatoos (EN).
- loss of approximately 0.585 hectares of native vegetation that provides high quality foraging habitat for Forest Red tailed black cockatoos (VU).
- the removal of 0.585 hectares of native vegetation within Bush Forever Site 295.

Offset 1 – Black cockatoo foraging habitat

To offset the significant residual impact to the black cockatoo foraging and roosting habitat, the City intends to use a City's banked offset site (land acquisition offset) located within Lot 901 on Deposited Plan 409610, Bindoon. In 2016, Lot 901 was purchased by the City as an offset against a previous clearing permit CPS 6359/2. In 2020, 36.75 hectares within Lot 901 was used as an offset for CPS 7982/2. The City banked the remainder of the land for future projects. Lot 901 is currently managed by DBCA. The offset area is situated approximately 34 kilometres northeast of the application area.

The City has proposed an area of 0.5 hectares to offset the significant residual impact to black cockatoos foraging habitat (City of Wanneroo, 2022c). On review of this, it was determined that the extent of the proposed offset area is not sufficient to counterbalance the significant residual impact by 100 per cent. However, it is considered that the proposed offset location consists of high quality breeding, high quality foraging habitat and roosting habitat due to the presence of both Eucalyptus and Banksia species and is considered to be appropriate to offset the environmental values that would be impacted by the proposed clearing. A Biological survey and a Black cockatoo habitat survey were conducted within the proposed offset area (Ecosacpe, 2020b).

Offset calculations using the WA environmental offset metric 'calculator' was undertaken by the department. The calculations have determined that:

- To offset clearing of 0.585 hectares of native vegetation that provides high quality foraging habitat for the black cockatoos, an offset area of 5.92 hectares that also provides high quality foraging habitat for black cockatoos is required.

The City has endorsed the above offset value and has provided an area of 5.92 hectares within Lot 901 on Deposited Plan 409610, Bindoo to be conditioned as an offset in the clearing permit.

Offset 2 – Bush Forever

To offset the significant residual impact to clearing Bush Forever site 295, the City is proposing to add the remainder of the Mather reserve (Lot 8001 on Deposited Plan 411322) into Bush Forever as part of an omnibus Metropolitan Region Scheme (MRS) amendment by DPLH for a net gain to Bush Forever. DPLH has informed the department and the City that the MRS amendment would take approximately one to two years to progress and provide a net gain to Bush Forever (DPLH, 2024). To ensure that the MRS does proceed, the department has implemented a condition on the clearing permit to reflect this.

To offset clearing of 0.585 hectares of vegetation secured under Bush Forever, approximately 1:2 or two times the area of native vegetation to be cleared is needed to counterblance the residual impact. Based on this, 1.17 hectares of vegetation is required to be added into Bush Forever. This is consistent with guidance under the SPP 2.8 for clearing within a Bush Forever site (detailed in Section 3.2.6) and WA Environmental Offsets Policy 2011. The City proposes to convert the remaining 35.12 hectares of Mather Reserve into Bush Forever Site 295 as part of this application. This is considered more than adequate to achieve a net gain to Bush Forever.

The department notes that the area proposed to offset the clearing of Bush Forever is within Mather Reserve which was amended from 'industrial use' to 'conservation' tenure under an EPBC (2007/3479) approval and is currently serving as an offset site for CPS 6359/3, managed in accordance with a Conservation Area Management Plan (CAMP). Further investigation into the offset for 6359/3 has found that the offset was to counterbalance impacts to black cockatoo habitat by placing suitable nearby habitat under a conservation covenant, to protect in perpetuity. As the offset was for black cockatoo habitat and was not to offset any impact to Bush Forever, the department formed the view that the same offset site can be used to offset impacts to Bush Forever under CPS 9515/1 by providing a

net gain to Bush Forever. The Department seeked further advice from DPLH on the City's proposed offsets. DPLH has informed the department that the Land Use Planning Policy (LUPP) advice would be to support the inclusion of part of Mather Reserve (35.1295ha) into Bush Forever area 295 as part of a MRS omnibus amendment to offset the clearing within the application area (DPLH, 2024).

Summary

The department's offset calculations have determined that the following offset is required to fully counterbalance the impacts from the proposed clearing:

- 5.92 hectares of foraging habitat in excellent condition (Keighery, 1994), for the black cockatoos to be ceded to DBCA for management; and
- Addition of 1.17 hectares into Bush Forever site 295, to be conserved in perpetuity.

The department has undertaken an assessment of the proposed offset using the offsets metric and in accordance with the WA Environmental Offset Policy (2011) and Offset Guidelines (2014). It was determined that the proposed offset is sufficient to counterbalance 100 per cent of the significant residual impacts of the proposed clearing.

