GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: CPS 10135/1

File Number: DWERVT12322

Duration of Permit: From 7 March 2025 to 7 March 2027

ADVICE NOTE

Allocation of Offset site

The conservation covenant referred to in condition 4 of this permit is intended to contribute towards the conservation in perpetuity of 3.55 hectares of remnant native vegetation in Very Good condition within Lot 108 on Plan 13653, Toodyay, that comprises high-quality foraging habitat and potential breeding habitat for *black cockatoo species.*

PERMIT HOLDER

Shire of Toodyay

LAND ON WHICH CLEARING IS TO BE DONE

Bindi Bindi -Toodyay Road reserve (PINs 11494680, 11494681, 11752770), Bejoording

Tenth Road reserve (PIN 11395722), Bejoording

AUTHORISED ACTIVITY

The permit holder must not clear more than 0.56 hectares of *native vegetation* within the combined areas cross-hatched yellow in Figure 1a, Figure 1b and Figure 1c of Schedule 1.

CONDITIONS

1. 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.

2. 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.

3. Directional clearing

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

4. Offset – Conservation covenant

Within 12 months of clearing commencing under this permit, and no later than 7 March 2026, the permit holder shall provide to the *CEO* a copy of the executed conservation covenant under section 30B of the *Soil and Land Conservation Act 1945* setting aside the area crosshatched red on attached Figure 2 of Schedule 1 for the protection and management of vegetation in perpetuity.

5. Records that must be kept

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

Table 1: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	(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 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) the direction of the area cleared; (f) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 1; (g) actions taken to minimise the risk of the

No.	Relevant matter	Specifications
		introduction and spread of *weeds* and *dieback* in accordance with condition 2; and (h) actions undertaken in accordance with condition 3.
2.	In relation to offset management condition 4	(a) the location and boundaries of the allocated offset area recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020, expressing the geographical coordinates in Eastings and Northings; and (b) copy of the conservation covenant under section 30B of the *Soil and Land Conservation Act 1945*.

6. Reporting

(a) The permit holder must provide to the *CEO*, on or before 31 December of each calendar year, a written report containing:

(i) the records required to be kept under condition 5; and
(ii) records of activities done by the permit holder under this permit between 1 July of the preceding calendar year and 30 June of the current 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 31 December of each calendar year.

(c) Prior to 7 December 2026, the permit holder must provide to the *CEO* a written report of records required under condition 5, where these records have not already been provided under condition 6(a).

DEFINITIONS

In this permit, the terms in Table 2 have the meanings defined.

Table 2: Definitions

Term	Definition
black cockatoo species	means one or more of the following species: (a) *Zanda latirostris* (Carnaby's cockatoo); (b) *Zanda baudinii* (Baudin's cockatoo); and/or (c) *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo).
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the *Environmental 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.

Term	Definition
fill	means material used to increase the ground level, or to fill a depression.
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.
EP Act	*Environmental Protection Act 1986* (WA)
mulch	means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation.
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
weeds	means any plant – (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.

END OF CONDITIONS

Jessica Burton
A/MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

12 February 2025

SCHEDULE 1

The boundary of the area authorised to be cleared is shown in the maps below (Figure 1a, Figure 1b and Figure 1c). The boundary of the area subject to conditions is shown in Figure 2.

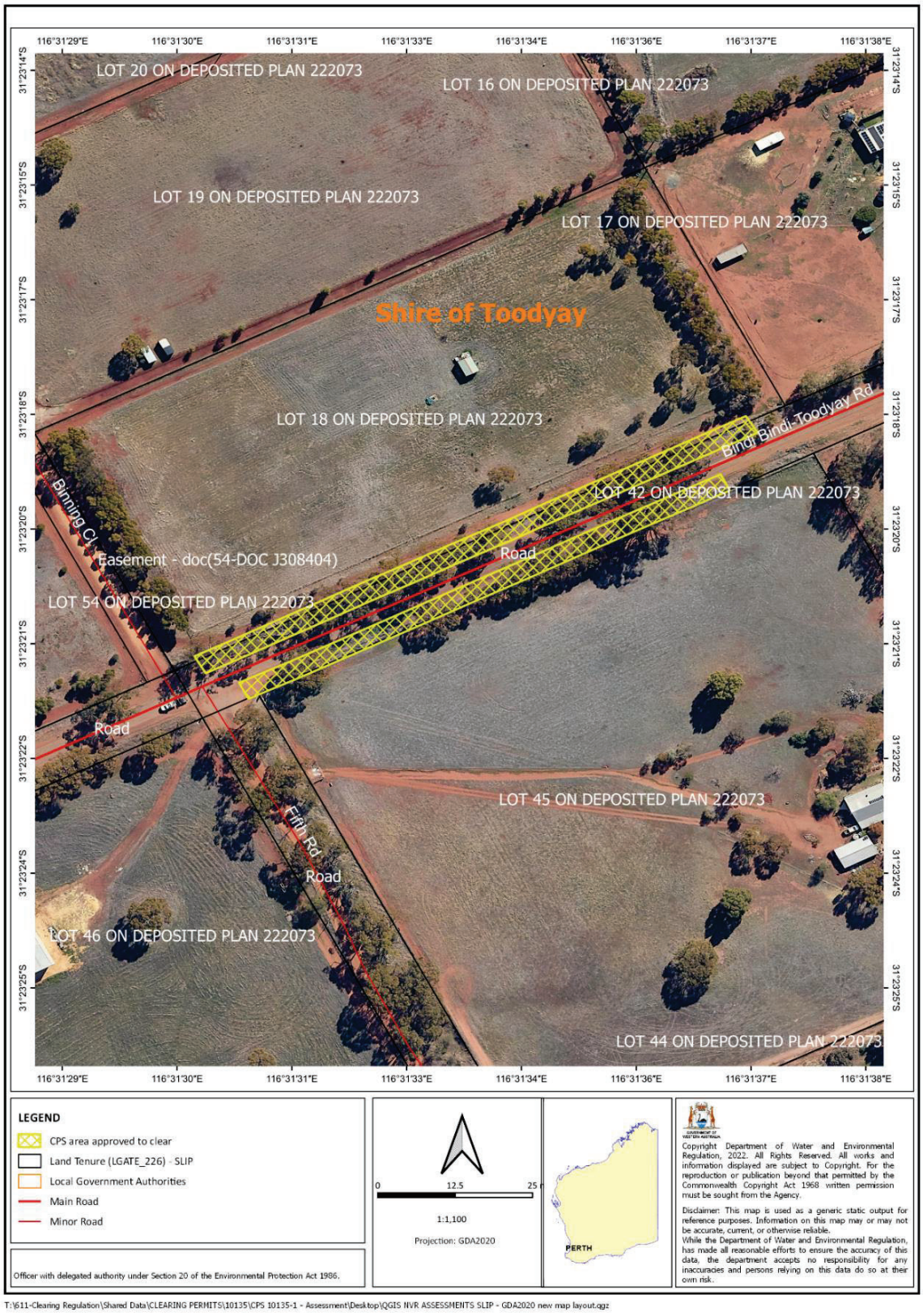

Figure 1a: Map of the boundary of the area within which clearing may occur.

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

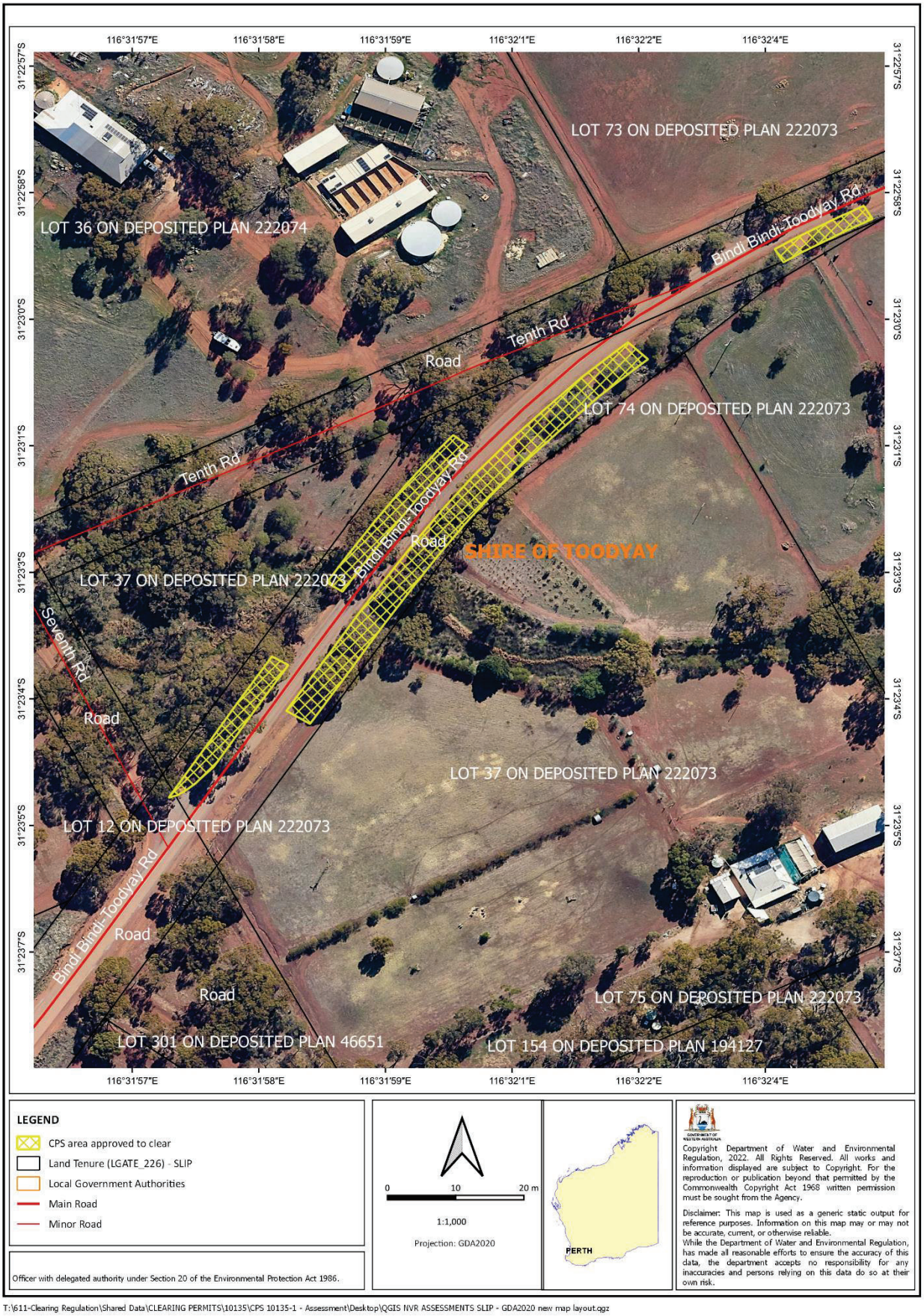

Figure 1c: Map of the boundary of the area within which clearing may occur.

