GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 9182/1
Permit Holder:	City of Albany
Duration of Permit:	From 29 January 2024 to 29 January 2034

The permit holder is authorised to clear *native vegetation* subject to the following conditions of this permit.

PART I – CLEARING AUTHORISED

1. Clearing authorised (purpose)

The permit holder is authorised to clear *native vegetation* for the purpose of constructing a network of trail links within the Albany Heritage Park.

2. Land on which clearing is to be done

Lot 301 on Deposited Plan 69372 (Crown Reserve 16692), Mount Clarence
Lot 302 on Deposited Plan 69372 (Crown Reserve 16692), Mount Clarence
Lot 502 on Deposited Plan 57368 (Crown Reserve 2682), Mount Clarence
Lot 508 on Deposited Plan 64941 (Crown Reserve 2682), Mount Clarence
Lot 550 on Deposited Plan 58079 (Crown Reserve 16746), Mount Clarence
Lot 555 on Deposited Plan 75417 (Crown Reserve 38226), Mount Clarence
Lot 993 on Deposited Plan 206527 (Crown Reserve 27068), Port Albany
Lot 1005 on Deposited Plan 206527 (Crown Reserve 27068), Port Albany
Lot 1121 on Plan 6625 (Crown Reserve 27068), Port Albany
Lot 1149 on Deposited Plan 203497 (Crown Reserve 27068), Port Albany
Marine Drive Road Reserve (PIN 11395559), Mount Clarence
Marine Terrace Road Reserve (PIN 1277519), Mount Clarence
Marine Terrace Road Reserve (PIN 1281489), Mount Clarence
Mill Street Road Reserve (PIN 11470975), Mount Clarence
Watkins Road Reserve (PIN 11470974), Mount Clarence
Unnamed Road Reserve (PIN 598037), Mount Clarence

3. Clearing authorised

The permit holder must not clear more than 3.16 hectares of *native vegetation* within the combined areas cross-hatched yellow in Figure 1 of Schedule 1.

4. Period during which clearing is authorised

The permit holder must not clear any *native vegetation* after 29 January 2029.

PART II – MANAGEMENT CONDITIONS

5. Avoid, minimise, and reduce impacts and extent of clearing

In determining the *native vegetation* authorised to be cleared under this permit, the permit holder must apply the following principles, set out in descending order of preference:

(a) avoid the clearing of *native vegetation*;

(b) minimise the amount of *native vegetation* to be cleared; and

(c) reduce the impact of clearing on any environmental value.

6. Weed and dieback management

When undertaking any clearing authorised under this permit, the permit holder must take the following measures to minimise the risk of introduction and spread of *weeds* and *dieback*:

(a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;

(b) ensure that no known *dieback* or *weed*-affected soil, *mulch*, *fill*, or other material is brought into the area to be cleared; and

(c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

7. Directional clearing

The permit holder must:

(a) conduct clearing activities in a slow, progressive manner towards adjacent *native vegetation*; and

(b) allow a reasonable time for fauna present within the area being cleared to move into adjacent *native vegetation* ahead of the clearing activity.

8. Flora management

(a) Prior to undertaking any clearing authorised under this permit within the combined areas cross-hatched yellow on Figure 1 of Schedule 1, the permit holder must:

(i) Ensure that the boundaries of the area to be cleared are identified and demarcated using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA2020), expressing the geographical coordinates in Eastings and Northings or decimal degrees;

(ii) Ensure that *recorded priority flora* are identified within the clearing boundary using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA2020), expressing the geographical coordinates in Eastings and Northings or decimal degrees; and

(iii) Engage a *botanist* to conduct a *targeted flora survey* of the areas cross-hatched red on Figure 2 of Schedule 1 for the presence of *Caladenia harringtoniae*.

(b) When undertaking any clearing authorised under this permit, the permit holder must not cause or allow:

(i) The clearing of more than the *recorded priority flora* within the clearing boundary, with the exception of *Synaphea preissii* (Priority 3) which must not be cleared; and

(ii) Clearing within 50 metres of each *Caladenia harringtoniae* identified in accordance with condition 8(a)(iii).

(c) If *Caladenia harringtoniae* are identified within the areas cross-hatched red on Figure 2 of Schedule 1, the permit holder must provide the results of the *targeted flora survey* in a report to the *CEO* within two months of undertaking the clearing authorised under this permit within the combined areas cross-hatched yellow on Figure 1 of Schedule 1.

(d) The *targeted flora survey* report prepared in accordance with condition 8(c) must include the following:

(i) the location of each *Caladenia harringtoniae*, identified under condition 8(a)(iii), either as the location of individual plants, or where this is not practical, the areal extent of the population and an estimate of the number of plants, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA2020), expressing the geographical coordinates in Eastings and Northings or decimal degrees; and

(ii) the methodology used to survey the permit area.

9. Fauna management – black cockatoo habitat

(a) Prior to undertaking any clearing authorised under this permit within the combined areas cross-hatched yellow on Figure 1 of Schedule 1, the permit holder must demarcate the nine (9) *black cockatoo habitat trees* at the locations in Table 1.

Table 1. Locations of habitat trees to be retained.

Species	Latitude	Longitude
Unknown (dead)	-35.02613	117.90477
Marri (*Corymbia calophylla*)	-35.02844	117.91434
Marri (*Corymbia calophylla*)	-35.02840	117.91466
Marri (*Corymbia calophylla*)	-35.02827	117.91462
Jarrah (*Eucalyptus marginata*)	-35.02820	117.91457
Jarrah (*Eucalyptus marginata*)	-35.02863	117.91626
Jarrah (*Eucalyptus marginata*)	-35.02858	117.91707

(b) The permit holder must not clear the trees as described in condition 8(a).

10. Fauna management – western ringtail possums

(a) In relation to the area cross-hatched yellow in Figure 1 of Schedule 1, the permit holder must engage a *fauna specialist* to inspect that area, including all trees, dreys and tree hollows present, immediately prior to, and for the duration of clearing

activities, for the presence of western ringtail possum(s) (*Pseudocheirus occidentalis*).

(b) When undertaking any clearing authorised under this permit, the permit holder must not cause or allow the removal of any western ringtail possum dreys.

(c) The permit holder must avoid the clearing of trees greater than 100 millimetres Diameter at Breast Height, where possible.

(d) Clearing activities must cease in any area where fauna referred to in condition 10(a) are identified until either:

(i) the western ringtail possum(s) individual has moved on from that area to adjoining *suitable habitat*; or

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

(e) Any western ringtail possum(s) individual removed in accordance with condition 10(c)(ii) must be relocated by a *western ringtail possum specialist* to adjacent *suitable habitat*.

(f) Where fauna is identified under condition 10(a), the permit holder must within 14 calendar days provide the following records to the *CEO*:

(i) the number of individuals identified;
(ii) the date each individual was identified;
(iii) the location where each individual was identified recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA2020), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
(iv) the number of individuals removed and relocated;
(v) the relevant qualifications of the *western ringtail possum specialist* undertaking removal and relocation;
(vi) the date each individual was removed;
(vii) the method of removal;
(viii) the date each individual was relocated;
(ix) the location where each individual was relocated to, recorded using a GPS unit set to GDA2020, expressing the geographical coordinates in Eastings and Northings or decimal degrees; and
(x) details pertaining to the circumstances of any death of, or injury sustained by, an individual.

11. Offset – revegetation and rehabilitation

Within 18 months of the commencement of clearing authorised under this permit and no later than 29 January 2029, the permit holder must implement and adhere to the *'City of Albany, Albany Heritage Park Trails Link Project Rehabilitation Management Plan, 16 January 2023, 63718-149202 (Rev 0)'*, including but not limited to the following actions:

(a) retain the vegetative material and topsoil removed by clearing authorised under this permit and stockpile the vegetative material and topsoil in an area that has already been cleared within the 8.16 hectare area cross-hatched red on Figure 2 of Schedule 1, within Crown Reserve 2682, Crown Reserve 27068, and Crown Reserve 38226, Mount Clarence.

(b) commence *revegetating* and *rehabilitating* 8.16 hectares within the areas cross-hatched red on Figure 2 of Schedule 1, by way of:

(i) laying the vegetative material and topsoil retained under condition 11(a);

(ii) ripping the soil prior to *planting*;

(iii) undertaking erosion control such as coir netting and jute matting;

(iv) deliberately *planting* tube stock, and *direct seeding* and salvaged *native vegetation* that will result in similar species composition, structure and density of native vegetation of the *reference site*; and

(v) ensuring only *local provenance* seeds and propagating material are used to *revegetate* and *rehabilitate* the area.

(c) undertake *weed* control activities for a minimum of 12 months prior to *planting* and/or *direct seeding* and annually for a minimum six-year period or until the until the completion criteria, as listed in Table 1 of Schedule 2, have been met;

(d) install signage to educate reserve users of the *revegetation* activities being undertaken;

(e) fencing of the offset site prior to *revegetation* activities commencing and undertake regular monitoring of the fence for the entire duration of this permit;

(f) establish a minimum of seven 10 x 10 metre quadrat monitoring sites within the areas *revegetated* and *rehabilitated* under this permit;

(g) implement hygiene protocols by cleaning earth-moving machinery of soil and vegetation prior to entering and leaving the site;

(h) achieve the completion criteria specified in Table 1 of Schedule 2 of this permit after the six-year monitoring period for areas *revegetated* and *rehabilitated* under this permit; and

(i) undertake *remedial actions* for areas *revegetated* and *rehabilitated* where monitoring indicates that revegetation has not met the completion criteria, outlined in Table 1 of Schedule 2 of this permit, including:

(i) *revegetate* the area by deliberately *planting native vegetation* that will result in the minimum target in Table 1 of Schedule 2 of this permit and ensuring only *local provenance* seeds and propagating material are used;

(ii) undertake further *weed control* activities; and

(iii) annual monitoring of each *revegetated* and *rehabilitated* site, until the completion criteria, outlined in Table 1 of Schedule 2 of this permit, are met.

12. Offset – Lot 172 on Deposited Plan 222002

Within 12 months of the commencement of clearing authorised under this permit, and no later than 29 January 2029, the permit holder must:

(a) provide the *CEO* a copy of the executed transfer of the areas cross-hatched red on Figure 3 of Schedule 1 from freehold Lot 172 on Deposited Plan 222002 to Crown Reserve 2682, to be vested in 'Public Park and Conservation';

(b) implement and adhere to the *'City of Albany, Weed Management Plan, Reserve 2682, Albany Heritage Park and Lot 172 on Deposited Plan 222002, Version 1, October 2023'*, including but not limited to the following actions:

(i) undertake *weed* control activities to reduce the extent and prevent the spread of *weed* species;

(ii) facilitate the closure of unauthorised driveways and access points traversing Lot 172 on Deposited Plan 222002; and

(iii) undertake annual monitoring against the completion criteria specified in Table 2 of Schedule 2 of this permit for a minimum six-year monitoring period and until the completion criteria are met.

(c) achieve the completion criteria specified in Table 2 of Schedule 2 of this permit after the six-year monitoring period for the areas cross-hatched red on Figure 3 of Schedule 1; and

(d) undertake remedial actions for the areas cross-hatched red on Figure 3 of Schedule 1 where monitoring indicates that *weed* control has not met the completion criteria, outlined in Table 2 of Schedule 2 of this permit.

13. Offset – Crown Reserve 2682

Within 12 months of the commencement of clearing authorised under this permit, and no later than 29 January 2029, the permit holder must:

(a) provide the *CEO* a copy of the executed change in purpose of the areas cross-hatched red on Figure 4 of Schedule 1 within Crown Reserve 2682 from 'Public Park' to 'Public Park and Conservation';

(b) implement and adhere to the *'City of Albany, Weed Management Plan, Reserve 2682, Albany Heritage Park and Lot 172 on Deposited Plan 222002, Version 1, October 2023'*, including but not limited to the following actions:

  (i) undertake *weed* control activities to reduce the extent and prevent the spread of *weed* species; and

  (ii) undertake annual monitoring against the completion criteria specified in Table 2 of Schedule 2 of this permit for a minimum six-year monitoring period and until the completion criteria are met.

(c) achieve the completion criteria specified in Table 2 of Schedule 2 of this permit after the six-year monitoring period for the areas cross-hatched red on Figure 4 of Schedule 1; and

(d) undertake remedial actions for the areas cross-hatched red on Figure 4 of Schedule 1 where monitoring indicates that *weed* control has not met the completion criteria, outlined in Table 2 of Schedule 2 of this permit.

PART III - RECORD KEEPING AND REPORTING

14. Records that must be kept

The permit holder must maintain records relating to the listed relevant matters in accordance with the specifications detailed in Table 2.

Table 2: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	(a) the species composition, structure, and density of the cleared area; (b) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA2020), expressing the geographical coordinates in Eastings and Northings; (c) the date that the area was cleared; (d) the size of the area cleared (in hectares); (e) actions taken to avoid, minimise, and

No.	Relevant matter	Specifications
		reduce the impacts and extent of clearing in accordance with condition 5; and (f) actions taken to minimise the risk of the introduction and spread of *weeds* and *dieback* in accordance with condition 6; (g) actions taken to undertake directional clearing in accordance with condition 7; (h) actions taken to retain *black cockatoo habitat trees* in accordance with condition 9; and (i) actions taken to manage and mitigate impacts to western ringtail possums in accordance with condition 10.
2.	In relation to flora management pursuant to condition 7	(a) the date *recorded priority flora* species were cleared; (b) the *recorded priority flora* taxa and number of individuals cleared; (c) the location of *recorded priority flora* taxa cleared, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA2020), expressing the geographical coordinates in Eastings and Northings; (d) If *Caladenia harringtoniae* are identified, a copy of the *targeted flora survey* report; and (e) actions taken to avoid the clearing of *Caladenia harringtoniae* and to avoid clearing of the *recorded priority flora* species and , where practicable.
3.	In relation to the *revegetation* and *rehabilitation* of areas pursuant to condition 11	(a) a description of the *revegetation* and *rehabilitation* activities undertaken; (b) the size of the area *revegetated* and *rehabilitated*; (c) the date/s on which the *revegetation* and *rehabilitation* was undertaken; (d) the boundaries of the area *revegetated* and *rehabilitated*, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA2020), expressing the geographical coordinates in Eastings and Northings; (e) results of annual monitoring against the completion criteria (f) the date completion criteria are considered to have been met; and (g) any other actions taken in accordance

No.	Relevant matter	Specifications
		with condition 11.
4.	In relation to the offsets pursuant to conditions 12 and 13	(a) a description of the *weed* control activities undertaken; (b) the date/s on which *weed* control activities were undertaken; (c) results of annual monitoring against the completion criteria; (d) the dates completion criteria have been met; and (e) any other activities taken in accordance with conditions 12 and 13.

15. Reporting

(a) The permit holder must provide to the *CEO*, on or before 30 June of each calendar year, a written report conditioning:

(i) the records required to be kept under condition 14; and

(ii) records of activities done by the permit holder under this permit between 1 January and 31 December of the preceding calendar year.

(b) If no clearing authorised under this permit has been undertaken, a written report confirming that no clearing under this permit has been undertaken must be provided to the *CEO* on or before 30 June of each calendar year.

(c) The permit holder must provide to the *CEO*, no later than 90 days prior to the expiry date of the permit, a written report of records required under condition 14, where these records have not already been provided under condition 15(a).

DEFINITIONS

In this permit, the terms in Table 3 have the meanings defined.

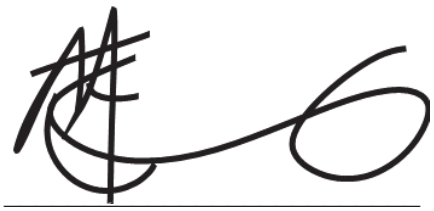
Table 3: Definitions

Term	Definition
black cockatoo habitat trees	means trees that have a diameter, measured at 130 centimetres from the base of the tree, of 50 centimetres or greater (or 30 centimetres or greater for *Eucalyptus salmonophloia* or *Eucalyptus wandoo*) that contain hollows suitable for breeding by *black cockatoo species.*
black cockatoo species	means one or more of the following species: (a) *Calyptorhynchus lateriosis* (Carnaby's cockatoo); (b) *Calyptorhynchus baudinii* (Baudin's cockatoo); and/or (c) *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo).
botanist	means a person who holds a tertiary qualification specialising in environmental science or equivalent, and has a minimum of two (2) years work experience in Western Australian flora identification and undertaking flora surveys native to the bioregion being inspected or surveyed, or who is approved by the *CEO* as a suitable botanist for the bioregion, and who holds a valid flora licence issued under the *Biodiversity Conservation Act 2016.*
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the *Environmental*

Term	Definition
	Protection Act 1986.
clearing	has the meaning given under section 3(1) of the EP Act.
condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
dieback	means the effect of *Phytophthora* species on native vegetation.
department	means the department established under section 35 of the *Public Sector Management Act 1994* (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
direct seeding	means a method of re-establishing *native vegetation* through the establishment of a seed bed and the introduction of seeds of the desired plant species.
EP Act	*Environmental Protection Act 1986* (WA)
fauna specialist	means a person who holds a tertiary qualification specialising in environmental science or equivalent, and has a minimum of 2 years work experience in fauna identification and surveys of fauna native to the region being inspected or surveyed, or who is approved by the *CEO* as a suitable fauna specialist for the bioregion, and who holds a valid fauna licence issued under the *Biodiversity Conservation Act 2016*.
fill	means material used to increase the ground level, or to fill a depression.
local provenance	means *native vegetation* seeds and propagating material from natural sources within 50 kilometres and the same IBRA subregion of the area cleared.
mulch	means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation.
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
optimal time	means the period from April to July for undertaking *planting* and *direct seeding*.
planting	means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species
priority flora	means those plant taxa described as priority flora classes 1, 2, 3, or 4 in the Department of Biodiversity, Conservation and Attractions Threatened and Priority Flora List for Western Australia (as amended from time to time).
recorded	means individuals of those *priority flora* species found within the area cross-hatched yellow in Figure 1 of Schedule 1 during the following surveys: (a) *Flora survey: Albany Heritage Park Trail Network 2020* (Southern Ecology, 2020); and (b) *Addendum: Flora Survey: Albany Heritage Park Trail Network 2020* (Southern Ecology, 2022).
reference sites	means nearby sites used to provide baseline data for planning a *revegetation* project. Measurements from fixed reference points or plots where biodiversity components are measured are used to set measurable completion criteria for r*evegetation* projects. The reference sites must contain the following values: (a) significant habitat for western ringtail possums (*Pseudocheirus occidentalis*);

Term	Definition
	(b) significant foraging habitat for *black cockatoo species*; and (c) vegetation in an Excellent (Keighery, 1994) or better condition.
regenerate / regenerated / regeneration	means re-establishment of native vegetation from in situ seed banks and propagating material (such as lignotubers, bulbs, rhizomes) contained either within the topsoil or seed-bearing mulch.
rehabilitate / rehabilitated / rehabilitation	means actively managing an area containing *native vegetation* in order to improve the ecological function of that area.
remedial action/s	means any activity that is required to ensure successful re-establishment of *native vegetation* to its pre-clearing composition, structure and density, and may include a combination of soil treatments and *revegetation*.
revegetate / vegetated / revegetation	means the re-establishment of a cover of *local provenance native vegetation* in an area using methods such as natural *regeneration*, *direct seeding* and/or *planting*, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area.
suitable habitat (western ringtail possum)	means habitat known to support western ringtail possums (*Pseudocheirus occidentalis*) within the known current distribution of the species, typically characterised by abundant foliage, presence of suitable nesting structures such as tree hollows, as well as high canopy cover and continuity. Known habitat includes peppermint (*Agonis flexuosa*) dominated woodlands, jarrah (*Eucalyptus marginata*) and marri (*Corymbia calophylla*) forests, riparian vegetation with a canopy of Bullich (*Eucalyptus megacarpa*) or flooded gum (*Eucalyptus rudis*), karri (*Eucalyptus diversicolor*) forests, sheoak (*Allocasuarina fraseriana*) dominated woodlands, and other stands of myrtaceous trees growing near swamps, watercourses or floodplains.
weeds	means any plant – (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.
western ringtail possum specialist	means a *fauna specialist* who holds a tertiary qualification specialising in environmental science or equivalent, has a minimum of two years of work experience in western ringtail possum (*Pseudocheirus occidentalis*) identification, surveys of western ringtail possums and capture and handling of western ringtail possums, and holds a valid fauna licence issued under the *Biodiversity Conservation Act 2016*.

END OF CONDITIONS



Mathew Gannaway
MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

4 January 2024

Schedule 1

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

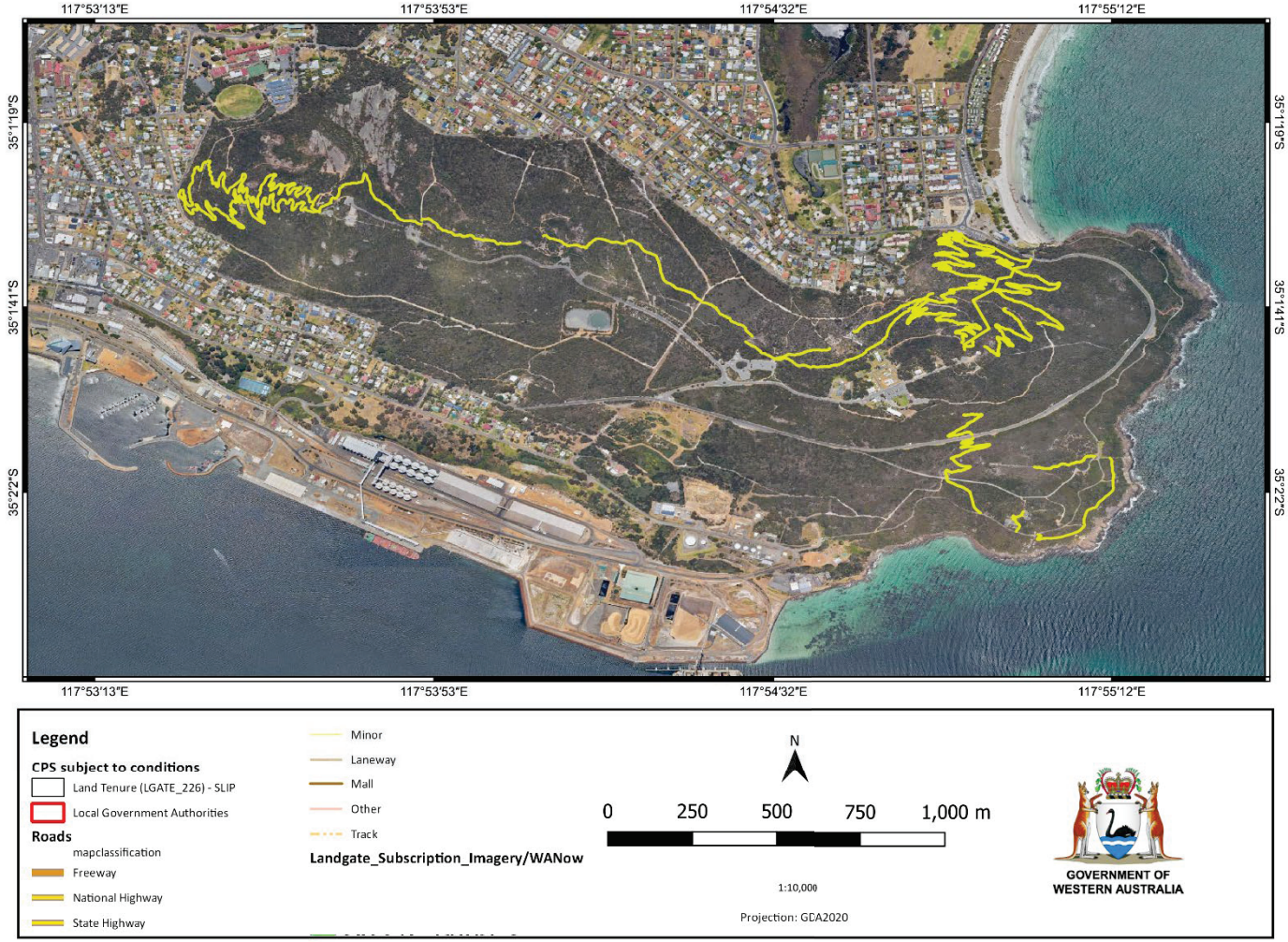


Figure 1: Map of the boundary of the area within which clearing may occur.

The boundary of the areas subject to condition 11 is shown in the map below (Figure 2).

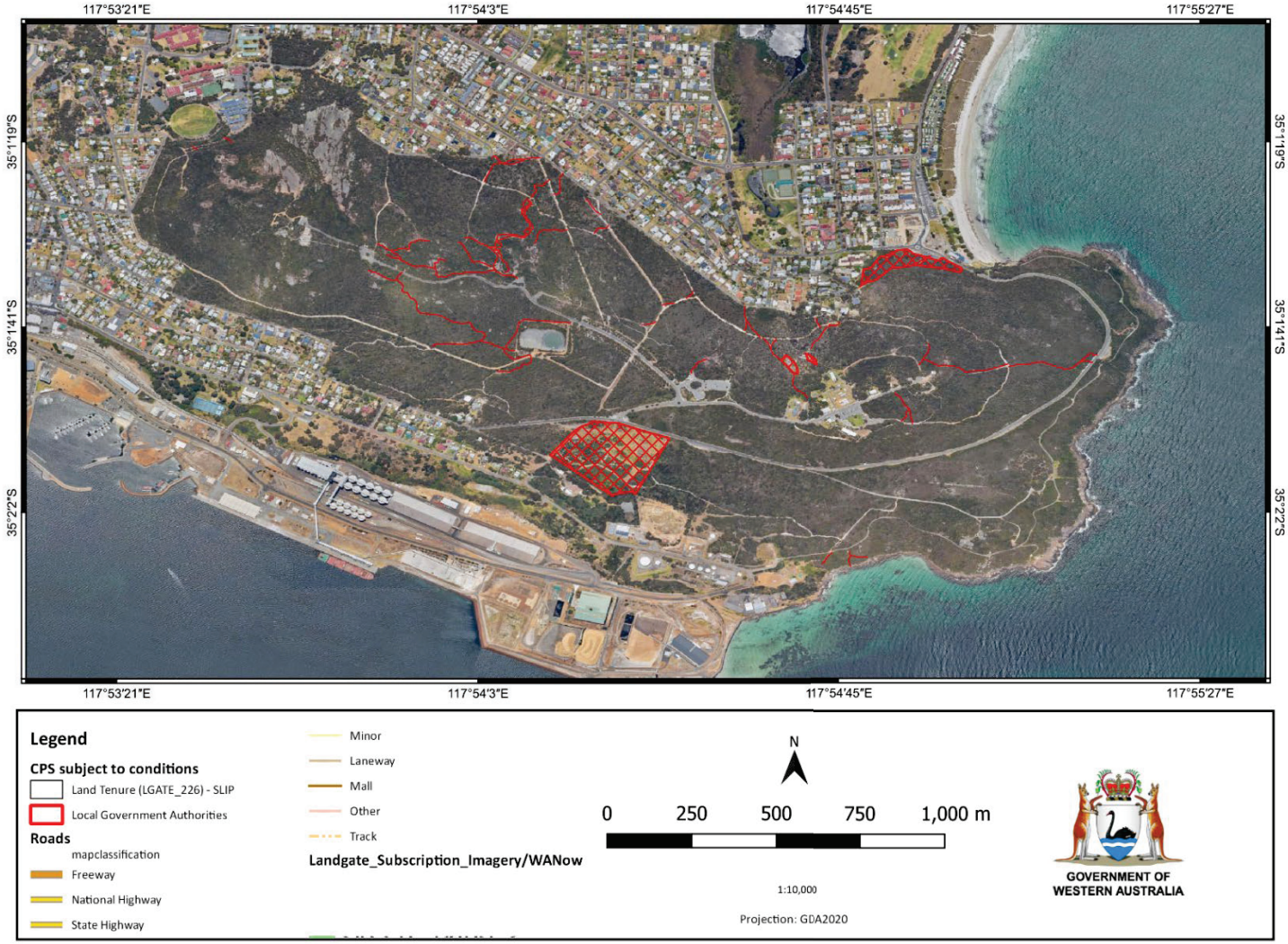


Figure 2: Map of the boundary of the areas (cross-hatched red) within which condition 11 applies.

The boundary of the areas subject to condition 12 is shown in the map below (Figure 3).

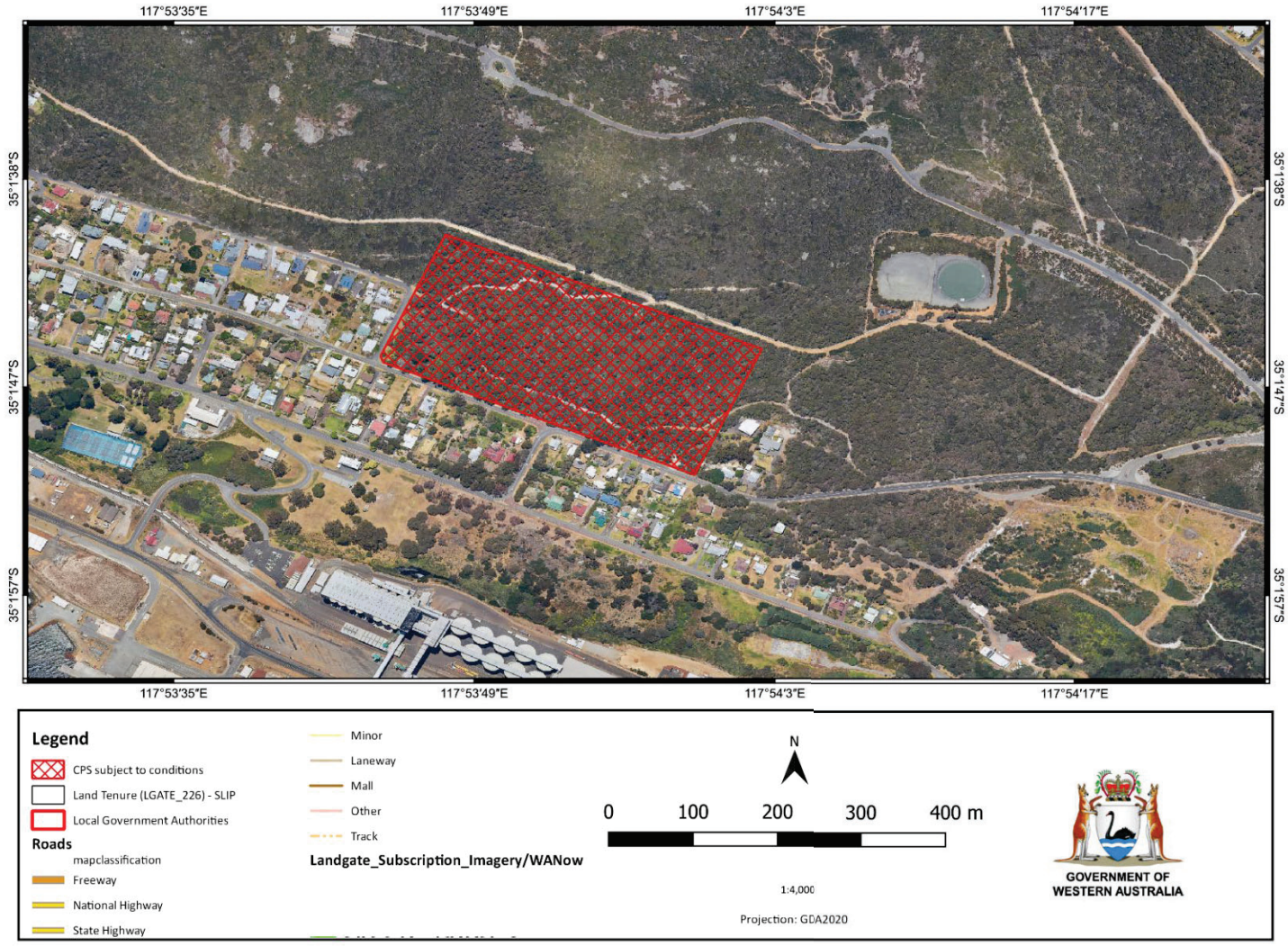


Figure 3: Map of the boundary of the areas (cross-hatched red) within which condition 12 applies.

The boundary of the area subject to condition 13 is shown in the map below (Figure 4).

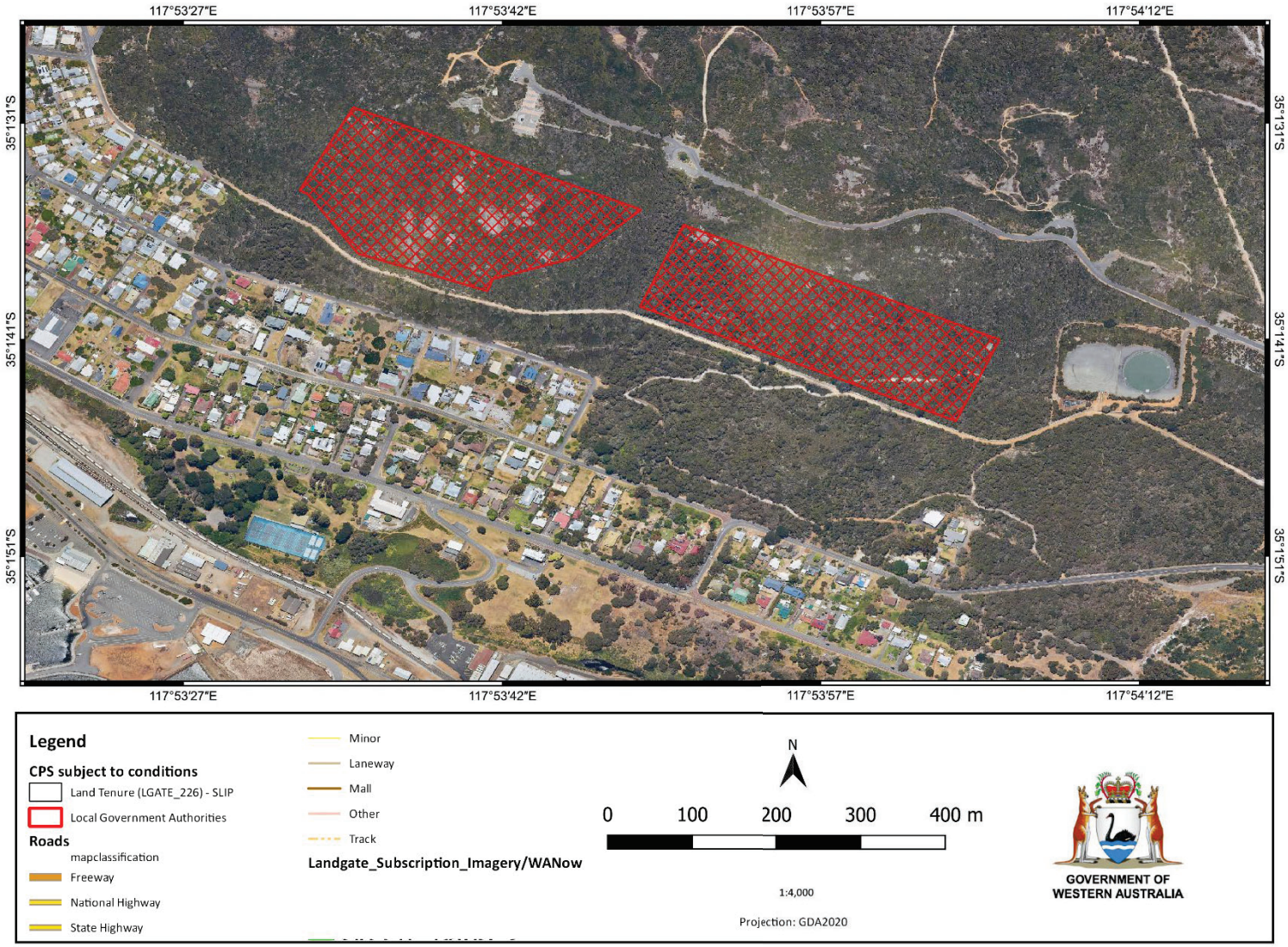


Figure 4: Map of the boundary of the areas (cross-hatched red) within which condition 13 applies.

Schedule 2

Table 1. Rehabilitation Management Plan completion targets and criteria.

Aspect	Completion targets	Completion criteria	Monitoring
1) Species richness	Minimum of 60% native species richness returned, based on reference sites.	In *Corymbia calophylla* (Marri)/*Eucalyptus marginata* (Jarrah) Coastal Hills Forest, a minimum species richness of 18 native species returned.	Species richness will be monitored annually in Spring within a minimum of seven permanent monitoring quadrats across the different vegetation types, for a minimum six-year monitoring period and until all completion targets and criteria are met.
		In *Melaleuca persiana* Low Woodland, a minimum species richness of 15 native species returned.	
		In *Jarrah/Sheoak/E.staeri* Sandy Woodland, a minimum species richness of 14 native species returned.	
		In G*astrolobium bilobum/Hakea elliptica* Granite Shrubland/Yate Woodland, a minimum species richness of 19 native species returned.	
		In Marri/Jarrah Forest/Peppermint Woodland, a minimum species richness of 19 native species returned.	
2) Dominant tree species	Return of all dominant tree species present at reference sites.	In *Corymbia calophylla* (Marri)/*Eucalyptus marginata* (Jarrah) Coastal Hills Forest, all four dominant tree species; *Eucalyptus marginata, Corymbia calophylla, Agonis theiformis* and *Agonis flexuosa*, are present.	Dominant tree species will be monitored annually in Spring within a minimum of seven permanent monitoring quadrats across the different vegetation types, for a minimum six-year monitoring period and until all completion targets and criteria are met.
		In *Melaleuca persiana* Low Woodland, all three dominant tree species; *Eucalyptus marginata, Melaleuca preissiana, Callistachys lanceolata,* and *Agonis flexuosa.*, are present.	
		In *Jarrah/Sheoak/E.staeri* Sandy Woodland, all four dominant tree species; *Nuytsia floribunda, Eucalyptus marginata, Allocasuarina fraseriana* and *Agonis theiformis.*, are present.	
		In G*astrolobium bilobum/Hakea elliptica* Granite Shrubland/Yate Woodland, all three dominant tree species; *Eucalyptus marginata, Corymbia calophylla* and *Agonis theiformis.*, are present.	
		In Marri/Jarrah Forest/Peppermint Woodland, both dominant tree species; *Corymbia calophylla* and *Agonis theiformis.*, are present.	
3) Native vegetation cover	Minimum of 60% native vegetation cover returned, based on reference sites.	In *Corymbia calophylla* (Marri)/*Eucalyptus marginata* (Jarrah) Coastal Hills Forest: • Upper strata >8 metres has cover of 6-18%, up to 4 metres has	Native vegetation cover will be monitored annually in Spring within a minimum of seven permanent

Aspect	Completion targets	Completion criteria	Monitoring
		cover of 6%. • Middle strata >2 metres of 6-18%, ~1.5 metres has cover of 18-42%. • Ground strata >1 metre has cover of at least 42%, >1 metre has cover of 18-42%.	monitoring quadrats across the different vegetation types, for a minimum six-year monitoring period and until all completion targets and criteria are met.
		In *Melaleuca persiana* Low Woodland: • Upper strata up to 4 metres has cover of at least 42%. • Middle strata >2 metres of at least 6%. • Ground strata <1 metre has cover of at least 42%.	
		In *Jarrah/Sheoak/E.staeri* Sandy Woodland: • Upper strata up to 8 metres has cover of 6-18%. • Middle strata >2 metres of at least 6%. • Ground strata <1 metre has cover of at least 42%.	
		In G*astrolobium bilobum/Hakea elliptica* Granite Shrubland/Yate Woodland: • Upper strata up to 4 metres has cover of 6-18%. • Middle strata >2 metres of 18-42%. • Ground strata <1 metre has cover of 6-18%.	
		In Marri/Jarrah Forest/Peppermint Woodland: • Upper strata up to 10 metres has cover of 6-18%. • Middle strata >2 metres of 18-42%. • Ground strata <1 metre has cover of 18-42%.	
4) Weeds	Weeds are absent at the reference site but will be reduced to the extent possible, noting the revegetation areas are	Weed cover is no greater than 30 per cent.	Weed cover will be monitored annually in Spring within a minimum of seven permanent monitoring quadrats across the different vegetation types, for a minimum six-year monitoring period

Aspect	Completion targets	Completion criteria	Monitoring
	currently weed-infested.		and until all completion targets and criteria are met.