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

End

Appendix A. Additional information provided by applicant

Summary of comments	Consideration of comment
Lot 41, 34 Mather Drive Neerabup Industrial Area, Neerabup - *Native Vegetation Clearing Permit Application Supporting Documentation* (Natural Area, 2021c)	Natural Area Consulting Management Services was commissioned by the City of Wanneroo to undertake an Environmental Impact Assessment at three sites on Mather Drive within the NIA, Neerabup. Findings from Natural Area's 2020 biological surveys as well as relevant desktop and literature reviews from past surveys of the area have been incorporated to assess the potential impacts arising from the development of these sites. The three Mather Drive sites and corresponding proposed developments include: • Mather Drive Road Reserve-new Road proposed to service future subdivisions in Lot 9003 • Lot 41 - drainage expansion • Lot 9100 - subdivision and industrial development.
Flora and Vegetation survey report (Natural Area, 2021b)	The City engaged NAMS to undertake a flora and vegetation assessment consistent with the *Technical Guidance Flora and Vegetation Surveys for Environmental Impact Assessment*; *Targeted and Detailed Surveys.* The assessment occurred over two sampling periods, 3-4 September and 29-30 October 2020 and was completed for three sites within the NIA (Natural Area, 2021b): • Site 1: Mather Drive Road Reserve (1.17 ha) • Site 2: Lot 9100 (60) Mather Drive (16.2702 ha) • Site 3: Lot 41 (34) Mather Drive (0.5879 ha)
Fauna survey report (Natural Area, 2021a)	The City engaged NAMS to undertake a basic fauna survey consistent with the *Technical Guidance, Terrestrial vertebrate fauna surveys for environmental impact assessment* (EPA, 2020). The assessment occurred over two sampling periods, 3-4 September and 29-30 October 2020 and was completed for three sites within the NIA. Trail cameras were installed in the field from 4 September to 2 October 2020 (Natural Area, 2021b). • Site 1: Mather Drive Road Reserve (1.17 ha) • Site 2: Lot 9100 (60) Mather Drive (16.2702 ha) • Site 3: Lot 41 (34) Mather Drive (0.5879 ha).
Response to the RFI dated 08 April 2022 (City of Wanneroo, 2022a).	The response consisted of the following: • further information about the project background; • avoidance, minimisation mitigation measures; • black cockatoo habitat assessment; and • preliminary identification of environmental offsets
Response to the RFI dated 22 April 2022 (City of Wanneroo, 2022b).	The response consisted of the following: • clarification on the structure plans and further information regarding the need to place the drainage within the application area; • alternative locations considered for the proposed drainage works; and • preliminary proposed offsets

Summary of comments	Consideration of comment
Offset proposal and associated biological survey reports (City of Wanneroo, 2022c).	On request, the City submitted an offset proposal for the departments review. Along with the offset proposal, a black cockatoo habitat assessment that was conducted within the offset site was also submitted to the department.
Neerabup industrial Area – Black cockatoo habitat survey (Ecoscape, 202b).	The City requested Ecoscape to conduct a black cockatoo habitat survey within the NIA as part of the EPBC application. The survey area also covered Lot 41 (Survey site 9). Therefore, results from this survey are used in the assessment of CPS 9515/1.

Appendix B. Site characteristics

B.1. Site characteristics

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

Characteristic	Details
Local context	The area proposed to be cleared is in the extensive land use zone of Western Australia. It is surrounded by intact native vegetation with the Mather Reserve to the east of the application area. The application area is within the Swan Coastal Plain Interim Biogeographical Regionalisation of Australia (IBRA). Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 29.7 per cent of the original native vegetation cover.
Ecological linkage	The application area is mapped within the Gnangara Ecological Linkage that is a Bush Forever associated with Conceptual Linkage and 128 meters north of a linkage identified in the Perth Regional Ecological Linkages.
Conservation areas	The application area is located within Bush Forever 295. Mather Reserve lies directly to the east of the application area consisting of approximately 50 hectares of native vegetation protected by DBCA.
Vegetation description	According to the flora and vegetation survey (Natural Area, 2021b), the vegetation within the proposed clearing area consists of one vegetation type, which is the *Eucalyptus marginata, Banksia attenuata* and *Allocasuarina fraseriana* Woodland. This consisted of *Eucalyptus marginata, Banksia attenuata* and *Allocasuarina fraseriana* Woodland over *Hibbertia hypericoides, Xanthorrhoea preissii* and mixed shrubland. Understory species comprised of *Mesomelaena pseudostygia*, mixed native herbs and sedges with weedy grasses present in more disturbed areas. Representative photos and maps are available in Appendix F. The mapped vegetation complex: • Cottesloe Complex-Central and South described as Mosaic of woodland of *Eucalyptus gomphocephala* (Tuart) and open forest *of Eucalyptus gomphocephala* (Tuart) - *Eucalyptus marginata* (Jarrah) - *Corymbia calophylla* (Marri); closed heath on the Limestone outcrops. The mapped vegetation complex retains approximately 32.16 per cent of the original extent (Government of Western Australia, 2019).
Vegetation condition	According to the flora and vegetation survey (Natural Area, 2021b) indicate the vegetation within the proposed clearing area is in excellent (Keighery, 1994) to