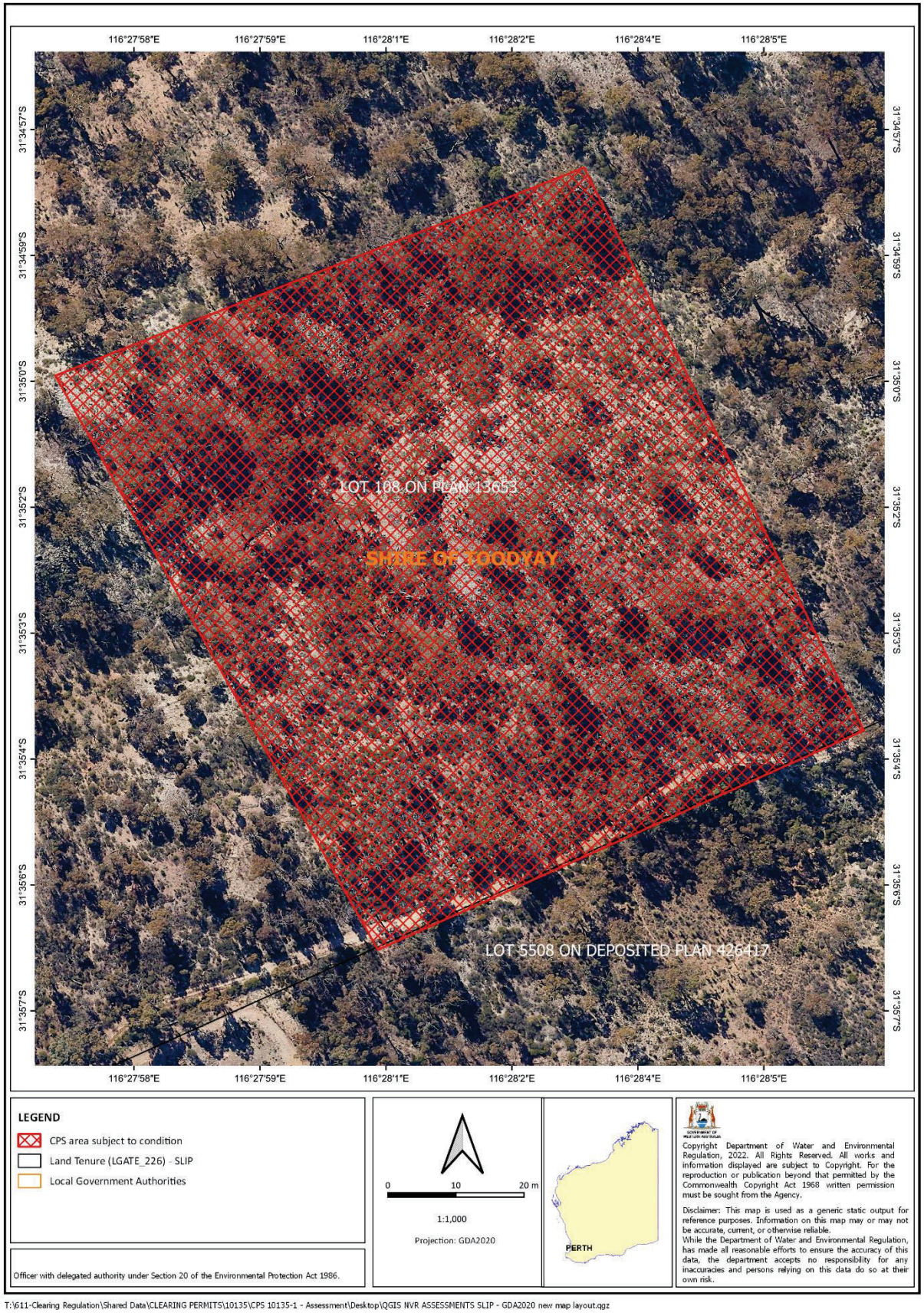

Figure 2: Map of the boundary of the area subject to offset conditions.

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 10135/1
Permit type:	Area permit
Applicant name:	The Shire of Toodyay
Application received:	29 March 2023
Application area:	0.56 hectares
Purpose of clearing:	Road Upgrades
Method of clearing:	Mechanical
Property:	Bindi Bindi Toodyay Road Reserves (PINs 11494680, 11494681, and 11752770) Tenth Road reserve (PIN 11395722)
Location (LGA area/s):	Shire of Toodyay
Localities (suburb/s):	Bejoording

1.2. Description of clearing activities

The Shire of Toodyay (the Shire) is proposing to clear 0.56 hectares of native vegetation which comprises of *Eucalyptus loxophleba* and *Eucalyptus salmonophloia* native tree species, along the Bindi Bindi Toodyay Road Reserve (PINs 11494680, 11494681, 11752770) and Tenth Road reserve (PIN 11395722), Bejoording (Natural Area Consulting, 2024a). Vegetation condition throughout the application area is completely degraded (Keighery, 1994), which is reflected in the higher ratio of introduced flora species within the survey area (Natural Area Consulting, 2024a). The Shire has slightly increased the area proposed for clearing during the assessment to include an additional two York gum trees and one *Acacia acuminata* individual. The area proposed for clearing is represented by Figure 1 under Section 1.5.

1.3. Decision on application

Decision:	Granted
Decision date:	12 February 2025
Decision area:	0.56 hectares, as depicted in Section 1.5, below.

1.4. Reasons for decision

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

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

- avoidance and minimisation actions implemented by the applicant;
- site characteristics and analysis of flora, fauna and ecological communities recorded/mapped within the local area (a 10 kilometres radius buffer from the application area);
- the 10 Clearing Principles set out in Schedule 5 of the EP Act (see Appendix C);

- a detailed assessment of the clearing impacts on environmental values (see Section 3.2);
- available datasets at the time of the assessment (see Appendix G);
- additional information obtained during the assessment. Including the findings of:
    - Flora and Vegetation Survey (Natural Area, 2024a);
    - A black cockatoo habitat assessment (Natural Area, 2024a);
    - Photographs of the application area (Shire of Toodyay, 2023b);
    - Shire of Toodyay Road Assessment along the Bindi Bindi Toodyay Road (Shire of Toodyay, 2023c); and
    - Offset area feasibility study (Natural Area Consulting, 2024c).

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

- Necessity of the clearing within the application area;
    - increased safety benefit to the public using the road;
    - the Shire's advice that there are trees located along the verge in close proximity to the travel way placing the trees within the effective clear zone. *Austroads Guide to Road Design Part 6: Roadside Design, Safety and Barriers* indicates trees feature prominently as impacted hazards in run-off road crashes accounting for a large proportion of fatalities;
    - MRWA determined the effective clear zones using the *Austroads method described in Austroads Guide to Road Design Part 6: Roadside Design, Safety and Barriers* is 10.4 metres, and the native vegetation proposed for clearing is within the 10.4 metre effective clear zone; and
    - the Shire's crash statistics on the Toodyay Road.

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

- loss of 0.56 hectares of native vegetation that provides low quality foraging habitat and potential future breeding habitat for Carnaby's black cockatoos; and
- loss of 0.56 hectares native vegetation within an extensively cleared landscape.

To address the above significant residual impacts and applying the WA environmental offsets metric (the offsets metric) along with the environmental offsets metric guideline, and consistent with the WA Environmental Offsets Policy (2011) (the Offsets Policy) and Western Australia's Environmental Offsets Guidelines (2014) (the Offsets Guidelines), the Delegated Officer determined that the following offset would address 100 per cent of the significant residual impacts of the clearing:

- Conservation in perpenturity of 3.55 hectares of Carnabys cockatoo foraging habitat in excellent (Keighery, 1994) condition located within an extensively cleared landscape; within Lot 108 on Plan 13653, Toodyay.

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

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

- the potential introduction and spread of weeds into adjacent vegetation, which could impact the quality of the adjacent vegetation and its habitat values; and
- increased likelihood of mortality of fauna that may be utilising the application area at the time of clearing.

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

- avoid, minimise to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds;
- undertake slow, progressive one directional clearing to allow fauna to move into adjacent habitat ahead of the clearing activity; and
- conservation of 3.55 hectares of Carnaby's cockatoo foraging habitat in excellent (Keighley, 1994) condition within an extensively cleared landscape.