Table 2. Weed Management Plan completion targets and criteria.

Aspect	Completion targets	Completion criteria	Monitoring
1) Weeds	Reduce the density of high priority weeds that threaten fauna habitat, including but not limited to: • *Acacia longifolia* (Sydney golden wattle), • *Asparagus asparagoides* (bridal creeper), • *Asparagus declinatus* (bridal veil), • *Cortaderia selloana* (pampas grass), • *Dipogon lignosus* (dolichos pea), • *Freesia alba* × *leichtlinii* (freesia), • *Hedera helix* (common ivy), • *Pinus radiata* (pine tree), • *Pittosporum undulatum* (Victorian box), • *Polygala myrtifolia* (myrtle-leaved milkwort), • *Psoralea pinnata* (African scurf-pea), • *Vinca major* (periwinkle), • *Watsonia meriana* var. *bulbillifera* (watsonia / bugle-lily), and • *Zantedeschia aethiopica* (arum lily).	Reduction in weed density to 2-5 per cent cover.	Weed cover will be monitored annually in Spring within permanent monitoring quadrats, for a minimum six-year monitoring period and until all completion targets and criteria are met.
	Prevent the incursion of weeds into currently	Eradication of weeds from the edges of	Weed extent will be monitored annually in

Aspect	Completion targets	Completion criteria	Monitoring
	undisturbed fauna habitat.	undisturbed bushland.	Spring within permanent monitoring quadrats, including areas bordering on undisturbed vegetation, for a minimum six-year monitoring period and until all completion targets and criteria are met.
	Prevent the introduction of new weeds into the Albany Heritage Park.	No new weeds introduced.	Weed species will be monitored annually in Spring within permanent monitoring quadrats, including areas bordering on undisturbed vegetation, for a minimum six-year monitoring period and until all completion targets and criteria are met.
2) Unauthorised access	Closure of current points of unauthorised access to Lot 172 on Deposited Plan 222002	Closure of unauthorised driveways and construction of crossover into neighboring road reserve.	Points of unauthorized access will be monitored annually for two years following closure, to ensure access remains restricted.

Government of Western Australia
Department of Water and Environmental Regulation

Bilateral Agreement Decision Report

This report has been prepared to fulfil the requirements of an accredited environmental assessment process between the Commonwealth and State governments, pursuant to a bilateral agreement established under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

This report is set out in three parts:

- Part 1: Application and site details;
- Part 2: Assessment against matters of national environmental significance (pursuant to the EPBC Act); and
- Part 3: Assessment against the clearing principles (pursuant to the Western Australian *Environmental Protection Act 1986* (EP Act)). Appeal rights pursuant to section 101A of the EP Act are relevant to this section of the report.

Part 1: Application and site details

1. Application details

1.1. Permit application details

Permit application No.:	CPS 9182/1
Permit type:	Purpose Permit
EPBC Referral no.:	EPBC 2019/8480

1.2. Applicant details

Applicant's name:	City of Albany (referred to as the City herein this report)
Application received date:	13 January 2021

1.3. Property details

Property:	Lot 301 on Deposited Plan 69372 (Crown Reserve 16692) Lot 302 on Deposited Plan 69372 (Crown Reserve 16692) Lot 502 on Deposited Plan 57368 (Crown Reserve 2682) Lot 508 on Deposited Plan 64941 (Crown Reserve 2682) Lot 550 on Deposited Plan 58079 (Crown Reserve 16746) Lot 555 on Deposited Plan 75417 (Crown Reserve 38226) Lot 993 on Deposited Plan 206527 (Crown Reserve 27068) Lot 1005 on Deposited Plan 206527 (Crown Reserve 27068) Lot 1121 on Plan 6625 (Crown Reserve 27068) Lot 1149 on Deposited Plan 203497 (Crown Reserve 27068) Marine Drive Road Reserve (PIN 11395559) Marine Terrace Road Reserve (PIN 1277519) Marine Terrace Road Reserve (PIN 1281489) Mill Street Road Reserve (PIN 11470975) Watkins Road Reserve (PIN 11470974) Unnamed Road Reserve (PIN 598037)
Local Government Authority:	City of Albany
Localities:	Mount Clarence Port Albany

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	Purpose category:
3.16 (revised)		Mechanical	Constructing a network of trail links within the Albany Heritage Park

1.5. Decision on application

Decision on Permit Grant

Decision Date: 04 January 2024

Reason for Decision:

This clearing permit application was submitted, accepted, assessed, and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). The Department of Water and Environmental Regulation (DWER) advertised the application for a total of 28 days and 18 submissions were received. Consideration of matters raised in the public submissions is summarised in Appendix A.

In undertaking the assessment, the Delegated Officer had regard for:

- the 10 Clearing Principles set out in Schedule 5 of the EP Act,
- the application area site information (see Section 2 of this report),
- targeted flora and vegetation surveys (Southern Ecology, 2022; Southern Ecology, 2020) (see Section 2 of this report),
- a western ringtail possum (WRP) population assessment (Biota, 2019),
- a black cockatoo habitat assessment (Gilfillan, 2022),

- actions taken by the City which resulted in the avoidance and minimisation of the extent of the clearing area and the mitigation of the impacts of clearing (see Section 3.5 of this report)
- economic and social matters associated with the application (see Section 3.6 of this report),
- the detailed description of the vegetation types within the application area (Appendix E),
- an analysis of flora and fauna recorded within the local area (a 10-kilometre radius measured from the perimeter of the application area) (Appendix B),
- relevant datasets available at the time of the assessment (Appendix F),
- relevant planning instruments and any other matters considered relevant to the assessment (see Section 4 of this report),
- expert advice from DBCA (2021) on the environmental impacts of the proposed clearing, and
- the public benefit of the proposed Albany Heritage Park Link Trails through increased tourism and improved infrastructure for a variety of trail users in the Albany region.

The assessment identified that the proposed clearing will result in:

- the potential introduction and spread of weeds and dieback into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values,
- the loss of 3.16 hectares of significant habitat for WRP (*Pseudocheirus occidentalis*),
- the loss of 3.05 hectares of significant foraging habitat for Baudin's cockatoo (*Zanda baudinii*), Carnaby's cockatoo (*Zanda latirostris*) and forest red-tailed black cockatoo (*Calyptorhynchus banksii naso)*,
- the loss of 0.026 hectares of critical habitat for *Caladenia harringtoniae*, and
- the loss of suitable habitat for priority flora, including:
    - potential indirect impacts to one individual of *Adenanthos* x *cunninghamii* (Priority 4) within 30-metres of the proposed clearing,
    - potential indirect impacts to three individuals of *Corysanthes limpida* (Priority 4) within 30-metres of the proposed clearing,
    - direct impacts to one individual of *Lasiopetalum* sp. Denmark (B.G. Hammersley 2012) (Priority 3) within the application area,
    - direct impacts to 30 individuals of *Spyridium spadiceum* (Priority 4) within the application area and potential indirect impacts to an additional 16 individuals within 30-metres of the proposed clearing,
    - direct impacts to 10 individuals of *Stylidium falcatum* (Priority 2) within the application area and potential indirect impacts to an additional 32 individuals within 30-metres of the proposed clearing, and
    - direct impacts to five individuals of *Thysanotus isantherus* (Priority 4) within the application area and potential indirect impacts to an additional 79 individuals within 30-metres of the proposed clearing.

After consideration of the above information, as well as the avoidance, minimisation and mitigation actions taken by the City (see Section 3.5 of this report), the Delegated Officer determined that the proposed clearing will result in the following significant residual impacts (SRI):

- the loss of 3.16 hectares of significant habitat for WRP,
- the loss of 3.05 hectares of significant foraging habitat for Baudin's cockatoo, Carnaby's cockatoo, and forest red-tailed black cockatoo.

To address the above impacts and applying the EPBC Offsets assessment guide (Commonwealth Offsets Calculator), the Delegated Officer determined that the following offset is required:

- The rehabilitation of 8.16 hectares of native vegetation that comprises significant habitat for WRP, Carnaby's cockatoo, Baudin's cockatoo, and forest red-tailed black cockatoo within the Albany Heritage Park Crown Reserves (Reserve 2682, Reserve 27068, and Reserve 38226) from a Completely Degraded-Degraded (Keighery, 1994) condition to a Good-Very Good (Keighery, 1994) condition,
- The incorporation of 8.09 hectares of native vegetation within Lot 172 on Deposited Plan 222002 into the Albany Heritage Park Crown Reserve (Reserve 2682) to be vested as Conservation and Public Park, with active weed management, comprising at least:
    - 8.09 hectares of significant habitat for WRP in Very Good (Keighery, 1994) condition,
    - 3.01 hectares of significant foraging habitat for Baudin's and Carnaby's cockatoo in Very Good (Keighery, 1994) condition, and
    - 0.49 hectares of significant foraging habitat for forest red-tailed black cockatoo in Very Good (Keighery, 1994) condition.
- The change of vesting and active weed management of 10.8 hectares of native vegetation that comprises significant habitat for WRP in Very Good to Excellent (Keighery, 1994) condition within the Albany Heritage Park Crown Reserve (Reserve 2682) and to include Conservation in addition to the current vesting.

Given this, the Delegated Officer has decided to grant a clearing permit subject to conditions to:

- avoid, minimise, and reduce the impact and extent of clearing,
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback,
- undertake slow, progressive, one directional clearing to allow terrestrial fauna to disperse ahead of the clearing activity should they occur on site at the time of clearing,
- demarcate all habitat trees within the application area prior to clearing and the retention of all trees,
- engage a fauna specialist to inspect all trees, dreys and hollows for the presence of WRPs prior to clearing and for clearing to cease where any individuals are identified until the individual has dispersed or been relocated,
- engage a botanist to undertake pre-clearance surveys for *Caladenia harringtoniae* and avoidance of all individuals, as well as demarcation of priority flora,
- revegetate and rehabilitate a total of 8.16 hectares of significant habitat for WRP and significant foraging habitat for black cockatoo species within the Albany Heritage Park,

- undertake ongoing weed management and incorporate 8.09 hectares of significant habitat for WRP, 3.01 hectares of significant foraging habitat for Baudin's cockatoo and Carnaby's cockatoo, and 0.49 hectares of significant foraging habitat for the forest red-tailed black cockatoo within Lot 172 on Deposited Plan 222002 into Crown Reserve 2682 to be vested in Conservation and Public Park, and
- undertake ongoing weed management and change of vesting of 10.8 hectares of significant habitat for WRP within Crown Reserve 2682 to include Conservation in addition to the current vesting.

2. Site Information

Clearing Description

The application is to clear native vegetation within Albany Heritage Park (AHP) to construct new walk and ride trails, known as the 'Albany Heritage Park Link Trails V2'. The project is part of the City's strategy to address impacts associated with illegal trail construction and the changing use of the existing trail network (City of Albany, 2021a).

The application was revised during the assessment process in response to a request for further avoidance and mitigation measures issued by the Department of Water and Environmental Regulation (DWER). The change included a reduction in the total proposed clearing from 3.42 hectares to 3.16 hectares and revisions to the trail alignment from an approximately 35-hectare clearing footprint to a specific trail alignment of approximately two metres in width across a linear area of 3.5 kilometres, to avoid and minimise the clearing impacts to threatened and priority flora species and black cockatoo habitat (see Sections 3.5 and 4 for further details).

Site Description

The AHP forms a single area of remnant native vegetation situated immediately east of the City of Albany central business district. It is adjoined by residential development to the north and west, while the Port of Albany and associated industrial infrastructure adjoins much of the southern boundary. The eastern portion of the project area extends to the King George Sound high tide line (Figure 1 below).

Biological Surveys

Flora surveys

In 2016, the City invited the Department of Parks and Wildlife (DPAW) to comment on the AHP Concept Plan. In response, DPAW (2016) advised that the impacts of the proposed development of recreational walking and mountain bike trails on native vegetation should be assessed in the context of the Albany Regional Vegetation Survey (ARVS) conducted by Sandiford and Barrett (2010). The Environmental Protection Bulleting 13 established the ARVS as a "detailed and contemporary regional context of flora and vegetation in the Albany Region and should therefore be used for environmental impact assessment of proposals".

An approximately 38-hectare area, which encompasses the clearing footprint, has been subject to biological surveys undertaken by Southern Ecology (2020). The surveys included a targeted flora survey of a 30-metre corridor around the proposed and existing trails. Approximately 15.5 hectares of the survey area was surveyed in Spring 2017 and approximately 22.6 hectares in Spring 2020. The report submitted for this application summarises the findings of both surveys.

The flora survey was conducted by an experienced botanist and included the following actions:

- traversing the survey area and conducting a vegetation type and condition assessment using relevés. The authors formed the view that a comprehensive assessment of the vegetation communities using quadrats was not required given the adequacy of existing ARVS,
- describing the vegetation at the level of floristic community, according to the National Vegetation Information System,
- manually comparing vegetation communities and aligning them with ARVS mapping units to determine conservation significance, and
- mapping of vegetation communities and condition categories using a combination of relevés, opportunistic observations and extrapolation of orthophotos (Southern Ecology, 2020).

In response to a request for further avoidance and mitigation measures issued by DWER in December 2021, the City engaged Southern Ecology to undertake an additional flora survey of the revised trail alignment of 3.16 hectares in Spring 2022 (Southern Ecology, 2022). The survey included a targeted flora survey of the 2-metre trail corridor over three days between 18 October 2022 and 4 November 2022 using methodology consistent with those described above for the 2017 and 2020 surveys (Southern Ecology, 2022). The additional flora survey also included assessment of an additional 0.07 hectares that was proposed for realignment of the granite walk trail to avoid critical habitat for *Caladenia harringtoniae* (Southern Ecology, 2022). The findings of these additional surveys were submitted as an addendum to the 2020 survey report.

Southern Ecology (2020; 2022) advised that all components of the flora surveys were conducted in accordance with the Environmental Protection Authority's (EPA) *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016) .

Fauna surveys

A number of fauna and targeted WRP assessments have been undertaken in the AHP, including:

1. The Department of Environment and Conservation (DEC) (2012c) carried out three different surveys between 2002 and 2010 to determine which fauna species occupy the AHP. The three survey methods included:

   a. fauna trapping – over the course of 24 months, traps were established in seven different locations in the Mount Clarence and Mound Adelaide Bush Reserve to capture and record small animals,
   b. spotlighting surveys - the surveys aimed to observe the activity of nocturnal fauna; especially WRP and the common brushtail possum, and
   c. fauna sightings recorded by member of the public – survey forms were delivered to residents living directly adjacent to Mount Clarence and Mount Adelaide Bush Reserve.
2. Oyster Harbour Catchment Group Project (2018) – the survey covered Mounts Clarence, Adelaide and Melville and included the following actions:
   a. establishment of six spotlighting transects. These were placed in each of the main vegetation types within the reserves which were assumed to be potentially suitable for WRP. The authors adopted distance sampling technique to provide robust monitoring regime that could be used to assess the size and trends in WRP population over time in core habitat in the Albany urban environment, including AHP, and
   b. deployment of remote cameras in eleven backyards around the reserves. The cameras were installed for seven nights each month for 12 months (from June 2017 to May 2018) in areas with the highest likelihood of obtaining the maximum number of WRP photos (along a fence line, veranda railing, near trees with dreys or roofs).
3. Gilfillan (2018), on behalf of the City, undertook monitoring of the WRP abundance along a demonstration trail completed in 2016 to identify impacts of the bike trail construction on this species. The survey included the following steps:
   a. Investigation of three sites, comprising two situated along the demonstration trial and one control site located approximately 500 metres from the trail,
   b. spotlighting using the distance sampling method, and
   c. data analysis.
4. Biota Environmental Sciences (Biota) (2019) undertook an assessment of WRP population on Mounts Clarence, Adelaide, and Melville. The authors used distance sampling method to estimate and generate density surface models. The authors conducted the following actions:
   a. traversed the survey area at 75-metre intervals running north-south across Mounts Clarence and Adelaide. These intervals were considered consistent with those used in similar surveys conducted at other sites in the Albany region and were designed to maximise potential coverage of the survey area while minimising the likelihood of overlapping observations from multiple transects,
   b. completed a sufficient number of observations and spatial coverage to complete a statistical analysis by walking alternate transects (spacing of 150 metres between completed transects), and
   c. calculated perpendicular distances from the transects to each observation from GPS points obtained. These data were then analysed using the 'Distance' package in R statistical software. Probability Detection Functions were modelled based on the histogram of perpendicular distance measurements. The selected model was then used to estimate the density and abundance of WRP within the survey area.
5. Gilfillan (2022), on behalf of the City, undertook a black cockatoo habitat assessment over 19 days between 18 May and 2 September 2022. The assessment included:
   a. Visual assessment and GPS recording of all potential breeding trees (any tree of suitable species for breeding that was visually inspected to have a diameter of 50 centimetres or greater at a height of 1.3 metres from the ground) within a 30-metre corridor around the proposed and existing trails,
   b. Assessment for the presence of suitable hollows for black cockatoo species including an assessment from the ground for all potential breeding trees and additional inspection of any potential breeding trees identified as potentially containing a suitable hollow from the ground using a pole and camera technique, and
   c. Searches for evidence of roosting and foraging by black cockatoo species.

The methodology of the fauna surveys were consistent with the following guidance documents, where relevant:

- EPA's *Technical Guidance – Sampling methods for terrestrial vertebrate fauna* and *Technical Guidance – Terrestrial Fauna Surveys* (2020),
- *Referral guideline for 3 WA threatened black cockatoo species: Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-tailed Black cockatoo* (Commonwealth of Australia, 2022), and
- *Survey guidelines for Australia's threatened mammals: Guidelines for detecting mammals listed as threatened under the EPBC Act* (DSEWPC, 2011).

<u>Dieback assessment</u>

Great Southern Bio Logic (2016) assessed the extent of Phytophthora dieback across the AHP and determined the presence and distribution or areas that may be considered to be protectable from the disease (Great Southern Bio Logic, 2016). The scope of works included the following actions:

- completion of a detailed desktop assessment of the site involving an analysis of previous assessments, known infestations, topography, geology, land use and access,
- completion of a field based, broad scale disease distribution survey of the project area involving:
  - a linear survey of all internal tracks and other potential vectoring infrastructure,
  - mapping of disease hygiene boundaries using a hand held GPS, and
  - broad scale survey of all uninfested areas to confirm the general disease free status.

- completion of a soil and tissue sampling program to verify field interpretation decisions. All samples were transported to the Department of Parks and Wildlife (DPAW) Vegetation Health Service for analysis,
- application of protectable area criteria across the project area to identify areas that can be considered protectable from future infestation by *Phytophthora* species, and
- development of a report detailing project methodology and inclusive of figures illustrating disease distribution, protectable areas, soil and tissue sample locations (Great Southern Bio Logic, 2016).

An additional Phytophthora dieback assessment was undertaken by Great Southern Bio Logic (2022) between May and June 2022 to support the preparation of the *Operational Hygiene Management Plan: Albany Heritage Park Link Trails* (Great Southern Bio Logic, 2022). The assessment included:

- a desktop assessment involving a review of previous survey reports, the Vegetation Health Service (VHS) Phytophthora sample database and examination of available aerial imagery to assess disease evidence data, occurrence of site-specific vectors and evidence of existing disease signatures,
- a Phytophthora dieback occurrence survey for the project area using the Phytophthora Dieback Comprehensive Transect Survey method, and
- a sampling program involving the collection of soil and tissue samples from suspicious plant deaths within the project area (Great Southern Bio Logic, 2022).

The broad scale survey methods were consistent with the DPAW guideline, *Phytophthora Dieback Interpreters Manual for lands managed by the Department* (2015).

Vegetation Description

The flora and vegetation surveys (Southern Ecology, 2022; Southern Ecology, 2020) identified nine vegetation types within the clearing footprint, which are described in Table 1. The table also contains concordant ARVS mapping units identified by Sandiford and Barrett (2010). Representative photos and the full survey descriptions are available in Appendix E.

Table 1 Vegetation units within the clearing footprint (Southern Ecology, 2020; Sandiford & Barrett, 2010)

Veg unit	ARVS unit	Area (ha)	Area (%)
Callistachys Thicket	Unit 36 – *Callistachys* spp. Thicket	0.03	0.9
Cleared	N/A	0.04	1.1
Coastal Shrubland	Unit 4 – Coastal *Banksia ilicifolia*/*Agonis flexuosa* (Peppermint) Low Woodland	0.26	8.2
Eucalyptus/Corymbia Forest	Unit 17 – *Corymbia calophylla* (Marri)/*Eucalyptus marginata* (Jarrah) Coastal Hills Forest Unit 10 – Marri/Jarrah Forest/Peppermint Woodland	1.77	56.3
Gastrolobium/Hakea Shrubland	Unit 23 - *Gastrolobium bilobum/Hakea elliptica* Granite Shrublands	0.75	24.0
Granite Shrubland and Herbland	Unit 24 – *Taxandria marginata* Granite Shrubland Unit 25 – *Acacia sulcata/Leucopogon assimilis*	0.21	6.7
Peppermint Low Forest	Unit 2 – Peppermint Low Woodland	0.04	1.1
Revegetation	N/A	0.03	1.1
Sheoak Woodland	Unit 13 – Jarrah/*Allocasuarina fraseriana* (Sheoak)/*Eucalyptus staeri* (Albany blackbutt) Sandy Woodland	0.02	0.7
Total		3.16	100%

The above vegetation types are largely consistent with the Beard vegetation associations mapped within the clearing footprint:

- 3, which is described as medium forest, jarrah - marri (Shepherd et al., 2001); and
- 128, which is described as bare areas, rock outcrops (Shepherd et al., 2001).

The mapped vegetation associations 3 and 128 retain approximately 87 and 90 per cent of their original extents, respectively (Government of Western Australia, 2019).

Vegetation Condition

The flora and vegetation surveys (Southern Ecology, 2022; Southern Ecology, 2020) indicate the vegetation within the clearing footprint ranges from Pristine to Degraded (Keighery, 1994) condition (Table 2).

Table 2 Vegetation condition within the clearing footprint (Southern Ecology, 2020)

Veg condition	Area (ha)	Area (%)
Pristine	0.02	0.9
Excellent	3.01	96.0
Very Good	0.05	1.6
Degraded	0.01	0.1

Revegetation	0.03	1.0
Cleared	0.03	0.9
Total	3.16	100

The full Keighery (1994) condition rating scale is provided in Appendix C.

Soil type

The Department of Primary Industries and Regional Development (DPIRD) (2023) mapped the clearing footprint as the soil subsystems described in Table 3.

Table 3 Soils subsystem mapped within the clearing footprint.

Soil subsystem	Description (Schoknecht et al., 2004)	Area (ha)	Area (%)
Gardner granite Phase	Granite outcrop	2.84	90%
Gardner sandy Phase	Leached sands and podzols; mallee-heath	0.32	10%
Total		3.16	100%

Table 4 contains information about the soils identified within the clearing footprint described by Southern Ecology (2020) during flora and vegetation surveys.

Table 4 Soils identified within the clearing footprint (Southern Ecology, 2020)

Veg unit	Soil	Area (ha)	Area (%)
Callistachys Thicket	White sand	0.03	0.9
Coastal Shrubland	White sand	0.26	8.2
Eucalyptus/Corymbia Forest	Grey sand, occasional granite boulders	1.77	56.3
Gastrolobium/Hakea Shrubland	Dark-brown sandy loam soils, with granite often outcropping as large boulders	0.75	24.0
Granite Shrubland and Herbland	Skeletal orange sand, fringing granite outcrops	0.21	6.7
Peppermint Low Forest	White sand	0.04	1.1
Sheoak Woodland	White sand	0.02	0.7
Revegetation		0.03	1.1
Cleared		0.04	1.1
Total		3.16	100%

Site maps

Figure 1.The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

Part 2: Assessment against matters of national environmental significance

3. Assessment of application against Matters of National Environmental Significance

3.1. Background

City Mounts Management Plan

In 2006, the City of Albany Council adopted the City Mounts Management Plan. This plan identified 64 recommended management actions for the AHP area, as well as a number of generic recommendations that applied across the entire area covered by the plan, which also included Mount Melville and Bluff Rock (City of Albany, 2006). These included recommendations to provide quality sealed and unsealed trails through the City Mounts Reserves for both walkers and cyclists, to ensure trail networks are managed to allow for continued use by walkers and cyclists, to provide a dedicated all-terrain cycling trail, to promote the City Mounts trails as a tourist attraction, and to rehabilitate closed trails (City of Albany, 2006). In total, there are 13 recommendations in the management plan that specifically relate to trails within the project area (City of Albany, 2006).

City of Albany Trails Hub Strategy

In 2015, the City of Albany Council adopted the City of Albany Trails Hub Strategy (City of Albany, 2015). This strategy was developed to provide strategic guidance to the City for the future management of recreational trails with a focus on protecting the City's unique environment (City of Albany, 2015). The vision of the Trails Hub Strategy is "a World Class Trail Tourism Hub situated around high quality trail systems, supported by a complete package of hospitality and visitor services set within our unique natural landscapes" (City of Albany, 2015).

With significant community consultation and input, the Albany Trails Hub Strategy reviewed the entire supply and demand of trails and user groups across the City of Albany (City of Albany, 2015). Significant gaps in all areas were identified (City of Albany, 2015). The Trails Hub Strategy identified suitable locations for trail development and further recommended the most appropriate development for each location, including user types and trail styles (City of Albany, 2015).

Albany Heritage Park Trails Network Concept Plan

In 2016, the City of Albany Council adopted the Albany Heritage Park Trails Network Concept Plan (City of Albany, 2016a). The following strategies, policies, guidelines, and plans were reviewed in the preparation of the Albany Heritage Park Trails Network Concept Plan:

- Western Australian State Trails Strategy (Department of Sport and Recreation, 2008),
- Western Australian Mountain Bike Strategy (DPAW, 2015),
- The Western Australian Mountain Bike Strategy (WestCycle, 2015), and
- Albany Trails Hub Strategy (City of Albany, 2015).

Over the past 10 years, the City has continued to maintain existing trails and manage the ongoing construction of illegal trails and changing/increasing use of the trail network, as best as possible (City of Albany, 2021a). However, throughout this time, the City has advised that the previously constructed trails were not able to adequately cater for the increasing and changing use of the network, which is resulting in significant environmental impacts in many areas (City of Albany, 2021a). Therefore, the City has determined that the construction of well-designed trails is the best strategy to address increasing demand for designated mountain bike and walk trails, user conflict and the environmental damage being caused by the ad-hoc illegal clearing of native vegetation for trails (City of Albany, 2021a).

Mounts Master Plan

Since 2016, the City has undertaken preparation of a comprehensive Mounts Master Plan which provides a long-term vision for Mounts Clarence and Adelaide (City of Albany, 2021a). The plan aims to respect and enhance the significant natural, cultural, social, and recreational assets, ensuring any future development is undertaken with a careful balance of conservation and enhancement. The plan further establishes a clear vision and refined set of guiding principles which drive an overarching, but flexible framework and simple criteria to guide project outcomes (City of Albany, 2021a). The plan also identifies strategies and informs decision-making to guide sustainable investment and management over time (City of Albany, 2021a).

The vision of the Mounts Master Plan is: "Regional Australia's iconic coastal parkland and botanic gardens, showcasing world recognised and inspirational natural, cultural, heritage and recreational experiences and commemorating the ANAZC legacy" (City of Albany, 2021a).

The Master Plan addresses the need to establish a strategic approach to achieve:

- a long-term vision and strategic objectives for the site,
- an integrated master plan with long-term context,
- sustainable management and protection of significant natural and cultural assets,
- a strong market identity and brand,
- prioritised implementation,
- enhanced community ownership and place activation,
- increase visitation to tourism assets and commercial enterprises (such as National Anzac Centre),
- a strong governance framework, and
- outcomes that will target a diverse range of user groups and generations (City of Albany, 2021a).

Feedback from the Mounts Master Plan community consultation in 2019 deemed the rationalisation, consolidation, and construction of new trails on the Mounts to be one of the highest priority projects (City of Albany, 2021a). The Master Plan is to reflect a well-balanced, site responsive trail network system - linking major destinations, neighbourhoods and activity nodes within

the City. It will cater for a range of different trail users, styles, levels of difficulty and experience (active, passive, heritage, nature) whilst ensuring the protection of the site's environmental, cultural, and heritage values (City of Albany, 2021a).

Great Southern Regional Trails Master Plan (GSRTMP) 2020 - 2029
The GSRTMP aims to provide a clear outlined program of trail infrastructure development across the Great Southern region over a ten-year period to position the Great Southern as a world class trails destination (City of Albany, 2021a). The plan has been developed to guide decisions about the management of, and investment in, trails and provides a vision of the trail network for the Great Southern (City of Albany, 2021a). The GSRTMP is an agreement to collaborate and prioritise regional trail development and supports the AHP Link Trails V2 proposal as a priority (City of Albany, 2021a). It aims to minimise the duplication of initiatives and maximise efforts to reach common goals by establishing shared priorities across the active recreation and tourism sectors (City of Albany, 2021a).

Project details
To align with the objectives of the aforementioned management plans and planning strategies, the City has developed the Albany Heritage Park Link Trails V2 project. The project will include works on a walk trail, mountain bike trails and a dual use sealed trail (City of Albany, 2021a). Details of required clearing for these trial types are shown in Tables 5 and 6 below. In the calculations of the clearing widths, the City has deliberately over-estimated the clearing extents to allow for the following:

- possible edge effects post construction, for example by bike riders running off track,
- flexibility to move when constructing the trail, particularly in steep rocky sites, and
- the inclusion of trail features, such as jumps, and possible adjacent easier options (City of Albany, 2021a).

As outlined under Part 1, Section 2, the application was revised during the assessment process in response to a request for further avoidance and mitigation measures issued by DWER. The change included a reduction in the total proposed clearing from 3.42 hectares to 3.16 hectares and revisions to the trail alignment from an approximately 35-hectare clearing footprint to a specific trail alignment of approximately two metres in width to avoid and minimise the clearing impacts. Table 5 outlines the project details relevant to the original proposal of 3.42 hectares, while Table 6 outlines the project details under the revised proposal of 3.16 hectares.

Table 5 Details of AHP Link Trails V2 original proposal of 3.42 hectares (City of Albany, 2021a)

Trial type	Total trail length (m)	Existing trail length (m)	Proposed trail length (m)	Proposed clearing 2-metre average width (m^2)	Proposed clearing 2.8-metre average width (m^2)	Total area of disturbance (m^2)	Total area of disturbance (ha)
Walk trail	6,456	3,877	2,579	5,158		5,158	0.52
Mountain bike trial easy (green)	6,410	77	6,333		17,732	17,732	1.77
Mountain bike trail intermediate (blue)	5,188	1,111	4,077	8,154		8,154	0.82
Dual use sealed trail	2,065	949	1,116		3,125	3,125	0.31
Total	20,119	6,014	14,105	13,312	20,857	34,169	3.42

Table 6 Details of AHP Link Trails V2 revised proposal of 3.16 hectares (City of Albany, 2023).

Trial type	Total trail length (m)	Existing trail length (m)	Proposed trail length (m)	Proposed clearing 2-metre average width (m^2)	Proposed clearing 2.8-metre average width (m^2)	Total area of disturbance (m^2)	Total area of disturbance (ha)
Walk trail	7,557	4,160	3,397	6,794		6,794	0.68
Mountain bike trial easy (green)	5,340	253	5,087		14,244	14,244	1.42
Mountain bike trail intermediate (blue)	5,166	1,244	3,922	7,844		7,844	0.78
Dual use sealed trail	4,971	4,013	958		2,682	2,682	0.27
Total	23,034	9,670	13,364	13,312	20,857	31,564	3.16

3.2. Description of controlling provisions

On 24 October 2019, the project was determined to be a controlled action under the EPBC Act for the controlling provisions of Listed Threatened Species and Communities (sections 18 & 18A). The Department of Climate Change, Energy, the Environment and Water (DCCEEW), at that time known as the Department of Agriculture, Water and Environment (DAWE), has determined that the proposed action was likely to:

a) have a significant impact on the:
   - western ringtail possum (*Pseudocheirus occidentalis*) – listed as Critically Endangered under the EPBC Act,
   - Harrington's Spider-orchid (*Caladenia harringtoniae*) – listed as Vulnerable under the EPBC Act, and

b) may have a significant impact on the:
   - Dwarf Hammer-orchid (*Drakaea micrantha*) listed as Vulnerable under the EPBC Act.

The original referral was for the clearing of 1.631 hectares. A variation to the original EPBC referral was accepted by DAWE on 29 September 2020 to increase the number of trails proposed to be constructed and maintained. This resulted in an increase of the clearing footprint to 3.42 hectares.

A second variation to the EPBC referral was submitted on 13 October 2022, to capture the revised clearing extent of 3.16 hectares and the revised trail alignment of approximately two metres in width across a linear area of 3.5 kilometres. The second variation was accepted by DCCEEW on 7 December 2022.

Western ringtail possum

The WRP is a folivorous (leaf eating herbivore) marsupial endemic to south-western Australia (DPAW, 2017) and is listed as Critically Endangered under the state *Biodiversity Conservation Act 2018* (BC Act), as well as the Commonwealth EPBC Act. It is a small arboreal marsupial characterised by a slender prehensile tail (up to 40 centimetres long) with a white tip, and is usually dark brown (though sometimes dark grey) above, with cream or grey fur on the belly, chest, and throat (DPAW, 2017). The WRP is readily distinguished from the common brushtail possum (*Trichosurus vulpecula*) by its shorter (usually darker) fur, smaller rounded ears, and absence of a brush tail (DPAW, 2017). No other large possums occur in the south-west of WA (DPAW, 2017).

According to the WRP recovery plan, habitat critical to the survival of WRP is not well understood and is therefore, based on the habitat variables observed where WRP are most commonly recorded (DPAW, 2017). The preferred habitat variables for WRP appear to vary between key management zones, with the common themes being high nutrient foliage availability for food, suitable structures for protection and nesting, and canopy continuity to avoid and escape predation and other threats (DPAW, 2017). While any habitat where WRP occur naturally are considered critical and worthy of protection, vegetation communities of particular importance to the species include:

- peppermint woodlands, particularly long unburnt mature remnants with high canopy continuity and high foliage nutrients (high in nitrogen and low toxin levels),
- jarrah/marri woodland and forests, particularly those with limited anthropogenic disturbance (unlogged or lightly logged, and a low intensity and low frequency fire history), that are intensively fox-baited and have low indices of fragmentation,
- coastal heath,
- myrtaceous heaths and shrublands,
- *Eucalyptus megacarpa* (Bullich) dominated riparian zones, and
- *Eucalyptus diversicolor* (karri) forest (DPAW, 2017).

The WRP recovery plan identifies three key management zones that are known to support large numbers of WRP and populations in these management zones are considered the most important extant populations, at present (DPAW, 2017). Habitat use and density varies among the three management zones and is thought to be influenced by the dominant canopy species, canopy connectivity, and nutrient content (DPAW, 2017). The three key management zones currently identified are the:

- Swan Coastal Plain management zone, including the peppermint woodlands and peppermint/tuart forests on the southern extremity of the Swan Coastal Plain, extending from north of Bunbury to Augusta, but principally around Busselton,
- Southern Forest management zone, including jarrah forests near Manjimup where peppermint is generally absent, and
- South Coast management zone, comprising a diverse range of vegetation types between Walpole and Cheynes Beach, but principally in near-coastal limestone heath, jarrah marri thicket woodland and forest, riparian, peppermint woodland and karri forest vegetation (DPAW, 2017).

The project area is located within the South Coast management zone. Habitat critical to the species' survival in the South Coast management zone is not clearly defined and ecological information and relative abundance for WRP at the southernmost extent of the species' range near Albany is scarce (DPAW, 2017). In the Albany region, WRP are found in a range of woodland and forested habitats often dominated by peppermint, marri, and jarrah, sheoak, or karri (Van Helden et al., 2018).

The Threatened Species Scientific Committee TSSC (2018) estimated that the extent of the current population of WRP is approximately 3,400 mature individuals. However, the WRP Regional Surveys undertaken by Biota Environmental Sciences between August 2018 and 2019 indicate that the population is likely to be significantly greater than TSSC's estimate, with estimates that the population could be around 17,200 individuals (Biota, 2020). This estimate is based on adults and subadults in larger remnant bush blocks across the species' range and does not account for individuals in urban, peri-urban and agriculture areas (Biota, 2020).

The main identified threats to WRP are habitat loss and fragmentation, predation, climate change, timber harvesting, inappropriate fire regimes, competition for tree hollows, habitat tree decline, un-regulated relocation of orphaned, injured, and rehabilitated WRP, disease, and gaps in knowledge (DPAW, 2017).

The WRP recovery plan identifies a ten-year goal of slowing the decline in population size, extent, and area of occupancy through managing major threatening processes affecting the subpopulations and their habitats and allowing the persistence of the species in each of the identified key management zones (DPAW, 2017). The long-term strategy for the recovery of the WRP is to improve the population status, leading to a reduction in the threat status, or the future removal of the WRP from the threatened species list of the EPBC Act and BC Act, and to ensure that threatening processes do not compromise the ongoing viability of the WRP population (DPAW, 2017).

Caladenia harringtoniae

Caladenia harringtoniae, commonly known as Harrington's spider-orchid or pink spider-orchid, is listed as Vulnerable under the BC Act and EPBC Act. It grows up to 40 centimetres tall, with leaves 15 – 25 centimetres long (DEWHA, 2008a). Each plant has one to three flowers that are 7 – 10 centimetres long and 5 – 7 centimetres across, with relatively narrow, short, stifly held petals and sepals, which are predominantly pink with white edges (DEWHA, 2008a). This species has smaller, paler pink flowers,

narrower tapering petals and sepals and a smaller labellum with a shorter fringe than Majestic spider-orchid (*Caladenia winfieldii*) (DEWHA, 2008a). It differs from Christine's spider-orchid (*Caladenia christineae*) in having pink, sweetly-scented flowers (DEWHA, 2008a). Flowering occurs from October to November, with summer fires stimulating flowering (DEWHA, 2008a).

C. harringtoniae has a restricted distribution, and is known from 37 populations between Nannup and Albany (DEWHA, 2008a). Quantitative data about these populations indicates that there is approximately 754 live individuals of *C. harringtoniae* scattered across the known distribution (WA Herbarium, 1998-). It usually inhabits paperbark (*Melaleuca* sp.) and flooded gum (*Eucalyptus rudis*) swamps and flats, which are inundated for several months of the year, but may also be found along creeklines in jarrah and karri forest (DEWHA, 2008a). The species occurs within the South West and South Coast Natural Resource Management Regions (DEWHA, 2008a).

The main identified threat to *C. harringtoniae* is fire during the active growth period of May to November (DEWHA, 2008a). Other identified threats include grazing by feral pigs (*Sus scrofa*) and road maintenance activities, which disturb plants and habitat (DEWHA, 2008a).