Characteristic	Details
	completely degraded (Keighery, 1994) condition, with majority of the vegetation in excellent condition. The full Keighery (1994) condition rating scale is provided in Appendix D. Representative photos and mapping are available in Appendix F.
Climate and landform	The climate experienced in the area is Mediterranean, with dry, hot summers and cool, wet winters. average rainfall is 762.1 millimetres per annum, with the majority falling between May and August. The application area is mapped within the Karrakatta sand yellow phase (211Sp_Ky) within the Spearwood system described as low hilly to gentle undulating terrain. The application area is situated in the topographic low point of the surrounding area.
Soil description	The soil is mapped as yellow sand over limestone at 1-2 metres.
Land degradation risk	Soils mapped within the clearing footprint have a high risk of wind erosion and subsurface acidification and a medium risk of phosphorus export. See land degradation table in Section B.5.
Waterbodies	The closest mapped wetland to the clearing footprint is Lake Pinjar, a conservation category sumpland located approximately 1.44 kilometres northeast of the application area. No watercourses are mapped within or in the vicinity of the application area.
Hydrogeography	The application area is not within a surface water proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act), or a gazetted Public Drinking Water Source Area. The clearing footprint is within the Wanneroo Groundwater Area proclaimed under the RIWI Act. Hydrogeology of the application area is surficial sediments to shallow aquifers (sand, gravel lithology). Groundwater salinity within the application area is mapped at less than 500 milligrams per litre total dissolved solids.
Flora	According to the desktop assessment, 30 species of conservation significant flora species are recorded from the local area, which comprise of four threatened and 26 priority flora. The most recorded conservation significant flora from the local area is the *Jacksonia sericea*. The closest recorded flora is *Cyathochaeta teretifolia*, located approximately 3.4 kilometres from the application area.
Ecological communities	The application area is not mapped within a known Priority Ecological Community or Threatened ecological community. However, there is the occurrence of *Banksia attenuata* woodlands over species rich dense shrublands (floristic community type 20a as originally described in Gibson et al. 1994) within the application area. The Banksia Woodlands of the Swan Coastal Plain ecological community mapped approximately 122 metres from the application area.
Fauna	According to the available databases, 41 conservation significant fauna records were identified from the local area with species of 22 birds, six invertebrates, ten mammals and three reptiles. The closest fauna record to the application area was a Carnaby's cockatoo located at approximately 349 metres. Carnaby's cockatoo was also the most recorded species from the local area. The application area is within the modelled distribution zone of the Carnaby's cockatoo. 51 confirmed roost sites and 17 breeding sites (14 artificial and 3 natural; 6 potential and 11 confirmed) was identified within a 12 km radius buffer from the application area.

B.2. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion*					
Swan Coastal Plain	1,501,221.93	579,813.47	38.62	222,916.97	14.85
Vegetation complex					
Cottesloe Complex-Central and South (52)	45,299.61	14,567.87	32.16	6,606.12	14.58
Local area					
10km radius	31,714.31	9,410.34	29.7	-	-

*Government of Western Australia (2019a)

**Government of Western Australia (2019b)

B.3. Flora analysis table

Significant flora identified from the local area that contains suitable habitat within the application area.

Species name	Conservation status	Distance of closest record to application area (km)	Number of known records (total)	Did survey identify [Y, N, N/A]
Baeckea sp. Limestone	Priority 1	5.29	7	N
Caladenia huegelii	Threatened	8.78	1	N
Jacksonia sericea	Priority 4	2.13	12	N
Leucopogon sp. Yanchep	Priority 3	8.71	1	N
Stylidium maritimum	Priority 3	8.63	5	N
Styphelia filifolia	Priority 3	5.01	2	N

B.4. Fauna analysis table

Significant fauna that are likely to occur within the application area

Species common name	Species scientific name	Conservation status	Number of known records (total)	Year of the most recent record	Distance of closest record to application area (km)	Are surveys adequate to identify ? [Y, N, N/A]
black-striped burrowing snake	*Neelaps calonotos*	P3	13	2017	5.47	Y
Carnaby's Cockatoo	*Zanda latirostris*	EN	636	2020	0.35	Y
Forest Red-tailed Black Cockatoo	*Calyptorhynchus banksii naso*	VU	6	2020	2.39	Y
Peregrine falcon	*Falco peregrinus*	OS	10	2013	2.70	Y