1.5. Site maps

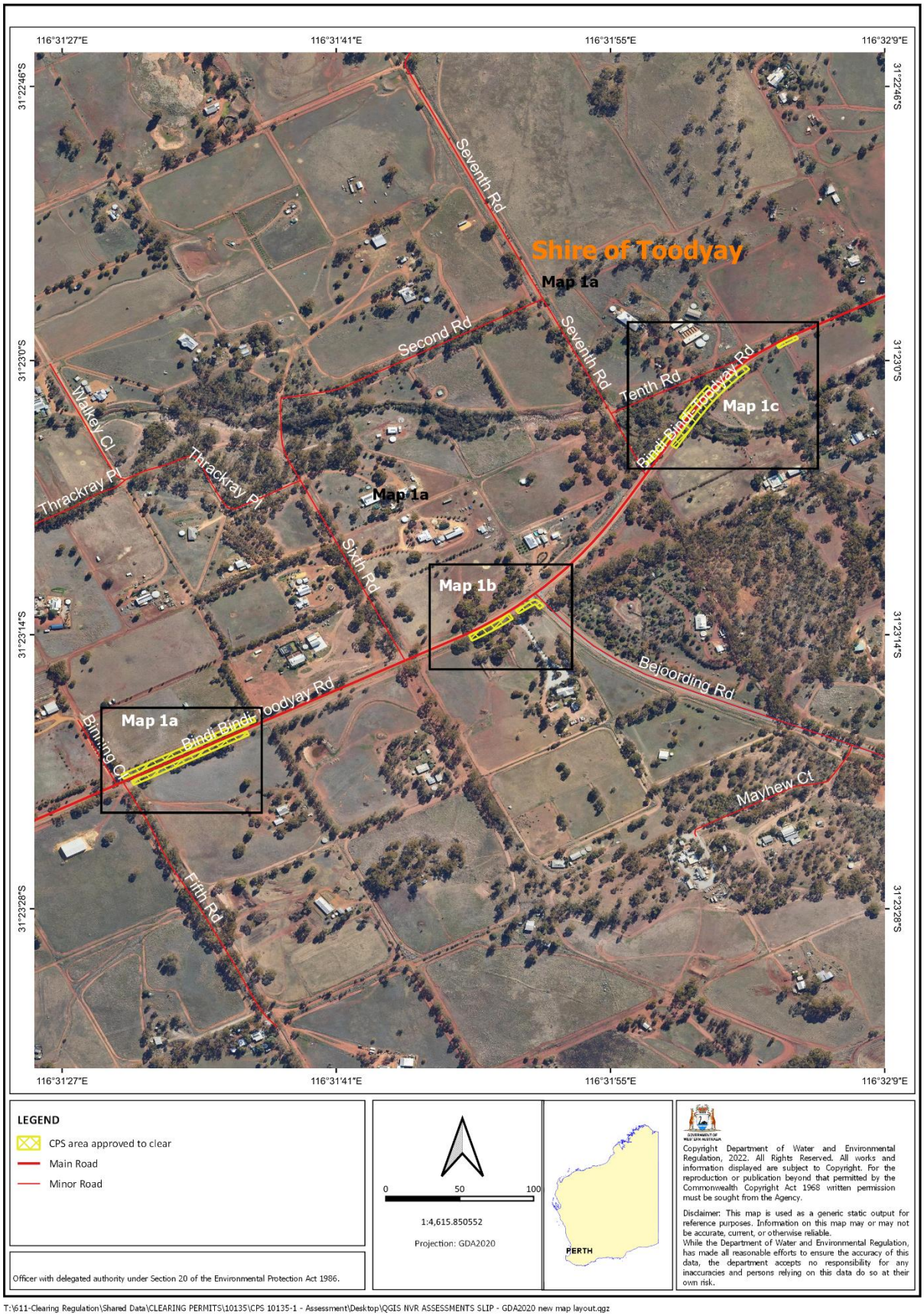

Figure 1: Context map of the areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

Figure 2: Map of the areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit (Map 1a).

Figure 3: Map of the areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit (Map 1b).

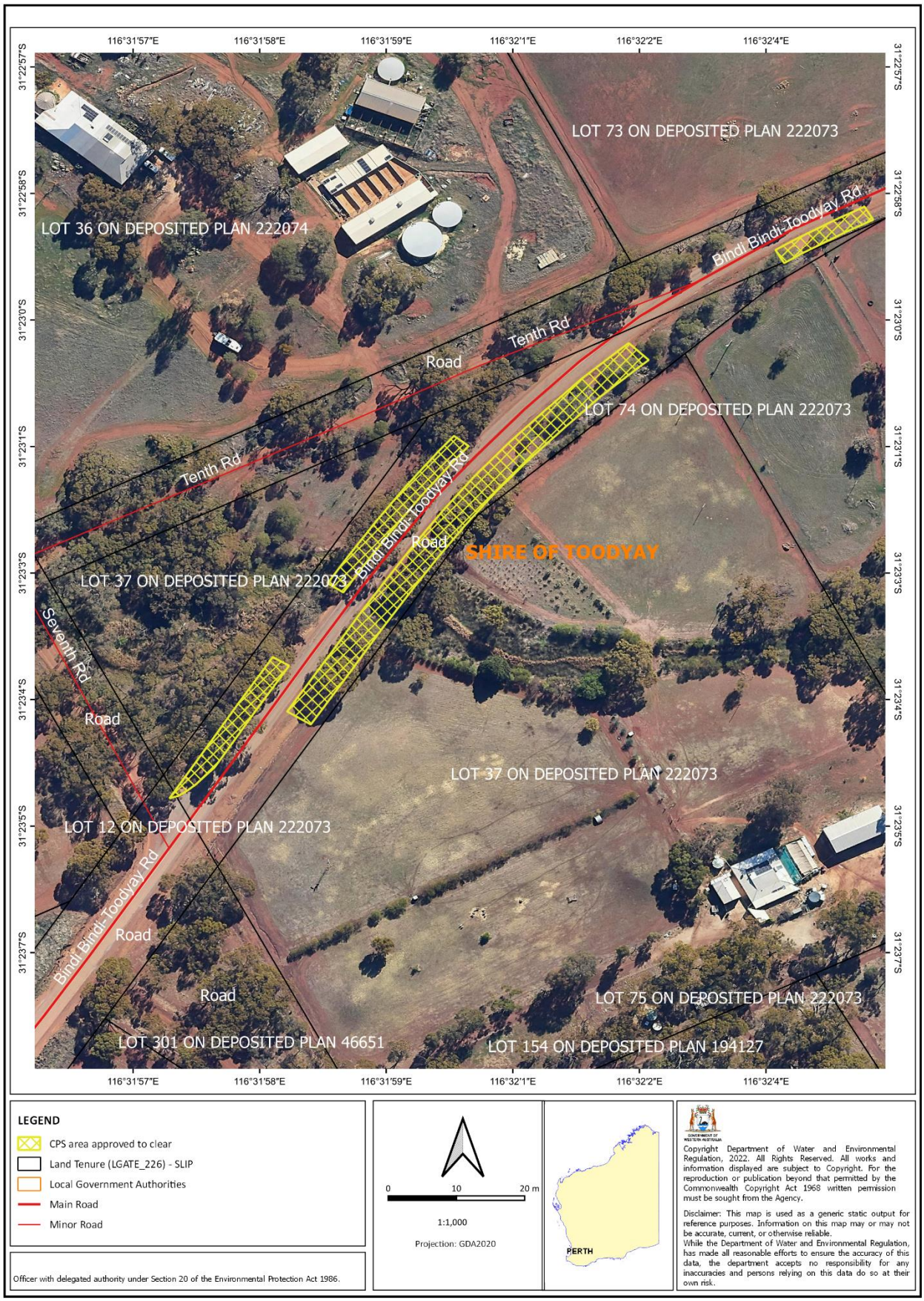

Figure 4: Map of the areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit (Map 1c).

2 Legislative context

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

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

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

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Soil and Land Conservation Act 1945* (WA)

Relevant policies considered during the assessment include:

- *Environmental Offsets Policy* (2011)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- *Environmental Offsets Guidelines* (August 2014)
- *Technical guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
- *Technical guidance – Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2020)

2.1. Avoidance and mitigation measures

The Shire has advised that there are trees along the verge in close proximity to the travel way, placing the trees within the effective clear zone (Shire of Toodyay, 2024c). *Austroads Guide to Road Design Part 6: Roadside Design, Safety and Barriers* indicates trees feature prominently as impacted hazards in run-off road crashes accounting for a large proportion of fatalities. There is a culvert crossing located in close proximity to the road, which is within the effective clear zone. The culvert is 760 millimetres deep and located 1.6 metres from the travelled way in both directions of travel (Shire of Toodyay, 2023c).

The Shire has identified the rectification actions to ensure compliance with road designs is to remove hazards within the clear zone. Using a design speed of 110 kilometres per hour with less than 750 vehicles per day, the required cleared zone is 10.4 metres. An example of the current status of the Toodyay – Bindi Bindi Road is provided below.

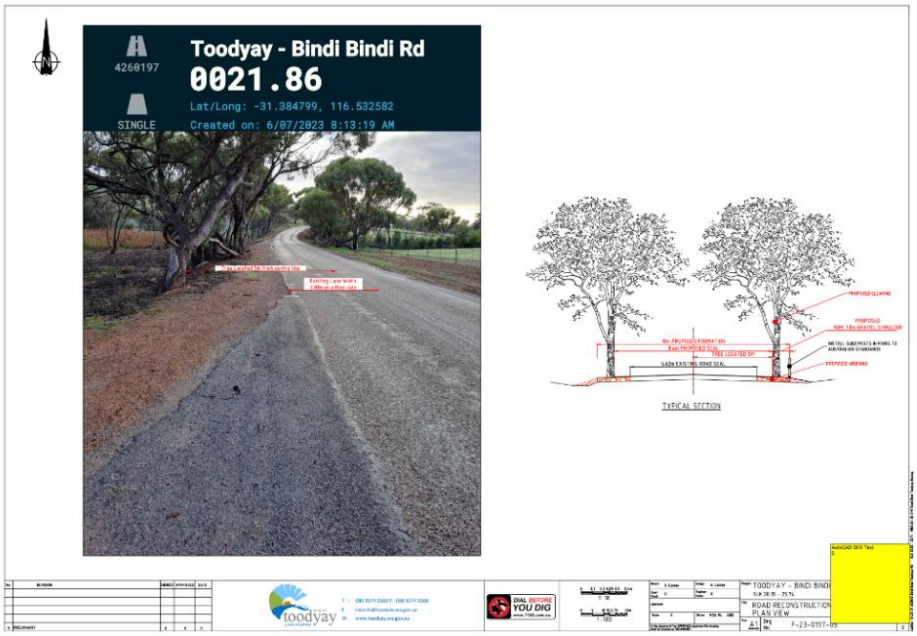

Figure 5: A representation of the existing lane width in comparison to the proposed widening.

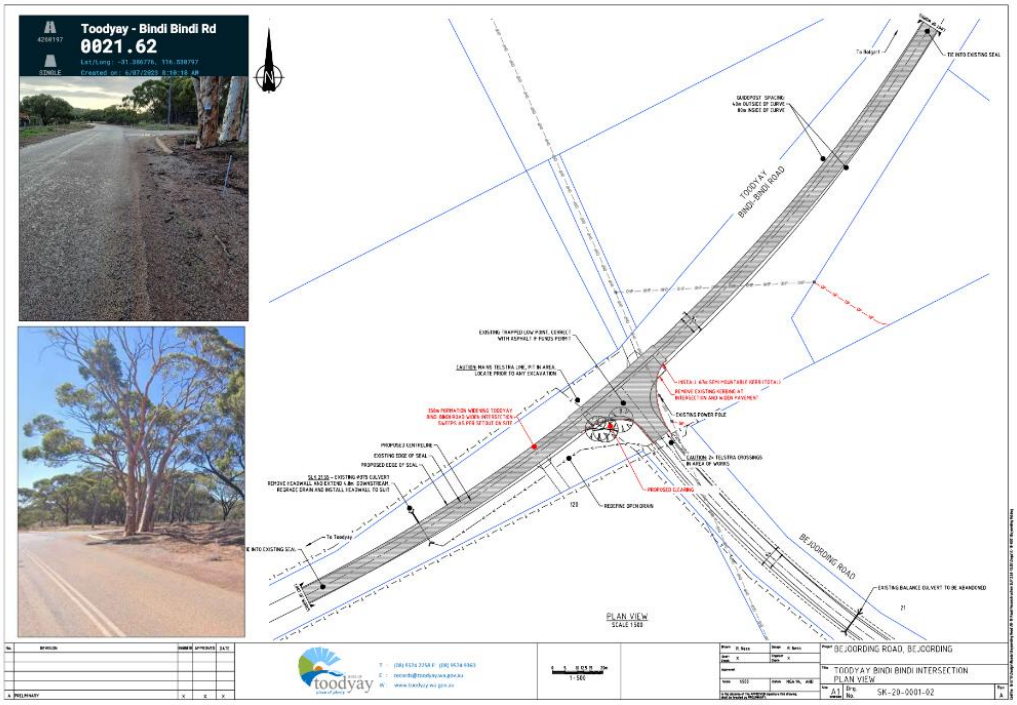

Figure 6: A representation of the vegetation proposed to be cleared within the intersection

The Shire provided evidence of efforts to avoid, minimise and mitigate the potential impacts of clearing. The following were provided by the Shire (Shire of Toodyay, 2023c).