Drakaea micrantha

Drakaea micrantha, commonly known as the dwarf hammer-orchid, is listed as Vulnerable under the EPBC Act and as Endangered under the state BC Act. It is a tuberous, terrestrial herb which has a red and yellow flower 1.2 to 2.5 centimetres long, on a stem up to 30 centimetres high (DEWHA, 2008b). *D. micrantha* has a heart-shaped leaf that is silvery-grey with prominent green veins (DEWHA, 2008b).

The *D. micrantha* is known from small, scattered populations over a wide area from Perth to Albany and secure populations occur within the Frankland National Park (DEWHA, 2008b). The species is known from 109 Western Australian Herbarium records with a distribution of approximately 325 kilometres north-south and 270 kilometres east-west (WA Herbarium, 1998-). Of these, 65 populations provide quantitative data which indicate that there is a minimum of 283 live individuals in Western Australia (WA Herbarium, 1998-). *D. micrantha* occurs within the South West and Swan Natural Resource Management Regions (DEWHA, 2008b). The species is usually found in cleared fire breaks or open sandy patches that have been disturbed, and where competition from other plants has been removed (DEWHA, 2008b). *D. micrantha* occurs in infertile grey sands, in banksia, jarrah, and sheoak woodland or forest (DEWHA, 2008b). It is often found under thickets of spearwood (*Kunzea ericifolia*) with flying duck orchid (*Paracaleana nigrita*) and other *Drakaea* species (DEWHA, 2008b).

The main identified threat to *D. micrantha* is fire between June and early October, when its above ground parts and replacement tuber are actively growing (DEWHA, 2008b). The species' susceptibility to weeds is unknown but it is thought to be vulnerable to displacement by weed species (DEWHA, 2008b).

3.3. Summary of Impacts

Western ringtail possum

As outlined in Part 1, a variety of WRP assessments have been undertaken within the AHP and associated bushland reserves near Mounts Melville, Clarence and Adelaide (which include the application area), aimed at determining presence, abundance and distribution (OHCGP, 2018; DEC, 2012) of WRP, as well as characterising habitat use (Van Helden et al., 2018). WRP studies within the AHP have identified that individuals are predominantly occupying marri and jarrah trees for night-time use and may exhibit a preference for one or both species and an avoidance of other species (OHCG, 2018; Van Helden et al., 2018). Other trees known to be of use to a lesser extent than marri and jarrah within the AHP include peppermint, *Hakea elliptica*, and *Pinus* sp. (OHCG, 2018; Van Helden et al., 2018). The overstorey vegetation within the AHP is considered particularly important for possums, where individuals have rarely been observed in vegetation lower than two metres in height and frequently have been observed in trees up to seven metres above the ground during nocturnal spotlighting (OHCG, 2018; Van Helden et al., 2018; DEC, 2012c). Van Helden et al. (2018) also identified that possums within the AHP utilised dreys more frequently than other diurnal refuge types, although hollows and ground nests were also used quite frequently.

Given the findings of the previous assessments, the AHP is known to contain a population of WRP and the site is likely to be an important refuge for the species within urban Albany (OHCG, 2018; Van Helden et al., 2018; DEC, 2012c). Therefore, it is considered likely that individuals will be utilising the vegetation within the application area for foraging, diurnal refuge sites, and/or breeding habitat.

With consideration of the findings of these previous assessments, the City engaged Biota Environmental Sciences to undertake the AHP Link Trail WRP Impact Assessment to determine the impact of the proposed clearing on WRP habitat and provide management recommendations to reduce impacts to the species (Biota, 2019). The AHP Link Trail WRP Impact Assessment utilised data from the WRP Regional Surveys, which involved line transect distance sampling throughout the AHP (Biota, 2020). The line transect distance sampling method involved traversing 17.3 kilometres within the AHP at 75-metre intervals running north-south (see Figure 2 below). The WRP assessment made 105 observations, with a total of 123 individual WRP observed within the greater AHP (see Figure 2 below). Of these observations, 13 (14 possums in total) were made within the original clearing footprint of 35 hectares. As outlined under Part 1, the clearing footprint was revised to a specific two-metre-wide linear trail alignment during the assessment of the application to avoid and minimise clearing impacts. The revised application area of 3.16 hectares transects three WRP observations (four possums in total).

Figure 2. Distance sampling transect locations and western ringtail possum observations from the Western Ringtail Possum Regional Surveys (Biota, 2020) within the Albany Heritage Park study area (outlined red), the originally proposed clearing area of 3.42 hectares within a 35-hectare footprint (cross-hatched blue) and reduced clearing area of 3.16 hectares (cross-hatched yellow).

The WRP population of the AHP was estimated using the data obtained in the distance-sampling approach (Biota, 2019). Noting the size of the AHP is approximately 266.3 hectares, the analysis indicated an average density of 4.13 possums per hectare and an estimated total population of 1,100 ± 423 WRP individuals within the AHP (Biota, 2019). The application of density surface modelling indicated that the average density of possums per hectare are not uniform throughout the AHP, with densities greatest in the centre of the park and lowest in the western portion (see Figure 3 below). However, it is acknowledged that the density estimates have been based on the full extent of the AHP, including inappropriate/degraded habitat, cleared areas, granite outcrops, and carparks where WRP are unlikely to occur. Therefore, the actual WRP density within areas of suitable habitat may be higher than the average density of 4.13 possums per hectare.

The average density of 4.13 possums per hectare estimated within the AHP is comparable with the densities estimated for traditionally recognised strongholds for WRP, including the Tuart Forest National Park (Ludlow State Forest) between Busselton and Bunbury, which was estimated at 3.40 to 3.98 individuals per hectare (Biota, 2020). The average density of WRP within the AHP is also relatively high compared to estimated densities at other large reserves surveyed in the Albany region during the WRP Regional Surveys, which ranged from 0.08 to 3.98 possums per hectare (Biota, 2020). These density estimates were obtained within a single 12-month period using consistent methodology and therefore, the variation is not expected to be due to survey timing or methodology alone and is more likely to relate to habitat variables such as extent and quality of suitable habitat within each reserve, past disturbance levels (fire and logging frequency and intensity), and distance from the coast (Biota, 2020). In any case, the relatively high density estimates indicate that the AHP contains high quality habitat for WRP and is likely to support a significant population, both within the Albany region and across the species' range.

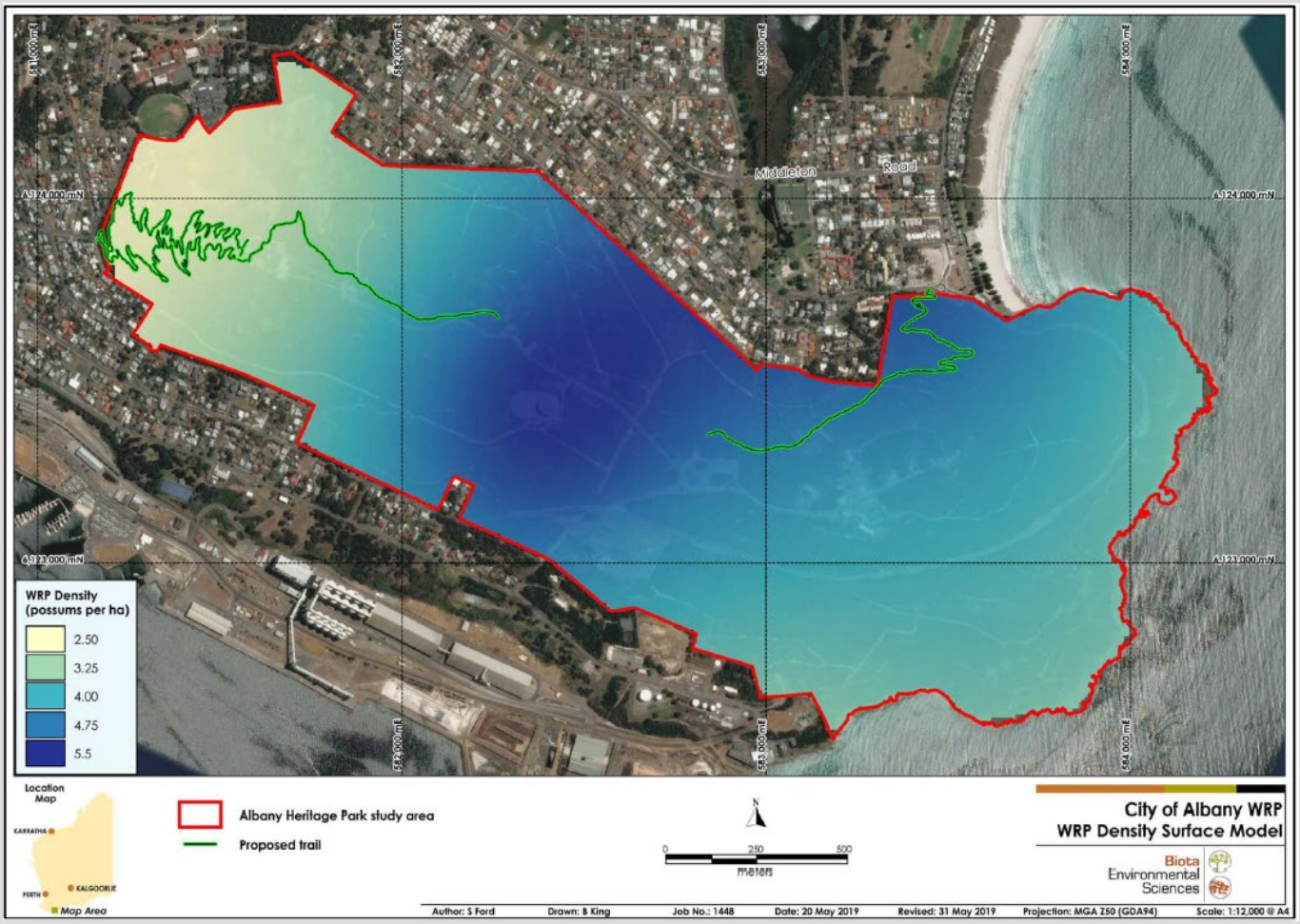


Figure 3. Density surface modelling for western ringtail possum observations from the Western Ringtail Possum Regional Surveys (Biota, 2020) within the Albany Heritage Park (Biota, 2019).

It is acknowledged that there is some variation in population estimates for the AHP and Albany region between studies that results in uncertainty as to the true extent of local and regional WRP populations. The population estimate for WRP obtained in 2019 during the WRP Regional Surveys (Biota, 2020) is considerably higher than that obtained through distance sampling within a similar area of the AHP in 2018, which produced a population estimate of approximately 767 ± 201 WRP individuals within the AHP (OHCG, 2018). Further, the estimated population size for the AHP is also higher than the combined Albany subpopulation estimate of 500 mature individuals outlined in the conservation advice for the species (TSSC, 2018). Albany regional population estimates from the WRP Regional Surveys indicate approximately 3,340 individuals occur within a 30-kilometre radius around the Albany townsite (Biota, 2020).

While the variation in population estimates between the WRP Regional Surveys and other studies is acknowledged, it is noted that the regional surveys are the most recent and comprehensive assessment of WRP abundance across the species' range and involved a unified distance sampling method across a total of 269.9 kilometres along 272 transects within 14 sites in the Albany region (Biota, 2020). It is also acknowledged that the WRP Regional Surveys were undertaken primarily within the conservation estate or large reserves and did not include urban or peri-urban settings, riparian belts in agriculture settings, road reserves and smaller vegetation remnants, which may have underestimated regional WRP populations (Biota, 2020). Taking into account the survey effort, the observed spatial variation in possum densities across the study areas, and that the surveys counted both adults and sub-adults, the WRP Regional Surveys are considered to lead to the most accurate population estimate for WRP within the AHP and Albany region at this time.

The vegetation mapping of the AHP indicates that the application area contains a variety of habitat types that may be utilised by WRP, including Eucalyptus/Corymbia Forest, Gastrolobium/Hakea Shrubland, Coastal Shrubland, Peppermint Low Forest, and Sheoak Woodland (Southern Ecology, 2022; Southern Ecology, 2020). Approximately 98.5 per cent of the vegetation within the application area is also in Very Good to Pristine (Keighery, 1994) condition and is likely to provide high canopy connectivity for WRP (Southern Ecology, 2022; Southern Ecology, 2020). Therefore, the application area is likely to provide a minimum of 2.85 hectares of suitable foraging habitat for WRP, as well as potential breeding and diurnal refuge sites. Further, possums were identified within vegetation immediately to the north and south of the application area during the WRP Regional Surveys, indicating that the application area is also likely to be utilised for dispersal throughout the AHP. Given the condition and connectivity of the vegetation within the application area and adjacent vegetation within the AHP, the entire application area of 3.16 hectares is considered to provide suitable foraging and dispersal habitat for WRP, as well as potential breeding habitat and diurnal refugia.

The recovery plan for WRP describes critical habitat as any habitat where the species occurs naturally (DPAW, 2017). The WRP Regional Surveys confirm that WRP are utilising the application area, with four individuals observed within the boundaries of the application area across three nights of spotlighting (Biota, 2019). Based on the average density of the AHP, it is considered that the proposed clearing of 3.16 hectares has the potential to directly impact habitat utilised by approximately 13 WRP individuals at

any given time. In considering the findings of the WRP Regional Surveys and the vegetation surveys of the application area, the proposed clearing will have significant impacts on WRP as it will result in the loss of 3.16 hectares of critical habitat for the species that is currently utilised by individuals within a regionally significant population.

It is acknowledged that the City have had regard to avoiding and minimising the impacts of the proposed clearing on WRP, including retaining all habitat trees within the application area and avoiding the clearing of trees with a DBH greater than 100 millimetres, where possible, to maintain canopy connectivity across the trails. Further details on avoidance and mitigation measures are summarised in Section 3.5. While the application area includes critical habitat for WRP, the proposed clearing relates to linear clearing for a two-metre-wide trail alignment along a length of 3.5 kilometres and will predominantly involve the removal of mid- and understorey species within the application area. Therefore, the proposed clearing will not result in the loss of mature, hollow-bearing trees that provide diurnal refugia for WRP but has the potential to reduce the availability of foraging and dispersal habitat within the AHP by 3.16 hectares and represents a significant residual impact to the local population.

The significant residual impacts to WRP habitat are proposed to be addressed through the implementation of a satisfactory environmental offset, involving the rehabilitation of approximately 8.16 hectares of unrequired trails and degraded areas within the AHP, the incorporation of 8.09 hectares of significant WRP habitat into the AHP Crown Reserve (Reserve 2682), and the change of vesting of 10.8 hectares of significant WRP habitat within the AHP Crown Reserve (Reserve 2682) to include Conservation, with the objective of establishing and maintaining vegetation that provides resilient habitat for WRP. The suitability of the proposed offset to counterbalance the significant residual impacts is outlined in Part 4.

A primary objective of the WRP recovery plan is the identification and projection of habitat critical for survival of WRP in each key management zone and recommended management actions include the protection and effective management of habitat critical for survival to maintain viable subpopulations, including ongoing implementation of strategies to reduce and mitigate the effect of development on the species and its habitat (DPAW, 2017). In considering the mitigation measures employed by the City and the proposed offsets discussed above, the proposed clearing of 3.16 hectares of habitat for WRP is not considered to be inconsistent with the objectives of the WRP recovery plan.

Caladenia harringtoniae

As outlined in Part 1, targeted flora surveys were undertaken within the original clearing footprint of 35 hectares (the survey area) over a total of four days in September and October 2017 and eight days in September and October 2020, as well as within the revised application area of 3.16 hectares over a total of three days in October and November 2022 (Southern Ecology, 2022; Southern Ecology, 2020). The surveys involved targeted searches in vegetation types identified as potential habitat for *C. harringtoniae*, comprising an intensive grid of suitably spaced transects (Southern Ecology, 2020).

Several individuals of *C. harringtoniae* were previously observed in the AHP within, or in close proximity to, the survey area on the slope of Mount Clarence in 1983 (Southern Ecology, 2022; Southern Ecology, 2020). Advice received from DBCA indicates that the species has not been relocated in this area since its discovery in 1983, despite attempts to identify the population in 1992 and 2016 (DBCA, 2021). Southern Ecology used the distinctive habitat and topography of this occurrence, as well as ground-truthing in the field surveys, to define an approximately 1.88-hectare area of potential critical habitat within the survey area, where critical habitat was defined as sheet granite with species of *Borya, Hakea, Dodonaea* and *Lepidosperma* (Granite Shrubland and Herbland vegetation type) that occurs on the northern face of Mount Clarence (Southern Ecology, 2022; Southern Ecology, 2020). Other potential habitat for *C. harringtoniae* within the survey area included granite sheets on Mount Adelaide, Gastrolobium/Hakea Shrubland and Coastal Heath (Southern Ecology, 2022; Southern Ecology, 2020). Eucalyptus/Corymbia Forest within the survey area was not considered to be suitable habitat for *C. harringtoniae* (Southern Ecology, 2022; Southern Ecology, 2020).

During the 2022 flora surveys, a total of 0.28 hectares of Pristine (Keighery, 1994) condition granite herbland was identified across three separate areas within the 1.88 hectares of potential critical habitat (Southern Ecology, 2022). The Pristine (Keighery, 1994) condition granite herbland is considered to comprise a critical micro-habitat for *C. harringtoniae* and these areas were re-mapped in fine detail in the 2022 flora surveys to distinguish them from areas of potential critical habitat (Southern Ecology, 2022). Based on the revised mapping, the survey area contains a total of 1.88 hectares of critical habitat for *C. harringtoniae*, including 0.28 hectares of critical micro-habitat and 1.6 hectares of potential critical habitat (Southern Ecology, 2022; Southern Ecology, 2020).

The defined 1.88 hectares of potential critical habitat and critical micro-habitat, as well as the surrounding exposed granite, were surveyed over multiple days in Spring 2017, 2020, and 2022, and did not detect any emergent individuals of *C. harringtoniae* (Southern Ecology, 2022; Southern Ecology, 2020). The timing of the survey was considered appropriate to identify individuals if present, as two nearby populations of *C. harringtoniae* outside of the survey area (Little Grove and Goode Beach) were flowering at the time of the surveys (Southern Ecology, 2022; Southern Ecology, 2020). It is acknowledged that the failure to detect *C. harringtoniae* in a single season does not exclude its presence from the application area or greater survey area or its potential to emerge in future years, particularly after fire. However, given targeted surveys were undertaken during the species' flowering period in three separate years, it is possible that *C. harringtoniae* may no longer persist at the site. This is consistent with advice received from DBCA (2021).

Following the findings of the flora surveys, the City revised the proposal to a specific trail alignment of approximately two metres in width across a linear area of 3.5 kilometres, to avoid and minimise impacts to *C. harringtoniae* habitat (City of Albany, 2023). The revised application included a refined two-metre-wide clearing footprint with a total clearing area of 3.16 hectares designed to reduce the extent of impacts to *C. harringtoniae* habitat, as well as a trail realignment in the centre of the application area to avoid a 0.1-hectare intact area of critical micro-habitat (Southern Ecology, 2023). The original proposal was assessed as resulting in impacts to 0.9 hectares of critical habitat for *C. harringtoniae*, including 0.25 hectares of critical micro-habitat and 0.65 hectares of potential critical habitat (see Figure 4 below). The revised application will involve clearing within a total of 0.026 hectares of critical habitat for *C. harringtoniae*, including 0.002 hectares of critical micro-habitat and 0.024 hectares of potential critical habitat (see Figure 4 below).

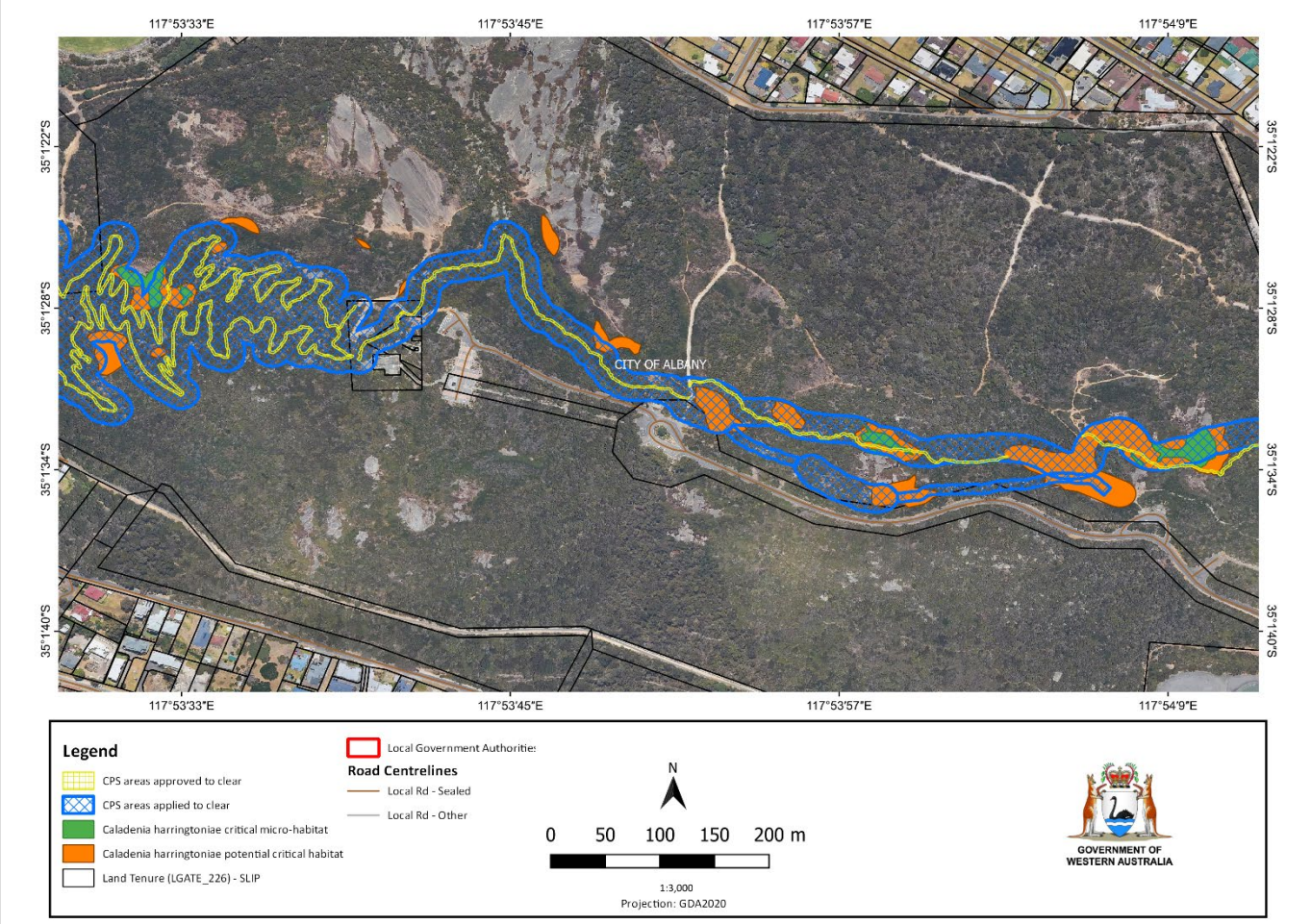


Figure 4.Critical micro-habitat (shaded green) and potential critical habitat (shaded orange) for *C. harringtoniae* identified within the flora surveys (Southern Ecology, 2022; Southern Ecology, 2020) of the originally proposed clearing area of 3.42 hectares within a 35-hectare footprint (cross-hatched blue) and reduced clearing area of 3.16 hectares (cross-hatched yellow).

Considering the above, the proposed clearing is not likely to result in direct impacts to individuals of *C. harringtoniae* but will result in the loss of its critical habitat. Given the potential for *C. harringtoniae* to emerge within areas of critical habitat at the time of the proposed clearing, conditions on the clearing permit will require the City to ensure that no individuals of *C. harringtoniae* are cleared under the proposal.

To further mitigate indirect impacts to *C. harringtoniae* habitat adjacent to the application area, the City has advised that a balustrade or barrier will be installed between the trail re-alignment and the 0.1-hectare intact area of critical micro-habitat, to minimise the risk of inadvertent foot traffic continuing downslope into intact *C. harringtoniae* habitat (City of Albany, 2023). It is also acknowledged that the clearing of critical micro-habitat for *C. harringtoniae* is limited to a 0.002-hectare area on the southern edge of a 0.04-hectare patch and, given the linear nature of the proposed clearing, is unlikely to significantly reduce the extent of the patch of micro-habitat in this area or fragment a local population, if present.

Given the avoidance and mitigation measures employed by the City, it is not expected that the proposed clearing of a maximum of 1.4 per cent of the recorded critical habitat for *C. harringtoniae* (comprising approximately 0.7 per cent of the mapped critical micro-habitat and 1.5 per cent of the mapped potential critical habitat) will result in significant impacts to the ongoing maintenance of the species or local population, if present. This is consistent with advice received from DBCA which indicated that, given potential impacts to the mapped habitat can be minimised through the proposed measures, the potential impacts to *C. harringtoniae* are likely to be adequately addressed (DBCA, 2021).

Drakaea micrantha

As outlined in Part 1 and the summary of impacts to *C. harringtoniae* above, targeted flora surveys were undertaken within the application area in Spring 2017, 2020, and 2022 (Southern Ecology, 2022; Southern Ecology, 2020). The surveys involved targeted searches in vegetation types identified as potential habitat for *D. micrantha*, comprising an intensive grid of suitably spaced transects (Southern Ecology, 2020).

The flora surveys identified that there is limited habitat for *D. micrantha* within the greater survey area and that suitable habitat for the species is limited to wet soaks in the Sheoak Woodland vegetation unit (Southern Ecology, 2020). No individuals of *D. micrantha* were identified during the flora surveys (Southern Ecology, 2022; Southern Ecology, 2020). Given the flora surveys were suitably timed within the flowering period of the species and that surveys were undertaken across three separate years, the survey effort is considered adequate to identify *D. micrantha* and its habitat, if present within the application area.

Given the findings of the surveys and noting that a maximum of 0.02 hectares of Sheoak Woodland occurs within the application area, it is unlikely that *D. micrantha* is present or will be significantly impacted by the proposed clearing.

3.4. Public consultation

Community Engagement

During the development of the Albany Heritage Park Trails Concept Plan in 2015/2016, the City undertook significant community consultation in relation to the Albany Heritage Park Link Trails project, including:

- Meetings with key stakeholder groups such as Noongar Elders, families and the City of Albany Noongar consultative committee, staff at the National ANZAC Centre and Forts precinct, DPaW staff, Albany Bushwalkers Group, Albany Mountain Bike Club, and City of Albany reserves management staff,
- In-person information workshops for the broader community in February, July, and August 2016 with a total of 73 attendees across all sessions,
- Two online surveys, including one during February and March 2016, receiving 230 submissions, and another between 29 September and 23 October 2016, receiving a total of 248 online submissions, and
- Invitations for written submissions between 29 September and 23 October 2016, with a total of 24 written submissions received (City of Albany, 2016b).

Promotion and advertisement of the Albany Heritage Park Trails Concept Plan consultation period in 2015/2016 included:

- Advertisements in the Albany Advertiser (29/9/16, 6/10/16, 13/10/16, 20/10/16),
- Direct emailing of the information to all community members who had previously attended one or more of the community forums/workshops,
- Displays at the North Road Offices, Albany Public Library and Albany Leisure and Aquatic Centre,
- Displays at community events such as the Over 50's Have a Go Day,
- Briefings of community groups including the Middleton Beach Group, Fredericks Town Progress Association, South Coast NRM and the Albany Bike Users Group,
- One on One meetings with a number of interested community members,
- Placement of information in information shelters on Mt Clarence and Mt Adelaide,
- Placement of signage at key walk trail entries to the AHP,
- Posts on the City of Albany Social Media and website,
- Post on the social media platforms of groups such as the Albany Bushwalking Club, Albany Trail Runners and Albany Mountain Bike Club from which the posts were shared by members, and
- A radio interview on ABC Great Southern by the City of Albany Project Officer (City of Albany, 2016b).

In 2018/2019, the City undertook further consultation relating to the Albany Heritage Park Link Trails project through the Mounts Master Plan, which involved:

- Four community information sessions held on 5, 6, 12, and 13 July 2019,
- An online survey developed to capture the usage, values, ideas and priorities of the community, and
- Interactive workshops with 20 key stakeholder groups and community members, including:
    - A Community Advisory Group representing the University of Western Australia, South Coast Natural Resource Management, DBCA, Great Southern CORE, Department of Sport and Recreation, RSL Albany, Aboriginal Heritage Reference Group, Museum WA, Middleton Beach Group, The Amazing South Coast, FORM, Community/Business Representatives,
    - Internal stakeholders including elected members, executive directors and managers, Princess Royal Fortress and NAC staff, reserves staff, events staff, communications staff, Albany Visitor Centre staff, and Albany Library staff,
    - External stakeholders including Middleton Beach Group, Frederickstown Progress Association, Bush Carers Group, Wildflower Society, Albany Port Authority, business owners operating out of Princess Royal Fortress, accommodation providers, Albany Mountain Bike Club, Southern Aboriginal Corporation, Museum WA, South Coast NRM, Gondwana Link, Kurrah Mia, Albany Youth Advisory Council, St Joseph's College students, and Albany Senior High School students,
    - A community workshop open to all community members, and
    - National stakeholders, including presentations to representatives from Australian War Memorial, Telstra, Lotterywest, and National Trust (City of Albany, 2020).

Indigenous Stakeholder Engagement

The City has advised that indigenous stakeholders were invited to be involved in the aforementioned consultation opportunities for the Albany Heritage Park Trails Concept Plan in 2015/2016 and Mounts Master Plan in 2018/2019 (City of Albany, 2021a). In addition, the City has indicated that a workshop was held between the City of Albany, Common Ground and local elders for indigenous interests and issues relating to the Albany Heritage Park Link Trails project to be discussed (City of Albany, 2021a).

The City commissioned an Aboriginal Heritage survey of the Albany Heritage Park Link Trails project area in 2017 (Dortch & Cuthbert Pty Ltd, 2017) and is aware of a number of registered and non-registered Aboriginal sites of significance within the project area (City of Albany, 2021a). The City has advised that these sites have been considered and avoided during the planning of trail corridor alignments (City of Albany, 2021a).

Clearing Permit Advertisement

The clearing permit application was advertised on DWER's website on 24 April 2021, inviting submissions from the public within a 21-day period. Nine public submissions were received at this time.

The clearing permit application was re-advertised on DWER's website on 9 December 2022, to reflect the re-alignment of the proposed trail to avoid and minimise clearing impacts. Submissions from the public were invited within a 7-day period and 16 public submissions were received. Seven of these were a repeat of submissions received during the original advertisement period and DWER considers that 18 individual submissions have been received in total in relation to the proposed clearing.

Details of these submissions and how they were considered in the assessment are in Appendix A of this report.

3.5. Avoidance, minimisation, mitigation and offset

Avoidance and minimisation

Proposed alternatives

The City advised that it had considered proceeding with upgrades to the existing AHP trails and undertaking no new trail construction as an alternative to the Albany Heritage Park Link Trails project (City of Albany, 2021c). However, the City advised that the existing trails within the AHP have been installed as walk-only trails and fire access tracks, or have been illegally constructed, and as a consequence do not cater for all current user types or expertise (City of Albany, 2021c). In particular, the majority of existing trails are not designed for use by bikers, which is resulting in ongoing user conflict on the existing trails and environmental damage through unauthorised trails, as mountain bike riding within the AHP has increased significantly over the past 20 years (City of Albany, 2021c). The City has indicated that environmental damage such as erosion and habitat degradation caused through the use of unauthorised trails within the AHP will continue without the construction of a well-designed, dual-use trail network (City of Albany, 2021c). The City of Albany has also advised that the recreational pressure on the AHP is predicted to increase in the future with rises in population and tourism in the Albany region, and that the existing AHP trails will not cater for this long-term (City of Albany, 2021c).

As another alternative to the Albany Heritage Park Link Trails project, the City advised that eight alternative sites for trail development were identified and included in the City of Albany Trails Hub Strategy (City of Albany, 2015). However, the Albany Heritage Park Link Trails project was selected as a priority for implementation and the preferred site for trail development, due to it creating an important link between the Albany CBD and its main beach; Middleton Beach (City of Albany, 2021c). The proposed trail corridor was identified in the Albany Heritage Park Trails Network Concept Plan (City of Albany, 2016a) through analysis of the topographic attributes of the area, whilst being aware of constraints and key linkages with surrounding infrastructure, natural features, and popular destinations (City of Albany, 2021c).

Avoidance and minimisation of clearing impacts

The City has advised that the design of the proposed trails has been guided by scientific information from the various biological surveys undertaken within the AHP (see Section 2) and that significant environmental values identified in these surveys have been excluded from the trail alignment and proposed clearing footprint, where possible (City of Albany, 2021c). Where significant environmental values could not be excluded from the proposed trail alignment and clearing footprint, the City have made commitments to further avoid and minimise clearing impacts, some of which will be reflected in the conditions of the clearing permit, including to:

- avoid and minimise native vegetation clearing, wherever possible,
- utilise previously cleared areas or trails to minimise the need for native vegetation clearing,
- retaining natural features such as granite boulders and outcrops, where possible,
- retain all black cockatoo habitat trees and hollow-bearing trees that may provide refuge for WRP within the application area,
- ensure no WRP dreys are removed,
- ensure no *C. harringtoniae* individuals are cleared,
- ensure no *Synaphea preissii* (Priority 3) individuals are cleared,

During the assessment of the application, the City reduced the total area of proposed clearing from 3.42 hectares to 3.16 hectares and reduced the trail alignment (clearing footprint) from an approximately 35-hectare clearing footprint to a specific trail alignment of approximately two metres in width across a linear area of 3.5 kilometres, to avoid and minimise the clearing impacts to threatened and priority flora species and black cockatoo habitat (see Figure 5 below). The revised application area resulted in:

- A reduction in impacts to critical habitat for WRP from 3.42 hectares to 3.16 hectares,
- A reduction in impacts to critical habitat for *C. harringtoniae* from 0.9 hectares (0.25 hectares of critical micro-habitat and 0.65 hectares of potential critical habitat) to 0.026 hectares (0.002 hectares of critical micro-habitat and 0.024 hectares of potential critical habitat),
- A reduction in the number of black cockatoo habitat trees within the application area from 231 to nine,
- A reduction in direct and indirect impacts to *Spyridium spadiceum* (Priority 4) from 507 individuals to 46 individuals,
- A reduction in direct and indirect impacts to *Stylidium falcatum* (Priority 2) from 68 individuals to 42 individuals, and
- A reduction in direct and indirect impacts to *Thysanotus isantherus* (Priority 4) from 127 individuals to 84 individuals (see Section 4).

Figure 5.Comparison of originally proposed clearing area of 3.42 hectares within a 35-hectare footprint (cross-hatched blue) and reduced clearing area of 3.16 hectares (cross-hatched yellow).

Mitigation measures

The City has advised that additional measures will be imposed to mitigate the potential adverse impacts to significant environmental and heritage values within the AHP during the proposed clearing and construction of the Albany Heritage Park Link Trails project (City of Albany, 2021c). The mitigation measures proposed are summarised in Table 7 below.

Table 7 Mitigation measures proposed by the City of Albany to limit the potential adverse impacts from the proposed clearing under the Albany Heritage Park Link Trails project (City of Albany, 2021c).

Environmental/Heritage value	Mitigation measures
General	• Vegetation clearing and trail construction will utilise hand tools and small equipment to mitigate disturbance and allow any fauna present to disperse into adjacent vegetation, • Cleared material will be removed from work sites and placed on nearby unauthorised trails to be permanently closed or on degraded areas to promote natural regeneration. • Where necessary, small granite boulders will be mechanically relocated to allow for trail construction. These boulders will remain on site and used to define the trail alignment by creating anchor points or to discourage trail users from deviating from the constructed trail. • The City will prepare Environmental Code of Conduct (ECC) for the project, which will be used to train construction crews at start-up meetings. • Compliance with the ECC during clearing and construction will be closely monitored on-ground by the City's Reserves Officers. • Trail users will be encouraged to stay on approved trails through strategically placed objects such as natural boulders and soft ground. Trail markers will also be installed to prevent unauthorised access.
Western ringtail possums	• Trees over 100 millimetres in diameter will be avoided, wherever possible, to retain habitat and canopy connectivity. However, removing some trees over this size will be unavoidable in some areas due to tree density not allowing for a continuous trail alignment. • The clearing area will be inspected before clearing and vegetation will be physically disturbed/shaken before clearing to allow any animals present to disperse into adjacent vegetation. • No WRP individuals will be killed, injured or removed from site as a result of clearing or construction.

	• Reports of possums being injured or killed along the trails will be registered at the City and investigated. Signs will be installed advising night riders of the potential for bicycle strikes, to be as vigilant as possible and what to do if a possum is found dead or injured.
Black cockatoo species	• Where possible, trail alignments will avoid common food plants of the black cockatoos such as marri and jarrah trees, and proteaceous trees and shrubs.
Caladenia harringtoniae	• Any newly discovered plants identified near trails during clearing or construction will be recorded and protected from trail users and maintenance works.
Weeds, dieback and erosion	• Best practice trail design in accordance with the *Western Australian Mountain Bike Management Guidelines* will be implemented to suit the site specific terrain and soil types. The design will involve frequent drainage features, such as grade reversals, rolling grade dips and kicks to avoid erosion events. These features are essential to minimise damage to the trail and the surrounding area and will minimise ongoing maintenance costs to the City and community. • Trails will be constructed in late spring and summer to avoid the wettest part of the year. • Clearing and construction works will be undertaken in accordance with the *Operational Hygiene Management Plan: Albany Heritage Park Link Tails Network* (Great Southern Bio Logic, 2022). • All machinery and equipment will be clean upon entry to and exit from the project area and cleaned before moving between sites within the project area. • The boundaries of dieback infected and uninterpretable areas will be marked for ease of identification and all machinery and equipment will be cleaned when moving between these boundaries. • Infrastructure such as “rattle points” and boot, wheelchair and bike clearing stations will be installed to dislodge dirt when leaving a dieback infected area and entering an uninterpretable area. Educational signage about dieback will also be installed in these areas. • Where necessary, the trail surface will be managed with low risk dieback material, such as crushed granite, limestone or gravel. • Rock armouring will also be used where required to protect the trail surface.
Aboriginal heritage values	• Aboriginal monitors will be used during the clearing operations. If previously unknown values come to light, then the trail will be realigned to also avoid impacting on these values.
European heritage values	• Trail alignments are respective of heritage infrastructure and cultural sites and will not impact these values. • Impact on landscape values will be mitigated by minimising the trail footprint (i.e., keeping it as narrow as possible) and avoiding the clearing of canopy trees wherever possible.

Offset

After consideration of the above avoidance, minimisation and mitigation actions taken by the City, the Delegated Officer determined that the proposed clearing will result in the following significant residual impacts:

- The loss of 3.16 hectares of significant habitat for WRP,
- The loss of 3.05 hectares of significant foraging habitat for Baudin’s cockatoo,
- The loss of 3.05 hectares of significant foraging habitat for Carnaby’s cockatoo, and
- The loss of 3.05 hectares of significant foraging habitat for forest red-tailed black cockatoo.