Species common name	Species scientific name	Conservation status	Number of known records (total)	Year of the most recent record	Distance of closest record to application area (km)	Are surveys adequate to identify ? [Y, N, N/A]
western brush wallaby	*Notamacropus Irma*	P4	8	2018	0.57	Y
White tailed black cockatoos	*Calyptorhynchus* sp	EN	25	2019	4.13	Y
woolybush bee	*Hylaeus globuliferus*	P3	9	1996	0.35	Y
Quenda, southwestern brown bandicoot Bandicoot	*isoodon fusciventer*	P4	116	2020	0.85	Y

EN: endangered, VU: vulnerable, P: priority. OS: Other Specially protected

B.5. Land degradation risk table

Risk categories	***Karrakatta Sand Yellow Phase (211Sp__Ky)***
Wind erosion	H2: >70% of the map unit has a high to extreme hazard
Water erosion	L1: <3% of the map unit has a very high to extreme hazard
Salinity	L1: <3% of the map unit has a moderate or high hazard or is presently saline
Subsurface Acidification	H2: >70% of the map unit has a high susceptibility
Flood risk	L1: <3% of the map unit has a moderate to high hazard
Water logging	L1: <3% of the map unit has a moderate to very high to risk
Phosphorus export risk	L2: 3-10% of the map unit has a high to extreme hazard

Appendix C. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: Vegetation within the area proposed to be cleared is not likely to contain locally or regionally significant flora, or higher diversity compared to the local area. The vegetation is representative of a floristic composition of a subgroup of the Banksia Woodlands of the Swan Coastal Plain but does not have its own conservation ratings for Western Australia or the Commonwealth and is not considered a TEC or PEC The area proposed to be cleared further contain significant habitat for black cockatoo species and likely to support other ground dwelling fauna species.	May be at variance	Yes *Refer to Section 3.2.1, above.*
Principle (b): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna."* Assessment: The area proposed to be cleared contains foraging habitat significant for black cockatoo species and may provide habitat for other conservation significant fauna species. Tracks and digging od the Priority four fauna, *Isoodon fusciventer* was identified during the survey of the application area.	At variance	Yes *Refer to Section 3.2.2, above.*
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: The area proposed to be cleared is unlikely to contain flora species listed under the BC Act. The survey did not identify any threatened flora within the application area.	Not likely to be at variance	Yes *Refer to Section 3.2.1, above.*
Principle (d): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community."* Assessment: The area proposed to be cleared does not contain species indicative of a threatened ecological community listed under the BC Act.	Not likely to be at variance	Yes *Refer to Section 3.2.1, above.*
Environmental value: significant remnant vegetation and conservation areas		
Principle (e): *"Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."* Assessment: The extents of the mapped vegetation type and native vegetation in the local area are inconsistent with the national objectives and targets for biodiversity conservation in Australia, that is to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001). However, within defined constrained areas on the Swan Coastal Plain, the Environmental Protection Authority has set a threshold for retention of 10 per cent of the pre-clearing extent of each	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
native vegetation complex. The area under application has been classified as a constrained area. The vegetation complex and the vegetation remaining within the local area of the application area is above the 10 per cent threshold. Although the application area is significant remnant due to its fauna and biodiversity values as well as forming a part of the Gnangara Ecological Linkage, as the application area is located within a defined constrained area and the mapped vegetation complex retain above 10 per cent native vegetation, the proposed cleating is not likely to be at variance to this principle.		
Principle (h): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area."* Assessment: The application area forms part of the Bush Forever site 295. The proposed clearing will result in a significant residual impact on Bush Forever area and required an offset to counterbalance the residual environmental impacts.	At variance	Yes *Refer to Section 3.2.3, above.*
Environmental value: land and water resources		
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment: No waterbodies are mapped within or near the application area and the vegetation present within the application area is not consistent with riparian vegetation.	Not likely to be at variance	No
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: The mapped soils are highly susceptible to wind erosion given the sandy nature of the soils. Noting the extent of the application area, and management measures outlined in the Construction Management Plan, the proposed clearing is not likely to have an appreciable impact on land degradation. No watercourse or wetlands are mapped within the application area. Given this and the mapped soil type, the application area is not likely to cause land degradation through water erosion, waterlogging and eutrophication. The applicant has developed a Construction Management Plan for the NIA development as part of the EPBC approval, which outlines management actions to be undertaken in order to minimise wind erosion during clearing and resource extraction operations. Groundwater salinity within the application area is mapped as less than 500 total dissolved solids, milligrams per litre. Given this, the proposed clearing is not likely to cause land degradation through primary or secondary salinity.	May be at variance	No
Principle (i): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water."* Assessment: Given no water courses, wetlands or Public Drinking Water Sources Areas are recorded within or in close proximity the application area, the proposed clearing is unlikely to impact surface or ground water quality.	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
Principle (j): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."* Assessment: The mapped soils and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding. Given the distance to the nearest waterbodies, the proposed clearing is unlikely to contribute to waterlogging.	Not likely to be at variance	No

Appendix D. Vegetation condition rating scale

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

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

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

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

Appendix E. Offset calculator value justification

Land acquisition offset for Carnaby's black cockatoos (EN) and Forest red tailed black cockatoos (VU).