- Given the existing road condition and the topography of the land, the vegetation does not allow the Shire to improve the road as per Main Roads Western Australia (MRWA) and Austroads Standard and designs without clearing any trees.
- Preliminary designs were conducted to minimise the need for large scale clearing. However, it has been determined that the option proposed in the clearing permit is the one that requires the least clearing and the one that will have the least impact on the flora and fauna in the area.
- The Shire has considered the installation of safety barrier as per *Austroads Guide to Road Design Part 6: Roadside Design, Safety and Barriers*, however the requirements and standards does not allow the Shire to install safety barriers as these features will need a minimum clearing zone offset from the traffic lane and embankment.
- The Shire has committed to inspect all hollows prior to clearing, if the hollows are in use by any fauna species, the Shire commits to avoid clearing until fauna moves on or relocated by a fauna spotter.

Through a detailed assessment, it has been concluded that significant residual impacts remain after the avoidance, minimisation and mitigation efforts by the Shire, consisting of 0.56 hectares considered foraging habitat for Carnaby's black cockatoos and a significant remnant of native vegetation in an extensively cleared landscape. In accordance with the Government of Western Australia's Environmental Offsets Policy and Environmental Offsets Guidelines, this significant residual impact has been addressed through the conditioning of an environmental offset on the permit.

The Shire has previously banked an offset site on Lot 108 on Plan 13653 (21 Hibbertia Place, Toodyay) measuring approximately 123 hectares in size. Currently 2.3 hectares is used to offset clearing authorised under a previous clearing permit, CPS 9376/1, and 1.95 hectares is used to offset clearing under CPS 9754/1 1. The offset site is under a Conservation Covenant under section 30B of the *Soil and Land Conservation Act 1945,* to protect the vegetation in perpetuity. It is proposed that an area of approximately 3.55 ha in size within the property is designated as the offset site for the proposed clearing, and the remainder of the property is to be used as a banked offset for future projects requiring similar offsets. The nature and suitability of the offset provided, is summarised in Section 4.

Given the above, the Delegated Officer is satisfied that the environmental impacts associated with the proposed clearing have been appropriately avoided, minimised, mitigated.

2.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix B) and the extent to which the impacts of the proposed clearing present a risk to biological or significant remnant vegetation

values.

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

2.2.1. Biological values - Clearing Principles (a and d)

Assessment
The roadside vegetation proposed to be cleared comprises of isolated Eucalyptus trees over an understorey of invasive and native herbs and grasses. The vegetation is mapped as Completely Degraded (Keighery, 1994) condition (Natural Area Consulting, 2024a).

The Eucalypt Woodlands is listed as a Threatened Ecological Community (TEC) under the EPBC Act (CR), and a Priority 3 Priority Ecological Communities (PEC) by the Department of Biodiversity, Conservation, and Attractions (DBCA) and occurs within close proximity to the application area. The approved conservation advice for the Eucalypt Woodlands TEC/PEC is detailed by DoE (2015) and provide a guide to identify and assess the occurrence of Eucalypt Woodlands TEC/PEC. The Eucalypt species occurring over the application area align with the species representative of this community.

Eucalyptus woodland patch size and vegetation condition are important determinants in assessing the presence of the Eucalypt Woodlands community (DoE, 2015). The vegetation condition thresholds to confirm the Eucalypt Woodlands community generally exclude degraded patches such as roadside remnants that are too small and narrow, or where the tree canopy has become discontinuous, and the understorey has lost considerable elements of its native structure and diversity (DoE, 2015). The minimum patch width for roadsides should be over five metres based upon the native understorey component (DoE, 2015). Given the vegetation condition, locations (on the road verge) and small sizes, the patches do not meet the criteria of the PEC/TEC and are very unlikely to support high flora diversity. The additional site assessment that was undertaken by Natural Area Consulting has determined that based on the weed cover present within the application area, the vegetation does not meet the condition threshold to be representative of the TEC (Natural Area Consulting, 2024b).

Conclusion
For the reasons set out above, in consideration of the areas proposed for clearing, the condition of the vegetation present and the attributes of the Eucalypts present, the proposed clearing is unlikely represent the Wheatbelt woodland TEC.

Condition

No conditions required.

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

Assessment
The vegetation within the application area is described as an open woodland of *Eucalyptus loxophleba* (York Gum) over an understorey of invasive and native herbs and grasses. The condition of the vegetation within the application area was described as completely degraded (Keighery, 1994) with an intact upper story structure. Majority of the area comprised of bare ground covered with leaf litter and introduced species with a lack of middle and lower native vegetation (Natural Area Consulting, 2024a).

According to available database, seven conservation significant fauna species have been recorded within the local area comprising of one Priority 4, three Endangered, and two Vulnerable fauna taxa. Noting the habitat requirements the distribution of the recorded species, the mapped vegetation type and the conditions of the vegetation within the application area, the application area may comprise of suitable habitat for the *Zanda latirostris* (Carnaby's cockatoo).

In the local context, the vast majority of the application consists of isolated trees and shrubs along a narrow road verge isolated by rural lands supporting exotic pasture grasses. Due to the lack of any understorey habitat (Natural Area Consulting, 2024a), and the local context of the application area, the terrestrial fauna species of conservation significance recorded from the local area are highly unlikely to occur. The eucalypt canopy of the application area provides habitat for the vagile and arboreal Carnaby's cockatoo (*Zanda latirostris*).

Black cockatoo habitat can be considered in terms of breeding habitat, night roosting habitat, and foraging habitat. Carnaby's Cockatoo will generally forage up to 12 kilometres from an active breeding site (DAWE, 2022). Following breeding, they will flock in search of food, usually within six kilometres of a night roost (DAWE, 2022) but may range

up to 20 kilometres or more (Commonwealth of Australia, 2012). Food resources within the range of breeding sites and roost sites are important to sustain populations, and foraging resources are therefore viewed in the context of known breeding and night roosting sites, particularly within 12 kilometres of a breeding site or 20 kilometres of a roost site (Commonwealth of Australia, 2012).

The application area is located within the modelled breeding likely to occur rage of Carnaby's black cockatoos. Two roost sites and 73 nesting sites (4 artificial and 69 natural); (46 confirmed and 25 potential) have been recorded within 20 kilometres of the application area with one record of Carnaby's cockatoo from 2014 and two records of white-tailed black cockatoos from 1977 and 1979, respectively. The closest recorded breeding site is 10.7 kilometres from the application area.

A black cockatoo habitat assessment was undertaken along the application area (Natural Area Consulting, 2024a). No foraging evidence by black cockatoo birds were observed during the black cockatoo habitat assessment (Natural Area Consulting, 2024a). The eucalypt canopy of the application area provides potential foraging habitat for Carnaby's cockatoo consisting of approximately 0.56 hectares. Carnaby's are known to forage on a variety of seeds, nuts, flowers, and 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). *Eucalyptus loxophleba* and *Eucalyptus salmonophloia* are considered to provide foraging resources of low quality to the Carnaby's black cockatoos and are considered a secondary foraging resource. DBCA advice also supports this statement that value of York gum as a foraging plant for black cockatoos appears to be low.

However, to maintain Carnaby's populations, it is crucial to have an abundance of food resources within the range of breeding and roosting sites. Given the application area is located within an extensively cleared landform and the breeding sites recorded within the 20-kilometre buffer, the eucalyptus trees within the application area are considered important although it is of low value to Carnaby's cockatoos. Removing these trees would result in an impact on the availability of foraging habitat within an extensively cleared landscape. An offset is required to counterbalanced this impact.

Black cockatoo species are known to nest in hollows of live and dead trees, including *Corymbia calophylla* (marri), *Eucalyptus marginata* (jarrah), *Eucalyptus diversicolor* (karri), *Eucalyptus wandoo* (wandoo), *Eucalyptus gomphocephala* (tuart), *Eucalyptus rudis* (flooded gum), and other *Eucalyptus spp*. (DAWE, 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 ≥ 50 centimetres for most tree species (Commonwealth of Australia, 2012).

A total of 70 trees with a DBH greater than 300 millimetres were recorded within the survey area. The most common tree species recorded was the *Eucalyptus loxophleba* (York Gum) (37 trees), followed by *Eucalyptus salmonophloia* (Salmon Gum) (11 trees). One tree of eucalyptus genus that was not able to be definitively identified due to a lack of diagnostic features present at the time of survey (Natural Area Consulting, 2024a). Five of the trees appeared to contain hollows but were too small to be used by a black cockatoo bird. No signs of usage by black cockatoos were identified in any of the hollows (Natural Area Consulting, 2024a). Based on the survey results, no suitable breeding hollows are present within the application area. The loss of the trees due to the proposed clearing is unlikely to significantly impact the availability of potential breeding habitat for Carnaby's black cockatoo.

Roosting habitat is defined as a suitable tree (generally the tallest) or group of tall trees, native or introduced, usually close to an important water source, within an area of quality foraging habitat within the range of each black cockatoo species (EPA, 2019). Individual night roosting sites need suitable foraging habitat and water within six kilometres (EPA, 2019). In consideration of the location of the application area, the lack of Carnaby's cockatoo records from the local area and the size of the application area, it is not likely that a significant residual impact would occur to black cockatoo roosting habitat from the proposed clearing.

Impact on any fauna individuals that may be present at the time of clearing can be minimised by conducting clearing in slow manner in the direction of adjacent vegetation

Conclusion

Based on the above assessment, the proposed clearing will result in the removal of approximately 0.56 hectares of canopy providing low quality foraging habitat for Carnaby's cockatoo. In consideration of the application area location, paucity of records, and that known roost and breeding sites are beyond the recognised 'foraging distance' for Carnaby's cockatoo, it is unlikely that the foraging habitat present is currently utilised by roosting or breeding Carnaby's cockatoo populations. Considering the mobility of the species, the foraging resource has the potential to be utilised given breeding occurs within 20 kilometres of the application area.

Conditions

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

- implement slow, directional clearing to allow fauna to move into adjacent vegetation ahead of the clearing activity;
- provide an offset to counterbalance the significant residual impacts to 0.56 hectares of low quality Carnaby's cockatoo foraging habitat.