To address the above impacts and applying the EPBC Offsets assessment guide (Commonwealth Offsets Calculator), the Delegated Officer determined that the following offset is required:

- The rehabilitation of 8.16 hectares of native vegetation that comprises significant habitat for WRP, Carnaby’s cockatoo, Baudin’s cockatoo, and forest red-tailed black cockatoo within the AHP Crown Reserves (Reserve 2682, Reserve 27068, and Reserve 38226) from a Completely Degraded-Degraded (Keighery, 1994) condition to a Good-Very Good (Keighery, 1994) condition,
- The incorporation of 8.09 hectares of native vegetation within Lot 172 on Deposited Plan 222002 into the AHP Crown Reserve (Reserve 2682) to be vested as Conservation and Public Park, with active weed management, comprising at least:
    - 8.09 hectares of significant habitat for WRP in Very Good (Keighery, 1994) condition,
    - 3.01 hectares of significant foraging habitat for Baudin’s cockatoo in Very Good (Keighery, 1994) condition,
    - 3.01 hectares of significant foraging habitat for Carnaby’s cockatoo in Very Good (Keighery, 1994) condition, and
    - 0.49 hectares of significant foraging habitat for forest red-tailed black cockatoo in Very Good (Keighery, 1994) condition.
- The change of vesting and active weed management of 10.8 hectares of native vegetation that comprises significant habitat for WRP in Very Good to Excellent (Keighery, 1994) condition within the AHP Crown Reserve (Reserve 2682) and to include Conservation in addition to the current vesting.

The calculations determined that the offset strategy outlined above is sufficient to adequately address significant residual impacts of the clearing. Further information relating to the offset actions are included under Part 5 and Appendix F.

3.6. Economic and social matters

Economic Matters

The Albany Heritage Park Link Trails project has been identified as a key project for the City of Albany to work towards developing Albany into a World Class Trails Tourism Hub (City of Albany, 2016b). It is anticipated that the Albany Heritage Park Link Trails will facilitate increased tourism to the Albany region and support economic, social, and cultural benefits from the ongoing development of the Mounts Precinct (City of Albany, 2020).

The *Great Southern Outdoor Recreation Strategy 2018-2021* (DLGSC and GSCORE, 2018) indicates that the development of outdoor recreation products and services is crucial to diversifying and strengthening the economic base of the Great Southern region. The recreation strategy indicates that trails are a significant building block in the growth and expansion of the adventure tourism sector and the associated economic benefits that flow from increased business opportunities and jobs creation (DLGSC and GSCORE, 2018). The *Great Southern Regional Trails Master Plan 2020-2029* (GSCORE, 2019) also recognises trails as an opportunity to create a connected and diverse eco-tourism and adventure tourism product that is highly marketable and sustainable to interstate and international markets.

The City has undertaken cost-benefit analysis for the project and advised that the expected economic benefits and impacts arising from investment in the Albany Heritage Park Link Trails include:

- Retaining and growing direct and indirect employment opportunities construction, creating new employment opportunities through trail construction with flow-on effects to associated services and wholesale and retail industries,
- Retaining and growing direct and indirect employment opportunities in tourism, introducing new employment opportunities in trail-based tourism experiences such as bike hire, guided tours, and trail-based accommodation experiences, as well as supporting ongoing operational employment in tourism through business diversification (new product development) and by improving business sustainability, and
- Growing and diversifying the visitor market of the Albany region and attracting domestic and international visitors (City of Albany, 2021c).

Social Matters and Public Consultation Outcomes

As discussed in Section 3.4, the City has undertaken consultation with various stakeholders as part of the Albany Heritage Park Trails Concept Plan in 2015/2016 and Mounts Master Plan in 2018/2019.

During development of the Albany Heritage Park Trails Concept Plan, initial online surveys during February and March 2016 indicated that approximately 69 per cent of respondents believed the existing trails and facilities at the AHP are average to poor quality (City of Albany, 2016b). The key outcomes and communication received through the initial survey were used to develop the Albany Heritage Park Trails Concept Plan and included:

- Many locations around the AHP are appreciated for their recreational, environmental, or historical value,
- Many trails are popular with both walkers and mountain bikers, creating a potential for conflicts between the users,
- Walking trails could be improved with some links and better access to desirable locations surrounding the AHP,
- The existing sanctioned mountain bike trail (advanced black diamond downhill) does not currently cater for a wide range of mountain bike users,
- There is a lack of suitable trails to challenge beginner and advanced mountain bike riders,
- There are many popular walking trails that are experiencing degradation through poor design construction and the inappropriate use by mountain bikes,
- There is confusion about the purpose of tracks, and signage is lacking, and
- There is poor access to trails and there are no formal trail heads with information or facilities for visitors (City of Albany, 2016b).

Following development of the Albany Heritage Park Trails Concept Plan, community members and stakeholders were invited to participate in an online survey and/or provide written submissions on the draft Concept Plan between 29 September and 23 October 2016 (City of Albany, 2016b). Respondents to the online survey were majority in support of the Concept Plan, with 86.7 per cent (215 respondents) supportive of the overall plan, 10.9 per cent (27 respondents) not supportive of the plan, and 2.4 per cent (six respondents) unsure (City of Albany, 2016b). Of the written submissions received, 58 per cent (14 respondents) were unsupportive of the plan, 33 per cent (eight respondents) were supportive, and nine per cent (two respondents) were unsure (City of Albany, 2016b). In most cases where respondents were unsupportive of the Concept Plan, the need to develop or upgrade trails within the AHP was acknowledged but concerns were raised regarding:

- The construction of mountain bike trails within the AHP changing the character of the park from one of quiet reflection and nature study to one of extreme sport,
- The possibly of conflict or collision between walkers and mountain bike riders,
- The development of recreation trails being inconsistent with the purpose of the reserves,
- The Concept Plan being endorsed prior to the City's Natural Reserves Strategic Plan being finalised,
- The need for good trail network signage to address safety issues and provide guidance to infrequent visitors,
- Possible environmental impacts of the trail including, but not limited to, the spread of weeds and dieback, impacts to WRP, and impacts to rare flora,
- The need for maintenance of the current trails in addition to the development of new trails and the potential funding constraints for ongoing maintenance,
- The need for more dedicated "walker-only" trails, and
- The need for better balance between the amount of walking trails and the amount of mountain bike trails (City of Albany, 2016b).

Based on the outcomes of the public consultation on the Albany Heritage Park Trails Concept Plan, the City determined to adopt the Concept Plan subject to ongoing consideration of the community submissions and concerns, the Albany Natural Reserves Strategy, and the results of the Aboriginal Heritage Survey (Dortch & Cuthbert Pty Ltd, 2017) during the detailed design phase (City of Albany, 2016b).

Further consultation in 2019 during the development of the Mounts Master Plan identified that 63 per cent of the community recognise a trail network strategy as a high priority (City of Albany, 2020). The key outcomes of the consultation relating to the Albany Heritage Park Trails Link included:

- The community has significant concern regarding the adoption of the Albany Heritage Park Trails Concept Plan,
- It is a high priority for the community that the conflict between trail users was resolved, particularly to limit the ongoing danger of mountain bike and pedestrian accidents through designated trails,
- The community believes the natural environment of the Mounts needs protecting by establishing purpose-built and sustainable trails, whilst also minimising the damage to and clearing of native vegetation,
- The community believes professionally planned mountain bike trails will be a great addition to the area and will be great for building tourism, health, and wellbeing in Albany (City of Albany, 2020).

In response, the City advised that the development of a balanced, site responsive trail system catering to a range of different trail users, styles, levels of difficulty and experience, whilst ensuring the protection of the Mounts' environmental, cultural and heritage values was a high priority under the Mounts Master Plan (City of Albany, 2020). A key project outcome of the Mounts Master Plan included the review, consolidation, and implementation of the mountain bike trail network as per the Albany Heritage Park Trails Concept Plan (City of Albany, 2020).

In considering the relevant social matters, the City of Albany undertook cost-benefit analysis and identified the potential social benefits of the Albany Heritage Park Link Trails project included:

- Addressing social disadvantage:
    - The employment created through this project will help to address economic disadvantage in the region, improve weekly wages, and improve overall income levels.
    - Trail employment (construction and tourism) will improve connection to Country and the opportunity to foster community interaction and communication between Aboriginal and non-Aboriginal people.
- Enhanced Liveability:
    - This project will provide current and future residents with improved infrastructure and better amenities and create a richer, more balanced community by attracting new residents, retaining residents and better engaging existing residents, including youth. Recreational opportunities, including walking tracks and cycling trails enhance the liveability of regional cities, towns and villages and therefore the appeal to millennials.
    - Three of the priority projects are located close to town centres, thereby enabling young people to easily access and use the trails close to where they live.
    - Diversified unstructured recreational opportunities, and associated employment opportunities, all stand to have a significant impact on the attraction and retention of young people to the region.
    - Improved property values of property near trails.
- Active Leisure:
    - The trail network will provide local residents with active leisure (walking, riding and running) opportunities. There is a particularly acute need to address the lack of mountain bike (MTB) trails. There is less than 1km of sanctioned MTB trail in the entire Great Southern, but two active MTB clubs (Albany and Denmark) with a combined membership of 200. Club members have to travel three hours to access the nearest MTB trails.
    - The trail network will enable skills development and coaching to be offered to residents, improving the skills of existing trail users, but also providing opportunities to engage new trail cohorts, particularly amongst women, seniors, and CALD groups.
- Improved health and wellbeing:
    - Access to waterways, trails and other outdoor recreation infrastructure has been associated with better perceived general health, reduced stress and anxiety levels, and reduced depression. Increasing the number and type of active leisure trails is critical to increasing participation rates and meeting people's immediate and varying recreational needs.
    - Physical activity can reduce the need for medical intervention and the subsequent demand for health services resulting in lower health costs. It also improves productivity, reduces absenteeism in the workplace.
- Environmental stewardship:
    - The project will encourage environmental stewardship, enhancing the connection that residents have with their local reserves and trails, leading to a sense of community pride.
    - Longer-term, the project also has the potential to address a community need for a sustainable model of trail maintenance across local government reserves and Parks and Wildlife estate (City of Albany, 2021c).

Compliance with the principles of ecologically sustainable development

The City has indicated that the principles of ecologically sustainable development, as defined under the EPBC Act, have been met by the Albany Heritage Park Link Trails project (City of Albany, 2021c). As outlined above, the planning processes for the project include consideration of both long-term and short-term economic, environmental, social and equitable consideration. The Albany Heritage Park Link Trails project is guided by the Albany Heritage Park Trails Concept Plan and the Mounts Master Plan, which aim to respect and enhance the significant natural, cultural, social and recreational assets, ensuring any future development is undertaken with a careful balance of conservation and enhancement (City of Albany, 2020; City of Albany, 2016a). The Mounts Master Plan also identifies strategies and informs decision-making to guide sustainable investment and management over time (City of Albany, 2020). As outlined in Section 3.5., the design and alignment of the proposed trails have also been guided by scientific information from biological surveys and the conservation of biological diversity and ecological integrity through the

avoidance, minimisation, and mitigation of clearing impacts has been fundamental in defining the final trail alignment (City of Albany, 2021c).

Applicant's Environmental History

The City has advised that it has a good environmental record and is committed to protecting and enhancing the natural environment of the Albany region (City of Albany, 2021c). The City has advised that its projects are modified to avoid and minimise impacts to the environment where possible and all necessary approvals are sought prior to works commencing (City of Albany, 2021c). All works on City of Albany managed land are undertaken in accordance with the City's operational documents for environmental management, including:

- The City of Albany Weed Strategy,
- The City of Albany's Environmental Code of Conduct, and
- The City of Albany's Environmental Impact Procedure (City of Albany, 2021c).

The City has previously been granted 73 clearing permits. DWER has not recorded any compliance issues relating to these clearing permits issued to the City of Albany.

Part 3: Assessment against the clearing principles

4. Assessment of application against the clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biodiversity

Proposed clearing is at variance with this Principle

Delegated Officer's Key Considerations
Based on the assessment detailed below, the Delegated Officer determined that the proposed clearing will impact on native vegetation comprising a high level of biodiversity as the application area contains:

- 0.026 hectares of critical habitat for *Caladenia harringtoniae*.
- Suitable habitat for priority flora, including:
  - one individual of *Adenanthos* x *cunninghamii* (Priority 4) within 30-metres of the proposed clearing,
  - three individuals of *Corysanthes limpida* (Priority 4) within 30-metres of the proposed clearing,
  - one individual of *Lasiopetalum* sp. Denmark (B.G. Hammersley 2012) (Priority 3) within the application area,
  - 30 individuals of *Spyridium spadiceum* (Priority 4) within the application area and an additional 16 individuals within 30-metres of the proposed clearing,
  - 10 individuals of *Stylidium falcatum* (Priority 2) within the application area and an additional 32 individuals within 30-metres of the proposed clearing, and
  - five individuals of *Thysanotus isantherus* (Priority 4) within the application area and an additional 79 individuals within 30-metres of the proposed clearing.
- Suitable habitat for conservation significant fauna, including:
  - 3.05 hectares of significant foraging habitat for black cockatoo species, and
  - 3.16 hectares of significant habitat for WRP.

The proposed clearing also has the potential to facilitate the spread of dieback and weeds into adjacent native vegetation with a high level of biodiversity within the greater Albany Heritage Park.

For the reasons set out in the assessment detailed below and in Section 3.3. above and taking into consideration the City's avoidance, minimisation and mitigation measures outlined in Section 3.5 above, it is considered that the potential for direct impacts to fauna and the impacts of the proposed clearing on *Caladenia harringtoniae* habitat, priority flora, and adjacent biodiverse vegetation can be managed through permit conditioning. However, the Delegated Officer determined that impacts to significant habitat for WRP and black cockatoo species constituted a significant residual impact.

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

- Dieback and weed control, which ensures protocols are put in place to limit the introduction and transportation of dieback- and weed-affected materials,
- 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,
- Fauna management (retain black cockatoo habitat trees), which requires the demarcation of all habitat trees within the application area prior to clearing and the retention of all trees,
- Fauna management (WRP), which requires the inspection of all trees, dreys and hollows for the presence of WRP prior to clearing and for clearing to cease where any individuals are identified until the individual has dispersed or been relocated,
- Flora management, which requires pre-clearance surveys for *Caladenia harringtoniae* and avoidance of all individuals, as well as demarcation of priority flora,
- Offset – revegetation and rehabilitation, which requires the revegetation and rehabilitation of a total of 8.16 hectares of significant habitat for WRP and significant foraging habitat for black cockatoo species within the AHP,
- Offset – Lot 172 on Deposited Plan 222002, which requires ongoing weed management and the incorporation of 8.09 hectares of significant habitat for WRP, 3.01 hectares of significant foraging habitat for Baudin's cockatoo and Carnaby's cockatoo, and 0.49 hectares of significant foraging habitat for the forest red-tailed black cockatoo within Lot 172 on Deposited Plan 222002 into Crown Reserve 2682 to be vested in Conservation and Public Park, and
- Offset – Crown Reserve 2682, which requires ongoing weed management and the change of vesting of 10.8 hectares of significant habitat for WRP within Crown Reserve 2682 to include Conservation in addition to the current vesting.

Threatened and Priority Flora
According to available databases, a total of 71 conservation significant flora species have been recorded in the local area, comprising seven Priority 1 (P1) flora, 15 Priority 2 (P2) flora, 18 Priority 3 (P3) flora, 20 Priority 4 (P4) flora, and 11 Threatened flora species (WA Herbarium, 1998-). The closest record is an occurrence of *C. harringtoniae* immediately adjacent to the application area. Based on the similarities shared between the soil and vegetation types in habitats for these flora taxa and within the application area, it was determined that the application area may provide suitable habitat for 14 priority flora species and seven threatened flora species (see Appendix B):

- *Adenanthos* x *cunninghamii* (listed as Priority 4 by DBCA),
- *Agrostocrinum scabrum* subsp. *littorale* (listed as Priority 2 by DBCA),
- *Andersonia* sp. Jamesii (J. Liddelow 84) (listed as Priority 4 by DBCA),
- *Banksia brownii* (listed as Critically Endangered under the BC Act and EPBC Act),
- *Banksia goodii* (listed as Endangered under the BC Act and Vulnerable under the EPBC Act),

- *Banksia seneciifolia* (listed as Priority 4 by DBCA),
- *Banksia verticillata* (listed as Critically Endangered under the BC Act and Vulnerable under the EPBC Act),
- *Caladenia harringtoniae* (listed as Vulnerable under the BC Act and EPBC Act),
- *Conospermum quadripetalum* (listed as Priority 2 by DBCA),
- *Corysanthes limpida* (previously *Corybas limpidus*) (listed as Priority 4 by DBCA),
- *Drakaea micrantha* (listed as Endangered under the BC Act and Vulnerable under the EPBC Act),
- *Eucalyptus x missilis* (listed as Priority 4 by DBCA),
- *Isopogon uncinatus* (listed as Critically Endangered under the BC Act and Endangered under the EPBC Act),
- *Juncus meianthus* (listed as Priority 3 by DBCA),
- *Lasiopetalum* sp. Denmark (B.G. Hammersley 2012) (listed as Priority 3 by DBCA),
- *Pleurophascum occidentale* (listed as Priority 4 by DBCA),
- *Spyridium spadiceum* (listed as Priority 4 by DBCA),
- *Stylidium falcatum* (listed as Priority 2 by DBCA),
- *Synaphea preissii* (listed as Priority 3 by DBCA),
- *Thysanotus isantherus* (listed as Priority 4 by DBCA), and
- *Verticordia fimbrilepis* subsp. *australis* (listed as Endangered under the BC Act and Vulnerable under the EPBC Act).

To confirm the presence or absence of conservation significant flora species within the application area, the City commissioned Southern Ecology to undertake a targeted flora survey of approximately 38 hectares of the AHP that encompassed a 30-metre wide corridor around the proposed and existing trails (hereafter referred to as the survey area). Southern Ecology conducted the survey in October 2017 and September and October 2020 and the survey area fully encompassed the clearing footprint (see Section 2). The 2020 flora survey identified a total of 317 vascular plant species from 67 families (including 51 weeds) within the survey area. The most species rich families were Fabaceae, Proteaceae, Myrtaceae, and Orchidaceae (Southern Ecology, 2020). The findings exceeded the number species previously known from the AHP, according to vouchers with the Western Australian Herbarium (approximately 244 taxa) (Southern Ecology, 2020). The 2020 flora survey identified populations of seven priority flora species within the survey area (Southern Ecology, 2020).

In order to avoid and minimise impacts to the seven priority flora species identified within the proposed clearing footprint during the 2020 flora survey, the City revised the application area from an approximately 35-hectare clearing footprint to a specific trail alignment of approximately two metres in width (see Section 3.5). The City engaged Southern Ecology to undertake an additional flora survey of the revised trail alignment of 3.16 hectares in October to November 2022 (Southern Ecology, 2022). The 2022 flora survey substantiated the findings of the 2020 survey and included an additional survey area of 0.07 hectares proposed as a realignment to avoid critical habitat for *C. harringtoniae* (Southern Ecology, 2022). Additional individuals of *Spyridium spadiceum* (P4) were identified during the 2022 flora survey (Southern Ecology, 2022).

No threatened flora species were identified within the application area in either the 2020 or 2022 flora surveys (Southern Ecology, 2022; Southern Ecology, 2020). However, the application area is considered to contain approximately 0.026 hectares of critical habitat for *C. harringtoniae* (Southern Ecology, 2022; Southern Ecology, 2020). Potential impacts to threatened flora species are assessed under Part 2 above and clearing principle (c) below.

The assessment of impacts to the seven priority flora species identified within the survey area are outlined below:

- *Adenanthos* x *cunninghamii* is an erect open shrub, 1 – 3 metres high which flowers in March or from September to October and usually occurs on grey sand in areas of coastal dunes and sandplains in the City of Albany and Shire of Broomehill – Tambellup (WA Herbarium, 1998-). The species is known from 62 Western Australian Herbarium records with a distribution of approximately 116 kilometres north-south and 60 kilometres east-west (WA Herbarium, 1998-). Of these, 46 populations provide quantitative data which indicate that there is a minimum of 199 live individuals in Western Australia (WA Herbarium, 1998-). The flora surveys identified a single occurrence of *A. cunninghamii* within the survey area, which is located approximately 16 metres from the edge of the revised proposed clearing area (Southern Ecology, 2022; Southern Ecology, 2020). Given the distance from the application area, the proposed clearing will not result in the direct loss of the recorded individual but has the potential to result in indirect impacts to *A. cunninghamii* through altered environmental conditions. However, given the linear nature of the proposed clearing within a two-metre-wide footprint, that the City have committed to ensuring areas known to contain conservation significant flora for retention are clearly marked throughout works, and the extent of potential impacts compared to the total number of known individuals (approximately 0.5%), the proposed clearing is considered unlikely to significantly impact the ongoing maintenance of *A. cunninghamii.* This is consistent with advice received from DBCA, which indicated that the proposed clearing was unlikely to result in significant impacts to the species at a local or regional scale (DBCA, 2021).

  Corysanthes limpida, known as the Crystal Helmet Orchid, is a tuberous, perennial herb approximately 0.01 metres high which flowers between August and September and typically inhabits coastal dunes in the City of Albany and Shires of Denmark, Esperance, Jerramungup, and Ravensthorpe (WA Herbarium, 1998-). The species is known from 22 Western Australian Herbarium records with a distribution of approximately 120 kilometres south-north and 400 kilometres east-west (WA Herbarium, 1998-). Of these, four records provide quantitative data which indicate that a minimum of 5,335 live individuals of *C. limpida* exist in Western Australia (WA Herbarium, 1998-). The flora and vegetation surveys recorded four plants with affinities to *C. limpida* within the survey area, of which three occur within 15 metres of the revised application area (Southern Ecology, 2022; Southern Ecology, 2020). Due to the survey timing, the survey authors were unable to accurately determine whether the recorded species are *C. limpida.* For the purpose of the assessment, DWER applied the precautionary principle and considered these plants as *C. limpida.* Given the distance from the revised application area, the proposed clearing will not result in the direct loss of *C. limpida* but has the potential to result in indirect impacts to the three individuals recorded within the vicinity of the proposed clearing area. However, taking into account the extent of potential impacts compared to the total number of known individuals (approximately 0.06%), the mitigation measures proposed by the City, and the linear nature of the proposed clearing, it is considered unlikely that

the proposed clearing will significantly impact the ongoing maintenance of the species. This is consistent with advice received from DBCA, which indicated that the proposed clearing was unlikely to result in significant impacts to *C. limpida* at a local or regional scale (DBCA, 2021

-).

- *Lasiopetalum* sp. Denmark (B.G. Hammersley 2012) is a shrub with hairy stems which flowers in July, August, September, or October and tends to occur on sandy or loamy soils in the City of Albany and Shires of Denmark and Plantagenet (WA Herbarium, 1998-). The species is known from 64 Western Australian Herbarium records with a distribution of approximately 66 kilometres north-south and 118 kilometres east-west (WA Herbarium, 1998-). Of these, 21 records provide quantitative data which indicates that there is at least 406,675 live individuals of this species in Western Australia (WA Herbarium, 1998-). The flora surveys recorded one individual of *L.* sp. Denmark (B.G. Hammersley 2012) within the survey area, which also occurs within the revised application area (Southern Ecology, 2022; Southern Ecology, 2020). While the proposed clearing will result in the loss of one individual of *L.* sp. Denmark (B.G. Hammersley 2012), this represents less than 0.001% of the total known population in the state. Advice received from DBCA indicates that this is unlikely to result in significant impacts to the species at a local or regional scale (DBCA, 2021).

- *Spyridium spadiceum* is an erect slender or weak semi-prostrate shrub, 0.15 – 3 metres high which flowers between August and December or January and February and usually occurs on sand or gravelly loam in areas of granitic hills in the City of Albany or Shire of Plantagenet (WA Herbarium, 1998-). The species is known from 16 Western Australian Herbarium records with a spatial distribution of approximately 47 kilometres north-south and 15 kilometres east-west (WA Herbarium, 1998-). Quantitative data is not available for majority of the records of *S. spadiceum* with only three records suggesting a total extent of approximately 2006 individuals (WA Herbarium, 1998-). The flora surveys identified a total of 521 individuals within the survey area, of which 30 individuals occur within the revised application area and will be directly impacted by the proposed clearing (Southern Ecology, 2022; Southern Ecology, 2020). An additional 16 individuals occur within 30 metres of the revised application area and may be indirectly impacted by the proposed clearing (Southern Ecology, 2022; Southern Ecology, 2020). This is reduced from the original clearing area which was assessed as resulting in direct or indirect impacts to 507 individuals.

  Advice received from DBCA confirmed that *S. spadiceum* is known from six locations represented by 16 herbarium records, including one record approximately 250 metres south of the application area, and that total plant numbers are unknown (DBCA, 2021). DBCA advice was received for the original clearing area and indicated that, as only 13 of the recorded individuals occurred outside of the clearing footprint, the proposed clearing may have significant impacts on this species at the local and regional level (DBCA, 2021). However, the revised clearing area will result in the direct or indirect loss of a maximum of nine per cent of the recorded population and approximately 475 individuals will remain post-clearing. Given indirect impacts to the recorded individuals are likely to be minimal due to the mitigation measures proposed by the City and the linear nature of the proposed clearing, it is likely that the true impacts to *S. spadiceum* will be less than predicted and reflect only the direct loss of individuals from clearing. Therefore, it is not expected that the proposed clearing will result in significant impacts to the ongoing maintenance of the recorded population of *S. spadiceum* within the AHP or the conservation of the species.

- *Stylidium falcatum* is a perennial herb with white flowers occurring in October and November and tends to occupy sand and gravelly clay loam on plains and lateritic ridges in the City of Albany (WA Herbarium, 1998-). The species is known from 13 Western Australian Herbarium records with no quantitative data (WA Herbarium, 1998-). The spatial distribution of the known populations is approximately three kilometres north-south and 17 kilometres east-west (WA Herbarium, 1998-). The flora surveys recorded a total of 206 individuals of *S. falcatum* within the survey area (Southern Ecology, 2022; Southern Ecology, 2020). Of these, 10 individuals occur within the revised application area and will be directly cleared, and an additional 32 individuals occur within 30 metres of the clearing area and may be indirectly impacts (Southern Ecology, 2022; Southern Ecology, 2020). This is reduced from the original application area which was assessed as resulting in direct or indirect impacts to 68 individuals.

  DBCA (2021) advised that *Stylidium falcatum* is known from three subpopulations, two of which occur within the Albany townsite and one within Gull Rock National Park. Of the known individuals:
  - 500 plants have been recorded at the subpopulation within Gull Rock National Park,
  - 43 plants at Mount Clarence, and
  - four at Mount Adelaide (DBCA, 2021)

  The species has also been recorded at Mount Melville but there is no quantitative data for this location (DBCA, 2021). Of the 13 herbarium records available, seven were collected prior to 1975 and are described generally as occurring near Mount Clarence, Mount Adelaide, or King George Sound (DBCA, 2021). The remaining six specimens relate to the abovementioned locations (DBCA, 2021). Advice provided by DBCA also indicated that an additional 47 individuals of *S. falcatum* have been recorded at the regional level (DBCA, 2021),

  DBCA provided advice on the impacts of the original proposal and indicated that impacts to approximately 32 per cent of the local population (68 of the known 206 individuals), 26 per cent of the regional population (68 of the known 253 individuals), and nine per cent at the known species level (approximately 800) may result in significant impacts to the conservation of the species (DBCA, 2021). The revised application area has the potential to result in impacts to a maximum of 20 per cent of the local population, 17 per cent of the regional population, and 5 per cent at the species level. However, given indirect impacts to the recorded individuals are likely to be minimal due to the mitigation measures proposed by the City and the linear nature of the proposed clearing, it is likely that the true impacts to *S. falcatum* will be less than predicted and reflect only the direct loss of individuals from clearing. The direct impacts would result in the loss of approximately five per cent of the local population, four per cent of the regional population, and one per cent at the

species level. Therefore, it is not expected that the proposed clearing will result in significant impacts to the conservation of *S. falcatum*.

- *Synaphea preissii* is an erect shrub with hairy branchlets which flowers from July to November and occurs on sand and gravelly loam in the City of Albany and Shires of Gnowangerup and Plantagenet (WA Herbarium, 1998-). There are 19 Western Australian Herbarium records with no quantitative data (WA Herbarium, 1998-). A spatial distribution of the recorded populations is approximately 86 kilometres north-south and 75 kilometres east-west (WA Herbarium, 1998-). The flora surveys recorded four populations of *S. preissii* within the clearing footprint, but due to subtle taxonomic characters, which makes the species difficult to differentiate from congeners in field, the survey authors were unable accurately quantify the number of individuals (Southern Ecology, 2022; Southern Ecology, 2020). One of the four populations occurs within the revised application area, while the remaining three populations occur within 10 metres (Southern Ecology, 2022; Southern Ecology, 2020).

  DBCA (2021) advised that local and regional impact to *S. preissi* could not be determined without quantitative population data but indicated that the clearing footprint is within the known range of the species, with the nearest record approximately 370 south of the application area. Given the uncertainty regarding impacts to the species, the City has advised that the location in which *S. preissii* occurs will be considered a sensitive flora location where conservation significant flora will be marked with flagging tape and all individuals of *S. preissii* will be avoided from clearing (City of Albany, 2023). Given the linear nature of the proposed clearing, it is not expected that indirect impacts to retained individuals will be significant. This is consistent with the previous DBCA advice which indicated that the proposed clearing is unlikely to have significant impacts on the conservation of *S. preissii* (DBCA, 2021).

- *Thysanotus isantherus* is a cespitose perennial herb which has purple flowers between November and December and inhabits granite soils in the Cities of Albany and Busselton and Shires of Augusta Margaret River and Denmark (WA Herbarium, 1998-). The species is known from 15 Western Australian Herbarium records with no quantitative data available (WA Herbarium, 1998-). The spatial distribution of these populations is approximately 145 kilometres north-south and 280 kilometres east-west (WA Herbarium, 1998-). The 2020 flora survey indicated that *T. isantherus* was relatively abundant in moss beds amongst granite shrublands and herbland on Mounts Clarence and Adelaide (Southern Ecology, 2020). The two flora surveys recorded a total of 428 individuals within the survey area, of which five occur within the revised application area and an additional 79 individuals occur within 30 metres and may be indirectly impacted (Southern Ecology, 2022; Southern Ecology, 2020). This is reduced from the original application area which was assessed as resulting in direct or indirect impacts to 127 individuals.

  DBCA (2021) advised that *Thysanotus isantherus* is known from five locations and that the application area occurs within the known range of the species, with the nearest plant recorded 230 metres north of the application area. The species occurs in moss beds on granite and co-occurs within *C. harringtoniae* habitat (DBCA, 2021). DBCA (2021) noted that the mitigation measures implemented by the City to avoid impacts to *C. harringtoniae* will also be beneficial to *T. isantherus*.

  Advice received from DBCA for the original proposal indicated that, given the known distribution of *T. isantherus,* the proposed clearing may have significant impacts on this species at the local scale but are unlikely to be significant to the conservation status of the species (DBCA, 2021). The revised application area has the potential to result in impacts to approximately 20 per cent of the local population of *T. isantherus*. However, indirect impacts to the recorded individuals are likely to be mitigated by the management measures proposed by the City and the linear nature of the proposed clearing, so it is likely that the true impacts to *T. isantherus* will be less than predicted and reflect only the direct loss of individuals from clearing, which would be approximately one per cent of the local population. Therefore, it is not expected that the proposed clearing will result in significant impacts to *T. isantherus*.

In relation to the remaining seven priority flora species assessed as having the potential to occur within the application area, these species are considered unlikely to be impacted by the proposed clearing following the results of the flora surveys. The flora surveys (Southern Ecology, 2022; Southern Ecology, 2020) were conducted during the flowering times of *Agrostocrinum scabrum* and *Conospermum quadripetalum* and did not identify any individuals of these species. The flora surveys (Southern Ecology, 2022; Southern Ecology, 2020) were undertaken outside of the flowering period for *Eucalyptus x missilis, Banksia seneciifolia, Andersonia sp. Jamesii (J. Liddelow 84)*, *Juncus meianthus* and *Pleurophascum occidentale*, or the flowering times for these species are unknown (WA Herbarium, 1998-). However, the personnel that undertook the survey had in excess of 10 years' experience with surveys within southern bioregions of WA and was familiar with the local taxa and these species are conspicuous and unlikely to be overlooked (Southern Ecology, 2022; Southern Ecology, 2020). Therefore, it is likely that, had the aforementioned species occurred within the application area, the survey effort would have been adequate to identify them. Additionally, advice from DBCA (2021) did not raise any concerns related to the potential impacts of the clearing on these species.

Ecological communities

According to available databases, the federally listed TEC's and state listed PEC's described in Table 8 have been mapped within the local area.

Table 8 TECs and PECs mapped in the local area

Common name	State conservation status	Commonwealth conservation status	Distance from clearing footprint (m)
Astartea scoparia Swamp Thicket	Priority 1	N/A	2701
Banksia coccinea Shrubland/*Eucalyptus staeri*/Sheoak Open Woodland (Community 14a - Sandiford & Barrett 2010)(all/or portion in EPBC listed Kwongkan community)	Priority 1	Endangered	1993

Banksia littoralis woodland / *Melaleuca incana* Shrubland	Priority 1	N/A	4146
Coastal *Melaleuca incana* / *Taxandria juniperina* Shrubland/Closed Forest	Priority 1	N/A	4551
Subtropical and Temperate Coastal Saltmarsh	Priority 3	Vulnerable	1826

Based on the vegetation mapped within the application area, the known distribution of the above TECs/PECs and the findings of the flora and vegetation surveys (Southern Ecology, 2022; Southern Ecology, 2020), the vegetation within the application area is not considered to represent these, or any other, TECs and PECs.

Fauna

As outlined in Part 2, the application area contains significant habitat for WRP. As assessed under clearing principle (b), the application area may also provide suitable habitat for:

- *Calyptorhynchus banksii naso* (Forest red-tailed black cockatoo) (listed as Vulnerable under the BC Act and EPBC Act),
- *Falco peregrinus* (Peregrine falcon) (listed as other specially protected fauna by DBCA),
- *Hylaeus globuliferus* (Woolybush bee) (listed as Priority 3 by DBCA),
- *Isoodon fusciventer* (Quenda) (listed as Priority 4 by DBCA),
- *Phascogale tapoatafa wambenger* (South-western brush-tailed phascogale) (listed as a species of special conservation interest (conservation dependent fauna) by DBCA),
- *Zanda baudinii* (previously *Calyptorhynchus baudinii*) (Baudin's cockatoo) (listed as Endangered under the BC Act and EPBC Act), and
- *Zanda latirostris* (previously *Calyptorhynchus latirostris*) (Carnaby's cockatoo) (listed as Endangered under the BC Act and EPBC Act).

In relation to ecological linkages, the clearing will create a wider barrier for fauna movement by formalising a two-metre-wide trail alignment within AHP. However, noting the extent of native vegetation that will remain in the AHP and the linear nature of the proposed clearing, it is unlikely the proposed clearing will significantly decrease the effectiveness of ecological linkages or significantly impact the ability of fauna to disperse through the remnant.

Significant remnant vegetation

As discussed under clearing principle (e), the extents of the mapped vegetation associations and native vegetation in the local area are consistent with the national objectives and targets for biodiversity conservation in Australia (Commonwealth of Australia, 2001). On this basis, although vegetation in the clearing footprint is considered significant remnant vegetation, it does not occur in an area that has been extensively cleared.

Weeds and dieback

To confirm the *Phytophthora cinnamomi* (dieback) status of the AHP, the City commissioned Great Southern Bio Logic (2016) to undertake a dieback assessment involving the collection of eight soil and tissue samples from Mount Adelaide and the review of nine historic recoveries from Mount Clarence. The majority of the vegetation surveyed was considered to be interpretable for the presence of dieback, based on a suitable density of indicator species, while the granite shrubland south of Marine Drive was considered to be uninterpretable due to the lack of indicator species (Great Southern Bio Logic, 2016). Of the eight samples collected from Mount Adelaide, five returned positive results for dieback, while all nine historic records for Mount Clarence were positive (Great Southern Bio Logic, 2016).

The dieback assessment noted that *Phytophthora dieback* is distributed across the entire project area, with the exclusion of the granite hill to the south of Marine Drive, which was classified as uninterpretable (Great Southern Bio Logic, 2016). Much of the infested classification has been placed across the project area using the mechanics of disease spread, such as downhill movement through drainage lines and shallow groundwater movement, human traffic along walks trails and firebreaks, etc., to extrapolate disease distribution from areas of observed disease expressions and from positive sample recoveries (Great Southern Bio Logic, 2016).

Based on the dieback assessment, Great Southern Bio Logic (2016) concluded that due to the extent of disease distribution and the intensive land use across the reserves, there are no areas that can be considered to be protectable from future disease introduction and spread. Therefore, any planning activities should adopt the objective of mitigating the risk of exporting potentially infested soil and tissue material away from the reserves to external areas that may not be infested (Great Southern Bio Logic, 2016).

In relation to the potential spread of weeds, the City had advised that fourteen weeds considered significant by Federal, State, of local government authorities have been recorded within the AHP, including *Acacia longifolia* (golden wattle), *Asparagus asparagoides* (bridal creeper), *Dipogon lignosus* (dolichos pea), *Hedera helix* (common ivy), *Polygala myrtifolia* (myrtle-leaved milkwort), and *Zantedeschia aethiopica* (arum lily).

Given the presence of weeds and dieback within the application area, the proposed clearing has the potential to facilitate the spread of weeds and dieback into adjacent native vegetation within the AHP that comprises a high level of biodiversity. As detailed in Section 3.5 of this report, the City has committed to implementing a number of measures to avoid, minimise and mitigate the potential spread of weeds and dieback during clearing and construction for the project in accordance with the *Operational Hygiene Management Plan: Albany Heritage Park Link Trails Network* (Great Southern Bio Logic, 2022), as well as through its offset commitments detailed in Section 5. A weed and dieback management condition is considered adequate to minimise the risk of weed and dieback spread to the adjacent biodiverse vegetation within the AHP.

(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

Proposed clearing is at variance with this Principle

Delegated Officer's Key Considerations
Based on the assessment detailed below, the Delegated Officer determined that the proposed clearing will impact on native vegetation that comprises, or is necessary for the maintenance of, a significant habitat for fauna as the application area contains:

- 3.16 hectares of significant foraging and dispersal habitat for WRP, and
- 3.05 hectares of significant foraging habitat for black cockatoo species.

For the reasons set out below, it is considered that the potential for direct impacts to fauna individuals and the impacts of the proposed clearing on habitat trees can be managed through permit conditioning. However, for the reasons set out below, it is considered that the impacts of the proposed clearing to significant habitat for WRP and black cockatoo species constitutes a significant residual impact.

In accordance with the Government of Western Australia's *Environmental Offsets Policy* (2011) and *Environmental Offsets Guidelines* (2014), the significant residual impacts have been addressed through the conditioning of environmental offset requirements, as outlined under Section 5.

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,
- Fauna management (retain black cockatoo habitat trees), which requires the demarcation of all habitat trees within the application area prior to clearing and the retention of all trees,
- Fauna management (WRP), which requires the inspection of all trees, dreys and hollows for the presence of WRP prior to clearing and for clearing to cease where any individuals are identified until the individual has dispersed or been relocated,
- Offset – revegetation and rehabilitation, which requires the revegetation and rehabilitation of a total of 8.16 hectares (comprising 0.95 hectares of unrequired trails and 7.21 hectares of degraded areas) of significant habitat for WRP and significant foraging habitat for black cockatoo species within the AHP,
- Offset – Lot 172 on Deposited Plan 222002, which requires ongoing weed management and the incorporation of 8.09 hectares of significant habitat for WRP, 3.01 hectares of significant foraging habitat for Baudin's cockatoo and Carnaby's cockatoo, and 0.49 hectares of significant foraging habitat for the forest red-tailed black cockatoo within Lot 172 on Deposited Plan 222002 into Crown Reserve 2682 to be vested in Conservation and Public Park, and
- Offset – Crown Reserve 2682, which requires ongoing weed management and the change of vesting of 10.8 hectares of significant habitat for WRP within Crown Reserve 2682 to include Conservation in addition to the current vesting.