Field Name	Description	Justification for value used
Area of impact (habitat/community) or Quantum of impact (features/individuals)	The area of habitat/community impacted, or number of features/individuals impacted	0.585 hectares of native vegetation that comprises of high-quality foraging habitat and suitable roosting habitat.
Quality of impacted area (habitat/community)	The quality score for area of habitat/community being impacted - a measure of how well a particular site supports a particular threatened species or ecological community and contributes to its ongoing viability	8 – the vegetation proposed for clearing are primary foraging habitat for the black cockatoos. 51 confirmed roost sites and 17 breeding sites (14 artificial and 3 natural; 6 potential and 11 confirmed) identified within a 12 km radius buffer. Evidence of foraging identified within application area.
Time over which loss is averted (habitat/community)	This describes the timeframe over which changes in the level of risk to the proposed offset site can be considered and quantified	20 - the offset site will be conserved in perpetuity under a conservation covenant. 20 years is the maximum value associated with this field.
Time until ecological benefit (habitat/community) or Time horizon (features/individuals)	This describes the estimated time (in years) that it will take for the main benefit of the quality (habitat/community) or value (features/individuals) improvement of the proposed offset to be realised	1 – offset area already provides ecological benefit
Start area (habitat/community) or Start value (features/individuals)	The area of habitat/community or number of features/individuals proposed to offset the impacts	Carnaby's: 5.92 hectares - an area of 5.56 is required to counterbalance the significant residual to Carnaby's foraging habitat by 100 per cent. FRTBC – 5.86 hectares - an area of 5.86 is required to counterbalance the significant residual to FRTBC foraging habitat by 100 per cent.
Start quality (habitat/community)	The quality score for the area of habitat/community proposed as an offset - a measure of how well a particular site supports a particular threatened species or ecological community and contributes to its ongoing viability	8 – Majority of the vegetation is in excellent condition (Keighery, 1994) and includes Eucalyptus and Banksia species that are primary foraging species for the Carnaby's and FRTBC. 8 habitat trees identified within offset area. 4 roosts within the local area with 18 WTBC breeding sites within 12 km buffer from offset area.
Future quality without offset (habitat/community) or Future value without offset (features/individuals)	The predicted future quality score (habitat/community) or value (features/individuals) of the proposed offset site without the offset	8- no significant change expected
Future quality with offset (habitat/community) or Future value with offset (features/individuals)	The predicted future quality score (habitat/community) or value (features/individuals) of the proposed offset site with the offset	8 - no significant change expected.
Risk of loss (%) without offset (habitat/community)	This describes the chance that the habitat/community on the proposed offset site will be completely lost (i.e. no longer hold any value for the protected matter of concern) over the foreseeable future without an offset	15% - the offset area is located within a rural zoning, and this is consistent with other decision making by the department. The City is not penalised for planning ahead and banking areas for future offsets.
Risk of loss (%) with offset (habitat/community)	This describes the chance that the habitat/community on the proposed offset site will be completely lost (i.e. no longer hold any value for the protected matter of concern) over the foreseeable future with an offset	5% - it is considered that the land ceded to DBCA will substantially reduce the risk of loss of the site.
Confidence in result (%)	The capacity of measures to mitigate risk of loss of the proposed offset site	90% - there is a high confidence in land ceded to DBCA for management.
% of impact offset	% of the significant residual impact that would be offset by the proposed offset (note: the offset calculations combined should equate to 100% for each residual impact)	Carnaby's: 100% - Obtained through the input of variables explained above. FRTBC: 100% - Obtained through the input of variables explained above.