2.2.3. Significant remnant vegetation (Significant remnant of native vegetation) - Clearing Principles (e)

Assessment

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 prior to 1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001). The application area is located within the extensively cleared Avon Wheatbelt IBRA Bioregion which retains approximately 18.5 per cent of its pre-European vegetation extent (Government of Western Australia, 2019).

One vegetation association described and mapped by Shepherd et al. (2001) has been mapped over the application area; vegetation association 352 described in the wheatbelt as *Eucalyptus loxophleba* and *E. salmonophloia*. Vegetation association 352 has 10.44 per cent of its pre-European vegetation extent remaining (Government of Western Australia, 2019). York Gum is a large component of the application area, and the vegetation present can be considered a degraded component of vegetation association 352. According to the survey results, the vegetation along the roadside was in a completely degraded condition (Keighery, 1994) with a high presence of introduced weed species. Most of the site contained a weed coverage greater than 80 per cent with minimal amount of native understorey species sparsely distributed across the site (Natural Area Consulting, 2023a).

Approximately 4,734 hectares of native vegetation remains within a 10-kilometre radius of the application area representing 14.14 per cent of its original pre-European extent.

Noting that the extent of native vegetation remaining within the IBRA bioregion and local area, the extent of the mapped occurrence of vegetation association 352 are all below the national objectives and targets for biodiversity conservation in Australia, the vegetation within the application area is considered significant as a remnant of native vegetation in an area that has been extensively cleared.

The department considered that an offset is required to counterbalance the significant residual impact of removing vegetation in an extensively cleared area. The offset area proposed by the Shire and conditioned on the cleared permit is also located within an extensively cleared area and the department considers that the offset area is sufficient to counterbalance this impact.

According to the Roadside Conservation Committee's (RSD, 2010) vegetation rating, the application area has vegetation rated as 'low' applying the Roadside Conservation Values as assessed in 2008, with the vegetation on the right-hand side rated at two (low) and left-hand side rated at two (low). That is 'few native plants present; extensive wee presence/weed aggressive (RCC, 2017). Given this and the patches of remaining remnant vegetation in close proximity to the proposed clearing, the removal of vegetation within the application area will not contribute to a significant residual impact on an ecological linkage.

Figure 7: Roadside vegetation value within the area applied to clear (cross hatched blue).

Conclusion
Based on the above assessment, the proposed clearing is likely to impact on a significant remnant of native vegetation within an extensively cleared landscape, and a significant residual impact remains after avoidance and minimisation efforts. An offset is proposed to counterbalance this residual impact. The department has considered the offset as suitable and appropriate to counterbalance the impact of clearing. Impacts from weed and dieback on the surrounding native vegetation remain.

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

- Avoid, minimise to reduce the impacts and extent of clearing;
- Weed management; and
- Provide an offset to counterbalance the significant residual impacts to 0.56 hectares of native vegetation representing a significant remnant of native vegetation in an area that has been extensively cleared.

2.3. Relevant planning instruments and other matters

The road works project is proposed and managed by the Shire of Toodyay who is the manager of the road reserves. The roadworks is a part of a state program to improve safety on the rural roads, particularly those identified as having significant road hazards and with significant accident records.

No Aboriginal sites of significance have been mapped within the application area. It is the permit holder's responsibility to ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

3 Suitability of offsets

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

- loss of 0.56 hectares of native vegetation that provides low quality foraging habitat; and
- loss of 0.56 hectares native vegetation within an extensively cleared landscape.

In determining the appropriateness of an offset, the Delegated Officer took into consideration the applicant's implementation of the mitigation hierarchy and the public benefit of the proposed clearing (see Section 3.1). In considering these matters, the Delegated Officer determined that it was appropriate to grant the clearing permit on the basis that a suitable environmental offset was implemented to counterbalance the impacts.

Offset
Background information on the Shire's proposed offset area.
The Shire has proposed a banked offset site to counterbalance the significant residual impacts of the proposed clearing. The offset site is located on Lot 108 on Plan 13653, Toodyay, owned by the Shire, situated approximately 22 kilometres south east of the application area. The Lot 108 on Plan 13653 is approximately 123 hectares in size. The offset site is protected in perpeturity under a Conservation Covenant under section 30B of *the Soil and Land Conservation Act 1945*

Currently 2.3 hectares of the banked offset site is used to offset the authorised clearing under CPS 9376/1 and 1.95 hectares of the offset site is used to offset the authorised clearing under CPS 9754/1.

Site characteristics of the proposed offset site:
A site assessment was conducted by Natural Area Consulting (2023c) over 10 hectares within Lot 108 on Plan 13653, Toodyay. The site assessment indicated that the vegetation condition across the proposed offset area ranged from good to excellent condition (Keighery, 1994). Two vegetation types were identified, *Eucalyptus rudis* woodland over *Trymalium* spp and *Acacia* spp shrubland (ErW), and *Eucalyptus wandoo* woodland over mixed native heathland (EwW). More than 90 per cent of the vegetation is mapped as the vegetation type EwW (Natural Area Consulting, 2024c).

According to the department's assessment, 10 white tailed black cockatoo breeding sites are mapped within a 12 kiolometre buffer of the offset site (10 natural) (8 confirmed; 2 potential). There were no known roost sites recorded within the 12 kilometres buffer area. The offset area is also mapped within the distribution zone of the Carnabys black cockatoo. The vegetation within the offset area is considered a significant remnant in extensively cleared land scape (28 per cent remnant vegetation remaining in local area).

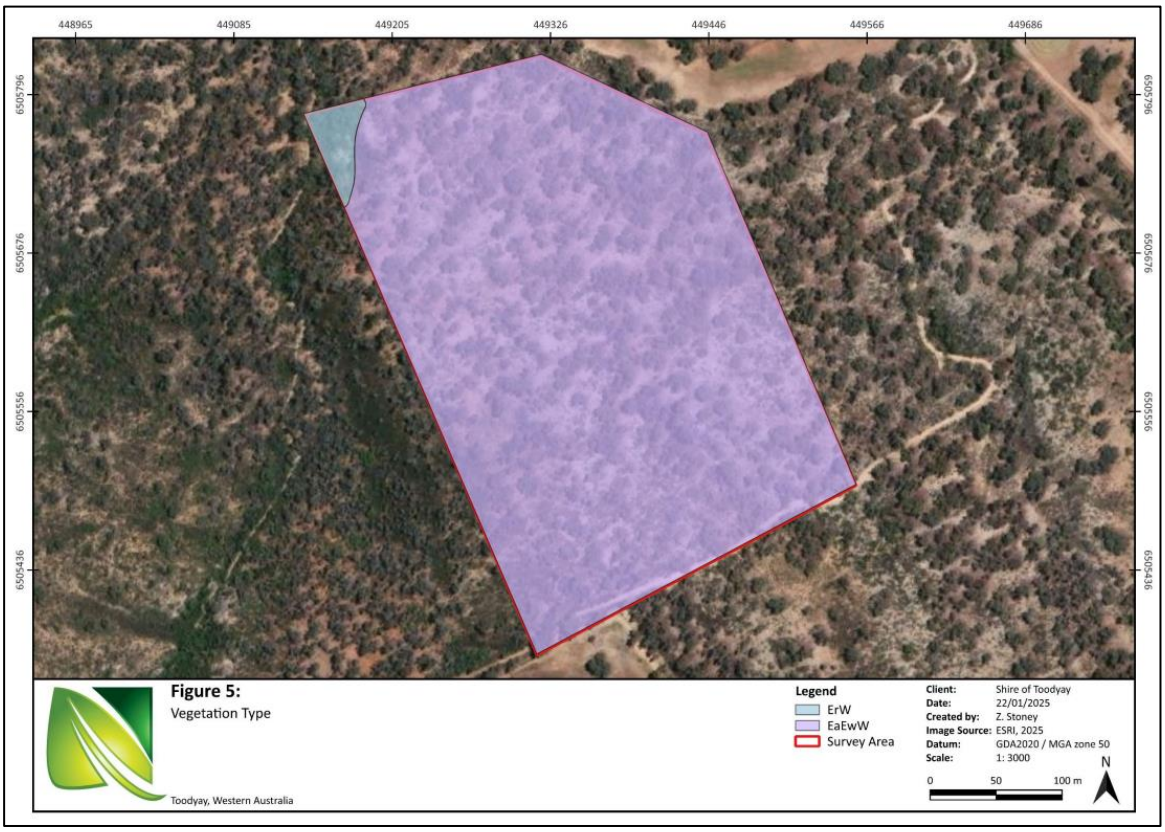

Figure 8: A map representing the vegetation type of the vegetation within the 10 hectares offset site the Shire proposed.

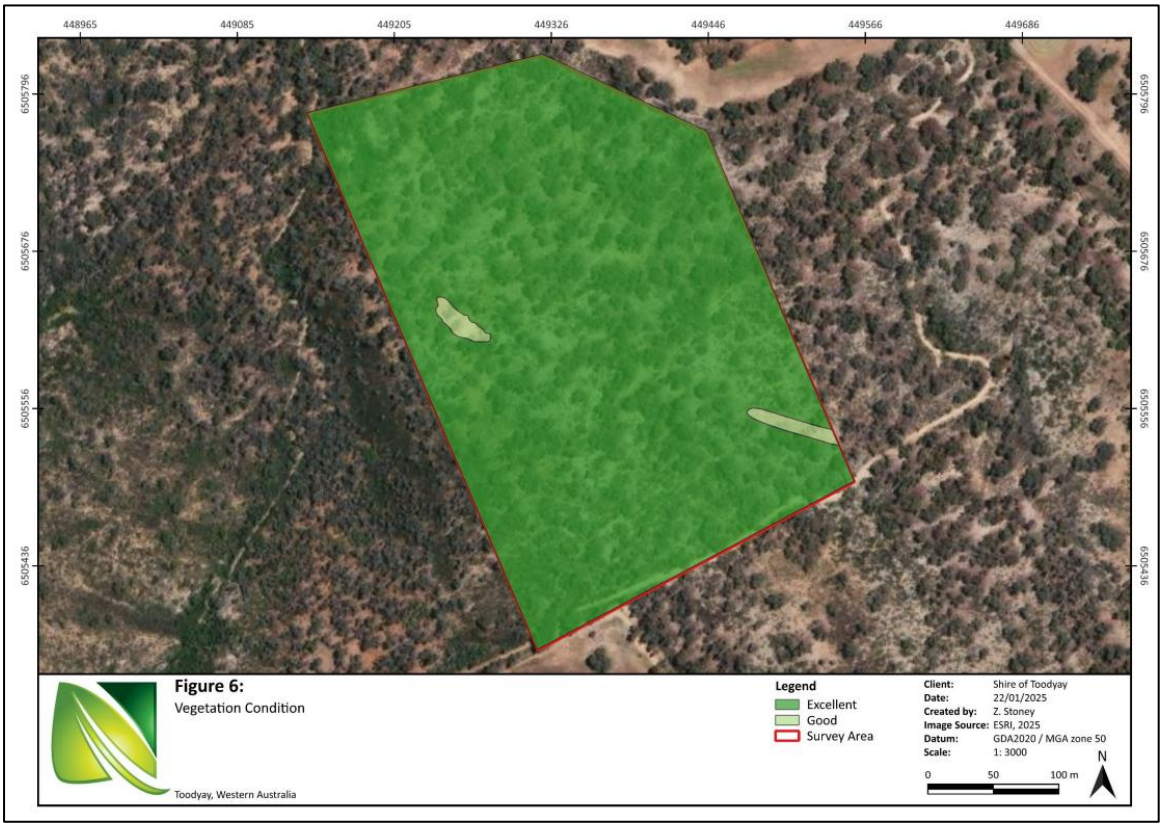

Figure 9: A map representing the vegetation condition of the vegetation within the 10 hectares offset site the Shire proposed.