According to available databases, 86 conservation significant fauna species have been recorded within the local area, including 44 threatened fauna species, 12 priority fauna species, 24 fauna species protected under international agreement, five other specially protected fauna species, and one presumed extinct species (DBCA, 2007-). Given the boundary of the local area overlaps the coastal waterline, the majority of the recorded species are migratory species, exclusively associated with marine, estuarine or freshwater habitats that do not occur within the application area. Noting the habitat requirements, distribution of the recorded species, the mapped vegetation type, the condition of the vegetation within the application area, as well as the findings of the fauna surveys for the application area (Gilfillan, 2022; Biota, 2019) and local fauna assessments within the greater AHP (OHCGP, 2018; Van Helden et al., 2018; DEC, 2012), it was considered that the application area is likely to comprise suitable habitat for:

- black cockatoo species (Baudin's cockatoo, Carnaby's cockatoo, and forest red-tailed black cockatoo),
- peregrine falcon,
- quenda,
- south-western brush-tailed phascogale,
- WRP, and
- woolybush bee.

Black cockatoo species
Breeding habitat
Black cockatoo species are known to nest in the hollows of live and dead trees, including marri, jarrah, karri, *Eucalyptus wandoo* (wandoo), *Eucalyptus gomphocephala* (tuart), flooded gum, and other *Eucalyptus* spp. (Commonwealth of Australia, 2022). 'Breeding habitat' for black cockatoos includes trees of these species that either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow, where suitable DBH for nest hollows is 500 millimetres for most tree species (Commonwealth of Australia, 2022). Breeding black cockatoos also generally forage within a 6-to-12-kilometre radius of their nesting site (Commonwealth of Australia, 2022).

The application area is located within the modelled distribution of the forest red-tailed black cockatoo and Carnaby's cockatoo, and immediately outside of the modelled distribution of Baudin's cockatoo. However, mapping contained in the referral guidelines for black cockatoo species (Commonwealth of Australia, 2022) indicates that the breeding range of all three species extends to the Albany region. Therefore, as the application area contains suitable tree species for foraging and breeding, it is considered to comprise potential breeding habitat for all three species of black cockatoo.

A black cockatoo habitat assessment was undertaken for the original clearing footprint of 35 hectares (the survey area) and identified a total of 231 habitat trees with a DBH greater than 500 millimetres within the survey area, including 155 marri trees, 52 jarrah trees, 21 dead trees (species not determined), and three trees where species was not recorded (Gilfillan, 2022). Of these trees, 29 trees were assessed as containing a possible hollow, where a site on the tree appeared to represent a hollow entrance but could not be confirmed from the ground, and 90 trees were assessed as containing a potential hollow, where a suitable entrance site was observed but no detailed hollow inspection was undertaken (Gilfillan, 2022).

The revised application area of 3.16 hectares intersects nine black cockatoo habitat trees recorded during the black cockatoo habitat assessment, including one dead tree with potential hollows, one marri tree with possible hollows, and seven marri or jarrah trees with no identified hollows (Gilfillan, 2022). However, as the proposed clearing predominantly relates to understorey and mid-storey species along the proposed trail alignment, the City has committed to ensuring all black cockatoo habitat trees within the clearing footprint are retained. This commitment will be reflected as a management condition imposed on the clearing permit, requiring the retention of the nine habitat trees identified within the application area. As no black cockatoo habitat trees will be removed, the proposed clearing is not considered likely to significantly impact breeding by black cockatoo species in the local area.

Roosting habitat

It is acknowledged that the nine habitat trees identified within the application area may also represent suitable roosting habitat for black cockatoo species. According to available databases, there are 26 mapped black cockatoo roost sites within a 20-kilometre radius of the application area, of which six occur within a 6-kilometre radius. Roosting is also typically noted to occur within suitable trees close to an important water source and within an area of quality foraging habitat (Commonwealth of Australia, 2022). The closest mapped roost site is located within the AHP, approximately 5 metres from the boundary of the application area, and access to fresh water is available at the nearby Lake Seppings, implying that the site may be utilised for roosting in the local area. However, no evidence of roosting was observed during the black cockatoo habitat assessment (Gilfillan, 2022). As the City has committed to retaining all black cockatoo habitat trees within the application area, it is not considered likely that the proposed clearing will result in the loss of significant roosting habitat for any black cockatoo species.

Foraging habitat

Black cockatoo species are noted to forage on a range of plant species, with the primary foraging resources varying between species (Commonwealth of Australia, 2022). Carnaby's cockatoos forage on the seeds, nuts, and flowers of a variety of plants, including Proteaceous species (*Banksia* spp., *Hakea* spp., and *Grevillea* spp.), as well as *Allocasuarina* and *Eucalyptus* species, marri, and a range of introduced species (Valentine and Stock, 2008). Forest red-tailed black cockatoos feed predominantly on the seeds of marri and jarrah, which comprise approximately 90 per cent of their diet (DEC, 2008). Baudin's cockatoos primarily feed on the seeds of marri, but may also forage on the seeds of jarrah and Proteaceous species (DEC, 2008). Given the application area contains marri, jarrah, Albany blackbutt, sheoak, *Banksia* spp., and *Hakea* spp. and occurs within the predicted occurrence range for all three black cockatoo species, the application area is likely to provide suitable foraging habitat for black cockatoos.

The black cockatoo habitat assessment noted that evidence of foraging by black cockatoo species was encountered frequently throughout the survey area during the habitat tree assessment (Gilfillan, 2022). Evidence of foraging on marri fruits was recorded by all three species of black cockatoo, while foraging by Carnaby's cockatoo on *Hakea elliptica*, *Hakea drupacea*, and *Banksia formosa* was also observed (Gilfillan, 2022). The black cockatoo habitat assessment identified two areas of high intensity foraging, which encompasses the westernmost section of the application area (Foraging Area 1) and the easternmost section of the application area (Foraging Area 2) (see Figure 6 below). Foraging Area 1 is located within the Eucalyptus/Corymbia Forest and Gastrolobium/Hakea Shrubland vegetation units, while Foraging Area 2 is located within the Eucalyptus/Corymbia Forest vegetation unit identified in the flora and vegetation surveys (Southern Ecology, 2022; Southern Ecology, 2020). Based on the vegetation descriptions, all vegetation units identified in the flora and vegetation surveys (Southern Ecology, 2022; Southern Ecology, 2020) are considered to provide suitable foraging habitat for black cockatoos, excluding the Peppermint Low Forest and *Callistachys* Thicket vegetation units. Therefore, the application area is considered to provide approximately 3.05 hectares of suitable foraging habitat for black cockatoo species. Based on the findings of the black cockatoo habitat assessment, it is considered that the application area is likely to be utilised for foraging by all three species of black cockatoo, at present.

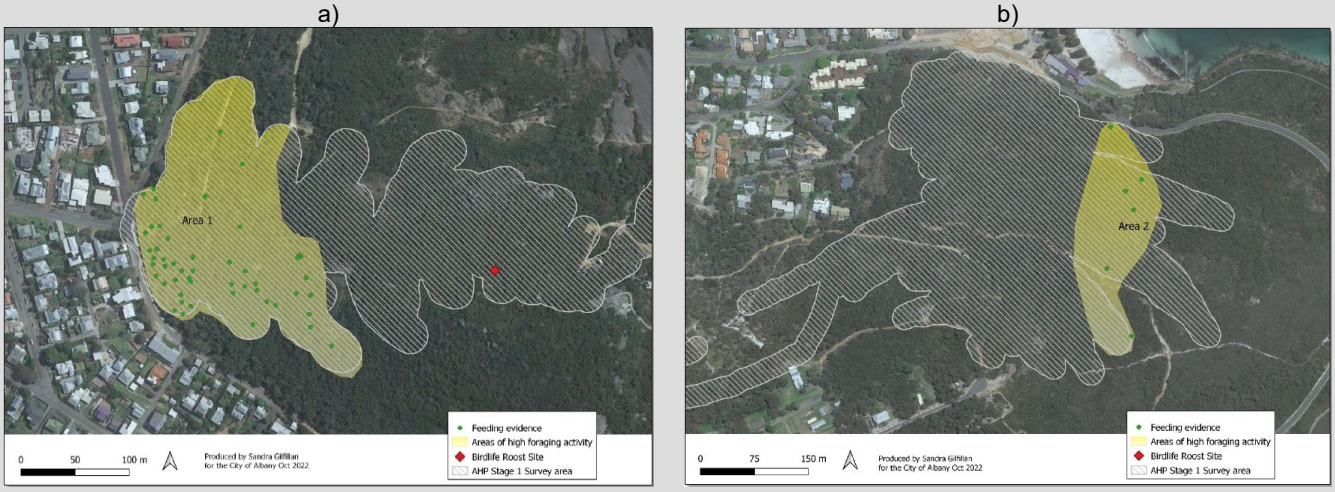


Figure 6. Areas of high foraging activity identified during the black cockatoo habitat assessment of Albany Heritage Park, where a) depicts the westernmost Foraging Area 1 and b) depicts the easternmost Foraging Area 2 (Gilfillan, 2022).

In regard to the forest red-tailed black cockatoo and Baudin's cockatoo, critical habitat for these species is defined as all marri, karri and jarrah forests, woodlands and remnants in the south-west of Western Australia receiving more than 600 millimetres of annual average rainfall (DEC, 2008). Critical habitat for Carnaby's cockatoo includes any habitat that provides for feeding, watering, regular night roosting, and potential for breeding (DPAW, 2013). As the application area includes remnant marri and jarrah forest, receives approximately 900 millimetres annual average rainfall, and comprises 3.05 hectares of suitable foraging habitat in proximity to potential roosting and breeding habitat, it is likely that the application area would meet the definition of critical habitat for all three species of black cockatoo.

The referral guidelines for black cockatoo species states that foraging habitat within 12 kilometres of a breeding site is of particular importance for black cockatoo species. According to available databases, the closest mapped confirmed breeding site for Carnaby's cockatoo or Baudin's cockatoo is approximately 65 kilometres north of the application area, with a potential breeding site approximately 52 kilometres west of the application area, and the closest confirmed breeding site for the forest red-tailed black cockatoo is approximately 55 kilometres west of the application area. Noting the separation distance between mapped breeding sites and the clearing footprint, it is considered unlikely that the foraging habitat within the application area is significant in supporting breeding populations of black cockatoo species.

The referral guidelines indicate that black cockatoo species generally forage in areas up to 20 kilometres from known night roosting habitat (Commonwealth of Australia, 2022). However, the species' recovery plans (DPAW, 2013; DEC, 2008) and literature from studies in other regions (Le Roux, 2017; Glossop, et al., 2011) indicate that foraging habitat within six kilometres of nocturnal roost site is of particular importance. As outlined above, there are 26 mapped black cockatoo roost sites within a 20-kilometre radius of the application area, of which six occur within a 6-kilometre radius. Therefore, the vegetation within the application area may support foraging by roosting populations.

A 6-kilometre radius surrounding these local roosting sites includes vegetation within the both the Jarrah Forest and Warren Interim Biogeographic Regionalisation of Australia (IBRA) bioregions. Only the Jarrah Forest bioregion has been mapped for potential black cockatoo foraging habitat, however the mapped Beard vegetation associations within this 6-kilometre radius include associations 1, 3, 22, 49, 51, 128, 423, and 978. Beard vegetation associations 49, 51 and 128 are described as low shrubland of mixed composition, sedgeland of Cyperaceae, Restionaceae, and Juncaceae, and rock outcrops respectively (Shepherd, et al., 2001), and are not considered to contain suitable foraging habitat for black cockatoo species. Beard vegetation associations 1, 3, 22, 423, and 978 are described to contain suitable foraging habitat for at least one species of black cockatoo including marri, jarrah, karri, tuart, *Eucalyptus loxophleba* (York gum), *Allocasuarina* spp., and proteaceous species such as *Banksia* spp. (Shepherd, et al., 2001). Based on the descriptions of the mapped vegetation associations, a maximum of approximately 5618 hectares of potential foraging habitat for black cockatoo species persists within 6-kilometres of local roost sites, of which the foraging habitat within the application area comprises approximately 0.05 per cent. Approximately 1848 hectares (33 per cent) of this potential black cockatoo foraging habitat persists within the local conservation estate, including Gledhow Nature Reserve, Gull Rock National Park, and Torndirrup National Park. According to available vegetation mapping, the AHP contains approximately 195 hectares of suitable foraging habitat for black cockatoo species, of which the application area comprises approximately 1.6 per cent.

As the proposed clearing will result in the loss of critical habitat for black cockatoo species and foraging habitat that supports roosting populations, the loss of foraging habitat is considered a significant residual impact. However, it is acknowledged that the proposed clearing relates to linear clearing for a two-metre-wide trail alignment and will predominantly involve the removal of mid- and understorey species within the application area. Therefore, the true extent of foraging habitat proposed to be cleared is likely to be less than the 3.05 hectares assumed in this assessment. As discussed above, the City has also committed to retaining all black cockatoo habitat trees within the clearing footprint and avoid the clearing of any trees with a DBH greater than 100 millimetres where possible, which is likely to minimise the loss of mature marri and jarrah foraging resources within the application area. Given the City's proposed avoidance and minimisation actions, the extent of foraging habitat immediately adjacent to the application area within AHP and available in local secure conservation estate, and the City's offset commitments (see Section 5), it is not considered likely that the proposed clearing will significantly reduce the extent of foraging habitat available to support local roosting populations.

Peregrine falcon

The peregrine falcon typically nests on rocky ledges in tall, vertical cliff faces and gorges, or in tall trees associated with drainage lines, and can hunt in a range of habitat types including timbered watercourses, riverine environments, wetlands, plains, open woodlands, and pylons and spires of buildings (Australian Museum, 2019). Given the widespread nature of the species and that the application area contains remnant woodland areas, it may provide suitable foraging habitat for the peregrine falcon but is unlikely to provide suitable nesting habitat. Noting that the peregrine falcon is a highly mobile species with a large home range that does not rely on specialist niche habitats, the species is likely to be transient in the application area only and it is unlikely that the application area represents significant habitat for the species.

Quenda

Quenda are ground-dwelling marsupials, typically associated with forest or woodlands near watercourses, where understorey consists of dense scrub and leaf litter is abundant (DEC, 2012b). Quenda will typically thrive in more open habitat subject to introduced predator control (DEC, 2012b). Despite the absence of swampy vegetation or watercourses in the clearing footprint, DEC recorded several quenda individuals within the AHP during historical pit fall and cage trapping surveys (DEC, 2012c). On this basis, the application area may be utilised by quenda. However, it is acknowledged that the AHP contains approximately 256 hectares of connected native vegetation that is likely to provide suitable habitat for quenda. Taking into account the extent and linear shape of the proposed clearing, the presence of larger remnants of secure native vegetation in the local area, and the extent of native vegetation immediately adjacent to the clearing footprint, the proposed clearing is unlikely to have significant impacts on this species. The implementation of slow, progressive directional clearing is considered to aid any individuals present at the time of clearing to move into adjacent native vegetation outside of the clearing area and is considered appropriate to minimise the potential for direct impacts to individuals.

South-western brush-tailed phascogale

The south-western brush-tailed phascogale is an arboreal dasyurid, associated with dry sclerophyll forests and open woodlands that contain hollow-bearing trees, characterised by high canopy cover and connectivity (DEC, 2012a). The south-western brush-tailed phascogale occurs at low densities in the northern Jarrah Forest region, with the highest densities in the Perup/Kingston area, Collie River valley, and near Margaret River and Busselton (DEC, 2012a). As the application area includes remnant marri and jarrah woodland, it is likely to provide suitable habitat for the south-western brush-tailed phascogale. According to available databases, two records of a south-western brush-tailed phascogale exist within the AHP, however both are specimen records from 1992. None of the fauna surveys for the application area (Gilfillan, 2022; Biota, 2019) or other local fauna assessments (OHCGP, 2018; DEC, 2012) have recorded the south-western brush-tailed phascogale within the greater AHP.

It is acknowledged that the proposed clearing relates to linear clearing for a two-metre-wide trail alignment and will predominantly involve the removal of mid- and understorey species within the application area. Further, the City has committed to retaining all habitat trees within the application area and avoiding the clearing of any trees with a DBH greater than 100 millimetres, where possible. Therefore, the proposed clearing will not result in the loss of mature, hollow-bearing trees that provide significant habitat for the south-western brush-tailed phascogale and is unlikely to result in significant impacts to the continuation of the species in the AHP, if present. Given the linear nature of the clearing and that canopy connectivity will be largely maintained throughout the application area, the implementation of slow, progressive directional clearing is considered to aid any individuals present at the time of clearing to move into adjacent native vegetation outside of the clearing area and is considered appropriate to minimise the potential for direct impacts to individuals.

Western ringtail possum

As outlined in Section 3.3, a number of WRP assessments undertaken within the AHP have confirmed that the site is likely to be an important refuge for the local population of WRP within urban Albany (OHCG, 2018; Van Helden et al., 2018; DEC, 2012c). The AHP Link Trail WRP Impact Assessment estimated a total population of 1,100 WRP individuals within the AHP, with an average density of 4.13 possums per hectare (Biota, 2019). The average density estimate of WRP within the AHP is comparable to the estimated densities of stronghold populations between Busselton and Bunbury and is also relatively high compared to other large reserves surveyed in the Albany region during the WRP Regional Surveys (Biota, 2020; Biota, 2019). Therefore, the AHP is considered likely to contain high quality habitat for WRP and to support a significant population, both within the Albany region and across the species' range.

In considering the mapped vegetation types and condition, that four individuals were recorded within the boundaries of the application area, and that individuals were observed in vegetation immediately to the north and south, the application area is considered to provide 3.16 hectares of suitable foraging and dispersal habitat for WRP. Based on the average density estimated for the greater AHP, it is estimated that the proposed clearing of 3.16 hectares has the potential to directly impact habitat utilised by approximately 13 WRP individuals at any given time. Taking into account the findings of the WRP Regional Surveys and the vegetation surveys of the application area, the proposed clearing will have significant impacts on WRP as it will result in the loss of 3.16 hectares of critical habitat for the species that is currently utilised by a regionally significant population.

The City has committed to measures to mitigate impacts to WRP, including retaining all habitat trees within the clearing footprint and avoiding the clearing of trees with a DBH greater than 100 millimetres where possible, to retain canopy connectivity for WRP. Direct impacts to individuals will also be mitigated through management conditions imposed on the permit, including the implementation of directional clearing and pre-clearance inspections. To counterbalance the significant residual impacts of the proposed clearing on WRP habitat, the City has also committed to implementing an offset aimed at establishing and maintaining significant habitat for WRP within the AHP (see Section 5).

Woolybush bee

The habitat preferences of the woolybush bee are not well known. The species is thought to favour the flowers of *Adenanthos cygnorum* for feeding but has also been recorded on *Banksia attenuata* and is thought to be associated with a variety of habitats in which these species are present (Houston, 2018). The Coastal Shrubland vegetation unit within the application area includes *Banksia attenuata* (Southern Ecology, 2022; Southern Ecology, 2020) and therefore, may provide suitable habitat for the woolybush bee. Based on the vegetation mapping from the flora and vegetation surveys, approximately 0.26 hectares of Coastal Shrubland may be cleared under the proposal (Southern Ecology, 2022; Southern Ecology, 2020). However, while there is a record of a woolybush bee approximately 655 metres south of the application area off King George's Sound in Albany, it is acknowledged that this is a historical record from 1929 and no other records of the species exist within the local area. Further, bees are highly mobile and are known to have variable foraging distance characteristics drive by the function of the landscape, context, and size of the individual (Houston, 2018). Therefore, given the linear nature of the proposed clearing, the presence of larger remnants of secure coastal shrubland in the local area, and that its primary foraging species, *Adenanthos cygnorum*, is absent, it is unlikely that the 0.26 hectares of suitable habitat within the application area is significant for the continuation of the woolybush bee.

Ecological linkage

In 1999, the former Department of Conservation and Land Management (CALM) undertook a project to identify potential regional-scale vegetation linkages within the South Coast Region, known as the South Coast Macro Corridor project (Wilkins, et al., 2006). The main objective of the South Coast Macro Corridor project was to improve the long-term future of wildlife within national parks and nature reserves within the South Coast Region of Western Australia by further developing and promoting a regional-scale Macro Corridor Network of native vegetation with inland linkages along major river systems to protected areas and uncleared bushland (Wilkins, et al., 2006). The City Mounts reserve system was identified as part of an important natural vegetation link, in conjunction with Torndirrup National Park to the south and Gull Rock National Park to the east (Wilkins et al., 2006). These coastal reserves form part of the South Coast Macro Corridor extending approximately 700 kilometres from Israelite Bay, east of Esperance through the Fitzgerald River and Stirling Range National Parks and Albany along Western Australia's southern coastline, with inland linkages along major river system to other bushland areas (Wilkins et al., 2006). The application area is

mapped within Strategic Zones A and B of the South Coast Macro Corridor. Strategic Zone A is defined as areas of woody vegetation where polygons greater than 30 hectares in size are spaced no greater than one kilometre apart and potentially form the most strategic link between major protected areas (Wilkins et al., 2006). Strategic Zone B is defined as areas of woody vegetation where polygons greater than 30 hectares in size are spaced no greater than one kilometre and potentially provide good nodes of habitat which are within one kilometre of vegetation within Strategic Zone A (Wilkins et al., 2006).

While large patches of remnant vegetation such as the AHP are important for facilitating fauna dispersal through anthropogenically modified landscapes, it is acknowledged that the AHP is surrounded by residential properties, the Port of Albany and associated industrial infrastructure, and the King George Sound, and provides limited connectivity to other remnants of native vegetation in the local area. Further, the AHP contains approximately 256 hectares of remnant native vegetation, of which the application area is a linear footprint of 3.16 hectares (1.2 per cent). While it is acknowledged that the vegetation within the application area is likely to be contributing to fauna dispersal within the greater AHP as well as regional linkage values for avian fauna, it is unlikely to be functioning significantly as a regional ecological linkage for ground-dwelling or arboreal fauna through the landscape or contributing significantly to the functionality of the South West Macro Corridor.

The proposed clearing may result in a wider barrier for fauna movement across the proposed trail alignment. However, this is likely to be limited to linear gaps in understorey and mid-storey vegetation, noting that the City has committed to retaining all habitat trees within the application area and avoiding the clearing of trees with a DBH greater than 100 millimetres, where possible, which is likely to maintain canopy connectivity throughout much of the application area. Therefore, given the linear nature of the application area and the extent of native vegetation immediately adjacent to the clearing footprint, the proposed clearing is considered unlikely to significantly impact ecological linkages or the ability for fauna to move throughout the AHP.

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.

Proposed clearing is at variance with this Principle

Delegated Officer's Key Considerations
Based on the assessment detailed below, the Delegated Officer determined that the proposed clearing will result in the loss of 0.026 hectares of critical habitat for *Caladenia harringtoniae* and therefore, may include habitat for threatened flora. However, for the reasons set out below, it is considered unlikely that the proposed clearing will result in direct impacts to individuals or impacts to any other threatened flora species. It is considered that the potential for direct impacts to *Caladenia harringtoniae* can be managed through permit conditioning. Based on the assessment detailed below and in Section 3.3, the loss of 0.026 hectares of critical habitat for *Caladenia harringtoniae* is unlikely to significantly reduce the extent of the patch of critical habitat or impact a local population if present.

To address the above impacts, the following management measures will be required as conditions on the clearing permit:
- Flora management, which requires pre-clearance surveys for *Caladenia harringtoniae* and avoidance of all individuals.

As outlined under clearing principle (a), 10 flora species listed as threatened under the BC Act of EPBC Act have been recorded within the local area. Based on the similarities shared between the soil and vegetation types in habitats for these flora taxa and those within the application area, it was determined that the application area may provide habitat for seven threatened flora species:
- *Banksia brownii*,
- *Banksia goodii*,
- *Banksia verticillata*,
- *C. harringtoniae*,
- *Drakaea micrantha*,
- *Isopogon uncinatus*, and
- *Verticordia fimbrilepis* subsp. *australis*.

Targeted flora surveys have been undertaken within the original clearing footprint of 35 hectares (the survey area) over a total of four days in September and October 2017 and eight days in September and October 2020, and within the revised application area of 3.16 hectares over a total of three days in October and November 2022 (Southern Ecology, 2022; Southern Ecology, 2020). The surveys involved targeted searches in vegetation types identified as potential habitat for threatened flora, comprising an intensive grid of suitably spaced transects (Southern Ecology, 2020). No individuals of threatened flora under the BC Act or EPBC Act were identified within the application area or greater survey area in any of the surveys (Southern Ecology, 2022; Southern Ecology, 2020). In considering the results of the flora surveys, it was determined that the proposed clearing is unlikely to impact six of the threatened flora species originally considered as having the potential to occur within the application area but will impact critical habitat for one threatened flora species; *C. harringtoniae* (Southern Ecology, 2022; Southern Ecology, 2020).

In relation to the seven flora species originally considered as having the potential to occur within the application area, the assessment of impacts is outlined below:
- *Banksia brownii* is a bushy non-lignotuberous shrub or tree, 1–6 metres high, which flowers between March and July and inhabits sand over laterite, gravel or loam over granite in gullies in the City of Albany and Shires of Cranbrook, Gnowangerup and Plantagenet (WA Herbarium, 1998-). The species is known from 109 Western Australian Herbarium records with a distribution of approximately 81 kilometres north-south and 68 kilometres east-west (WA Herbarium, 1998-). Of these, 62 populations provide quantitative data which indicate that there is a minimum of 32,186 live individuals in Western Australia (WA Herbarium, 1998-). The flora surveys (Southern Ecology, 2022; Southern Ecology, 2020) were

undertaken outside of the flowering period for *B. brownii*. However, the species is a conspicuous shrub and, given the survey effort and experience of the botanist undertaking the survey, is unlikely to have been overlooked or misidentified (Southern Ecology, 2022; Southern Ecology, 2020). Therefore, it is not considered likely that *B. brownii* is present within the application area or will be impacted by the proposed clearing.

- *Banksia goodii* is a lignotuberous prostrate shrub, approximately 0.2 metres high which flowers in May or November and occupies white or grey sand over laterite in the City of Albany and Shire of Plantagenet (WA Herbarium, 1998-). The species is known from 65 Western Australian Herbarium records with a distribution of approximately 37 kilometres north-south and 50 kilometres east-west (WA Herbarium, 1998-). Of these, 47 populations provide quantitative data which indicate that there is a minimum of 1427 live individuals in Western Australia (WA Herbarium, 1998-). The flora surveys were undertaken outside of the flowering period for *B. goodii* but noted that there was limited suitable habitat for this species present within the survey area (Southern Ecology, 2020). Further, the species is a conspicuous shrub and, given the survey effort and experience of the botanist undertaking the survey, is unlikely to have been overlooked or misidentified (Southern Ecology, 2022; Southern Ecology, 2020). Therefore, it is not considered likely that *B. goodii* is present within the application area or will be impacted by the proposed clearing.

- *Banksia verticillata* is a shrub or tree, 1.3 – 6 metres high which flowers from January to April and occur on sandy loam or granite outcrops or besides granite outcrops (WA Herbarium, 1998-). The species is known from 91 Western Australian Herbarium records with a distribution of approximately 60 kilometres north-south and 200 kilometres east-west (WA Herbarium, 1998-). Of these, 47 populations provide quantitative data which indicate that there is a minimum of 239 live individuals in Western Australia (WA Herbarium, 1998-). The flora surveys (Southern Ecology, 2022; Southern Ecology, 2020) were undertaken outside of the flowering period for *B. verticillata*. However, the species is a conspicuous shrub and, given the survey effort and experience of the botanist undertaking the survey, is unlikely to have been overlooked or misidentified (Southern Ecology, 2022; Southern Ecology, 2020). Therefore, it is unlikely that *B. verticillata* is present within the application area or will be impacted by the proposed clearing.

- *C. harringtoniae* is a tuberous, perennial herb with pink flowers occurring in October and November, and occupies sandy loam, winter-wet flats, margins of lakes, creek lines and granite outcrops in the City of Albany and Shires of Bridgetown–Greenbushes, Manjimup, Nannup and Plantagenet (WA Herbarium, 1998-). The species is known from 95 Western Australian Herbarium records with a spatial distribution of approximately 125 kilometres north-south and 185 kilometres east-west (WA Herbarium, 1998-). Quantitative data about these populations indicates that there is approximately 754 live individuals of *C. harringtoniae* scattered across the known distribution (WA Herbarium, 1998-). As outlined in Section 3.3, the flora surveys identified that the application area is not likely to contain individuals of *C. harringtoniae* but comprises a total of 0.026 hectares of critical habitat for *C. harringtoniae*, including 0.002 hectares of critical micro-habitat and 0.024 hectares of potential critical habitat. Given the avoidance and mitigation measures employed by the City, the extent of recorded critical habitat proposed to be cleared within the AHP (approximately 1.5 per cent), and that suitably timed flora surveys in three separate years have not recorded individuals, it is considered unlikely that the proposed clearing will result in significant impacts to the ongoing maintenance of the species or local population, if present.

  While the proposed clearing is not likely to result in direct impacts to individuals of *C. harringtoniae*, there is the potential for *C. harringtoniae* to emerge within areas of critical habitat at the time of the proposed clearing. The City has committed to ensuring no individuals of *C. harringtoniae* are cleared during the proposed works, which will be reflected in pre-clearance flora survey conditioning on the clearing permit.

- *Drakaea micrantha* is a tuberous, perennial herb with red and yellow flowers which occur in September and October and occupies white–grey sandy soils in the Cities of Albany, Armadale, and Busselton, and Shires of August Margaret River, Canning, Capel, Denmark, Harvey, Manjimup, Murray, Nannup and Plantagenet (WA Herbarium, 1998-). As discussed in Part 2, the flora surveys identified that suitable habitat for *D. micrantha* within the application area is limited to 0.02 hectares of Sheoak Woodland habitat and did not identify any individuals within the application area or greater survey area (Southern Ecology, 2022; Southern Ecology, 2020). Given the extent of the proposed clearing of suitable habitat and that suitably timed flora surveys in three separate years have not recorded individuals, it is considered unlikely that *D. micrantha* is present or will be impacted by the proposed clearing.

- *Isopogon uncinatus* is a tufted spreading or prostrate shrub with yellow-cream flowers which occur from October to November and tends to occupy loam or sand on granite, peaty sand in swampy depressions and hillslopes of the City of Albany and Shire of Plantagenet (WA Herbarium, 1998-). The species is known from 42 Western Australian Herbarium records for which quantitative data is not available (WA Herbarium, 1998-). The species has a distribution of approximately 38 kilometres north-south and 65 kilometres east-west (WA Herbarium, 1998-). The flora surveys were undertaken during the flowering period of *I. uncinatus* and noted that the species could be present within the survey area as it occupies a range of habitats (Southern Ecology, 2022; Southern Ecology, 2020). However, the flora surveys noted that the species is conspicuous and generally unlikely to be overlooked, given the survey effort and experience of the botanist undertaking the survey (Southern Ecology, 2022; Southern Ecology, 2020). Therefore, it is not considered likely that *I. uncinatus* is present within the application area or will be impacted by the proposed clearing.

- *Verticordia fimbrilepis* subsp. *australis* is a slender shrub with pink flowers which occur between October and December and occurs on shallow sand, clay loam or granite outcrops in the City of Albany and Shire of Denmark (WA Herbarium, 1998-). The species is known from 15 Western Australian Herbarium records with a distribution of approximately 20 kilometres north-south and 65 kilometres east-west (WA Herbarium, 1998-). Of these, one population provides quantitative data which indicates that there is a minimum of 500 live individuals (WA Herbarium, 1998-). No individuals of *V. fimbrilepis* susp. *australis* were identified in the flora surveys, despite being timed within the flowering period of the species (Southern Ecology, 2022; Southern Ecology, 2020). The flora surveys stated that *V. fimbrilepis* susp. *australis*

can occur within a range of habitats associated with granite but noted that the species is unlikely to occur given the distance from the nearest record (Southern Ecology, 2022; Southern Ecology, 2020). Given the survey effort and timing, and the experience of the botanist undertaking the survey, it is considered that *V. fimbrilepis* susp. *australis* or its habitat would have been identified if present within the survey area. Therefore, it is considered unlikely that the species will be impacted by the proposed clearing.

(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.

Proposed clearing is not likely to be at variance with this Principle

Delegated Officer's Key Considerations
The Delegated Officer determined that, given no vegetation representative of a TEC was identified during flora and vegetation surveys of the application area and noting the distance and separation from the nearest mapped occurrence, the proposed clearing is unlikely to comprise the whole or a part of, or be necessary for the maintenance of, any state or federally listed TEC. The Delegated Officer determined that no vegetation management conditions were required to mitigate impacts to TECs.

According to available databases, the closest state or federally listed TEC is an occurrence of the *Banksia coccinea* Shrubland/*Eucalyptus staeri*/Sheoak Open Woodland (Community 14a - Sandiford & Barrett 2010) (*Banksia coccinea* thicket) which occurs approximately two kilometres north of the application area. The *Banksia coccinea* thicket community is regarded as a Priority 1 PEC in Western Australia but is also considered representative of the Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia (Kwongan Shrublands) TEC, which is listed as Endangered under the federal EPBC Act.

The flora and vegetation surveys did not identify any vegetation within the application area that would be commensurate with any state or federally listed TEC (Southern Ecology, 2022; Southern Ecology, 2020). Given the findings of the flora and vegetation surveys and the distance and separation between the application area and local TECs, the proposed clearing is considered unlikely to be necessary for the maintenance of a TEC or to significantly impact vegetation representative of any TEC.

(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.

Proposed clearing is not likely to be at variance with this Principle

Delegated Officer's Key Considerations
Based on the below assessment, the Delegated Officer determined that, although the vegetation within the application area is considered significant remnant vegetation due to the presence of significant habitat for flora and fauna, the extent of native vegetation in the bioregion, mapped Beard vegetation associations, and local area is consistent with the national objectives and the application does not occur in an area that has been extensively cleared. However, the proposed clearing has the potential to facilitate the spread of weeds and dieback into adjacent remnant vegetation within the AHP.

To address this impact, a dieback and weed control management measure will be required as a condition on the clearing permit, which ensures protocols are put in place to limit the introduction and transportation of dieback- and weed-affected materials.

The national objectives and targets for biodiversity conservation in Australia has a target 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).

The application area is located within the Jarrah Forest IBRA bioregion which retains approximately 53 per cent of its pre-European vegetation extent (Government of Western Australia, 2019). The extent of the mapped Beard vegetation associations 3 and 128 is also consistent with the national targets, both state-wide and within the Jarrah Forest IBRA bioregion (see Table 9 below). The mapped Beard vegetation associations are also well-represented in the conservation estate in the Jarrah Forest IBRA bioregion.

The local area retains approximately 48 per cent of pre-European vegetation cover. The proposed clearing will reduce the extent of native vegetation in the local area by approximately 0.026 per cent and will not cause the extent to fall below the 30 per cent threshold.

Table 9 Vegetation extents (Government of Western Australia, 2019).

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion*					
Jarrah Forest	4,506,660.25	2,399,838.15	53.25	69.74	37.14
Vegetation complex*					
Beard vegetation association 3	2,661,087.83	1,803,421.34	67.77	1,469,765.05	55.23
Beard vegetation association 128	327,982.50	288,766.05	88.04	69,053.50	21.05
Vegetation complex in IBRA bioregion*					
Beard vegetation association 3 (Jarrah Forest)	2,390,591.54	1,604,101.56	67.10	1,299,263.74	54.35
Beard vegetation association 128 (Jarrah Forest)	7,970.90	7,172.81	89.99	5,897.88	73.99
Local area					
10-kilometre radius	24,699.58	11,923.53	48.27	-	-

As outlined under clearing principles (a), (b) and (c) above, the vegetation within the application area provides habitat for conservation significant flora and fauna and therefore, is considered significant remnant vegetation. However, noting the extent of native vegetation remaining in the bioregion, mapped Beard vegetation associations, and local area is consistent with the national objectives and targets for biodiversity conservation, the vegetation proposed to be cleared does not occur within an extensively cleared landscape and the application area is not considered to be significant as a remnant of native vegetation in an area that has been extensively cleared.

However, as the proposed clearing comprises a linear footprint through the centre of the AHP, there is a risk of weeds and dieback spreading into remnant native vegetation adjacent to the proposed clearing area. Given the City's commitment to adhering to an Operational Hygiene Management Plan (Great Southern Bio Logic, 2022) and the extent of the proposed clearing along the linear footprint, it is not considered likely that impacts to adjacent remnant native vegetation will be significant. However, the City will be required to adhere to weed and dieback management measures (as conditioned on the clearing permit) to minimise this risk.

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Proposed clearing may be at variance with this Principle

Delegated Officer's Key Considerations
Based on the distance and separation from the nearest mapped systems, the Delegated Officer determined that the application area is not likely to be growing in association with a defined watercourse or wetland. However, the Delegated Officer considered that a maximum of 0.53 hectares of the vegetation within the application area may be growing in association with naturally accumulated water in gullies on mid to low hillslopes, coastal margins, and seepages on granite sheets.

Given the linear nature of the proposed clearing and that the naturally accumulated water is non-perennial and not part of a structured riparian system, the Delegated Officer determined that the proposed clearing is unlikely to result in the loss of the gullies, coastal margins or seepages that intersect the application area or will significantly reduce the extent of the vegetation units growing in association with these areas. The Delegated Officer determined that no vegetation management conditions were required to mitigate impacts to watercourses or wetlands.

The desktop assessment and aerial imagery indicates that the closest mapped wetland is the Lake Seppings Suite, located approximately 750 metres north of the application area. Lake Seppings is separated from the application area by residential development and the vegetation within the application area is unlikely to be growing in association with this wetland suite.

According to available databases, there are no mapped watercourses within the application area. The closest mapped watercourses are a manmade reservoir approximately 200 metres south of the centre of the proposed trail alignment and a manmade drain approximately 500 metres northwest of the application near Lake Seppings. The closest mapped natural watercourse is a non-perennial unnamed minor river approximately 750 metres north-west of the application near Lake Seppings. These are separated from the application area by remnant vegetation and residential development and the vegetation within the application area is unlikely to be growing in association with these mapped watercourses.

However, it is acknowledged that the flora and vegetation surveys identified that the *Callistachys* Thicket vegetation unit is associated with seepages in gullies (Southern Ecology, 2020). Given the topography of the application area and greater AHP site, it is likely that rainwater will naturally accumulate in the lower hillslopes and gullies and that vegetation in these areas may be growing in association with water, which is consistent with the vegetation units described for these areas in the surveys such as Peppermint Low Forest and Coastal Shrubland. It is also acknowledged that the Granite Shrubland and Herbland vegetation unit includes areas of granite sheet seepage where vegetation may be growing in association with damp areas (Southern Ecology, 2020). Therefore, while the application area is not considered to be growing in association with a defined watercourse or wetland, some of the vegetation may be growing in association with naturally accumulated water in gullies on mid to low hillslopes, coastal margins and seepages.

The extent of clearing of the *Callistachys* Thicket vegetation unit is approximately 0.03 hectares across the application area. The extent of the proposed clearing within Peppermint Low Forest is 0.03 hectares, Coastal Shrubland is 0.26 hectares, and Granite Shrubland and Herbland is 0.21 hectares. Therefore, a maximum of 0.53 hectares of vegetation that may be growing in association with naturally accumulated water sources may be cleared across of linear footprint of 3.16 hectares for the proposal. However, the actual area of these vegetation units growing in association with naturally accumulated water sources is likely to be less. The total combined extent of these communities identified within the survey area (an approximately 35-hectare footprint surrounding the application area) is 7.26 hectares (Southern Ecology, 2020).