Bush Forever offset calculation

Field Name	Description	Justification for value used
Area of impact (habitat/community) or Quantum of impact (features/individuals)	The area of habitat/community impacted, or number of features/individuals impacted	0.585 hectares of clearing within Bush Forever site 295
Quality of impacted area (habitat/community)	The quality score for area of habitat/community being impacted - a measure of how well a particular site supports a particular threatened species or ecological community and contributes to its ongoing viability	8 – the vegetation proposed for clearing is predominately in excellent condition,
Time over which loss is averted (habitat/community)	This describes the timeframe over which changes in the level of risk to the proposed offset site can be considered and quantified	20 - the offset site will be conserved in perpetuity under a conservation covenant. 20 years is the maximum value associated with this field.
Time until ecological benefit (habitat/community) or Time horizon (features/individuals)	This describes the estimated time (in years) that it will take for the main benefit of the quality (habitat/community) or value (features/individuals) improvement of the proposed offset to be realised	1 – offset area already provides ecological benefit
Start area (habitat/community) or Start value (features/individuals)	The area of habitat/community or number of features/individuals proposed to offset the impacts	1.17 – as per Appendix 4 of State Planning Policy 2.8 "bushland policy for the Perth metropolitan region" and as calculated by the metric calculator.
Start quality (habitat/community)	The quality score for the area of habitat/community proposed as an offset - a measure of how well a particular site supports a particular threatened species or ecological community and contributes to its ongoing viability	8 – Majority of the vegetation is in excellent condition (Keighery, 1994) and is located adjacent to the application area.
Future quality without offset (habitat/community) or Future value without offset (features/individuals)	The predicted future quality score (habitat/community) or value (features/individuals) of the proposed offset site without the offset	8- no significant change expected
Future quality with offset (habitat/community) or Future value with offset (features/individuals)	The predicted future quality score (habitat/community) or value (features/individuals) of the proposed offset site with the offset	8 - no significant change expected.
Risk of loss (%) without offset (habitat/community)	This describes the chance that the habitat/community on the proposed offset site will be completely lost (i.e. no longer hold any value for the protected matter of concern) over the foreseeable future without an offset	5% - the offset area is already vested under conservation due to the impact from a previous clearing permit for black cockatoo foraging habitat.
Risk of loss (%) with offset (habitat/community)	This describes the chance that the habitat/community on the proposed offset site will be completely lost (i.e. no longer hold any value for the protected matter of concern) over the foreseeable future with an offset	5% - it is considered that the land vested under conservation has a low risk of loss
Confidence in result (%)	The capacity of measures to mitigate risk of loss of the proposed offset site	90% - there is a high confidence in land added into bushforever
% of impact offset	% of the significant residual impact that would be offset by the proposed offset (note: the offset calculations combined should equate to 100% for each residual impact)	Carnaby's: 100% - Obtained through the input of variables explained above. FRTBC: 100% - Obtained through the input of variables explained above.

Appendix F. Biological survey information excerpts, photographs of the vegetation and other matters (Natural Area, 2021a; Natural Area, 2021b; Ecoscape, 2020a)

Figure 3-4: Photographs from the application area

Table 1: Black cockatoo hollows identified within the survey area (Site 9 represents the applciation area)

Site No.	Class 3	Class 4	Class 5	Total
2	1	19	46	66
3	0	0	2	2
4	12	63	275	350
5	0	0	0	0
6	0	0	2	2
9	0	2	3	5
Totals	13	84	328	425

Table 2: A description of each class category

Table 2: Grading system for the assessment of potential nest trees for Black Cockatoos (Bamford 2016)

Class	Description of Tree and Hollows/Activity
1	Active nest observed; adult (or immature) bird seen entering or emerging from hollow.
2	Hollow of suitable size and angle (i.e. near-vertical) visible with chew marks around entrance.
3	Potentially suitable hollow visible but no chew marks present; or potentially suitable hollow present (as suggested by structure of tree, such as large, vertical trunk broken off at a height of >10m).
4	Tree with large hollows or broken branches that might contain large hollows, but hollows or potential hollows are not vertical or near-vertical; thus, a tree with or likely to have hollows of sufficient size but not to have hollows of the angle preferred by Black Cockatoos.
5	Tree lacking large hollows or broken branches that might have large hollows; a tree with more or less intact branches and a spreading crown.

Table 3: further details regarding the black cockatoo habitat trees identified within the application area.

Tree number	Tree species	Tree Class	Location (Easting and Northing)	Size DBH (mm)	Number of Hollows present	If present, are the hollows suitable for Black cockatoo's	Nests present in hollows
410	*Eucalyptus marginata* (Jarrah)	Class 5	115.7895167 -31.68445083	702	0	Of the 6 trees located within Lot 41; 2x are Class 4 trees and 4x are Class 5 trees. Therefore, as none of the 6 trees located within Lot 41 are Class 3 trees, the hollows present are not of sufficient size and suitability for use by Black Cockatoo species (Ecoscape, 2019).	None of the 6 trees were determined to be suitable for nesting due to the size of the hollows (Ecoscape, 2019).
411	*Eucalyptus marginata* (Jarrah)	Class 4	115.789809 -31.68441318	843	1		
412	*Eucalyptus marginata* (Jarrah)	Class 5	115.7898904 -31.68444129	533	0		
413	*Eucalyptus marginata* (Jarrah)	Class 4	115.7899087 -31.68448507	1077	1		
415	*Eucalyptus marginata* (Jarrah)	Class 5	115.7897432 -31.6842111	578	0		
416	*Eucalyptus marginata* (Jarrah)	Class 5	115.789966 -31.68403026	990	0		