Figure 10: Photograph of the proposed offset site.

Based on the information received through the offset proposal, an offset calculation using the WA offset metric 'calculator' was undertaken by the department. The calculation has identified that:

- the conservation in perpituity, under a conservation covenant, of 3.55 hectares is sufficient to adequately address the significant residual impact of clearing Carnaby's black cockatoo foraging habitat. The 3.55 hectares is to be placed under a *Soil and Lands Conservation Act 1945* Conservation Covenant to protect the vegetation in perpetuity; and
- the conservation in perpituity, under a conservation covenant, of 2.81 hectares is sufficient to adequately address the significant residual impact of clearing remnant vegetation within an extensively cleared landscape.

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 is representative of foraging habitat for black cockatoo species and loss of vegetation within an extensively cleared landscape. The justification for the values used in the offset calculation is provided in Appendix F.

End

Appendix A. Information received

Information received	Description
Flora and vegetation survey, and black cockatoo habitat assessment (Natural Area Consulting, 2024a)	The Shire commissioned Natural Area Consulting to conduct a detailed flora and vegetation survey, and a black cockatoo habitat assessment along the application area. The on-ground survey was undertaken on 10 November 2023. During the survey for flora and vegetation, a total of three 50 by 2 metre quadrats across the three areas were set up to determine the vegetation type, vegetation condition, presence of conservation significant flora species and other site attributes. The black cockatoo habitat assessment included: • traversing the whole site in a systematic grid search • recording the location and evidence of breeding, roosting and foraging activities (e.g. chew marks, feathers, scats) • marking the GPS locations of each habitat tree with a DBH ≥ 300 mm • recording the height, DBH, health, and species of each habitat tree • recording evidence of hollows, including size, type, and location within the tree • recording foraging habitat, vegetation type, and condition.
Additional site assessment (Natural Area Consulting, 2024b)	Following a request for further information, the Shire commissioned Natural Area Consulting to undertake an additional assessment to determine the presence/absence of the Eucalyptus Woodlands of the Western Australian Wheatbelt TEC within the application area. This site assessment also assessed for any additional habitat trees and the presence of any breeding activities by black cockatoo birds. The site assessment was undertaken on 14 November 2024.
Offset feasibility report (Natural Area Consulting, 2024c)	On behalf of the Shire of Toodyay, Natural Area Consulting has undertaken a feasibility offset study over approximately 10 hectares at Lot 108 of Plan 13653. The survey was conducted on 12 November 2024.
Photographs of the application area (Shire of Toodyay, 2023b)	The Shire submitted photographs of the application area along with its application form as supporting documents.

Appendix B. Site characteristics

B.1. Site characteristics

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

Characteristic	Details
Local context	The area proposed to be cleared is 0.56 hectares in the intensive land use zone of Western Australia. The proposed clearing area is situated within an extensively cleared landscape surrounded by farmland, residential areas, and patches of remnant vegetation. Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 14.14 per cent of the original native vegetation cover.
Ecological linkage	The application area is not a part of any larger vegetation linkages. It is associated with a roadside conservation linkage (Toodyay 25808).

<table>
<tr><th>Characteristic</th><th>Details</th></tr>
<tr><td>Conservation areas</td><td>There are only two conservation areas located within a 10-kilometre radius of the application area. The closest conservation area is Wattening Nature Reserve, located approximately 7.45 kilometres northeast of the application area. The proposed clearing is unlikely to affect the surrounding conservation areas.</td></tr>
<tr><td>Vegetation description</td><td>Photographs and the flora and vegetation survey supplied by the applicant has identified the vegetation within the application area as Eucalyptus loxophleba Open Woodland. This vegetation type is described as an open woodland of Eucalyptus loxophleba (York Gum) over an understorey of invasive and native herbs and grasses (Natural Area Consulting, 2024a; Shire of Toodyay, 2023b).

This is consistent with the mapped vegetation type: York – 352, described as Wheatbelt; Eucalyptus loxophleba and E. salmonophloia.

The mapped vegetation type (York – 352) retains approximately 10.44 per cent of the original extent (Government of Western Australia, 2019).</td></tr>
<tr><td>Vegetation condition</td><td>Photographs and the vegetation survey supplied by the applicant indicate the vegetation within the proposed clearing area is in completely degraded (Keighery, 1994) condition.

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

Representative photos are available in Appendix F.</td></tr>
<tr><td>Climate and landform</td><td>The climate experienced in the application is mediterranean, characterized by hot and dry summers and cool and wet winters. According to the Bureau of Meteorology (2022), An average of 476.3 millimetres of rainfall is recorded annually from Culham weather station (no. 010131), which is the closest weather station, located approximately 5.7 kilometres from the application site. The majority of rainfall is received between the months of May and September (BoM 2022).

The elevation of the application area has a gentle slope from the south to the north from 220 to 230 meters Isohyet.</td></tr>
<tr><td>Soil description</td><td>The soil type across the application area is mapped as the following:
<table>
<tr><td>Name</td><td>Jelcobine York Subsystem</td></tr>
<tr><td>Soils</td><td>256Jc</td></tr>
<tr><td>Description</td><td>Areas of soils derived from freshly exposed rock. This unit is typified by the red soils of the Avon Valley but also includes areas of similar, but often greyer and lighter textured soils to the east of the valley.</td></tr>
</table></td></tr>
<tr><td>Land degradation risk</td><td>The degradation risk factors mapped over the application area are detailed below:
<table>
<tr><th></th><th>Jelcobine York Subsystem</th></tr>
<tr><td>Wind erosion</td><td>L2: 3-10% of mapped unit has a high to extreme risk</td></tr>
<tr><td>Water erosion</td><td>L2: 3-10% of mapped unit has a high to extreme risk</td></tr>
<tr><td>Salinity risk</td><td>L1: <3% of mapped unit has a high to extreme risk</td></tr>
<tr><td>Phosphorous export</td><td>L2: 3-10% of mapped unit has a high to extreme risk</td></tr>
<tr><td>Waterlogging</td><td>L1: <3% of mapped unit has a high to extreme risk</td></tr>
</table>
<table>
<tr><td>Subsurface acidification</td><td>H2: >70% of mapped unit has a high to extreme risk</td></tr>
<tr><td>Acid sulphate soils</td><td>Unknown</td></tr>
</table>
<table>
<tr><td>Flooding</td><td>L1: <3% of mapped unit has a high to extreme risk</td></tr>
<tr><td>Floodplains</td><td>No</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Characteristic</th><th>Details</th></tr>
<tr><td>Waterbodies</td><td>The desktop assessment and aerial imagery indicated that there are no wetlands or natural watercourses within the application area. Two unnamed manmade waterbodies are located approximately 675 metres northeast and 892 metres southeast of the application area, respectively. A nonperennial minor river bisects the northern zone of the application area.
The proposed clearing is unlikely to negatively affect any surrounding waterbodies.</td></tr>
<tr><td>Hydrogeography</td><td>
<table>
<tr><td>Hydrological Zone</td><td>Northern Zone of Rejuvenated Drainage</td></tr>
<tr><td>Basin</td><td>Avon River (615)</td></tr>
<tr><td>Hydrographic Catchment</td><td>SwanAvon_Main Avon</td></tr>
</table>
<table>
<tr><td>RIWI Act Surface Water and Irrigation District</td><td>Yes</td><td>Avon River Catchment Area</td></tr>
<tr><td>RIWI Act Rivers</td><td>No</td><td></td></tr>
<tr><td>RIWI Act Groundwater Areas</td><td>No</td><td></td></tr>
<tr><td>CAWS Act Clearing Control Catchment</td><td>No</td><td></td></tr>
<tr><td>Public Drinking Water Source Areas</td><td>No</td><td></td></tr>
<tr><td>Wellhead Protection Zone</td><td>No</td><td></td></tr>
<tr><td>Reservoir Protection Zone</td><td>No</td><td></td></tr>
</table>
Ground water salinity is approximately 7000-14000 parts per thousand.
</td></tr>
<tr><td>Flora</td><td>According to available database, 11 conservation significant flora species have been identified within the local area (10-kilometre buffer). Comprising six Priority 2, two Priority 3, and three Priority 4 flora taxa. The closest of which is Eucalyptus x carnabyi, being approximately 1.64 from the application area.</td></tr>
<tr><td>Ecological communities</td><td>According to available databases, 440 conservation significant ecological communities have been mapper within the local area (10-kilometre radius). None of these records occur over the application area. The closest ecological community is a Priority Ecological community (PEC), the Eucalyptus Woodlands of the Western Australian Wheatbelt located approximately 100 metres from the application area.</td></tr>
<tr><td>Fauna</td><td>According to available database, six conservation significant fauna species have been recorded within the local area comprising of one Priority 4, three Endangered, and two Vulnerable fauna taxa.