Given the linear nature of the proposed clearing, that the water sources are likely to be non-perennial and associated with rainfall patterns, and that the accumulated water is not part of a structured riparian system, it is unlikely that the proposed clearing will result in the loss of the gullies, coastal margins or seepages that intersect the application area or will significantly reduce the extent of the vegetation units growing in association with these areas in the AHP.

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Proposed clearing is not likely to be at variance with this Principle

Delegated Officer's Key Considerations
Based on the land degradation risks of the mapped soil systems, the linear nature of the proposed clearing, and the extent of vegetation remaining within the greater AHP, the Delegated Officer determined that the proposed clearing is unlikely to cause appreciable land degradation. The Delegated Officer determined that no vegetation management conditions were required to mitigate land degradation impacts.

According to available databases, the application area intersects two mapped soil subsystems:

- Gardner granite Phase (242MmGAg), described as granite outcrops and comprising approximately 90 per cent of the application area, and
- Gardner sandy Phase (242MmGAs), described as leached sands and podzols in mallee-heath and comprising approximately 10 per cent of the application area (DPIRD, 2023).

A review of the land degradation risks of the mapped subsystems indicates that the Gardner granite Phase has an elevated risk of subsurface compaction and acidification (DPIRD, 2023). The Gardner sandy Phase has similar land degradation risks to the Gardner granite Phase, but also has a slightly elevated risk of wind erosion and phosphorus export (DPIRD, 2023). Both subsystems have low risks of land degradation resulting from water erosion, flooding, waterlogging, salinity, and eutrophication (see Table 10 below). It is also acknowledged that the topography of the application area rises and undulates from approximately 10 metres Australian Height Datum (mAHD) to a peak of 115mAHD in the east and from approximately 70mAHD to a peak of 185 mAHD in the west, and that slopes and steep gradients may be more susceptible to land degradation.

Table 10 Land degradation risk categories for mapped soil subsystems (DPIRD, 2023)

Risk categories	Gardner granite Phase (242MmGAg)	Gardner sandy Phase (242MmGAs)
Wind erosion	M1: 10-30% of the map unit has a high to extreme wind erosion risk	M2: 30-50% of the map unit has a high to extreme wind erosion risk
Water erosion	M1: 10-30% of the map unit has a high to extreme water erosion risk	M1: 10-30% of the map unit has a high to extreme water erosion risk
Salinity	L1: <3% of the map unit has a moderate to high salinity risk or is presently saline	L1: <3% of the map unit has a moderate to high salinity risk or is presently saline
Subsurface Acidification	M2: 30-50% of the map unit has a high subsurface acidification risk or is presently acid	H1: 50-70% of the map unit has a high subsurface acidification risk or is presently acid
Flood risk	L1: <3% of the map unit has a moderate to high flood risk	L2: 3-10% of the map unit has a moderate to high flood risk
Water logging	L1: <3% of the map unit has a moderate to very high waterlogging risk	L2: 3-10% of the map unit has a moderate to very high waterlogging risk
Phosphorus export risk	M1: 10-30% of the map unit has a high to extreme phosphorus export risk	M2: 30-50% of the map unit has a high to extreme phosphorus export risk

However, the proposed clearing relates to linear clearing for a two-metre-wide trail alignment across approximately 3.5 kilometres and will predominantly involve the removal of mid- and understorey species within the application area, as the City has committed to retaining all habitat trees within the application area and avoiding the clearing of trees with a DBH greater than 100 millimetres, where possible. It is also noted that the proposed trail alignment runs across the existing slope and is unlikely to result in steeper

gradients between areas of the Mounts or to intensify the erosion risk of the slopes. Taking into account the extent and linear nature of the proposed clearing and that approximately 253 hectares of vegetated areas will remain within the AHP post-clearing, the proposed clearing is unlikely to result in appreciable land degradation.

(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.

Proposed clearing is not likely to be at variance with this Principle

Delegated Officer's Key Considerations
The Delegated Officer determined that, given the distance and separation from the nearest mapped occurrence, the proposed clearing is unlikely to have an impact on the environmental values of any conservation area. The Delegated Officer determined that no vegetation management conditions were required to mitigate impacts to local conservation areas.

The application area does not occur within any mapped conservation area. According to available databases, the closest conservation area is Mistaken Island Nature Reserve which occurs offshore, approximately 3.5 kilometres south-east of the application area. On the mainland, the closest conservation reserves are Gledhow Nature Reserve and an unnamed Conservation Park approximately 4.5 kilometres north-west and Torndirrup National Park approximately 5 kilometres south of the application area. The local conservation areas are all separated from the application area by residential developments, road infrastructure, and/or King George Sound.

Noting the separation distance between local conservation areas and the application area, the proposed clearing is unlikely to have an impact on the environmental values of any conservation area.

(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.

Proposed clearing is not likely to be at variance with this Principle

Delegated Officer's Key Considerations
Based on the assessment below, the Delegated Officer determined that water quality impacts resulting from the proposed clearing are likely to be limited to short-term increases in sedimentation and turbidity of naturally accumulated water in gullies on mid to low hillslopes, coastal margins, or seepages on granite sheets. Given the extent and linear nature of the proposed clearing, as well as the City's avoidance and mitigation measures, the Delegated Officer determined that the proposed clearing is unlikely to cause deterioration in the quality of surface or underground water.

The Delegated Officer determined that no vegetation management conditions were required to mitigate water quality impacts.

According to available databases, the application area does not transect any water resources proclaimed under either the:
- *Country Areas Water Supply Act 1947*,
- *Metropolitan Water Supply Sewerage and Drainage Act 1909*, or
- *Rights in Water and Irrigation Act 1914*.

As discussed under clearing principle (f), no wetlands or watercourses have been mapped within the application area, but the proposed clearing may intersect areas containing naturally accumulated water in gullies on mid to low hillslopes, coastal margins, or seepages on granite sheets. However, as the water sources are likely to be non-perennial and associated with rainfall patterns and the accumulated water is not part of a structured watercourse or wetland system, it is likely that any impacts to the quality of accumulated water in these areas will be limited to short-term increases in sedimentation and turbidity and are unlikely to be significant.

Groundwater salinity within the clearing footprint is mapped between 500 – 1,000 milligrams per litre total dissolved solids, which is classified as a marginal salinity level by Mayer, Ruprecht and Bari (2005). As discussed under clearing principle (b), the City has committed to retaining all habitat trees within the application area and avoiding the clearing of trees with a DBH greater than 100 millimetres, where possible. Therefore, the proposed clearing is unlikely to cause a significant rise in the water table or contribute to increased salinity in the AHP or local area.

In considering the above and that the proposed clearing relates to linear clearing for a two-metre-wide trail alignment across approximately 3.5 kilometres and will predominantly involve the removal of mid- and understorey species within the application area, the proposed clearing is not likely to cause significant deterioration in the quality of surface of underground water.

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Proposed clearing is not likely to be at variance with this Principle

Delegated Officer's Key Considerations
Based on flood-risk mapping and the extent and linear nature of the proposed clearing, the Delegated Officer determined that the proposed clearing is unlikely to cause, or exacerbate, the incidence or intensity of flooding. The Delegated Officer determined that no vegetation management conditions were required to mitigate flood risk.

As discussed under clearing principle (f), no wetlands or watercourses have been mapped within the application area. Given the topography of the AHP, the application area includes some areas in which water may naturally accumulate in gullies on mid to low hillslopes, coastal margins, or seepages on granite sheets. However, the mean annual rainfall within the AHP is approximately 900 millimetres and the mapped soil systems have a very low risk of flooding and waterlogging (DPIRD, 2023).

Further, the proposed clearing relates to linear clearing for a two-metre-wide trail alignment across approximately 3.5 kilometres and will predominantly involve the removal of mid- and understorey species within the application area, as the City has committed to retaining all habitat trees within the application area and avoiding the clearing of trees with a DBH greater than 100 millimetres, where possible. Therefore, the proposed clearing is not considered likely to cause, or exacerbate, the incidence or intensity of flooding within the application area or local area.

Planning instruments and other relevant matters.

In accordance with section 51O(4) of the EP Act, in considering a clearing matter the Delegated Officer shall have regard to any development approval, planning instrument, or other matter, that they consider relevant. The planning instruments and other matters considered relevant by the Delegated Officer in determining to grant Clearing Permit CPS 9182/1, are outlined below.

EPBC Act referral and assessment bilateral agreement
On 24 October 2019, DCCEEW (then DAWE) determined that the proposed clearing is a controlled action and is likely to have a significant impact on WRP and *C. harringtoniae*, and may have a significant impact on *D. micrantha*, listed as threatened species under Part 3 of the EPBC Act (matters of national environmental significance).

On 24 April 2021, DWER advised that the clearing permit application was accepted and the environmental impact assessment would include assessment against the EPBC Act under the State of WA and Commonwealth Bilateral Agreement.

Consultation
The clearing permit application was advertised on DWER's website on 24 April 2021, inviting submissions from the public within a 21-day period. Nine public submissions were received at this time.

The clearing permit application was re-advertised on DWER's website on 9 December 2022, to reflect the re-alignment of the proposed trail to avoid and minimise clearing impacts. Submissions from the public were invited within a 7-day period and 16 public submissions were received. Seven of these were a repeat of submissions received during the original advertisement period and DWER considers that 18 individual submissions have been received in total in relation to the proposed clearing.

On 20 June 2021 and 24 January 2023, the City provided a response to the public submissions upon invitation from DWER, which are available to view online at https://ftp.dwer.wa.gov.au/permit/9182/.

Details of these submissions and how they were considered in the assessment are in Appendix A of this report.

Necessity of the clearing
DWER's *'A guide to the assessment of applications to clear native vegetation'* (DER, 2013) indicates that the necessity of the clearing is an 'other relevant matter' to be considered when making decisions as to whether a clearing permit should be granted. The assessment guideline prioritises clearing for public use over private benefit or commercial gain (DER, 2013).

In considering the clearing permit application, the Delegated Officer had regard to the fact that the proposed Albany Heritage Park Link Trails is a major tourism and development project which is expected to provide a direct public benefit through increased tourism and improved infrastructure for a variety of trail users in the Albany region.

Other relevant authorisations and relevant planning instruments
Other relevant authorisations required for the proposed land use include a development approval under the *Planning and Development Act 2005.* The City holds Development Approval P2170243 for 'Reserve Development – Trails Network' (City of Albany, 2021a). The City has advised that the Development Approval was granted an extension of time in 2021 and substantial commencement of the development is required to commence by 28 May 2025 in order for the development approval to remain valid (City of Albany, 2023).

The planning and development of the Albany Heritage Park Link Trails has taken into account various planning instruments and documents as described in Section 3.1, including:

- City Mounts Management Plan (City of Albany, 2006),
- City of Albany Trails Hub Strategy 2015-2025 (City of Albany, 2015),
- Western Australian State Trails Strategy (Department of Sport and Recreation, 2008),

- Western Australian Mountain Bike Strategy (DPAW, 2015),
- The Western Australian Mountain Bike Strategy (WestCycle, 2015),
- Albany Heritage Park Trails Network Concept Plan (City of Albany, 2016a),
- Mounts Master Plan (City of Albany, 2021a), and
- Great Southern Regional Trails Master Plan 2020–2029 (GSCORE, 2019).

The Delegated Officer notes that the application occurs within land zoned as Parks and Recreation under the City's Local Planning Scheme and that this zoning is appropriate for the proposed trails. The application area also occurs within Crown Reserves vested for management as Public park, Recreation and parklands, and Parklands, recreation and tourism, which is consistent with the proposed land use.

Other relevant matters
According to available databases, no Aboriginal Sites of Significance have been mapped within the application area. The City has advised that an Aboriginal Heritage survey of the Albany Heritage Park Link Trails project area was undertaken in 2017 (Dortch & Cuthbert Pty Ltd, 2017) and a number of registered and non-registered Aboriginal sites of significance within the project area have been considered and avoided during the planning of trail corridor alignments (City of Albany, 2021a). 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.

The AHP is valued by the community for containing a number of military sites of national significance, including:

- the National Anzac Centre
- Princess Royal Fortress
- Desert Mounted Corps Memorial and the Padre White Lookout
- the place of Australia's first Dawn Service.

The City has indicated that these sites have been considered and avoided during the planning of trail corridor alignments (City of Albany, 2021a).

Part 4: Suitability of offsets

5. Suitability of offsets

Through the detailed assessment outlined in Sections 3 and 4 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 3.5:

- The loss of 3.16 hectares of significant habitat for WRP,
- The loss of 3.05 hectares of significant foraging habitat for Baudin's cockatoo,
- The loss of 3.05 hectares of significant foraging habitat for Carnaby's cockatoo, and
- The loss of 3.05 hectares of significant foraging habitat for forest red-tailed black cockatoo.

In determining the appropriateness of an offset, the Delegated Officer took into consideration the City's implementation of the mitigation hierarchy and the public benefit of the proposed clearing (see Section 3.5 and Section 4). The Delegated Officer noted that the proposed Albany Heritage Park Link Trails is a major tourism and development project which is expected to provide a direct public benefit through increased tourism and improved infrastructure for a variety of trail users in the Albany region. In considering these matters, the Delegated Officer determined that it was appropriate to grant the clearing permit in relation to the significant residual impacts, on the basis that a suitable environmental offset was implemented to counterbalance the impacts.

The City proposed an environmental offset consisting of three components:

- The rehabilitation of 8.16 hectares of native vegetation that comprises significant habitat for WRP, Carnaby's cockatoo, Baudin's cockatoo, and forest red-tailed black cockatoo within the AHP Crown Reserves (Reserve 2682, Reserve 27068, and Reserve 38226) from a Completely Degraded-Degraded (Keighery, 1994) condition to a Good-Very Good (Keighery, 1994) condition,
- The incorporation of a total of 8.09 hectares of native vegetation within Lot 172 on Deposited Plan 222002 into the AHP Crown Reserve (Reserve 2682) to be vested as Conservation and Public Park, with active weed management to improve habitat quality, comprising at least:
    - 8.09 hectares of significant habitat for WRP in Very Good (Keighery, 1994) condition,
    - 3.01 hectares of significant foraging habitat for Baudin's cockatoo in Very Good (Keighery, 1994) condition,
    - 3.01 hectares of significant foraging habitat for Carnaby's cockatoo in Very Good (Keighery, 1994) condition, and
    - 0.49 hectares of significant foraging habitat for forest red-tailed black cockatoo in Very Good (Keighery, 1994) condition.
- The change of vesting and active weed management to maintain habitat quality of 10.8 hectares of native vegetation that comprises significant habitat for WRP in Very Good to Excellent (Keighery, 1994) condition within the AHP Crown Reserve (Reserve 2682) to include Conservation in addition to the current vesting.

Revegetation and rehabilitation

In order to counterbalance the significant residual impacts of the proposed clearing, the City proposed to undertake revegetation and rehabilitation of a total of 8.16 hectares of native vegetation within the AHP, comprising approximately 0.94 hectares of unrequired or unauthorised trails and 7.22 hectares of degraded areas (outlined green in Figure 7 below). The proposed revegetation areas are spread across four degraded areas and approximately 52 segments of unrequired trails within the AHP Crown Reserves (Reserve 2682, Reserve 27068, and Reserve 38226). Baseline data from the *Albany Heritage Park Trails Link Project Rehabilitation Management Plan* (JBS&G, 2023) indicates that these areas are currently in Completely Degraded to Degraded (Keighery, 1994) condition and predominantly consist of weeds within occasional native overstorey and midstorey species such as peppermint, jarrah, marri, sheoak, *Hakea* spp., and *Petrophile diversifolia*.

Rehabilitation will be undertaken in accordance with the *Albany Heritage Park Trails Link Project Rehabilitation Management Plan* (JBS&G, 2023) with an aim to create and enhance native vegetation that will provide resilient habitat for WRP and black cockatoo species. The Rehabilitation Plan utilises Excellent (Keighery, 1994) condition vegetation within the AHP as reference sites and proposes to return all dominant tree species that provide habitat for WRP and black cockatoos, achieve 60% of species richness and vegetation cover, and achieve a maximum of 30% weed cover JBS&G, 2023). It is anticipated that the proposed rehabilitation will improve the quality of foraging and dispersal habitat for WRP and black cockatoo species to a Good to Very Good (Keighery, 1994) condition.

Incorporation of Lot 172 on Deposited Plan 222002 into Crown Reserve 2682

In order to counterbalance the remaining significant residual impacts of the proposed clearing, the City proposed to incorporate a total of 8.09 hectares of native vegetation within Lot 172 on Deposited Plan 222002 into the AHP Crown Reserve (Reserve 2682) to be vested as Conservation and Public Park, with active weed management to improve habitat quality for WRP and black cockatoo species (outlined blue in Figure 7 below). Lot 172 on Deposited Plan 222002 is currently freehold land owned by the City which had historically been earmarked for future tourism development.

In order to counterbalance the significant residual impacts to black cockatoo foraging habitat remaining after the rehabilitation offset described above, the area of Lot 172 on Deposited Plan 222002 to be incorporated into Crown Reserve 2682 must contain at least 3.01 hectares of significant foraging habitat for Baudin's cockatoo and Carnaby's cockatoo and at least 0.49 hectares of significant foraging habitat for forest red-tailed black cockatoo, as well as 8.09 hectares of significant habitat for WRP. Based on data from the Albany Regional Vegetation Survey (Sandiford and Barrett, 2010), Lot 172 on Deposited Plan 222002 includes predominantly marri and jarrah forest, jarrah woodland and peppermint woodland with patches of *Callistachys* spp. thicket and *Homalospermum firmum/Callistemon glaucus* peat thicket. Based on the available regional vegetation mapping and advice from the City, Lot 172 on Deposited Plan 222002 is considered to provide the required habitat extents of WRP and black cockatoo species in Very Good (Keighery, 1994) condition. The WRP regional surveys (Biota, 2020) also identified WRP individuals

occurring within the immediate vicinity of Lot 172 on Deposited Plan 222002, making it highly likely that the species is also utilising the vegetation within this property.

The City has proposed to undertake weed management within the offset area in accordance with the *City of Albany Weed Management Plan, Reserve 2682, Albany Heritage Park and Lot on Deposited Plan 222002* (City of Albany, 2023). The weed management plan aims to improve habitat for WRP and black cockatoo species within Lot 172 on Deposited Plan 222002 by reducing the extent and density of weeds that are preventing the regeneration of habitat trees, prevent the introduction of new weeds, and prevent the incursion of weeds into undisturbed native vegetation that provides habitat.

Change of vesting within Crown Reserve 2682

In order to counterbalance the remaining significant residual impacts of the proposed clearing on WRP, the City proposes to change the vesting of 10.8 hectares of native vegetation that comprises significant habitat for WRP within the AHP Crown Reserve (Reserve 2682) to include Conservation in addition to the current vesting, as well as undertaking active weed management to maintain habitat quality for WRP (outlined red in Figure 7 below). Crown Reserve 2682 is currently vested as Public Park.

Based on data from the Albany Regional Vegetation Survey (Sandiford and Barrett, 2010), Crown Reserve 2682 includes Marri/Jarrah Forest/Peppermint Woodland, Jarrah Woodland, Marri/Jarrah Coastal Hills Forest, *Gastrolobium bilobum*/*Hakea elliptica* Granite Shrubland/Yate Woodland, and *Taxandria marginata* Granite Shrubland. Based on the available regional vegetation mapping and extrapolation from the flora and vegetation surveys undertaken in adjacent vegetation within the AHP (Southern Ecology, 2022; Southern Ecology, 2020), the offset areas within Crown Reserve 2682 are likely to provide habitat for WRP in Very Good to Pristine (Keigheyr, 1994) condition. The WRP regional surveys (Biota, 2020) also identified WRP individuals occurring within the immediate vicinity of the offset areas making it highly likely that the species is utilising the vegetation within the offset areas for foraging and dispersal.

The City has proposed to undertake weed management within the offset area in accordance with the *City of Albany Weed Management Plan, Reserve 2682, Albany Heritage Park and Lot on Deposited Plan 222002* (City of Albany, 2023). The weed management plan aims to maintain habitat for WRP within Crown Reserve 2682by reducing the extent and density of weeds that are preventing the regeneration of habitat trees, prevent the introduction of new weeds, and prevent the incursion of weeds into undisturbed native vegetation that provides habitat.

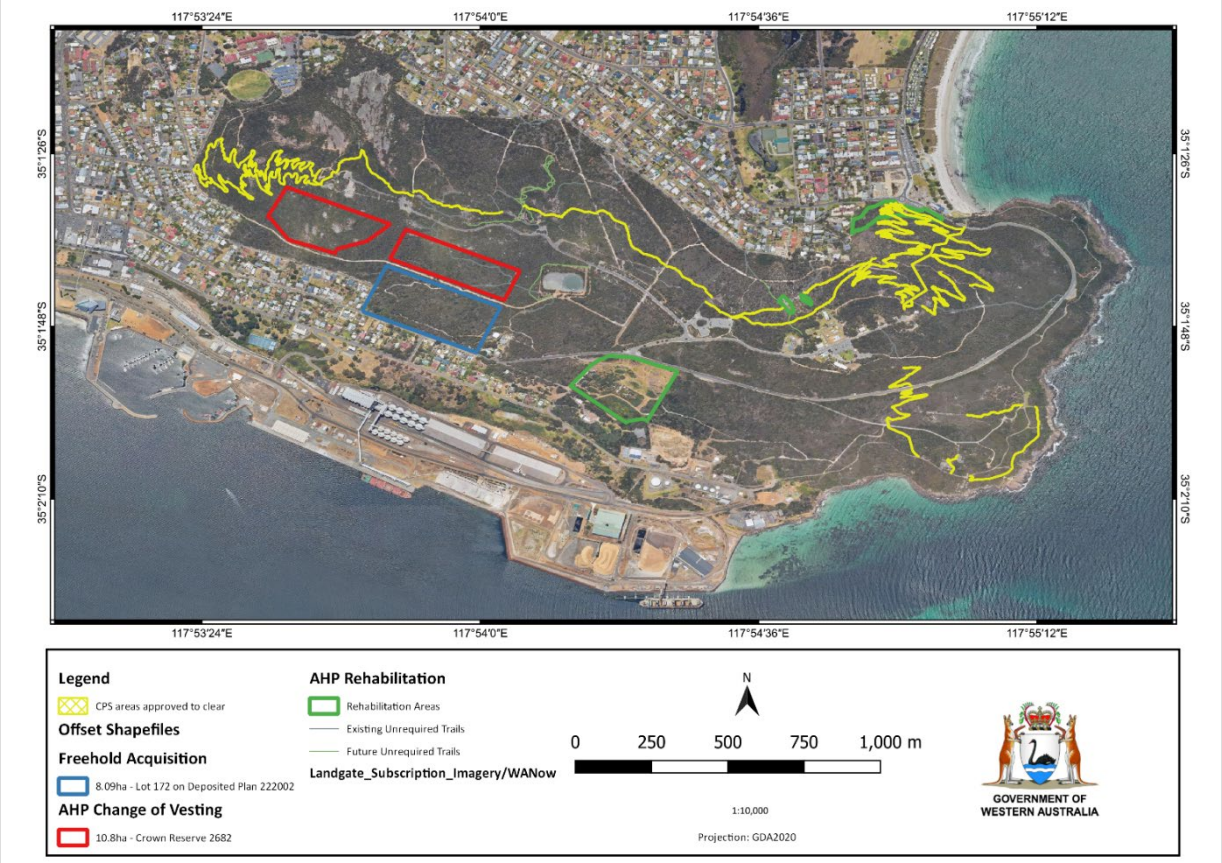


Figure 7. Location of proposed offset areas for CPS 9182/1 (outlined red, blue, and green) relative to the proposed clearing area for CPS 9182/1 (cross-hatched yellow).

Conclusion

The Delegated Officer considers the proposed offset is consistent with the *WA Environmental Offsets Policy* (2011) and the *WA Environmental Offsets Guidelines* (2014), and that it adequately counterbalances the significant residual impacts to native vegetation that provides foraging and dispersal habitat for WRP and foraging habitat for Baudin's cockatoo, Carnaby's cockatoo, and forest red-tailed black cockatoo when applying the EPBC Offsets assessment guide (Commonwealth Offsets Calculator). The justification for the values used in the offset calculation is provided in Appendix D.

END

Appendices

Appendix A – Summary of public submissions

DWER advertised the application on 24 April 2021 for 21 calendar days and again on 9 December 2022 for 7 calendar days. A total of 18 individual submissions were received. On 20 June 2021 and 24 January 2023, the City provided a response to the public submissions, which are available to view online at https://ftp.dwer.wa.gov.au/permit/9182/.

Where submissions raised similar concerns, consideration of the comments provided was combined into one ground of submission to allow a more streamlined response. A total of 20 grounds of submission were raised in total across the 18 submissions. Table 11 below indicates the overlap in grounds of submission between submissions. DWER's consideration of the submissions is summarised in Table 12.

Table 11 Summary of grounds of submission (Submissions, 2022; Submissions, 2021).

	Ground of submission	Submission																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	The extent of the proposed clearing has not been adequately quantified.	✓																	
2	The mitigation hierarchy has not been adequately applied for the project.		✓	✓				✓	✓										
3	The proposed clearing will impact on native vegetation that comprises a high level of biodiversity.	✓	✓							✓		✓		✓			✓	✓	✓
4	The proposed clearing will result in habitat fragmentation and cause edge effects.	✓			✓	✓				✓					✓	✓	✓	✓	
5	The proposed clearing will result in the loss of significant habitat for fauna and impacts to fauna species.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
6	The proposed clearing will result in the loss of habitat for threatened and priority flora.	✓	✓	✓	✓		✓		✓	✓			✓		✓	✓		✓	✓
7	The proposed clearing is likely to cause appreciable land degradation.	✓								✓				✓				✓	✓
8	The proposed clearing will result in the spread of dieback.	✓	✓		✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	
9	The proposed clearing will result in the spread of weeds.				✓	✓		✓	✓					✓	✓	✓	✓	✓	
10	The proposed clearing may facilitate the spread of marri canker.		✓		✓					✓						✓		✓	
11	The proposed clearing will have an impact on a conservation area.	✓								✓				✓					✓
12	The environmental offsets proposed are inadequate.		✓						✓						✓				
13	The proposed action is part of a staged development.				✓														
14	The City's management of the AHP has been poor.		✓		✓						✓					✓			
15	The proposed clearing is inconsistent with an A Class Reserve vesting.	✓													✓				
16	There has not been appropriate consultation with adjacent landowners.							✓											
17	There is a general lack of community support for the project.											✓							
18	The proposed clearing will result in a loss of visual amenity.					✓				✓						✓		✓	
19	The proposed clearing will impact on Aboriginal heritage values.	✓				✓	✓		✓			✓			✓				
20	The proposed clearing will impact on National heritage values.					✓				✓			✓			✓			

Table 12 Details of public submissions (Submissions, 2022; Submissions, 2021) and DWER's consideration of matters raised.

	Ground of Submission	Summary of comments	Consideration of comment
1.	The extent of the proposed clearing has not been adequately quantified.	The application form states that the number of trees proposed to be cleared is 'unable to be quantified', which is not acceptable. The City has indicated that 'where possible, clearing will avoid the removal of trees over 100 millimetres in diameter', therefore all trees should be quantified and avoided.	In submitting a clearing permit application, applicants are able to identify the extent of proposed clearing in either number of trees or an area of clearing in hectares. If all trees proposed to be cleared are contained within the specified total area of clearing, the applicant is not required to quantify the total number of trees proposed to be cleared, unless this is required to quantify impacts to an environmental value. During the assessment of CPS 9182/1, the City was required to undertake a habitat tree assessment to quantify the number of habitat trees within the application area and the location of these trees. The findings of the habitat tree assessment are summarised in *Assessment of application against the clearing principles* (see Section 4). In considering the above, DWER has assessed this proposal based on 3.16 hectares of clearing, assuming the potential for the removal of all canopy, mid-storey, and understorey species within this area. Under the conditions of the clearing permit, the City is required to have regard to further avoiding, minimising, and mitigating clearing, where possible. All habitat trees are required to be identified and avoided during clearing.
2.	The mitigation hierarchy has not been adequately applied for the project.	The application documents indicate that a justification for the necessity of the proposed clearing is to address the impacts of unauthorised mountain bike trails within the AHP. However, it is considered unlikely that formalised trails will prevent all unauthorised trail creation within the AHP.	The City has advised that, after significant community consultation through the Mounts Master Plan (City of Albany, 2021a), it determined that the construction of well-designed trails is the best strategy to address increasing demand for designated mountain bike and walk trails, user conflict and the environmental damage being caused by the ad-hoc illegal clearing of native vegetation for trails. The City's application of the mitigation hierarchy is summarised in *Avoidance, minimisation, mitigation, and offset* (Section 3.5).
		The City has not adequately outlined the measures taken to avoid and minimise the need for clearing in its supporting documentation. There are further opportunities to avoid and minimise clearing that have not been explored.	The City has advised that all efforts to avoid, minimise, and mitigate clearing of native vegetation have been employed during the planning and design of the proposal. The City has advised that it will continue to explore methods of avoidance and minimisation on-ground, where possible. The City's application of the mitigation hierarchy is summarised in *Avoidance, minimisation, mitigation, and offset* (Section 3.5).

	Ground of Submission	Summary of comments	Consideration of comment
3.	The proposed clearing will impact on native vegetation that comprises a high level of biodiversity.	The AHP is a highly diverse habitat with eighteen native vegetation communities comprising at least 292 types of vascular plants from 67 families, including one threatened species and 4 Priority Flora, and at least 160 species of native fauna. The proposed clearing is seriously at variance to clearing principle (a) and should not be approved.	DWER's assessment determined that the proposed clearing is at variance to clearing principle (a) and will impact native vegetation that comprises a high level of biodiversity. DWER's assessment of the impacts of the proposed clearing on biodiversity is outlined in *Assessment of application against the clearing principles* (see Section 4).
4.	The proposed clearing will result in habitat fragmentation and cause edge effects.	The AHP is currently fragmented by historically constructed roads and trails. The proposed clearing for trails will result in further fragmentation of the AHP and is not acceptable.	DWER's assessment of habitat fragmentation was undertaken in relation to ecological linkage values and is summarised in *Assessment of application against the clearing principles* (see Section 4). Given the linear nature of the proposed clearing, that the City has committed to retaining canopy connectivity, where possible, and that approximately 8.16 hectares of disused trails and degraded areas will be rehabilitated as part of the proposed offset, the Delegated Officer considers that the proposed clearing will not result in significant fragmentation of native vegetation within the AHP.
		The proposed clearing will result in edge effects across a linear length of 14,105 metres of trails, representing a very significant impact.	The Delegated Officer acknowledges that the proposed clearing may facilitate edge effects along the boundary of the trails, such as weed invasion and minor degradation from pedestrian and bike use. However, this is not considered likely to be significant noting that the City has committed to measures to minimise erosion and weed spread (see Section 3.5) and that weed management along the trail alignment will be an ongoing part of the management of the AHP Crown Reserves into the future.
5.	The proposed clearing will result in the loss of significant fauna habitat and impacts to fauna species.	The proposed clearing should not be approved as it will result in the loss of significant habitat for Baudin's cockatoo, Carnaby's cockatoo and the forest red-tailed black cockatoo.	DWER's assessment identified that the proposed clearing will result in impacts to significant foraging habitat for Baudin's cockatoo, Carnaby's cockatoo, and forest red-tailed black cockatoo. DWER's assessment of the impacts of the proposed clearing on black cockatoo species is summarised in *Assessment of application against the clearing principles* (see Section 4). No significant breeding or roosting habitat will be removed as a part of the project.
		The proposed clearing should not be approved as it will result in the loss of significant habitat for WRP. The species recovery plan states that 'any habitat where WRP occur naturally are considered critical and worthy of protection' (DPAW, 2017) and therefore, any loss of habitat for the WRP is unacceptable and inconsistent with the recovery plan. WRP habitat in the Albany region is also likely to become increasingly important to the survival of the species in the face of anticipated climate change impacts.	DWER's assessment identified that the proposed clearing will result in impacts to significant habitat for WRP. DWER's assessment of the impacts of the proposed clearing on WRP is summarised in *Assessment of application against Matters of National Environmental Significance* (see Section 3) and *Assessment of application against the clearing principles* (see Section 4).

	Ground of Submission	Summary of comments	Consideration of comment
		The proposed clearing should not be approved as it will result in the loss of habitat for quenda. Quenda are a Priority 4 species, meaning their ongoing survival is dependent on conservation and their population numbers need monitoring.	DWER's assessment of the impacts of the proposed clearing on quenda is summarised in *Assessment of application against the clearing principles* (see Section 4).
		The proposed trails will increase the access of feral predators to the AHP and increase predation risk for native fauna.	While the Delegated Officer acknowledges that invasive predators present a significant risk to native fauna, DWER considers invasive species management to be beyond the scope of the assessment of a Clearing Permit application. The City, as the manager of the AHP Crown Reserve, is responsible for the control of invasive species on land vested in it.
		The proposed clearing should not be approved as it will result in the loss of habitat for *Tarsipes rostratus* (honey possum). This species and its habitat is increasingly under threat from dieback, declining rainfall and rising temperatures leading to increased frequency of fire, and death of Banksia trees due to the falling water table.	The honey possum is not listed as a threatened or priority species under State or Commonwealth legislation, and therefore has not been directly assessed under DWER's *Assessment of application against Matters of National Environmental Significance* or *Assessment of application against the clearing principles*. Based on available literature, the honey possum is only found in floristically diverse regions of south-west Western Australia, due to its reliance on a year-round supply of nectar (UWA, 2011). Honey possums are typically associated with heathland or coastal shrubland including Banksia species (UWA, 2011), in particular *Banksia ilicifolia* (Bradshaw et al., 2007). Therefore, preferred habitat for honey possums within the application area is likely to be limited to the Coastal Shrubland vegetation type. Approximately 0.26 hectares of Coastal Shrubland vegetation is proposed to be cleared under CPS 9182/1. According to flora and vegetation surveys (Southern Ecology, 2020), this represents approximately 10 per cent of the mapped Coastal Shrubland vegetation occurring within a 10-metre buffer of the proposed trails alone. The Coastal Shrubland vegetation type is expected to extend beyond the extent mapped in flora and vegetation surveys (Southern Ecology, 2020). The City has also committed to mitigation measures that will reduce the likelihood of indirect impacts to adjacent suitable habitat within the AHP during the proposed clearing, including implementing weed and dieback management procedures. In considering the above, the proposed clearing is not considered likely to significantly reduce the extent of preferred habitat available for the honey possum within the AHP.

	Ground of Submission	Summary of comments	Consideration of comment
6.	The proposed clearing will result in the loss of habitat for threatened and priority flora.	The proposed clearing should not be approved as it will result in the loss of potential habitat for *Caladenia harringtoniae*.	DWER's assessment determined that the proposed clearing will impact critical habitat for one threatened flora species; *Caladenia harringtoniae*. DWER's assessment of the impacts of the proposed clearing on conservation significant flora is outlined in *Assessment of application against Matters of National Environmental Significance* (see Section 3) and *Assessment of application against the clearing principles* (see Section 4). The Delegated Officer considers that the loss of 0.026 hectares of critical habitat for *Caladenia harringtoniae* is unlikely to significantly reduce the extent of the patch of critical habitat or impact a local population
		The proposed clearing should not be approved as it will result in impacts to *Drakaea micrantha*.	DWER's assessment determined that the proposed clearing is unlikely to impact significant habitat for *Drakaea micrantha*. DWER's assessment of the impacts of the proposed clearing on conservation significant flora is outlined in *Assessment of application against Matters of National Environmental Significance* (see Section 3) and *Assessment of application against the clearing principles* (see Section 4).
		The proposed clearing should not be approved as it will result in impacts to *Stylidium falcatum*.	DWER's assessment determined that the proposed clearing will result in the loss of 10 individuals of *Stylidium falcatum* (Priority 2) within the application area and the potential for indirect impacts to an additional 32 individuals within 30-metres of the proposed clearing. DWER's assessment of these impacts is outlined in *Assessment of application against the clearing principles* (see Section 4). The Delegated Officer considered it is not likely that the proposed clearing will result in significant impacts to the conservation of *S. falcatum*.
7.	The proposed clearing is likely to cause appreciable land degradation.	The proposed trail sites consist of slopes that will result in erosion and changes runoff, causing some degradation to adjacent and low-lying sections of the AHP.	DWER considered the potential for the proposed clearing to result in appreciable land degradation in *Assessment of application against the clearing principles* (see Section 4). Noting the linear nature of the proposed clearing, the extent of native vegetation within the AHP, and erosion management proposed by the City (see Section 3.5), the Delegated Officer considered that the proposed clearing is unlikely to result in appreciable land degradation.

	Ground of Submission	Summary of comments	Consideration of comment
8.	The proposed clearing will result in the spread of dieback.	The proposed clearing and subsequent use of the mountain bike trails will cause significant damage to the native vegetation within the AHP through the spread of dieback and should not be approved.	DWER considered the potential spread of dieback in relation to biodiversity impacts and this assessment is outlined in *Assessment of application against the clearing principles* (see Section 4). Noting the dieback "unprotectable" status of the AHP and that the proposed clearing will be undertaken in accordance with the *Operational Hygiene Management Plan: Albany Heritage Park Link Tails Network* (Great Southern Bio Logic, 2022), the Delegated Officer does not consider the spread of dieback to represent a significant residual impact of the proposal.
9.	The proposed clearing will result in the spread of weeds.	The proposed clearing and subsequent use of the mountain bike trails will cause significant damage to the native vegetation within the AHP through the spread of weeds and should not be approved.	DWER considered the potential spread of weeds in relation to biodiversity impacts and this assessment is outlined in *Assessment of application against the clearing principles* (see Section 4). Noting that the proposed clearing will be undertaken in accordance with the *Operational Hygiene Management Plan: Albany Heritage Park Link Tails Network* (Great Southern Bio Logic, 2022) and the City proposed to undertake weed management as part of its offset proposal and the ongoing management of the AHP, the Delegated Officer does not consider the spread of weeds to represent a significant residual impact of the proposal.
10.	The proposed clearing may facilitate the spread of marri canker.	Paap et al. (2017) found that marri canker (*Quambalaria coyrecup*) occurred at higher incidence on human-disturbed sites. The proposed trails intersect a number of areas of marri-dominated vegetation and could facilitate the spread of marri canker through the AHP.	The Delegated Officer acknowledges that marri canker could be present within the authorised clearing area, given the pathogen occurs on marri across its natural range (Paap et al., 2012). However, given the proposed clearing and potential spread of pathogens will be managed in accordance with the *Operational Hygiene Management Plan: Albany Heritage Park Link Tails Network* (Great Southern Bio Logic, 2022), the Delegated Officer did not consider the spread of marri canker to represent a significant residual impact of the proposal.
11.	The proposed clearing will have an impact on a conservation area.	The proposed clearing will impact on the environmental values of the AHP conservation area.	The Delegated Officer notes that the AHP consists of a variety of Crown Reserves vested for management by the City as Public park, Recreation and parklands, and Parklands recreation and tourism. Therefore, the AHP is not considered a conservation area for the purposes of Clearing Principle (h).
12.	The environmental offsets proposed are inadequate.	The supporting documentation for the EPBC Act referral proposes a revegetation project for 1.7 hectares at Lake Seppings as an environmental offset. This is inappropriate as the revegetation includes inundated areas that would not function as a corridor for WRP and therefore, could not offset the residual impacts of the proposed clearing.	The Delegated Officer notes that the offset proposal was altered during the assessment of the clearing permit application and no longer relates to the revegetation of native vegetation at Lake Seppings. DWER's assessment of the suitability of the proposed offset is outlined in *Suitability of offsets* (see Section 5).