Table 4: black cockatoo foraging scores within the application area

SITE 9

Table 24: Carnaby's Cockatoo foraging habitat assessment

Score	Attributes
Starting Score	Foraging habitat for Carnaby's Cockatoo
7	Native shrubland, kwongan heathland and woodland dominated by proteaceous plant species such as Banksia spp. (including Dryandra spp.), Hakea spp. and Grevillea spp., as well as native eucalypt woodland and forest that contains foraging species, including along roadsides. Does not include orchards, canola, or areas under an RFA
Additions	Context adjustor - attributes improving functionality of foraging habitat
+3	Is within the Swan Coastal Plain (important foraging area)
+2	Contains trees with potential to be used for breeding (dbh ≥ 500 mm or ≥ 300 mm dbh for salmon gum and wandoo).
Subtractions	Context adjustor - attributes reducing functionality of foraging habitat
-2	No clear evidence of feeding debris
10	Final Score

Table 25: Forest Red-tailed Black Cockatoo foraging habitat assessment

Score	Attributes
Starting Score	Foraging habitat for Forest Red-tailed Black Cockatoo
7	Jarrah and marri woodlands and forest, and edges of karri forests, including wandoo and blackbutt, within the range of the subspecies, including along roadsides. Does not include areas under an RFA.
Additions	Context adjustor - attributes improving functionality of foraging habitat
+2	Contains trees with potential to be used for breeding (dbh ≥ 500 mm or ≥ 300 mm dbh for salmon gum and wandoo).
Subtractions	Context adjustor - attributes reducing functionality of foraging habitat
9	Final Score

Table 5: Vegetation condition within Lot 41.

Table 10: Vegetation condition Lot 41 Mather Drive

Vegetation Condition	Excellent	Very Good	Good	Degraded	Completely Degraded	Totals
Area (ha)	0.5	0	0	0	0.2	0.7
Area (%)	71.4	0	0	0	28.6	100

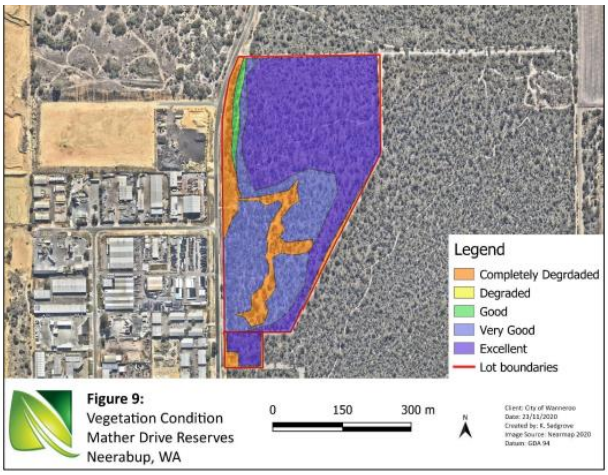

Figure 9:
Vegetation Condition
Mather Drive Reserves
Neerabup, WA

Figure 5: A map representing the vegetation condition within the survey area.

Figure 6: A map representing the location of the black cockatoo habitat trees within the survey area

Figure 7: A map representing foraging habitat scoring within the survey area

Table 7: Mather Drive quadrat comparison with Banksia TEC quadrats from Gibson *et al.* (1994)

Mather Drive Quadrats	Similarity with SCP 21a (%)	Comments
Lot 41		
Q1	17.2	Average 19.3% similarity which is low and not considered significant and is not considered to be the SCP21a community
Q2	23.4	
Q3	19.2	
Lot 9100		
Q1	23.4	Average 25.3% similarity which is low and not considered significant and is not considered to be the SCP21a community
Q2	21.9	
Q3	30.7	
Mather Drive Road Reserve		
Q1	10.8	Average 10.6% similarity which is very low and not considered significant and is not considered to be the SCP21a community
Q2	6.45	
Q3	14.5	

Figure 8: An excerpt from the flora and vegetation report in regard to ecological community assessment.