There is one black cockatoo nesting tree within 12-kilometre buffer of the application area. Within a 12-kilometre radius of the application area, there are no roosts recorded. The application area is within the known distribution of both the forest red tailed and Carnaby’s cockatoo.</td></tr>
</table>

B.2. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion*					
Avalon Wheatbelt	9,517,109.95	1,761,187.42	18.51	174,980.68	1.84

	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
Vegetation complex					
York - 352	236,820.57	24,715.67	10.44	374.42	0.16
Local area					
10km radius	33,487.51	4,734.46	14.14	-	-

*Government of Western Australia (2019a)

B.3. Fauna analysis table

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
Calidris ruficollis (Red-necked stink)	P4	N	N	6.00	1	N
Zanda latirostris (Carnaby's cockatoo)	EN	Y	Y	9.82	3	N
Oxyura australis (Blue-billed duck)	EN	N	N	6.00	2	N

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

B.4. Ecological community analysis table

Community name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
Eucalyptus Woodlands of the Western Australian Wheatbelt	P3	Y	Y	Y	0.01	440	Y

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

Appendix C. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: The area proposed to be cleared does not contain locally or regionally significant flora habitats or assemblages of plants. The flora and vegetation survey did not identify any threatened or priority flora species from the application area (Natural Area Consulting, 2024a). Vegetation is in a completely degraded condition utilising the vegetation condition scale of Keighery (1994). The structure of the vegetation is no longer intact and is 'parkland cleared' with little to no native understorey. Due predominantly to the lack of understorey, the species richness of the vegetation present is very low when compared to analogous areas of native vegetation in better condition	Not likely to be at variance	Yes See section 3.2.1 above

Assessment against the clearing principles	Variance level	Is further consideration required?
(Natural Area Consulting, 2024a). and the likelihood of flora species of conservation significance occurring is extremely low. The application area contains low quality foraging habitat for Carnaby's black cockatoo species (Natural Area Consulting, 2024a) and does not provide significant habitat for other conservation significant fauna identified from the local area. No threatened or priority ecological communities are mapped within the application area.		
Principle (b): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna."* Assessment: The area proposed to be cleared contains low quality foraging habitat for Carnaby's cockatoo (*Zanda latirostris*). There is one record of a black cockatoo breeding within 20 kilometres of the application area.	At variance	Yes *Refer to Section 3.2.2, above.*
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: The area proposed to be cleared is unlikely to contain habitat for flora species listed under the BC Act.	Not likely to be at variance	No
Principle (d): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community."* Assessment: The area proposed to be cleared does not contain species that can indicate a threatened ecological community.	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
Principle (e): *"Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."* Assessment: The extent of the mapped vegetation type is inconsistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.	At variance	Yes *Refer to Section 3.2.3, above.*
Principle (h): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area."* Assessment: Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of adjacent or nearby conservation areas.	Not at variance	No
Environmental value: land and water resources		
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment: Given no water courses or wetlands are recorded within the application area and the small number of native trees being cleared, the proposed clearing is unlikely to impact on- or off-site hydrology and water quality.	Not at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: The mapped soils are moderate to highly susceptible to subsurface acidification. Noting the extent of clearing proposed (44 trees). The proposed clearing is not likely to have an appreciable impact on land degradation.	Not likely to be at variance	No
Principle (i): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water."* Assessment: Given no wetlands or Public Drinking Water Sources Areas are recorded within the application area, the proposed clearing is unlikely to impact surface or ground water quality. The groundwater salinity is mapped between 7000 - 14,000 mg/L total dissolved solids (classified as saline) within the entirety of the Application Area. While groundwater within the Application Area is considered saline, the assessment notes that the clearing is limited to a total of 0.56 hectares. Considering this, and that the majority of the proposed application area being in a degraded to completely degraded condition (Keighery, 1994), along with extensively cleared farmland across the wider area, the proposed clearing is unlikely to result in deterioration in the quality of groundwater in the form of salinity.	Not at variance	No
Principle (j): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."* Assessment: The mapped soils and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding.	Not at variance	No

Appendix D. Vegetation condition rating scale

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

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

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

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.

Condition	Description
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as ‘parkland cleared’ with the flora comprising weed or crop species with isolated native trees or shrubs.

Appendix E. Offset calculator value justification

Offset – Conservation offset for Carnaby's black cockatoos (EN).

Field Name	Description	Justification for value used
Area of impact (habitat/community) or Quantum of impact (features/individuals)	The area of habitat/community impacted, or number of features/individuals impacted	0.56 hectares of native vegetation representing low quality foraging habitat (York gum open woodland over invasive and native herbs and grasses in a completely degraded condition, some scattered *Eucalyptus salmonophloia* trees also occur within the overstorey) for the Carnaby's black cockatoo species.
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	5 – low quality foraging trees (York gum and salmon gum) across entire application area. The application area is within the distribution zone for Carnaby's black cockatoos. No black cockatoo roost sites are within the 12 km radius buffer of the application area. One natural confirmed white tailed black cockatoo breeding site is mapped approximately 10 km from the application area. No foraging evidence by black cockatoo birds were observed during the black cockatoo habitat assessment.
Time over which loss is averted (habitat/community)	This describes the timeframe over which changes in the level of risk to the proposed offset site can be considered and quantified	20 - the offset site will be conserved in perpetuity under a conservation covenant. 20 years is the maximum value associated with this field.
Time until ecological benefit (habitat/community) or Time horizon (features/individuals)	This describes the estimated time (in years) that it will take for the main benefit of the quality (habitat/community) or value (features/individuals) improvement of the proposed offset to be realised	1– 1 year for the habitat to be protected and conserved under a conservation covenant and the ecological benefit exist already on site.
Start area (habitat/community) or Start value (features/individuals)	The area of habitat/community or number of features/individuals proposed to offset the impacts	3.55 - An area of 3.55 hectares that includes black cockatoo foraging/roosting would be required to counterbalance 100% of significant residual impact (SRI)
Start quality (habitat/community)	The quality score for the area of habitat/community proposed as an offset - a measure of how well a particular site supports a particular threatened species or ecological community and contributes to its ongoing viability	8 – an offset feasibility study of the site was undertaken. The vegetation is mapped as *Eucalyptus wandoo* woodland over mixed native heathland in good to excellent condition. 9 natural black cockatoo breeding sites are within the 12 km radius (2 potential and 7 confirmed), within the distribution zone.
Future quality without offset (habitat/community) or Future value without offset (features/individuals)	The predicted future quality score (habitat/community) or value (features/individuals) of the proposed offset site without the offset	8 – no change in value is expected
Future quality with offset (habitat/community) or Future value with offset (features/individuals)	The predicted future quality score (habitat/community) or value (features/individuals) of the proposed offset site with the offset	8 – no significant change expected.
Risk of loss (%) without offset (habitat/community)	This describes the chance that the habitat/community on the proposed offset site will be completely lost (i.e. no longer hold any value for the protected	15% - the offset area is located within a rural zoning.

	matter of concern) over the foreseeable future without an 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	5% - placing a conservation covenant over the proposed offset area will reduce the risk of loss of native vegetation on this property. The risk of catastrophic events (fire, dieback etc.) still remain.
Confidence in result (%)	The capacity of measures to mitigate risk of loss of the proposed offset site	95% - there is a very high confidence in the offset given the Shire has banked offset.
% 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)	100.2% - obtained through the input of variables explained above.

Offset – conservation offset for clearing remnant within an extensively cleared landscape.

Field Name	Description	Justification for value used
Area of impact (habitat/community) or Quantum of impact (features/individuals)	The area of habitat/community impacted, or number of features/individuals impacted	0.56 hectares of native vegetation within an extensively cleared landform.
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	4 – the condition of the vegetation is mapped as completely degraded but intact overstorey species are present that provides a road reserve linkage to avian species
Time over which loss is averted (habitat/community)	This describes the timeframe over which changes in the level of risk to the proposed offset site can be considered and quantified	20 - the offset site will be conserved in perpetuity under a conservation covenant. 20 years is the maximum value associated with this field.
Time until ecological benefit (habitat/community) or Time horizon (features/individuals)	This describes the estimated time (in years) that it will take for the main benefit of the quality (habitat/community) or value (features/individuals) improvement of the proposed offset to be realised	1 – 1 year for the habitat to be protected and conserved under a conservation covenant and the ecological benefit exist already on site.
Start area (habitat/community) or Start value (features/individuals)	The area of habitat/community or number of features/individuals proposed to offset the impacts	2.81 - An area of 2.81 hectares would be required to counterbalance 100% of significant residual impact (SRI).
Start quality (habitat/community)	The quality score for the area of habitat/community proposed as an offset - a measure of how well a particular site supports a particular threatened species or ecological community and contributes to its ongoing viability	8 – Site assessment has mapped the vegetation as good to excellent condition and consists of *Eucalyptus rudis* woodland over Trymalium spp and Acacia spp shrubland (ErW), and *Eucalyptus wandoo* woodland over mixed native heathland (EwW). More than 90% of the vegetation is mapped as EwW.
Future quality without offset (habitat/community) or Future value without offset (features/individuals)	The predicted future quality score (habitat/community) or value (features/individuals) of the proposed offset site without the offset	8 – no change in value is expected
Future quality with offset (habitat/community) or Future value with offset (features/individuals)	The predicted future quality score (habitat/community) or value (features/individuals) of the proposed offset site with the offset	8 – no significant change expected.

Risk of loss (%) without offset (habitat/community)	This describes the chance that the habitat/community on the proposed offset site will be completely lost (i.e. no longer hold any value for the protected matter of concern) over the foreseeable future without an offset	15% - the offset area is located within a rural zoning.
Risk of loss (%) with offset (habitat/community)	This describes the chance that the habitat/community on the proposed offset site will be completely lost (i.e. no longer hold any value for the protected matter of concern) over the foreseeable future with an offset	5% - placing a conservation covenant over the proposed offset area will reduce the risk of loss of native vegetation on this property. The risk of catastrophic events (fire, dieback etc.) still remain.
Confidence in result (%)	The capacity of measures to mitigate risk of loss of the proposed offset site	95% - there is a high confidence in the offset given the Shire has banked offsets.
% 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)	100.3% - Obtained through the input of variables explained above.