	Ground of Submission	Summary of comments	Consideration of comment
13.	The proposed action is part of a staged development.	The Albany Heritage Park Trails Network Concept Plan (City of Albany, 2016a) states that the proposal is part of a staged development. Therefore, actual impacts may be greater than that currently proposed under the clearing permit application.	The City has advised that, when the City adopted the Albany Heritage Park Trails Network Concept Plan (City of Albany, 2016a), it was intended to be a staged development. However, since the planning and development of the Mounts Master Plan (City of Albany, 2021a), it was identified that the scale of the Albany Heritage Park Trails Network Concept Plan (City of Albany, 2016a) was no longer feasible, and the proposal was reviewed and significantly reduced. The Mounts Master Plan (City of Albany, 2021a) no longer refers to the AHP Link Trails as a staged development and the project is not planned as such. If the City were to apply to increase the trail network at a later date, the cumulative impacts of clearing within AHP will be considered.
14.	The City's management of the AHP has been poor.	The City has made little effort to prevent the unauthorised trails within the AHP and has not revegetated or rehabilitated the existing unauthorised trails.	As the manager of the AHP Crown Reserves it is the responsibility of the City to manage land use on land vested in it and respond to unauthorised land-use accordingly. The City has proposed closure and rehabilitation of the existing unauthorised trails as part of the environmental offset proposal for CPS 9182/1 (see Section 5).
		The City has not undertaken appropriate management of dieback and allowed its continued spread within the AHP.	The City has advised that, while dieback is present within the project area and the AHP has been mapped as 'unprotectable' (Great Southern Bio Logic, 2022), it is believed that there are still areas where the disease is not present and the City is committed to protecting native vegetation from the introduction and spread of dieback to and within the AHP, and to areas outside of the AHP. The City has advised that best practice hygiene procedures are applied to all works within City-managed land.
15.	The proposed clearing is inconsistent with an A Class Reserve vesting.	Mount Clarence and Mount Melville are 'A' Class Reserves which are supposed to have 'the greatest degree of protection for reserves of Crown land' which is 'used solely to protect areas of high conservation or high community value'. The proposed clearing and trails are inconsistent with this classification.	DWER's assessment of relevant planning instruments considered the appropriateness of the proposed land-use in relation to the vesting of the AHP Crown Reserves and is outlined in *Assessment of application against the clearing principles* (see Section 4). The Delegated Officer considered that the proposed dual-use trails were consistent with relevant planning instruments, including the vesting of the reserves, the Mounts Management Plan (City of Albany, 2006), and Mounts Master Plan (City of Albany, 2021a).
16.	There has not been appropriate consultation with adjacent landowners.	Consultation has not been sought directly from adjacent landowners and public opinion has only been sought through ad-hoc methods which capture the views of only the well-organised and vocal groups.	The City has advised that consultation was undertaken with a variety of stakeholders and community members as part of the Mounts Master Plan project (City of Albany, 2021a). The consultation undertaken by the City is summarised in *Public consultation* (see Section 3.4).

	Ground of Submission	Summary of comments	Consideration of comment
17.	There is a general lack of community support for the project.	The stakeholder engagement report implies that overall, those within the community who commented on the proposal do not support it.	The City has indicated that the majority of feedback received from the community during public consultation on the Mounts Master Plan project (City of Albany, 2021a) was in support of the AHP Link Trails project. The results of consultation undertaken by the City are summarised in *Public consultation* (see Section 3.4).
18.	The proposed clearing will result in a loss of visual amenity.	The proposed clearing of the steep sides of the Mounts for mountain bike trails will result in the loss of visual amenity.	The City has advised that trails will be designed and constructed in accordance with the *Western Australian Mountain Bike Management Guidelines* to suit the specific terrain, soil types, and drainage requirements, whilst also employing measures to avoid erosion events. The City has indicated that these measures will help to maintain the visual amenity of the Mounts with the proposed development.
19.	The proposed clearing will impact on Aboriginal heritage values.	Aboriginal heritage values within the Albany Heritage Park must be respected and retained during the proposed clearing. The Aboriginal Heritage survey of the Albany Heritage Park Link Trails project area (Dortch & Cuthbert Pty Ltd, 2017), appears to dismiss heritage sites and the potential impacts.	Potential for impacts to Aboriginal Heritage Sites is considered a relevant 'other matter' and is summarised in DWER's *Assessment of application against the clearing principles* (see Section 4). However, it is the City's responsibility to ensure that no Aboriginal Sites of Significance are damaged through the clearing process. The City's consideration of Aboriginal heritage values and consultation with indigenous stakeholders is also summarised in DWER's *Assessment of application against Matters of National Environmental Significance* (see Section 3.5).
20.	The proposed clearing will impact on National heritage values.	The AHP is proposed to be nominated for listing as a National Heritage Site and a place of outstanding heritage significance to Australia by 2026. The AHP accommodates the National ANZAC Centre, as well as the Padre White Lookout, the Desert Mounted Corps Memorial, the Avenue of Honour and the Mt Adelaide summit Convoy Lookout together with the adjacent gun emplacements, shell stores and bunkers. These National heritage values must be respected and retained during the proposed clearing.	Potential for impacts to National Heritage Sites is considered a relevant 'other matter' and is summarised in DWER's *Assessment of application against the clearing principles* (see Section 4). These values are not proposed to be impacted by the proposed clearing.

Appendix B – Analysis of flora and fauna recorded in the local area

a) Flora analysis table

With consideration for the site information (see Section 2), relevant datasets (see Appendix F) and biological survey information (Southern Ecology, 2022; Southern Ecology, 2020), impacts to the following conservation significant flora required further consideration. Where conservation significant flora were identified in biological surveys* (Southern Ecology, 2022; Southern Ecology, 2020), count data for the recorded number of plants and estimates of total impact based on population data** from the Western Australian Herbarium (1998-) and DBCA (2021) is included in the table below.

Table 13 Conservation significant flora species likely to occur within the application area.

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record (m)	Are surveys adequate? [Y, N, N/A]	Count within application area for CPS 9182*	Count within 30 metre buffer of application area for CPS 9182*	Total potential impact under CPS 9182/1	Total count within biological surveys*	Total count of population (Regional population), where known**	Total count of individuals (Statewide), where known**	Potential impact of CPS 9182/1 (% of known population)
Adenanthos x *cunninghamii*	4	Yes	Yes	Yes	1,169	Yes	0	1	1	1	Unknown	199	0.5
Agrostocrinum scabrum subsp. *littorale*	2	Yes	Yes	Yes	1,169	Yes	0	0	0	0	N/A	N/A	0
Banksia brownii	T	Yes	Yes	Yes	1,813	Yes	0	0	0	0	N/A	N/A	0
Andersonia sp. Jamesii (J. Liddelow 84)	4	Yes	Yes	Yes	8,695	No	0	0	0	0	N/A	N/A	0
Banksia goodii	T	Yes	No	Yes	1,099	Yes	0	0	0	0	N/A	N/A	0
Banksia seneciifolia	4	Yes	Yes	Yes	8,919	Yes	0	0	0	0	N/A	N/A	0
Banksia verticillata	T	Yes	Yes	Yes	971	Yes	0	0	0	0	N/A	N/A	0
Conospermum quadripetalum	2	Yes	Yes	Yes	5,299	Yes	0	0	0	0	N/A	N/A	0
Corybas limpidus	4	Yes	Yes	Yes	3,364	Yes	0	3	3	4	Unknown	5,335	0.06
Caladenia harringtoniae	T	Yes	Yes	Yes	0	Yes	0	0	0	0	Unknown	754	0
Eucalyptus x *missilis*	4	Yes	No	No	9,086	Yes	0	0	0	0	N/A	N/A	0
Juncus meianthus	3	Yes	Yes	Yes	4,870	Yes	0	0	0	0	N/A	N/A	0
Lasiopetalum sp. Denmark (B.G. Hammersley 2012)	3	Yes	Yes	Yes	5,350	Yes	1	0	1	1	Unknown	406,675	<0.01
Pleurophascum occidentale	4	Yes	Yes	Yes	5,534	Yes	0	0	0	0	N/A	N/A	0
Spyridium spadiceum	4	Yes	Yes	Yes	236	Yes	30	16	46	521	>521	Unknown	<8.8%
Stylidium falcatum	2	Yes	Yes	Yes	3	Yes	10	32	42	206	253	800	5.25
Synaphea preissii	3	Yes	Yes	Yes	368	Yes	Unknown	Unknown	0	Unknown	Unknown	Unknown	0
Thysanotus isantherus	4	Yes	Yes	Yes	149	Yes	5	79	84	428	428	Unknown	19.6

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record (m)	Are surveys adequate? [Y, N, N/A]	Count within application area for CPS 9182*	Count within 30 metre buffer of application area for CPS 9182*	Total potential impact under CPS 9182/1	Total count within biological surveys*	Total count of population (Regional population), where known**	Total count of individuals (Statewide), where known**	Potential impact of CPS 9182/1 (% of known population)
Drakaea micrantha	T	Yes	Yes	Yes	5,544	Yes	0	0	0	0	N/A	N/A	0
Isopogon uncinatus	T	Yes	Yes	Yes	1,169	Yes	0	0	0	0	N/A	N/A	0
Verticordia fimbrilepis subsp. *Australis*	T	Yes	Yes	Yes	9,270	Yes	0	0	0	0	N/A	N/A	0

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

b) Fauna analysis table

With consideration for the site information (see Section 2), relevant datasets (see Appendix F) and biological survey information (Gilfillan, 2022; Biota, 2019), impacts to the following conservation significant fauna required further consideration.

Table 14 Conservation significant fauna species likely to occur within the application area

Species name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record (m)	Number of known records in local area (total)	Are surveys adequate to identify? [Y/N/N/A]
Calyptorhynchus banksii naso (Forest red-tailed black cockatoo)	VU	Yes	488	15	Yes
Falco peregrinus (Peregrine falcon)	OS	Yes	231	22	Yes
Hylaeus globuliferus (Woolybush bee)	P3	Yes	662	1	Yes
Isoodon fusciventer (Quenda, southwestern brown bandicoot)	P4	Yes	8	177	Yes
Phascogale tapotafa wambenger (South-western brush-tailed phascogale, wambenger)	CD	Yes	61	7	Yes
Pseudocheirus occidentalis (Western ringtail possum, ngwayir)	CR	Yes	0	537	Yes
Zanda baudinii (Baudin's cockatoo)	EN	Yes	82	220	Yes
Zanda latirostris (Carnaby's cockatoo)	EN	Yes	0	401	Yes

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

Appendix C – 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.

Table 15 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 D – Offset calculator value justification

D.1. Western ringtail possum habitat

Table 16 Offset calculator value justification.

Field Name	Description	Justification for value used
IUCN Criteria	The IUCN criteria for the value being impacted	**6.8%** - Afforded to western ringtail possum (WRP) as this species is listed as Critically Endangered under the BC Act and the EPBC Act.
Area of impact (habitat/community) or Quantum of impact (features/individuals)	The area of habitat/community impacted or number of features/individuals impacted	**3.16 hectares** - Comprises the portion of the application area that provides significant habitat for WRP, based on the available information from the WRP impact assessment of the AHP (Biota, 2019).
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** - Based on the available information from the flora and vegetation surveys, the application area consists of a range of habitat types that may be utilised by WRP for foraging or dispersal, including Eucalyptus/Corymbia Forest, Gastrolobium/Hakea Shrubland, Coastal Shrubland, Peppermint Low Forest, and Sheoak Woodland (Southern Ecology, 2022; Southern Ecology, 2020). Further, approximately 98.5 per cent of the vegetation within the application area is in Very Good to Pristine (Keighery, 1994) condition (Southern Ecology, 2022; Southern Ecology, 2020) and is likely to provide high-quality WRP habitat with high canopy connectivity. The WRP impact assessment of the AHP estimated a population of approximately 1100 WRP individuals within the greater AHP with an average density of 4.13 possums per hectare (Biota, 2019). The WRP impact assessment confirmed that WRP are utilising the application area, with four individuals observed within the boundaries of the application area across three nights of spotlighting (Biota, 2019). Considering the evidence of use and the estimated density within AHP, it is estimated that up to 13 possums may be utilising the vegetation within the application area at any given time. Further, possums were identified in vegetation immediately to the north and south of the application area, indicating that the application area is also likely to be utilised for dispersal throughout the AHP."
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 rehabilitation offset area occurs within the AHP which is currently managed for recreation and parkland by the City of Albany. However, the rehabilitation area consists of trails that are no longer in use and degraded areas of the AHP that will be managed by the City for conservation long-term, with an objective to ensure the creation and enhancement of vegetation which will provide resilient habitat for WRP. Therefore, the maximum of 20 years is applied.
		20 - Lot 172 on Deposited Plan 222002 is currently freehold land earmarked for future tourism development that will be acquired and incorporated into the AHP Crown Reserve (Reserve 2682). The greater AHP is currently managed for recreation and parkland, but the City intends to manage the area for conservation long-term, with an objective to increase the secure habitat available for WRP within the AHP. Therefore, the maximum of 20 years is applied.
		20 - The offset area within the AHP Crown Reserves (Reserve 2682) is currently vested as Public park. The City intend to change the vesting of the offset area to include Conservation in addition to the current vesting and manage the identified areas for conservation long-term, with an objective to

		increase the secure habitat available for WRP within the Albany region. Therefore, the maximum of 20 years is applied.
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	**12** - It is assumed that the benefits of rehabilitation of WRP habitat will be available after 10 years, when canopy species have grown to a sufficient height to provide canopy cover and connectivity. An additional two years have been allowed to account for the delay in commencement of the revegetation (assumed to commence within 2 years of permit start date as outlined in the AHP Link Trails Rehabilitation Management Plan).
		2 - It is assumed that Lot 172 on Deposited Plan 222002 would be incorporated into the AHP Crown Reserve (Reserve 2682) within two years of the grant of a clearing permit. Weed management measures under the City's Weed Management Plan are also expected to commence within two years of the grant of a clearing permit.
		2 - It is assumed that the vesting of the area of the AHP Crown Reserve (Reserve 2682) would be changed to include conservation within two years of the grant of a clearing permit. Weed management measures under the City's Weed Management Plan is also expected to commence within two years of the grant of a clearing permit.
Start area (habitat/community) or Start value (features/individuals)	The area of habitat/community or number of features/individuals proposed to offset the impacts	**8.16 hectares** - The City are proposing to revegetate and rehabilitate approximately 8.16 hectares of native vegetation that comprises significant habitat for WRP within the AHP Crown Reserves (Reserve 2682, Reserve 27068, and Reserve 38226) to offset the residual impacts to this value.
		8.09 hectares - The City are proposing to incorporate 8.09 hectares of freehold land (Lot 172 on Deposited Plan 222002) containing native vegetation that comprises significant habitat for WRP into the AHP Crown Reserve (Reserve 2682) and undertake ongoing weed management to offset the residual impacts to this value.
		10.8 hectares - The City are proposing to change the vesting of 10.8 hectares of native vegetation that comprises significant habitat for WRP within the AHP Crown Reserves (Reserve 2682, Reserve 27068, and Reserve 38226) to include Conservation in addition to the current vestings, to offset the residual impacts to this value.
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	**2** - Quadrat data from the AHP Link Trails Rehabilitation Management Plan indicates that the proposed rehabilitation areas predominantly consist of weeds within occasional native overstorey and midstorey species such as peppermint, jarrah, marri, sheoak, *Hakea* spp., and *Petrophile diversifolia*. These areas are inferred to be in Completely Degraded to Good (Keighery, 1994) condition.
		7 - The City has indicated that Lot 172 on Deposited Plan 222002 is in Very Good (Keighery, 1994) condition with some weed invasion and contains significant habitat for WRP, based on site inspections by City of Albany officers. The Albany Regional Vegetation Survey indicates that the vegetation within the freehold land includes predominantly marri and jarrah forest, jarrah woodland and peppermint woodland with patches of *Callistachys* spp. thicket and Homalospermum firmum/Callistemon glaucus peat thicket. The Western Ringtail Possum Pseudocheirus occidentalis Regional Surveys (Biota, 2020) indicate that WRP occur within the immediate vicinity of Lot 172 on Deposited Plan 222002. Therefore, there is a high likelihood that this property provides critical habitat for the species.
		8 - It is assumed that the vegetation within AHP Crown Reserves (Reserve 2682, Reserve 27068, and Reserve 38226) is of similar quality to the proposed clearing area, i.e., in Very Good to Pristine (Keighery, 1994) condition and contains significant habitat for WRP. The Albany Regional Vegetation Survey indicates that the vegetation within the identified offset areas includes Marri/Jarrah Forest/Peppermint Woodland, Jarrah Woodland, Marri/Jarrah Coastal Hills Forest, Gastrolobium bilobum/Hakea elliptica Granite Shrubland/Yate Woodland, and Taxandria marginata Granite Shrubland. The Western Ringtail Possum Pseudocheirus occidentalis Regional Surveys (Biota, 2020) indicate that WRP are currently utilising the identified areas or occur within the immediate vicinity of

		these areas. Therefore, there is a high likelihood that these areas provide critical habitat for the species.
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	**2** - Given the current level of degradation and weed invasion, and that rehabilitation areas are within the AHP which is currently managed for recreation and parkland, it is not expected that the quality of habitat for WRP within the rehabilitation offset site will significantly change over a two-year period, in the absence of the offset.
		7 - Given the current condition of the vegetation and freehold nature of the property, it is not expected that the quality of habitat for WRP within the offset site will significantly change over a two-year period, in the absence of the offset.
		7 - The City's Weed Management Plan identifies that the AHP Crown Reserve (Reserve 2682) contains approximately 5-10 per cent weed cover, including woody weeds and creepers (e.g. **Acacia longifolia* and **Asparagus asparagoides*) that are encroaching on undisturbed areas and preventing regeneration of canopy species that provide WRP habitat. Therefore, the quality of habitat for WRP within the offset site may decrease over time, in the absence of active weed management through the offset.
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	**6** - The proposed rehabilitation utilises Excellent (Keighery, 1994) condition vegetation within the AHP as reference sites and proposes to return all dominant tree species, achieve 60% of species richness and vegetation cover, and achieve a maximum of 30% weed cover. It is assumed that with the rehabilitation methodology and secondary management measures proposed in the AHP Link Trails Rehabilitation Management Plan, the offset areas will improve in condition and quality of WRP habitat to a Good to Very Good (Keighery, 1994) condition and enhance linkage values. The Western Ringtail Possum Regional Surveys (Biota, 2020) indicate that WRP occur within the immediate vicinity of the rehabilitation areas. Therefore, there is a high likelihood that WRP would utilise the rehabilitation areas once suitable vegetation is established.
		8 - The City has indicated that they will undertake weed eradication within the freehold land and manage Lot 172 on Deposited Plan 222002 for conservation long-term once it is incorporated into the AHP Crown Reserve (Reserve 2682). The City's Weed Management Plan identifies that Lot 172 on Deposited Plan 222002 contains approximately 5-10 per cent weed cover, including woody weeds and creepers (e.g. **Acacia longifolia* and **Asparagus asparagoides*) that are encroaching on undisturbed areas and preventing regeneration of canopy species that provide WRP habitat. It is assumed that with weed management undertaken in accordance with the Weed Management Plan and ongoing maintenance of the AHP Crown Reserve (Reserve 2682) will improve in condition and quality of WRP habitat to a Very Good to Excellent (Keighery, 1994) condition.
		8 - The City has indicated that it will undertake active weed management within the identified offset areas within the AHP Crown Reserve (Reserve 2682) in accordance with the Weed Management Plan to prevent the spread of weeds into undisturbed vegetation and reduce weed cover. Therefore, the quality of habitat for WRP within the offset site is likely to be maintained with the implementation of the offset and associated active weed management.
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 rehabilitation offset area occurs within the AHP Crown Reserves (Reserve 2682, Reserve 27068, and Reserve 38226) which are currently vested as Public park, Recreation and parkland, and Parklands, recreation and tourism. There is a relatively low risk of future loss as rehabilitation is consistent with the purpose of the reserve and the City has committed to managing the rehabilitation offset area for conservation purposes long-term.
		25% - Lot 172 on Deposited Plan 222002 is currently freehold land earmarked by the City for future tourism development and there is a moderate risk of future loss, in the absence of the offset.
		15% - The identified areas within the AHP Crown Reserve (Reserve 2682) are currently vested as Public park. There is a relatively low risk of future loss in the absence of the offset.

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	**10%** - The City intend to change the vesting of the rehabilitated areas within the AHP Crown Reserves (Reserve 2682, Reserve 27068, and Reserve 38226) to include Conservation in addition to the current vesting and manage the rehabilitation areas for conservation long-term, which will reduce the risk of loss.
		10% - The offset area will be incorporated into the AHP Crown Reserve (Reserve 2682). The City has indicated that the vesting of this area will be changed to include Conservation in addition to the current vesting and the area will be managed for conservation long-term.
		10% - The City intend to change the vesting of the identified areas within the AHP Crown Reserve (Reserve 2682) to include Conservation in addition to the current vesting and manage the identified areas for conservation long-term, which will reduce the risk of loss.
Confidence in result (%) – risk of loss (habitat/community)	The capacity of measures to mitigate risk of loss of the proposed offset site	**90%** - There is a high level of confidence that the proposed change in vesting and ongoing management of the rehabilitation offset areas for conservation by the City would mitigate the risk of loss.
		90% - There is a high level of confidence that the incorporation of Lot 172 on Deposited Plan 222002 into the AHP Crown Reserve (Reserve 2682) will mitigate the risk of loss.
		90% - There is a high level of confidence that the change in vesting of the identified areas within the AHP Crown Reserves (Reserve 2682) would mitigate the risk of loss.
Confidence in result (%) – Change in quality (habitat/community) or Change in value (features/individuals)	The level of certainty about the successful achievement of the proposed change in quality (habitat/community) or value (features/individuals)	**80%** - There is a moderate level of confidence that the offset will achieve the predicted result given rehabilitation will be undertaken in accordance with the AHP Link Trails Rehabilitation Management Plan which has been prepared following the department's Guide to preparing revegetation plans for clearing permits (2018).
		90% - There is a high level of confidence that the offset will achieve the predicted result.
		80% - There is a moderate level of confidence that the quality of WRP habitat within the identified offset areas of the AHP Crown Reserve (Reserve 2682) would decrease in the absence of the offset and be maintained through the implementation of the offset and active weed management under the City's Weed Management Plan.
% 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)	**42.21%** - The proposed revegetation and rehabilitation of 8.16 hectares of native vegetation that comprises significant habitat for WRP within the AHP Crown Reserves (Reserve 2682, Reserve 27068, and Reserve 38226) would offset the significant residual impact to this value by 42.21%.
		28.21% - The proposed incorporation of 8.09 hectares of native vegetation that comprises significant habitat for WRP within Lot 172 on Deposited Plan 222002 into the AHP Crown Reserve (Reserve 2682) would offset the significant residual impact to this value by 28.21%, with active weed management.
		29.60% - The change in vesting of 10.8 hectares of native vegetation that comprises significant habitat for WRP within the AHP Crown Reserves (Reserve 2682, Reserve 27068, and Reserve 38226) to include Conservation in addition to the current vestings would offset the significant residual impact to this value by 23.98%, with active weed management.
Other comments	Include here any relevant additional comments (e.g. the size of offset required to offset 100% of the residual impacts)	The combination of the three offset options counterbalances the significant residual impact to western ringtail possum habitat by 100%.

D.2. Baudin's cockatoo foraging habitat

Table 17 Offset calculator value justification.

Field Name	Description	Justification for value used
IUCN Criteria	The IUCN criteria for the value being impacted	**1.2%** - Afforded to Baudin's cockatoo as this species is listed as Endangered under the BC Act and the EPBC Act.
Area of impact (habitat/community) or Quantum of impact (features/individuals)	The area of habitat/community impacted or number of features/individuals impacted	**3.05 hectares** - Comprises the portion of the application area that provides significant foraging habitat for Baudin's cockatoo, based on the available information from the black cockatoo habitat assessment (Gilfillan, 2022) and the flora and vegetation surveys (Southern Ecology, 2022; Southern Ecology, 2020).
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** - Based on the available information from the flora and vegetation surveys, the application area consists of a range of vegetation types that may be utilised for foraging by Baudin's cockatoo, including Eucalyptus/Corymbia Forest, Gastrolobium/Hakea Shrubland, Coastal Shrubland, Granite Shrubland and Herbland, and Sheoak Woodland (Southern Ecology, 2022; Southern Ecology, 2020). Further, approximately 98.5 per cent of the vegetation within the application area is in Very Good to Pristine (Keighery, 1994) condition (Southern Ecology, 2022; Southern Ecology, 2020) and is likely to provide high-quality foraging habitat. The black cockatoo habitat assessment identified foraging evidence by Baudin's cockatoo on marri fruits, *Hakea elliptica*, *Hakea drupacea*, and *Banksia formosa* within the greater AHP (Gilfillan, 2022). The black cockatoo habitat assessment also identified two areas of high intensity foraging which encompass the westernmost and easternmost sections of the application area (Gilfillan, 2022). The application area is located within six kilometres of six mapped roost sites and may support foraging by roosting populations. There are no mapped breeding sites within the vicinity of the application area but it is acknowledged that suitable breeding hollows may persist with the AHP as identified in the black cockatoo habitat assessment (Gilfillan, 2022).
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 rehabilitation offset area occurs within the AHP which is currently managed for recreation and parkland by the City. However, the rehabilitation area consists of trails that are no longer in use and degraded areas of the AHP that will be managed by the City for conservation long-term, with an objective to ensure the creation and enhancement of vegetation which will provide resilient habitat for black cockatoo species. Therefore, the maximum of 20 years is applied. **20** - Lot 172 on Deposited Plan 222002 is currently freehold land earmarked for future tourism development that will be acquired and incorporated into the AHP Crown Reserve (Reserve 2682). The greater AHP is currently managed for recreation and parkland, but the City intends to manage the area for conservation long-term, with an objective to increase the secure foraging habitat available for black cockatoo species within the AHP. Therefore, the maximum of 20 years is applied.
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	**17** - It is assumed that the benefits of rehabilitation of Baudin's cockatoo foraging habitat (e.g., marri, jarrah, sheoak, *Banksia* spp., *Hakea* spp.) will be available after 15 years. This is a conservative measure based on available literature (e.g., Lee et al. (2013) who identified evidence of foraging on marri and *Banksia* in rehabilitated mine pit areas, ranging from 8-14 years of age) and the understanding that marri may take longer to mature and provide calorific benefit. An additional two years have been allowed to account for the delay in commencement of the revegetation (assumed to

		commence within 2 years of permit start date as outlined in the AHP Link Trails Rehabilitation Management Plan).
		2 - It is assumed that Lot 172 on Deposited Plan 222002 would be incorporated into the AHP Crown Reserve (Reserve 2682) within two years of the grant of a clearing permit. Weed management measures under the City's Weed Management Plan are also expected to commence within two years of the grant of a clearing permit.
Start area (habitat/community) or Start value (features/individuals)	The area of habitat/community or number of features/individuals proposed to offset the impacts	**8.16 hectares** - The City are proposing to revegetate and rehabilitate approximately 8.16 hectares of native vegetation that comprises significant habitat for Baudin's cockatoo within the AHP Crown Reserves (Reserve 2682, Reserve 27068, and Reserve 38226) to offset the residual impacts to this value.
		3.01 hectares - The City are proposing to incorporate at least 3.01 hectares of freehold land (Lot 172 on Deposited Plan 222002) containing native vegetation that comprises significant foraging habitat for Baudin's cockatoo into the AHP Crown Reserve (Reserve 2682) and undertake ongoing weed management to offset the residual impacts to this value.
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	**2** - Quadrat data from the AHP Link Trails Rehabilitation Management Plan indicates that the proposed rehabilitation areas predominantly consist of weeds within occasional native overstorey and midstorey species such as peppermint, jarrah, marri, sheoak, *Hakea* spp., and *Petrophile diversifolia*. These areas are inferred to be in Completely Degraded to Good (Keighery, 1994) condition.
		7 - The City has indicated that Lot 172 on Deposited Plan 222002 is in Very Good (Keighery, 1994) condition with some weed invasion and contains significant foraging habitat for Baudin's cockatoo, based on site inspections by City officers. The Albany Regional Vegetation Survey indicates that the vegetation within the freehold land includes predominantly marri and jarrah forest, jarrah woodland and peppermint woodland with patches of *Callistachys* spp. thicket and *Homalospermum firmum*/*Callistemon glaucus* peat thicket. Noting a detailed vegetation survey is not available for Lot 172 on Deposited Plan 222002, the precautionary principle has been applied and the total extent of suitable foraging habitat for Baudin's cockatoo available within Lot 172 on Deposited Plan 222002 has been assumed based on the vegetation mapped as containing preferred foraging species (i.e., marri and jarrah), totalling 7.74 hectares. Therefore, at least 3.01 hectares of significant foraging habitat for Baudin's cockatoo is available within the proposed offset site.
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	**2** - Given the current level of degradation and weed invasion, and that rehabilitation areas are within the AHP which is currently managed for recreation and parkland, it is not expected that the quality of foraging habitat for Baudin's cockatoo within the rehabilitation offset site will significantly change over a two-year period, in the absence of the offset.
		7 - Given the current condition of the vegetation and freehold nature of the property, it is not expected that the quality of foraging habitat for Baudin's cockatoo within the offset site will significantly change over a two-year period, in the absence of the offset.
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	**6** - The proposed rehabilitation utilises Excellent (Keighery, 1994) condition vegetation within the AHP as reference sites and proposes to return all dominant tree species, achieve 60% of species richness and vegetation cover, and achieve a maximum of 30% weed cover. It is assumed that with the rehabilitation methodology and secondary management measures proposed in the AHP Link Trails Rehabilitation Management Plan, the offset areas will improve in condition and quality of foraging habitat for Baudin's cockatoo to a Good to Very Good (Keighery, 1994) condition.
		8 - The City has indicated that they will undertake weed eradication within the freehold land and manage Lot 172 on Deposited Plan 222002 for conservation long-term once it is incorporated into the AHP Crown Reserve (Reserve 2682). The City's Weed Management Plan identifies that Lot 172 on Deposited Plan 222002 contains approximately 5-10 per cent weed cover, including woody weeds and creepers (e.g. **Acacia longifolia* and **Asparagus asparagoides*) that are encroaching on

		undisturbed areas and preventing regeneration of canopy species that provide black cockatoo foraging habitat. It is assumed that with weed management undertaken in accordance with the Weed Management Plan and ongoing maintenance of the AHP Crown Reserve (Reserve 2682) will improve in condition and quality of black cockatoo foraging habitat to a Very Good to Excellent (Keighery, 1994) condition.
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 rehabilitation offset area occurs within the AHP Crown Reserves (Reserve 2682, Reserve 27068, and Reserve 38226) which are currently vested as Public park, Recreation and parkland, and Parklands, recreation and tourism. There is a relatively low risk of future loss as rehabilitation is consistent with the purpose of the reserve and the City has committed to managing the rehabilitation offset area for conservation purposes long-term.
		25% - Lot 172 on Deposited Plan 222002 is currently freehold land earmarked by the City for future tourism development and there is a moderate risk of future loss, in the absence of the offset.
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	**10%** - The City intend to change the vesting of the AHP Crown Reserves (Reserve 2682, Reserve 27068, and Reserve 38226) to include Conservation in addition to the current vestings and manage the rehabilitation areas for conservation long-term, which will reduce the risk of loss.
		10% - The offset area will be incorporated into the AHP Crown Reserve (Reserve 2682). The City has indicated that the vesting of this area will be changed to include Conservation in addition to the current vesting and the area will be managed for conservation long-term.
Confidence in result (%) – risk of loss (habitat/community)	The capacity of measures to mitigate risk of loss of the proposed offset site	**90%** - There is a high level of confidence that the ongoing management of the rehabilitation offset areas for conservation by the City would mitigate the risk of loss.
		90% - There is a high level of confidence that the incorporation of Lot 172 on Deposited Plan 222002 into the AHP Crown Reserve (Reserve 2682) will mitigate the risk of loss.
Confidence in result (%) – Change in quality (habitat/community) or Change in value (features/individuals)	The level of certainty about the successful achievement of the proposed change in quality (habitat/community) or value (features/individuals)	**80%** - There is a moderate level of confidence that the offset will achieve the predicted result given rehabilitation will be undertaken in accordance with the AHP Link Trails Rehabilitation Management Plan which has been prepared following the department's Guide to preparing revegetation plans for clearing permits (2018).
		90% - There is a high level of confidence that the offset will achieve the predicted result.
% 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)	**81.38%** - The proposed revegetation and rehabilitation of 8.16 hectares of native vegetation that comprises significant foraging habitat for Baudin's cockatoo within the AHP Crown Reserves (Reserve 2682, Reserve 27068, and Reserve 38226) would offset the significant residual impact to this value by 81.38%.
		18.63% - The proposed incorporation of 3.01 hectares of native vegetation that comprises significant foraging habitat for Baudin's cockatoo within Lot 172 on Deposited Plan 222002 into the AHP Crown Reserve (Reserve 2682) would offset the significant residual impact to this value by 18.63%, with active weed management.
Other comments	Include here any relevant additional comments (e.g. the size of offset required to offset 100% of the residual impacts)	The combination of the three offset options counterbalances the significant residual impact to Baudin's cockatoo foraging habitat by 100%.

D.3. Carnaby's cockatoo foraging habitat

Table 18 Offset calculator value justification.

Field Name	Description	Justification for value used
IUCN Criteria	The IUCN criteria for the value being impacted	**1.2%** - Afforded to Carnaby's cockatoo as this species is listed as Endangered under the BC Act and the EPBC Act.
Area of impact (habitat/community) or Quantum of impact (features/individuals)	The area of habitat/community impacted or number of features/individuals impacted	**3.05 hectares** - Comprises the portion of the application area that provides significant foraging habitat for Carnaby's cockatoo, based on the available information from the black cockatoo habitat assessment (Gilfillan, 2022) and the flora and vegetation surveys (Southern Ecology, 2022; Southern Ecology, 2020).
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** - Based on the available information from the flora and vegetation surveys, the application area consists of a range of vegetation types that may be utilised for foraging by Carnaby's cockatoo, including Eucalyptus/Corymbia Forest, Gastrolobium/Hakea Shrubland, Coastal Shrubland, Granite Shrubland and Herbland, and Sheoak Woodland (Southern Ecology, 2022; Southern Ecology, 2020). Further, approximately 98.5 per cent of the vegetation within the application area is in Very Good to Pristine (Keighery, 1994) condition (Southern Ecology, 2022; Southern Ecology, 2020) and is likely to provide high-quality foraging habitat. The black cockatoo habitat assessment identified foraging evidence by Carnaby's cockatoo on marri fruits, *Hakea elliptica*, *Hakea drupacea*, and *Banksia formosa* within the greater AHP (Gilfillan, 2022). The black cockatoo habitat assessment also identified two areas of high intensity foraging which encompass the westernmost and easternmost sections of the application area (Gilfillan, 2022). The application area is located within six kilometres of six mapped roost sites and may support foraging by roosting populations. There are no mapped breeding sites within the vicinity of the application area but it is acknowledged that suitable breeding hollows may persist with the AHP as identified in the black cockatoo habitat assessment (Gilfillan, 2022).
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 rehabilitation offset area occurs within the AHP which is currently managed for recreation and parkland by the City. However, the rehabilitation area consists of trails that are no longer in use and degraded areas of the AHP that will be managed by the City for conservation long-term, with an objective to ensure the creation and enhancement of vegetation which will provide resilient habitat for black cockatoo species. Therefore, the maximum of 20 years is applied. **20** - Lot 172 on Deposited Plan 222002 is currently freehold land earmarked for future tourism development that will be acquired and incorporated into the AHP Crown Reserve (Reserve 2682). The greater AHP is currently managed for recreation and parkland, but the City intends to manage the area for conservation long-term, with an objective to increase the secure foraging habitat available for black cockatoo species within the AHP. Therefore, the maximum of 20 years is applied.
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	**17** - It is assumed that the benefits of rehabilitation of Carnaby's cockatoo foraging habitat (e.g., marri, jarrah, sheoak, *Banksia* spp., *Hakea* spp.) will be available after 15 years. This is a conservative measure based on available literature (e.g., Lee et al. (2013) who identified evidence of foraging on marri and *Banksia* in rehabilitated mine pit areas, ranging from 8-14 years of age) and the understanding that marri may take longer to mature and provide calorific benefit. An additional two years have been allowed to account for the delay in commencement of the revegetation (assumed to

		commence within 2 years of permit start date as outlined in the AHP Link Trails Rehabilitation Management Plan).
		2 - It is assumed that Lot 172 on Deposited Plan 222002 would be incorporated into the AHP Crown Reserve (Reserve 2682) within two years of the grant of a clearing permit. Weed management measures under the City's Weed Management Plan are also expected to commence within two years of the grant of a clearing permit.
Start area (habitat/community) or Start value (features/individuals)	The area of habitat/community or number of features/individuals proposed to offset the impacts	**8.16 hectares** - The City are proposing to revegetate and rehabilitate approximately 8.16 hectares of native vegetation that comprises significant habitat for Carnaby's cockatoo within the AHP Crown Reserves (Reserve 2682, Reserve 27068, and Reserve 38226) to offset the residual impacts to this value.
		3.01 hectares - The City are proposing to incorporate 3.01 hectares of freehold land (Lot 172 on Deposited Plan 222002) containing native vegetation that comprises significant foraging habitat for Carnaby's cockatoo into the AHP Crown Reserve (Reserve 2682) and undertake ongoing weed management to offset the residual impacts to this value.
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	**2** - Quadrat data from the AHP Link Trails Rehabilitation Management Plan indicates that the proposed rehabilitation areas predominantly consist of weeds within occasional native overstorey and midstorey species such as peppermint, jarrah, marri, sheoak, *Hakea* spp., and *Petrophile diversifolia*. These areas are inferred to be in Completely Degraded to Good (Keighery, 1994) condition.
		7 - The City has indicated that Lot 172 on Deposited Plan 222002 is in Very Good (Keighery, 1994) condition with some weed invasion and contains significant foraging habitat for Carnaby's cockatoo, based on site inspections by City officers. The Albany Regional Vegetation Survey indicates that the vegetation within the freehold land includes predominantly marri and jarrah forest, jarrah woodland and peppermint woodland with patches of Callistachys spp. thicket and Homalospermum firmum/Callistemon glaucus peat thicket. Noting a detailed vegetation survey is not available for Lot 172 on Deposited Plan 222002, the precautionary principle has been applied and the total extent of suitable foraging habitat for Carnaby's cockatoo available within Lot 172 on Deposited Plan 222002 has been assumed based on the vegetation mapped as containing preferred foraging species (i.e., marri and jarrah), totalling 7.74 hectares. Therefore, at least 3.01 hectares of significant foraging habitat for Carnaby's cockatoo is available within the proposed offset site.
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	**2** - Given the current level of degradation and weed invasion, and that rehabilitation areas are within the AHP which is currently managed for recreation and parkland, it is not expected that the quality of foraging habitat for Carnaby's cockatoo within the rehabilitation offset site will significantly change over a two-year period, in the absence of the offset.
		7 - Given the current condition of the vegetation and freehold nature of the property, it is not expected that the quality of foraging habitat for Carnaby's cockatoo within the offset site will significantly change over a two-year period, in the absence of the offset.
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	**6** - The proposed rehabilitation utilises Excellent (Keighery, 1994) condition vegetation within the AHP as reference sites and proposes to return all dominant tree species, achieve 60% of species richness and vegetation cover, and achieve a maximum of 30% weed cover. It is assumed that with the rehabilitation methodology and secondary management measures proposed in the AHP Link Trails Rehabilitation Management Plan, the offset areas will improve in condition and quality of foraging habitat for Carnaby's cockatoo to a Good to Very Good (Keighery, 1994) condition.
		8 - The City has indicated that they will undertake weed eradication within the freehold land and manage Lot 172 on Deposited Plan 222002 for conservation long-term once it is incorporated into the AHP Crown Reserve (Reserve 2682). The City's Weed Management Plan identifies that Lot 172 on Deposited Plan 222002 contains approximately 5-10 per cent weed cover, including woody weeds and creepers (e.g. **Acacia longifolia* and **Asparagus asparagoides*) that are encroaching on

		undisturbed areas and preventing regeneration of canopy species that provide black cockatoo foraging habitat. It is assumed that with weed management undertaken in accordance with the Weed Management Plan and ongoing maintenance of the AHP Crown Reserve (Reserve 2682) will improve in condition and quality of black cockatoo foraging habitat to a Very Good to Excellent (Keighery, 1994) condition.
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 rehabilitation offset area occurs within the AHP Crown Reserves (Reserve 2682, Reserve 27068, and Reserve 38226) which are currently vested as Public park, Recreation and parkland, and Parklands, recreation and tourism. There is a relatively low risk of future loss as rehabilitation is consistent with the purpose of the reserve and the City has committed to managing the rehabilitation offset area for conservation purposes long-term.
		25% - Lot 172 on Deposited Plan 222002 is currently freehold land earmarked by the City for future tourism development and there is a moderate risk of future loss, in the absence of the offset.
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	**10%** - The City intend to change the vesting of the AHP Crown Reserves (Reserve 2682, Reserve 27068, and Reserve 38226) to include Conservation in addition to the current vesting and manage the rehabilitation areas for conservation long-term, which will reduce the risk of loss.
		10% - The offset area will be incorporated into the AHP Crown Reserve (Reserve 2682). The City has indicated that the vesting of this area will be changed to include Conservation in addition to the current vesting and the area will be managed for conservation long-term.
Confidence in result (%) – risk of loss (habitat/community)	The capacity of measures to mitigate risk of loss of the proposed offset site	**90%** - There is a high level of confidence that the ongoing management of the rehabilitation offset areas for conservation by the City would mitigate the risk of loss.
		90% - There is a high level of confidence that the incorporation of Lot 172 on Deposited Plan 222002 into the AHP Crown Reserve (Reserve 2682) will mitigate the risk of loss.
Confidence in result (%) – Change in quality (habitat/community) or Change in value (features/individuals)	The level of certainty about the successful achievement of the proposed change in quality (habitat/community) or value (features/individuals)	**80%** - There is a moderate level of confidence that the offset will achieve the predicted result given rehabilitation will be undertaken in accordance with the AHP Link Trails Rehabilitation Management Plan which has been prepared following the department's Guide to preparing revegetation plans for clearing permits (2018).
		90% - There is a high level of confidence that the offset will achieve the predicted result.
% 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)	**81.38%** - The proposed revegetation and rehabilitation of 8.16 hectares of native vegetation that comprises significant foraging habitat for Carnaby's cockatoo within the AHP Crown Reserves (Reserve 2682, Reserve 27068, and Reserve 38226) would offset the significant residual impact to this value by 81.38%.
		18.63% - The proposed incorporation of 3.01 hectares of native vegetation that comprises significant foraging habitat for Carnaby's cockatoo within Lot 172 on Deposited Plan 222002 into the AHP Crown Reserve (Reserve 2682) would offset the significant residual impact to this value by 18.63%, with active weed management.
Other comments	Include here any relevant additional comments (e.g. the size of offset required to offset 100% of the residual impacts)	The combination of the three offset options counterbalances the significant residual impact to Carnaby's cockatoo foraging habitat by 100%.