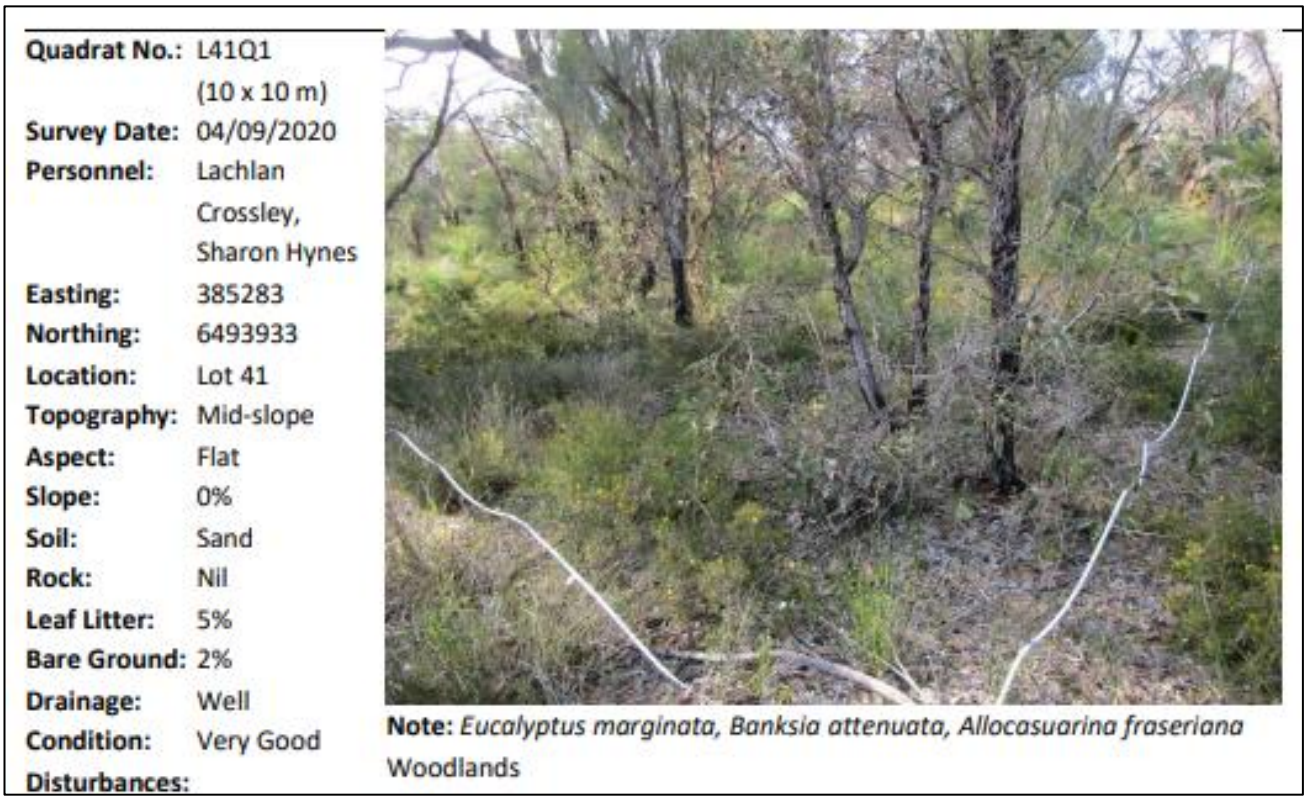

Figure 9: details identified within Quadrat No. L41Q1 within the application area.

Quadrat No.:	L41Q2 (10 x 10 m)
Survey Date:	04/09/2020
Personnel:	Lachlan Crossley, Sharon Hynes
Easting:	385302
Northing:	6493953
Location:	Lot 41
Topography:	Plain
Aspect:	Flat
Slope:	0%
Soil:	Sand
Rock:	Nil
Leaf Litter:	10%
Bare Ground:	0%
Drainage:	Well
Condition:	Very Good
Disturbances:	Areas cleared for firebreak

Note: *Banksia attenuata* and *Allocasuarina fraseriana* Woodlands

Figure 10: details identified within Quadrat No. L41Q2 within the application area.

Quadrat No.:	L41Q3 (10 x 10 m)
Survey Date:	04/09/2020
Personnel:	Lachlan Crossley, Sharon Hynes
Easting:	385300
Northing:	6493893
Location:	Lot 41
Topography:	Plain
Aspect:	Flat
Slope:	0%
Soil:	Sand
Rock:	Nil
Leaf Litter:	15%
Bare Ground:	1%
Drainage:	Well
Condition:	Very Good
Disturbances:	Fire <5yrs

Note: *Eucalyptus marginata, Banksia attenuata, Allocasuarina fraseriana* Woodlands

Figure 11: details identified within Quadrat No. L41Q3 within the application area.

Date of decision	Schedule 1 – Proposal Area - Neerabup Industrial Area – Site Plan
As varied on the date this instrument was signed	

Figure 12: A map representing the area approved under EPBC 2007/3479

Appendix H. Sources of information

H.1. GIS databases

Publicly available GIS Databases used (sourced from www.data.wa.gov.au):

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems
- Wheatbelt Wetlands Stage 1 (DBCA-021)

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
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