D.4. Forest red-tailed black cockatoo foraging habitat

Table 19 Offset calculator value justification.

Field Name	Description	Justification for value used
IUCN Criteria	The IUCN criteria for the value being impacted	**0.2%** - Afforded to forest red-tailed black cockatoo as this species is listed as Vulnerable under the BC Act and the EPBC Act.
Area of impact (habitat/community) or Quantum of impact (features/individuals)	The area of habitat/community impacted or number of features/individuals impacted	**3.05 hectares** - Comprises the portion of the application area that provides significant foraging habitat for forest red-tailed black cockatoo, based on the available information from the black cockatoo habitat assessment (Gilfillan, 2022) and the flora and vegetation surveys (Southern Ecology, 2022; Southern Ecology, 2020).
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** - Based on the available information from the flora and vegetation surveys, the application area consists of a range of vegetation types that may be utilised for foraging by forest red-tailed black cockatoo, including Eucalyptus/Corymbia Forest, Gastrolobium/Hakea Shrubland, Coastal Shrubland, Granite Shrubland and Herbland, and Sheoak Woodland (Southern Ecology, 2022; Southern Ecology, 2020). Further, approximately 98.5 per cent of the vegetation within the application area is in Very Good to Pristine (Keighery, 1994) condition (Southern Ecology, 2022; Southern Ecology, 2020) and is likely to provide high-quality foraging habitat. The black cockatoo habitat assessment identified foraging evidence by forest red-tailed black cockatoo on marri fruits, *Hakea elliptica*, *Hakea drupacea*, and *Banksia formosa* within the greater AHP (Gilfillan, 2022). The black cockatoo habitat assessment also identified two areas of high intensity foraging which encompass the westernmost and easternmost sections of the application area (Gilfillan, 2022). The application area is located within six kilometres of six mapped roost sites and may support foraging by roosting populations. There are no mapped breeding sites within the vicinity of the application area but it is acknowledged that suitable breeding hollows may persist with the AHP as identified in the black cockatoo habitat assessment (Gilfillan, 2022).
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 rehabilitation offset area occurs within the AHP which is currently managed for recreation and parkland by the City. However, the rehabilitation area consists of trails that are no longer in use and degraded areas of the AHP that will be managed by the City for conservation long-term, with an objective to ensure the creation and enhancement of vegetation which will provide resilient habitat for black cockatoo species. Therefore, the maximum of 20 years is applied. **20** - Lot 172 on Deposited Plan 222002 is currently freehold land earmarked for future tourism development that will be acquired and incorporated into the AHP Crown Reserve (Reserve 2682). The greater AHP is currently managed for recreation and parkland, but the City intends to manage the area for conservation long-term, with an objective to increase the secure foraging habitat available for black cockatoo species within the AHP. Therefore, the maximum of 20 years is applied.
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	**17** - It is assumed that the benefits of rehabilitation of forest red-tailed black cockatoo foraging habitat (e.g., marri, jarrah, sheoak, *Banksia* spp., *Hakea* spp.) will be available after 15 years. This is a conservative measure based on available literature (e.g., Lee et al. (2013) who identified evidence of foraging on marri and *Banksia* in rehabilitated mine pit areas, ranging from 8-14 years of age) and the understanding that marri may take longer to mature and provide calorific benefit. An additional two years have been allowed to account for the delay in commencement of the revegetation (assumed to

		commence within 2 years of permit start date as outlined in the AHP Link Trails Rehabilitation Management Plan).
		2 - It is assumed that Lot 172 on Deposited Plan 222002 would be incorporated into the AHP Crown Reserve (Reserve 2682) within two years of the grant of a clearing permit. Weed management measures under the City's Weed Management Plan are also expected to commence within two years of the grant of a clearing permit.
Start area (habitat/community) or Start value (features/individuals)	The area of habitat/community or number of features/individuals proposed to offset the impacts	**8.16 hectares** - The City are proposing to revegetate and rehabilitate approximately 8.16 hectares of native vegetation that comprises significant habitat for forest red-tailed black cockatoo within the AHP Crown Reserves (Reserve 2682, Reserve 27068, and Reserve 38226) to offset the residual impacts to this value.
		0.49 hectares - The City are proposing to incorporate at least 0.49 hectares of freehold land (Lot 172 on Deposited Plan 222002) containing native vegetation that comprises significant foraging habitat for forest red-tailed black cockatoo into the AHP Crown Reserve (Reserve 2682) and undertake ongoing weed management to offset the residual impacts to this value.
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	**2** - Quadrat data from the AHP Link Trails Rehabilitation Management Plan indicates that the proposed rehabilitation areas predominantly consist of weeds within occasional native overstorey and midstorey species such as peppermint, jarrah, marri, sheoak, *Hakea* spp., and *Petrophile diversifolia*. These areas are inferred to be in Completely Degraded to Good (Keighery, 1994) condition.
		7 - The City has indicated that Lot 172 on Deposited Plan 222002 is in Very Good (Keighery, 1994) condition with some weed invasion and contains significant foraging habitat for forest red-tailed black cockatoo, based on site inspections by City officers. The Albany Regional Vegetation Survey indicates that the vegetation within the freehold land includes predominantly marri and jarrah forest, jarrah woodland and peppermint woodland with patches of Callistachys spp. thicket and Homalospermum firmum/Callistemon glaucus peat thicket. Noting a detailed vegetation survey is not available for Lot 172 on Deposited Plan 222002, the precautionary principle has been applied and the total extent of suitable foraging habitat for forest red-tailed black cockatoo available within Lot 172 on Deposited Plan 222002 has been assumed based on the vegetation mapped as containing preferred foraging species (i.e., marri and jarrah), totalling 7.74 hectares. Therefore, at least 0.49 hectares of significant foraging habitat for forest red-tailed black cockatoo is available within the proposed offset site.
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	**2** - Given the current level of degradation and weed invasion, and that rehabilitation areas are within the AHP which is currently managed for recreation and parkland, it is not expected that the quality of foraging habitat for forest red-tailed black cockatoo within the rehabilitation offset site will significantly change over a two-year period, in the absence of the offset.
		7 - Given the current condition of the vegetation and freehold nature of the property, it is not expected that the quality of foraging habitat for forest red-tailed black cockatoo within the offset site will significantly change over a two-year period, in the absence of the offset.
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	**6** - The proposed rehabilitation utilises Excellent (Keighery, 1994) condition vegetation within the AHP as reference sites and proposes to return all dominant tree species, achieve 60% of species richness and vegetation cover, and achieve a maximum of 30% weed cover. It is assumed that with the rehabilitation methodology and secondary management measures proposed in the AHP Link Trails Rehabilitation Management Plan, the offset areas will improve in condition and quality of foraging habitat for forest red-tailed black cockatoo to a Good to Very Good (Keighery, 1994) condition.
		8 - The City has indicated that they will undertake weed eradication within the freehold land and manage Lot 172 on Deposited Plan 222002 for conservation long-term once it is incorporated into the AHP Crown Reserve (Reserve 2682). The City's Weed Management Plan identifies that Lot 172 on Deposited Plan 222002 contains approximately 5-10 per cent weed cover, including woody weeds

		and creepers (e.g. **Acacia longifolia* and **Asparagus asparagoides*) that are encroaching on undisturbed areas and preventing regeneration of canopy species that provide black cockatoo foraging habitat. It is assumed that with weed management undertaken in accordance with the Weed Management Plan and ongoing maintenance of the AHP Crown Reserve (Reserve 2682) will improve in condition and quality of black cockatoo foraging habitat to a Very Good to Excellent (Keighery, 1994) condition.
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 rehabilitation offset area occurs within the AHP Crown Reserves (Reserve 2682, Reserve 27068, and Reserve 38226) which are currently vested as Public park, Recreation and parkland, and Parklands, recreation and tourism. There is a relatively low risk of future loss as rehabilitation is consistent with the purpose of the reserve and the City has committed to managing the rehabilitation offset area for conservation purposes long-term.
		25% - Lot 172 on Deposited Plan 222002 is currently freehold land earmarked by the City for future tourism development and there is a moderate risk of future loss, in the absence of the offset.
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	**10%** - The City intend to change the vesting of the AHP Crown Reserves (Reserve 2682, Reserve 27068, and Reserve 38226) to include Conservation in addition to the current vestings and manage the rehabilitation areas for conservation long-term, which will reduce the risk of loss.
		10% - The offset area will be incorporated into the AHP Crown Reserve (Reserve 2682). The City has indicated that the vesting of this area will be changed to include Conservation in addition to the current vesting and the area will be managed for conservation long-term.
Confidence in result (%) – risk of loss (habitat/community)	The capacity of measures to mitigate risk of loss of the proposed offset site	**90%** - There is a high level of confidence that the ongoing management of the rehabilitation offset areas for conservation by the City would mitigate the risk of loss.
		90% - There is a high level of confidence that the incorporation of Lot 172 on Deposited Plan 222002 into the AHP Crown Reserve (Reserve 2682) will mitigate the risk of loss.
Confidence in result (%) – Change in quality (habitat/community) or Change in value (features/individuals)	The level of certainty about the successful achievement of the proposed change in quality (habitat/community) or value (features/individuals)	**80%** - There is a moderate level of confidence that the offset will achieve the predicted result given rehabilitation will be undertaken in accordance with the AHP Link Trails Rehabilitation Management Plan which has been prepared following the department's Guide to preparing revegetation plans for clearing permits (2018).
		90% - There is a high level of confidence that the offset will achieve the predicted result.
% 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)	**96.60%** - The proposed revegetation and rehabilitation of 8.16 hectares of native vegetation that comprises significant foraging habitat for forest red-tailed black cockatoo within the AHP Crown Reserves (Reserve 2682, Reserve 27068, and Reserve 38226) would offset the significant residual impact to this value by 96.60%.
		3.43% - The proposed incorporation of 0.49 hectares of native vegetation that comprises significant foraging habitat for forest red-tailed black cockatoo within Lot 172 on Deposited Plan 222002 into the AHP Crown Reserve (Reserve 2682) would offset the significant residual impact to this value by 3.43%, with active weed management.
Other comments	Include here any relevant additional comments (e.g. the size of offset required to offset 100% of the residual impacts)	The combination of the three offset options counterbalances the significant residual impact to forest red-tailed black cockatoo foraging habitat by 100%.

Appendix E – Biological survey information excerpts - Detailed vegetation descriptions (Southern Ecology, 2020)

1. *Gastrolobium/Hakea* Shrubland

Description: *Eucalyptus cornuta, E. marginata, C. calophylla* isolated trees; *Gastrolobium bilobum, Hakea elliptica, Hakea trifurcata* tall closed shrubland; *Tremandra stelligera* isolated shrubs; Lepidosperma species isolated sedges. **Soil:** Dark-brown sandy loam soils, with granite often outcropping as large boulders. **Landform:** Upper hill slopes and crests.

Regional Occurrence: Tall closed shrublands dominated by *Gastrolobium bilobum, Hakea elliptica* with occasional mallee eucalypts occurred on the upper slopes and summits of Mt Clarence on dark-brown sandy loam soils, with granite often outcropping as large boulders. This community generally had low species richness, with the exception of recently burnt pockets on Mt Clarence. Concordant with *Gastrolobium bilobum/Hakea elliptica* Granite Shrublands (Unit 23) from Sandiford and Barrett (2010); it is not concordant with any PEC or TEC. It has close affinities to the Kwongkan Shrubland TEC due to the high cover of Proteaceous shrubs, but occurs outside the southeast coastal floristic province (DotE 2014). *Stylidium falcatum* (P1) and *Spyridium spadiceum* (P4) were present in this community.

Floristics:

Lifeform	% Cover	Dominant taxa
Trees < 10m	<10%	*Eucalyptus marginata, Eucalyptus cornuta, Corymbia calophylla, Eucalyptus megacarpa*
Shrubs > 2m	30-70%	*Gastrolobium bilobum, Hakea elliptica, Hakea trifurcata, Hakea drupacea, Xanthorrhoea platyphylla, Anthocercis viscosa, Ricinocarpus glaucus*
Shrubs 1-2m	<10%	*Tremandra stelligera, Leucopogon obovatus* subsp. *revolutus, Leucopogon assimilis, Hibbertia furfuracea, Hovea elliptica, Hibbertia cunninghamii*
Sedges/Grasses	<10%	*Tetrarrhena laevis, Lepidosperma gracile, Lepidosperma tenue*

2. *Eucalyptus/Corymbia* Forest

Description: *Eucalyptus marginata, Corymbia calophylla* open forest; Banksia formosa, Bossiaea linophylla, *Leucopogon obovatus subsp. obovatus* mid open shrubland; *Lepidosperma/Anarthria* species sedgeland. **Soil:** Grey sand, occasional granite boulders. **Landform:** Lower to upper hillslopes.

Regional Occurrence: Woodland or forest of *Eucalyptus marginata* and *Corymbia calophylla* occurred on lower slopes of Mt Clarence and Mt Adelaide on grey sandy soils; granite outcropping is rare. Concordant with Marri/Jarrah Coastal Hills Forest (Unit 23) from Sandiford and Barrett (2010); it is not concordant with any PEC or TEC. Some lower slopes were less species rich and Agonis flexuosa were common are concordant with Marri/Jarrah Forest/Peppermint Woodland (Unit 10). *Stylidium falcatum* (P1) and *Synapheae preissii* (P3) was found occasionally within this community.

Floristics:

Lifeform	% Cover	Dominant taxa
Trees 10-30m	30-70%	*Eucalyptus marginata, Corymbia calophylla.*
Shrubs 1-3m	10-30%	*Banksia formosa, Bossiaea linophylla, Agonis theiformis, Spyridium globulosum, Leucopogon obovatus subsp. obovatus, Leucopogon verticillatus,*
Shrubs <1m	10-30%	*Tetratheca affinis, Hibbertia cunninghamii.*
Sedges	30-70%	*Lepidosperma gracile, Lepidosperma squamatum, Anarthria prolifera, Tetraria octandra.*

3. Granite Shrubland and Herbland

Description: *Taxandria marginata, Hakea drupacea* open to closed shrubland; *Acacia sulcata, Andersonia sprengelioides, Verticordia plumosa* low open shrubland; *Lepidosperma hopperi* sedgeland. **Soil:** Skeletal orange sand, fringing granite outcrops. **Landform:** Hillslopes and crests.

Regional Occurrence: Variable open to closed shrubland on the fringe of granite sheets on mid to upper slopes of Mt Clarence and Mt Adelaide. Associated with shallow sand or clay soils and specific hydrological conditions from run-off. Sandiford and Barrett (2010) recognised two mapping units within this broad floristic community; *Taxandria marginata* Granite Shrubland (Unit 24) and *Acacia sulcata/Leucopogon assimilis* (Unit 25); neither are concordant with any PEC or TEC. They noted these units to be floristically complex and to warrant further investigation. The regional scale of the ARVS mapping did not discriminate the herbland component in this community, which is critical habitat for *Caladenia harringtoniae* (T). *Thysanotus isantherus* (P4), *Spyridium spadiceum* (P4) were common within this vegetation.

Floristics:

Lifeform	% Cover	Dominant taxa
Shrubs 1-2m	<10%	*Taxandria marginata, Hakea drupacea, Anthocercis viscosa, Leucopogon assimilis. Dodonaea ceratocarpa*
Shrubs <1m	10-30%	*Acacia sulcata, Andersonia sprengelioides, Verticordia plumosa, Hibbertia diamesogenos, Hibbertia microphylla.*
Sedges/Herbs	<10%	*Lepidosperma hopperi, Lepidosperma tenue. Borya nitida, Stypandra glauca, Cheilanthes austrotenuifolia, Drosera species, Thysanotus isantherus*

4. Sheoak Woodland

Description: *Allocasuarina fraseriana, Eucalyptus marginata* open woodland; *Jacksonia horrida, Adenanthos cuneatus, Melaleuca thymoides* open shrubland; *Anarthria* sedgeland.
Soil: White sand. **Landform:** Lower hillslopes. **Regional Occurrence:** Open woodland on the lower southern slopes of Mt Clarence and Mt Adelaide. Tall shrub layer (Banksia species) often absent or spare due to the impacts of dieback and or fire. Concordant with Jarrah/Sheoak/*Eucalyptus staeri* Sandy Woodland (Unit 13) in Sandiford and Barrett (2010), which is not concordant with any PEC or TEC.
Floristics:

Lifeform	% Cover	Dominant taxa
Trees <10m	10-30%	*Allocasuarina fraseriana, Eucalyptus marginata*
Shrubs >2m	<2%	*Taxandria parviceps, Banksia grandis*
Shrubs 1-2m	10-30%	*Dasypogon bromeliifolius, Adenanthos cuneatus, Melaleuca thymoides, Leucopogon obovatus* subsp. *obovatus, Gompholobium scabrum, Xanthosia rotundifolia*
Sedges/Herbs	10-30%	*Anarthria scabra, Anarthria prolifera, Cyathochaeta equitans*

5. Coastal Heath

Description: *Allocasuarina fraseriana* open woodland; *Jacksonia horrida, Adenanthos cuneatus, Melaleuca thymoides* mid shrubland; *Anarthria* sedgeland.
Soil: White sand. **Landform:** Lower hillslopes, coastal margin.
Regional Occurrence: Shrubland on the lower southern slopes of Mt Clarence and Mt Adelaide. Tall shrub layer (*Banksia* species) often absent or spare due to the impacts of dieback and or fire. Concordant with Coastal *Banksia ilicifolia*/Peppermint Low Woodland (Unit 4) in Sandiford and Barrett (2010), which is not concordant with any PEC or TEC.
Floristics:

Lifeform	% Cover	Dominant taxa
Trees <10m	10-30%	*Allocasuarina fraseriana, Agonis flexuosa, Corymbia calophylla, Eucalyptus marginata*
Shrubs >2m	<2%	*Banksia attenuata, Banksia coccinea, Banksia ilicifolia, Taxandria parviceps*
Shrubs 1-2m	30-70%	*Jacksonia horrida, Adenanthos cuneatus, Melaleuca thymoides, Pultenaea reticulata, Leucopogon obovatus* subsp. *obovatus. Leucopogon rubricaulis, Dasypogon bromeliifolius*
Sedges/Herbs	10-30%	*Anarthria scabra, Tricostularia neesii, Cyathochaeta equitans*

6. Peppermint Low Forest

Description: *Agonis flexuosa* open to closed forest; *Hibbertia furfuracea* low open shrubland; *Lepidosperma gladiatum* closed sedgeland.

Soil: White sand. **Landform:** Lower hillslopes, coastal margin.

Regional Occurrence: Concordant with Peppermint Low Woodland (Unit 2) in Sandiford and Barrett (2010), which is not concordant with any PEC or TEC. This occurred on the that coastal fringe on the southern slopes of Mt Adelaide and Mt Clarence. It was generally had low species richness and was often invaded by Arum Lily and other weeds.

Floristics:

Lifeform	% Cover	Dominant taxa
Trees <10m	30-100%	*Agonis flexuosa*
Shrubs 1-2m	10-30%	*Hibbertia furfuracea, Spyridium globulosum*
Sedges/Herbs	30-100%	*Leiosperma gladiatum*

7. *Callistachys* Thicket

Description: *Callistachys lanceolata* closed forest; *Gahnia decomposita* sedgeland.
Soil: White sand. **Landform:** Seepages and gullies on mid to lower hillslopes.
Regional Occurrence: Concordant with *Callistachys* spp. Thicket (Unit 36) in Sandiford and Barrett (2010), which is not concordant with any PEC or TEC.
Floristics:

Lifeform	% Cover	Dominant taxa
Trees <10m	30-100%	*Callistachys lanceolata, Calostachyus* sp. South Coast
Shrubs 1-2m	10-30%	*Spyridium globulosum, Pteridium esculentum, Taxandria parviceps, Rhadinothamnus anceps, Sphenotoma gracilis*
Sedges/Herbs	30-100%	*Leiosperma gladiatum, Baumea juncea, Tetraria* sp. Jarrah Forest

Appendix F – References

F.1. GIS Databases

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

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Bush Forever Areas 2000 (DPLH-019)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Consanguineous Wetlands Suites (DBCA-020)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- DBCA Statewide Vegetation Statistics
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrographic Catchments - Catchments (DWER-028)
- Hydrographic Catchments - Divisions (DWER-029)
- Hydrography, Linear (Hierarchy) (DWER-031)
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics (DPIRD-006)
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available (DPIRD-027)
- Soil Landscape Mapping – Systems (DPIRD-064)
- South Coast Significant Wetlands (DBCA-018)
- Vegetation Complexes - South West forest region of Western Australia (DBCA-047)

Restricted GIS Databases used:

- Conservation Covenants Western Australia (DPIRD-023)
- Contaminated Sites Database - Restricted (DWER-073)
- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

F.2. References

Australian Museum (2019) *Peregrine falcon (Falco peregrinus)*. The Australian Museum, New South Wales. Available from: https://australian.museum/learn/animals/birds/peregrine-falcon/ (accessed April 2023).

Biota Environmental Sciences (Biota) (2019) *Albany Mounts Western Ringtail Possum Population Assessment*. Fauna survey prepared on behalf of City of Albany to support clearing permit application CPS 9182/1, received 13 January 2021 (DWER Ref: DWERDT401627).

Biota Environmental Sciences (Biota) (2020) *Western ringtail possum (Pseduocheirus occidentalis*) regional surveys, prepared on behalf of Main Roads Western Australia, May 2020. Main Roads Western Australia, Perth, WA. Available from: https://www.mainroads.wa.gov.au/globalassets/projects-initiatives/projects/regional/bussell-highway-duplication/bussell-highway-duplication-referral-document-attachment-9.-regional-western-ringtail-possum-survey-report-2020.pdf.

Bradshaw, D., Phillips, R., Tomlinson, S., Holley, R., Jennings, S., and Bradshaw, F. (2007) *Ecology of the Honey possum, Tarsipes rostratus, in Scott National Park, Western Australia*. Australian Mammalogy 29(1), pp. 25-38.

City of Albany (2006) *City Mounts Management Plan May 2006*. City of Albany, Albany, WA. Available from: https://www.albany.wa.gov.au/documents/536/city-mounts-management-plan-may-2006#:~:text=The%20City%20Mounts%20Management%20Plan%20provides%20an%20up%20to%20date,important%20and%20accessible%20recreation%20reserves.

City of Albany (2015) *Trails Hub Strategy 2015 – 2025.* Volume 1. City of Albany, Albany, WA. Available from: https://www.albany.wa.gov.au/documents/607/trails-hub-strategy-2015-2025-vol1-main-strategy#:~:text=The%20City%20of%20Albany%20Trails,package%20of%20hospitality%20and%20visitor.

City of Albany (2016a) *Albany Heritage Park Trail Network Concept Plan*, prepared by Common Ground Trails Pty Ltd for the City of Albany. City of Albany, Albany, WA. Available from: https://www.albany.wa.gov.au/documents/611/albany-heritage-park-trail-network-concept-plan.

City of Albany (2016b) *Albany Heritage Park Trails Concept Plan Feedback*. Supporting document related to clearing permit application CPS 9182/1, received 13 January 2021 (DWER Ref: DWERDT401627).

City of Albany (2016c) *Should Council adopt the Albany Heritage Park Trails Concept Plan?* Community Engagement Results, November 2016. Supporting documents related to clearing permit application CPS 9182/1, received 13 January 2021 (DWER Ref: DWERDT401627).

City of Albany (2020) *Mount Adelaide and Mount Clarence Master Plan – Analysis of Community and Stakeholder Engagement*, received 13 January 2021 (DWER Ref: DWERDT401627).

City of Albany (2021a) *Albany Heritage Park Link Trails (V2). Project overview.* Supporting document related to clearing permit application CPS 9182/1, received 13 January 2021 (DWER Ref: DWERDT401627).

City of Albany (2021b) *City of Albany's response to public submissions*, received 20 June 2021 (DWER ref: DWERDT466992).

City of Albany (2021c) *Clearing permit application CPS 9182/1*, received 13 January 2021 (DWER Ref: DWERDT401627).

City of Albany (2023a) *City of Albany Weed Management Plan, Reserve 2682, Albany Heritage Park and Lot on Deposited Plan 222002*, received 27 October 2023 (DWER Ref: DWERDT871756).

City of Albany (2023b) *Response to request for further information to support clearing permit application CPS 9182/1*, received 17 January 2023 (DWER Ref: DWERDT714714).

Commonwealth of Australia (2001) *National Objectives and Targets for Biodiversity Conservation 2001-2005*, Canberra.

Department of Biodiversity, Conservation and Attractions (DBCA) (2007-) *NatureMap: Mapping Western Australia's Biodiversity*. Department of Parks and Wildlife. Available from: http://naturemap.dpaw.wa.gov.au/ (accessed September 2021, October 2021 and April 2023).

Department of Biodiversity, Conservation and Attractions (DBCA) (2021) *Species and Communities Branch fauna and flora advice for clearing permit application CPS 9182/1*. Received by DWER on 23 November 2021. Department of Biodiversity, Conservation and Attractions, Western Australia (DWER Ref: A2067200).

Department of Environment and Conservation (DEC) (2008) *Forest black cockatoo (Baudin's cockatoo, Calyptorhynchus baudinii, and forest red-tailed black cockatoo, Calyptorhynchus banksii naso) Recovery Plan.* Department of Environment and Conservation, Canberra.

Department of Environment and Conservation (DEC) (2012a) *Fauna profiles: Brush-tailed Phascogale, Phascogale tapoatafa wambenger.* Department of Environment and Conservation, Western Australia.

Department of Environment and Conservation (DEC) (2012b) *Fauna profiles: Quenda, Isoodon obesulus fusciventer.* Department of Environment and Conservation, Western Australia.

Department of Environment and Conservation (DEC) (2012c) *Mount Clarence & Mount Adelaide Bush Reserve Fauna Survey 2002 – 2011.* By Sylvia Leighton. Supported by City of Albany and Great Southern Institute of Technology, received 13 January 2021 (DWER Ref: DWERDT401627).

Department of Environment Regulation (DER) (2013) *A guide to the assessment of applications to clear native vegetation.* Perth. Available from: https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2_assessment_native_veg.pdf.

Department of Local Government, Sport and Cultural Industries (DLGSC) and Great Southern Centre for Outdoor Recreation Excellence (GSCORE) (2018) *Great Southern Outdoor Recreation Strategy 2018 — 2021.* DLGSC Great Southern, Albany, WA. Available from: https://outdoorsgreatsouthern.org.au/wp-content/uploads/2018/10/Great-Southern-Outdoor-Recreation-Strategy-2018-2021_FINAL.pdf.

Department of Parks and Wildlife (DPAW) (2016) *Advice provided on Albany Heritage Park Concept Plan*, received 13 January 2021 (DWER Ref: DWERDT401627).

Department of Parks and Wildlife (DPAW) (2013) *Carnaby's cockatoo (Calyptorhynchus latirostris) Recovery Plan*. Department of Parks and Wildlife, Perth, Western Australia.

Department of Parks and Wildlife (DPaW) (2017) Western ringtail possum (*Pseudocheirus occidentalis*) Recovery Plan. Wildlife Management Program No. 58. Department of Parks and Wildlife, Perth, Western Australia.

Department of Primary Industries and Regional Development (DPIRD) (2021) *NRInfo Digital Mapping. Department of Primary Industries and Regional Development.* Government of Western Australia. Available from: https://maps.agric.wa.gov.au/nrm-info/ (accessed May 2021 and April 2023).

Department of the Environment, Water, Heritage and the Arts (DEWHA) (2008a) *Approved Conservation Advice for* Caladenia harringtoniae *(Harrington's Spider-orchid)*. Department of the Environment, Water, Heritage and the Arts, Canberra, ACT. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/56786-conservation-advice.pdf.

Department of the Environment, Water, Heritage and the Arts (DEWHA) (2008b) *Approved Conservation Advice for* Drakaea micrantha *(Dwarf Hammer-orchid)*. Department of the Environment, Water, Heritage and the Arts, Canberra, ACT. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/81853-conservation-advice.pdf.

Department of Parks and Wildlife (DPAW) (2015) *New plan for south-west trail.* 3 December 2015. Available from: https://parks.dpaw.wa.gov.au/connect/new-plan-south-west-trails.

Department of Sport and Recreation (2008) *Western Australian Trails Strategy 2009 – 2015.* Coordinated and developed by Department of Sport and Recreation. Supported by Department of Environment and Conservation and WA Planning Commission, Perth, Western Australia. Available from: https://www.dlgsc.wa.gov.au/docs/default-source/sport-and-recreation/western-australian-trails-strategy.pdf?sfvrsn=3983903f_1.

Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) (2011) *Survey guidelines for Australia's threatened mammals: Guidelines for detecting mammals listed as threatened under the EPBC Act*. Department of Climate Change, Energy, the Environment and Water, Canberra, ACT. Available from: https://www.dcceew.gov.au/environment/epbc/publications/survey-guidelines-australias-threatened-mammals.

Dortch & Cuthbert Pty Ltd (2017) *Aboriginal heritage survey of proposed trails at Albany Heritage Park, City of Albany, Western Australia*, received 13 January 2021 (DWER Ref: DWERDT401627).

Environmental Protection Authority (EPA) (2016) *Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment*. Available from: http://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey_Dec13.pdf.

Environmental Protection Authority (EPA) (2020) *Technical Guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment*. Available from: https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/2020.09.17%20-%20EPA%20Technical%20Guidance%20-%20Vertebrate%20Fauna%20Surveys%20-%20Final.pdf.

Gilfillan, S. (2018) *Monitoring changes in the abundance of Western Ringtail Possums (Pseudocheirus occidentalis) after construction of the Albany Heritage Park Demonstration Trail.* August /September 2018 Monitoring Session – 20 months Post Trail Construction. Report prepared by Sandra Gilfillan for the City of Albany, received 13 January 2021 (DWER Ref: DWERDT401627).

Gilfillan, S. (2022) *Black Cockatoo survey of the Albany Heritage Park Link Trail.* Report prepared for City of Albany in October 2022, received 17 January 2023 (DWER Ref: DWERDT714714).

Glossop B., Clarke K., Mitchell, D., and Barrett, G. (2011) *Methods for mapping of Carnaby's cockatoo habitat*. Department of Environment and Conservation, Bentley, Western Australia.

Government of Western Australia (2019) *2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report)*. Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions. Available from: https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics.

Great Southern Bio Logic (2016) *Phytophthora dieback Hygiene Survey of the proposed Mt Clarence/Corndarup and Mt Adelaide/Irrerup Mountain Bike Trails Area*. Project Ref: GSBL214-Pc survey Mt Clarence and Mt Adelaide-V1. Prepared and submitted by Jeremy Spencer, received 13 January 2021 (DWER Ref: DWERDT401627).

Great Southern Bio Logic (2022) *Operational Hygiene Management Plan: Albany Heritage Park Link Trails*. Report prepared for City of Albany in August 2022, received by DWER on 17 January 2023 (DWER Ref: DWERDT714714).

Great Southern Centre for Outdoor Recreation Excellence (GSCORE) (2019) *Great Southern Regional Trails Master Plan*. GSCORE, Albany, WA. Available from: https://www.albany.wa.gov.au/council-meetings/committee-meeting-community-and-corporate-services/committee-meeting-community-and-corporate-services-12-may-2020/515/documents/a_ccs250_aa_may20-background-report.pdf.

Houston, T.F. (2018) *A guide to native bees of Australia*. CSIRO Publishing. Clayton South, Victoria

Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

JBS&G Australia Pty Ltd (JBS&G) *City of Albany, Albany Heritage Park Trails Link Project, Rehabilitation Management Plan*, received by DWER on 17 January 2023 (DWER Ref: DWERDT714714).

Le Roux, C. (2017) *Nocturnal roost tree, roost site and landscape characteristics of Carnaby's Black Cockatoo (Calyptorynchus latirostris) on the Swan Coastal Plain*. Available from: https://ro.ecu.edu.au/theses/2017.

Mayer, X., Ruprecht, J.K. and Bari, M.A. (2005) *Stream salinity status and trends in south-west Western Australia*. Natural Resource Management and Salinity Division, Department of Environment.

Oyster Harbour Catchment Group Project (OHCGP) (2018) *Western Ringtail Possums in Albany: Core Habitat, Abundance and Distribution.* Final report. November 2018. By Sandra Gilfillan and Sarah Comer, R, received 13 January 2021 (DWER Ref: DWERDT401627).

Paap, T., McComb, J., Shearer, B., Burgess, T. and Hardy, G. (2012) *Identifying marri canker disease*. Research Findings 2012: Bulletin No. 3.

Paap, T., Burgess, T., Calver, M., McComb, J., Shearer, B., and Hardy, G. (2017) *A thirteen-year study on the impact of a severe canker disease of Corymbia calophylla, a keystone tree in Mediterranean-type forests.* Forest Pathology 47.

Sandiford, E.M. and Barrett, S. (2010) Albany Regional Vegetation Survey, Extent Type and Status, A project funded by the Western Australian Planning Commission (EnviroPlanning “Integrating NRM into Land Use Planning” and State NRM Program), South Coast Natural Resource Management Inc. and City of Albany for the Department of Environment and Conservation. Unpublished report. Department of Environment and Conservation, Western Australia.

Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) *Native Vegetation in Western Australia, Extent, Type and Status*. Resource Management Technical Report 249. Department of Agriculture, Western Australia.

Southern Ecology (2020) *Flora survey: Albany Heritage Park Trail Network 2020.* Report prepared for City of Albany in December 2020, received 13 January 2021 (DWER Ref: DWERDT401627).

Southern Ecology (2022) *Addendum: Flora Survey: Albany Heritage Park Trail Network 2020*. Report prepared for City of Albany in November 2022, received by DWER on 17 January 2023 (DWER Ref: DWERDT714714).

Submissions (2021) *Public submissions in relation to clearing permit application CPS 9182/1,* received 24 April to 15 May 2021 (DWER Ref: DWERDT449779, DWERDT450815, DWERDT451510, DWERDT451600, DWERDT452694, DWERDT452684, DWERDT452687, DWERDT452699, DWERDT452704).

Submissions (2022) *Public submissions in relation to clearing permit application CPS 9182/1,* received 22 to 29 December 2022 (DWER Ref: DWERDT699505, DWERDT700536, DWERDT700798, DWERDT701436, DWERDT702166, DWERDT701441, DWERDT702030, DWERDT702170, DWERDT703930).

Threatened Species Scientific Committee (TSSC) (2018) *Conservation Advice Pseudocheirus occidentalis Western ringtail possum.* Department of the Environment and Energy, Canberra. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/25911-conservation-advice-11052018.pdf.

University of Western Australia (UWA) (2011) *Fact sheet: Features of the honey possum*. University of Western Australia, Perth, WA. Available from: https://www.uwa.edu.au/study/-/media/Faculties/Science/Docs/Features-of-the-honey-possum.pdf.

Valentine, L.E. and Stock, W. (2008) *Food Resources of Carnaby's Black Cockatoo (Calyptorhynchus latirostris) in the Gnangara Sustainability Strategy Study Area*. Edith Cowan University and Department of Environment and Conservation. December 2008.

Van Helden, B., Speldewinde, P., Close, P., and Comer, S. (2018). *Use of urban bushland remnants by the western ringtail possum (Pseudocheirus occidentalis): Short-term home-range size and habitat use in Albany, Western Australia*. *Australian Mammalogy*, *40*(2), 173-180. Available from: https://doi.org/10.1071/AM17026.

WestCycle Incorporated (WestCycle) (2015) *Western Australian Mountain Bike Strategy 2015 – 2020. Unlocking the potential*. Prepared and published by WestCycle Incorporated. With funding and support from Department of Sport and

Recreation, Department of Parks and Wildlife and West Australian Mountain Bike Association (WAMBA). Available from: https://westcycle.org.au/wp-content/uploads/2017/08/WesternAustralianMountainBikeStrategy.pdf

Western Australian Herbarium (1998-) *FloraBase - the Western Australian Flora*. Department of Biodiversity, Conservation and Attractions, Western Australia. https://florabase.dpaw.wa.gov.au/ (accessed September 2021, October 2021, and April 2023).

Wilkins, P., Gilfillan, S., Watson, J. and Sanders, A. (ed). (2006) *The Western Australian South Coast Macro Corridor Network – a bioregional strategy for nature conservation*. Department of Conservation and Land Management (CALM) and South Coast Regional Initiative Planning Team (SCRIPT), Albany, Western Australia.