Appendix F. Biological survey information excerpts / photographs of the vegetation (Shire of Toodyay, 2023b) (Natural Area Consulting, 2023b) (Natural Area Consulting, 2023c)

Photographs of potential habitat trees within the application area

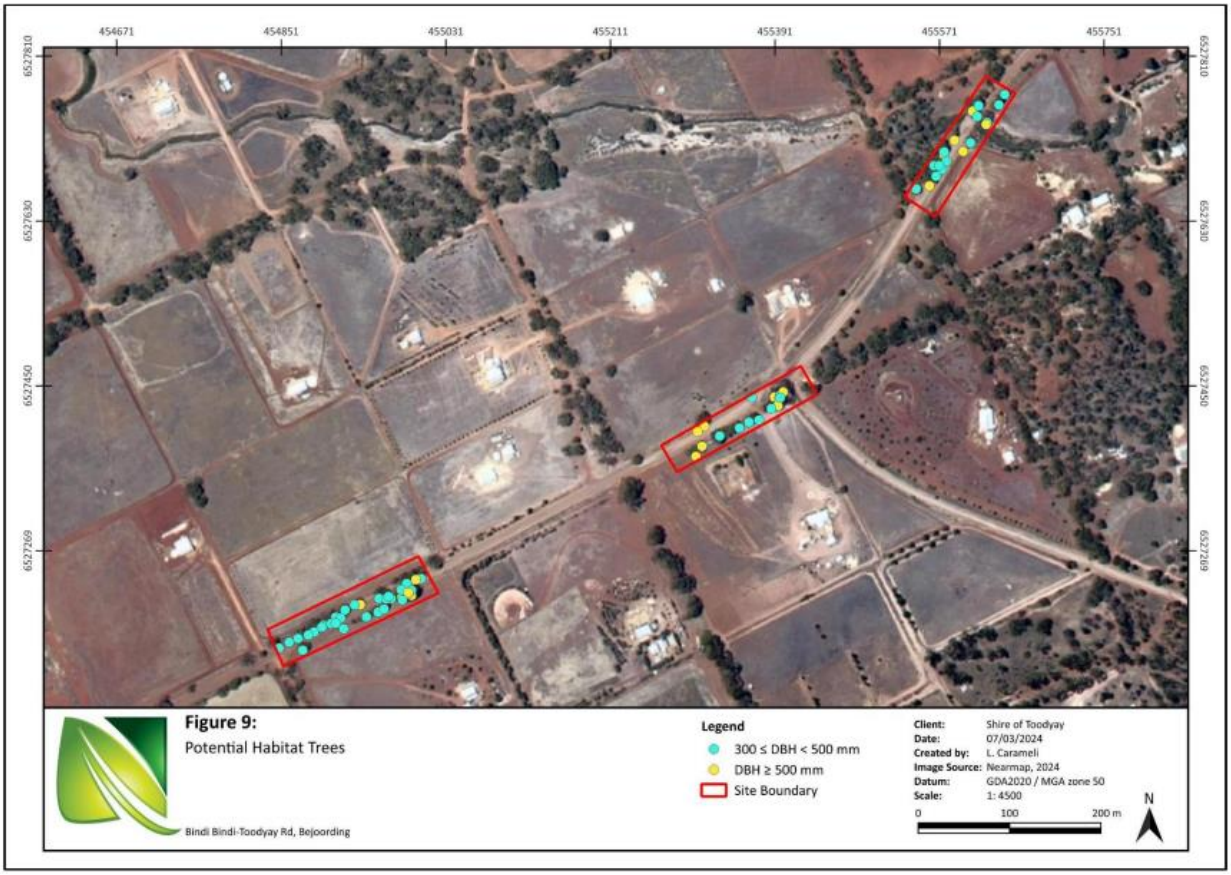

Figure 11: A map representing the location of trees that are more than 300 mm DBH.

Tree No	Species	DBH (mm)	Height (m)	Condition	Hollows Present	Comments	Latitude	Longitude
1	*Eucalyptus loxophleba*	464	16	Fair	2 x Small hollows		-31.389228	116.525102
2	*Eucalyptus loxophleba*	483	16	Good	No		-31.389170	116.525217
3	*Eucalyptus loxophleba*	457	15	Good	No	Leaning into private property	-31.389133	116.525320
4	*Eucalyptus loxophleba*	351	20	Good	No		-31.389249	116.525374
5	*Eucalyptus loxophleba*	465	15	Good	No		-31.389100	116.525438
6	*Eucalyptus loxophleba*	481	14	Good	No		-31.389071	116.525505
7	*Eucalyptus loxophleba*	396	16	Good	No		-31.389023	116.525595
8	*Eucalyptus loxophleba*	473	16	Good	No		-31.389006	116.525613
9	*Eucalyptus loxophleba*	414	16	Good	No		-31.388988	116.525703
10	*Eucalyptus loxophleba*	499	14	Good	No		-31.388986	116.525755
11	*Eucalyptus loxophleba*	370	16	Good	No		-31.388924	116.525755
12	*Eucalyptus loxophleba*	396	20	Good	No		-31.388934	116.525811
13	*Eucalyptus loxophleba*	305	16	Good	No		-31.389040	116.525847
14	*Eucalyptus loxophleba*	392	17	Good	No	1 x nest	-31.388854	116.525862
15	*Eucalyptus loxophleba*	380	15	Good	No		-31.388806	116.525972
16	*Eucalyptus loxophleba*	514	15	Good	No		-31.388803	116.526037
17	*Eucalyptus loxophleba*	322	15	Good	No		-31.388923	116.526107

Tree No	Species	DBH (mm)	Height (m)	Condition	Hollows Present	Comments	Latitude	Longitude
18	*Eucalyptus loxophleba*	339	15	Good	No	1 x nest	-31.388877	116.526242
19	*Eucalyptus loxophleba*	493	15	Fair	2 x small hollows		-31.388743	116.526254
20	*Eucalyptus loxophleba*	327	12	Good	No		-31.388848	116.526312
21	*Eucalyptus loxophleba*	375	12	Fair	No		-31.388747	116.526339
22	*Eucalyptus loxophleba*	420	15	Fair	1 x small hollow		-31.388724	116.526364
23	*Eucalyptus loxophleba*	416	15	Fair	No		-31.388745	116.526393
24	*Eucalyptus loxophleba*	334	15	Good	No		-31.388658	116.526509
25	*Eucalyptus salmonophloia*	688	25	Good	1 x small hollow	1 x nest	-31.388737	116.526514
26	*Eucalyptus salmonophloia*	350	20	Good	No		-31.388757	116.526522
27	*Eucalyptus loxophleba*	425	15	Good	2 x small hollows		-31.388597	116.526573
28	*Eucalyptus salmonophloia*	521	30	Good	No		-31.388700	116.526588
29	*Eucalyptus salmonophloia*	756	30	Good	No		-31.388687	116.526592
30	*Eucalyptus loxophleba*	437	15	Good	No		-31.388611	116.526598
31	*Eucalyptus salmonophloia*	905	30	Good	No	2 x nests	-31.388714	116.526629
32	*Eucalyptus salmonophloia*	497	20	Good	No		-31.388665	116.526629
33	*Eucalyptus loxophleba*	679	15	Good	No		-31.388558	116.526678
34	*Eucalyptus loxophleba*	444	14	Fair	2 x small hollows		-31.388549	116.526739
35	*Eucalyptus loxophleba*	750	12	Good	No	DBH estimated. On private property but limbs hanging over site.	-31.387356	116.529908

Tree No	Species	DBH (mm)	Height (m)	Condition	Hollows Present	Comments	Latitude	Longitude
36	*Eucalyptus loxophleba*	551	15	Good	No		-31.387112	116.529928
37	*Eucalyptus loxophleba*	860	12	Fair	No	DBH estimated. On private property but limbs hanging over site.	-31.387257	116.529979
38	*Eucalyptus loxophleba*	798	12	Good	No	Limbs hanging over private property	-31.387060	116.530007
39	*Eucalyptus loxophleba*	447	15	Good	No		-31.387156	116.530182
40	*Eucalyptus loxophleba*	324	12	Good	No		-31.387078	116.530409
41	*Eucalyptus salmonophloia*	317	12	Good	No		-31.387021	116.530519
42	*Eucalyptus loxophleba*	327	10	Fair	No		-31.386778	116.530554
43	*Eucalyptus salmonophloia*	358	15	Good	No		-31.387000	116.530635
44	*Eucalyptus salmonophloia*	412	15	Good	No		-31.386888	116.530778
45	*Eucalyptus salmonophloia*	745	20	Good	2 x small hollows	Boobook Owl nesting.	-31.386775	116.530814
46	*Eucalyptus loxophleba*	653	15	Good	3 x small hollows		-31.386860	116.530854
47	*Eucalyptus salmonophloia*	769	25	Good	3 x small hollows		-31.386791	116.530864
48	*Eucalyptus salmonophloia*	327	15	Good	No		-31.386759	116.530880
49	*Eucalyptus salmonophloia*	328	15	Good	No		-31.386781	116.530881
50	*Eucalyptus salmonophloia*	1106	20	Good	1 x small hollow	Limbs historically cut.	-31.386725	116.530915
51	*Eucalyptus loxophleba*	398	10	Fair	No		-31.384729	116.532455
52	*Eucalyptus loxophleba*	562	15	Good	No		-31.384699	116.532608
53	*Eucalyptus loxophleba*	368	12	Fair	No		-31.384501	116.532663

Tree No	Species	DBH (mm)	Height (m)	Condition	Hollows Present	Comments	Latitude	Longitude
54	*Eucalyptus loxophleba*	316	10	Good	No		-31.384605	116.532685
55	*Eucalyptus loxophleba*	458	15	Fair	No		-31.384501	116.532720
56	*Eucalyptus loxophleba*	336	12	Fair	No		-31.384538	116.532754
57	*Eucalyptus loxophleba*	767	17	Good	No		-31.384389	116.532775
58	*Eucalyptus loxophleba*	450	15	Good	No		-31.384366	116.532779
59	*Eucalyptus loxophleba*	306	15	Good	No		-31.384461	116.532804
60	*Eucalyptus* sp.	599	15	Good	No		-31.384252	116.532899
61	*Eucalyptus loxophleba*	549	15	Fair	No		-31.384363	116.532997
62	*Eucalyptus loxophleba*	316	15	Fair	No		-31.384278	116.533083
63	*Eucalyptus loxophleba*	514	15	Good	No		-31.383967	116.533108
64	*Eucalyptus loxophleba*	387	15	Good	No		-31.383956	116.533126
65	*Eucalyptus loxophleba*	373	15	Good	No		-31.384018	116.533162
66	*Eucalyptus loxophleba*	335	15	Good	No		-31.383912	116.533179
67	*Eucalyptus loxophleba*	556	15	Good	No		-31.384097	116.533263
68	*Eucalyptus loxophleba*	404	15	Good	No		-31.384078	116.533275
69	*Eucalyptus loxophleba*	395	15	Good	No		-31.383905	116.533411
70	*Eucalyptus loxophleba*	444	15	Good	No		-31.383803	116.533479

Figure 12: Attribute data of the trees that are located within the application area.

Quadrat No.:	Q1
Survey Date:	10/11/2023
Personnel:	KG, AC
Latitude:	-31.3887
Longitude:	116.5305
Topography:	Flat
Aspect:	NA
Slope:	0%
Soil:	Brown-red sandy clay
Gravel:	2%
Rock:	2%
Leaf Litter:	70%
Bare Ground:	5%
Drainage:	Well
Condition:	Completely Degraded

Notes: *Eucalyptus loxophleba* Open Woodland

Species	Cover (%)	Height (m)
**Avena barbata*	20	0.5
**Ehrharta longiflora*	2	0.3
**Hordeum leporinum*	40	0.2
**Lolium rigidum*	3	0.3
Atriplex semibaccata	3	0.2
Austrostipa sp.	1	0.5
Eucalyptus loxophleba	90	20
Eucalyptus salmonophloia	15	30
Maireana georgei	2	0.5

Note: *denotes introduced species.

Figure 13: Data collected from Quadrat 1 of the flora and vegetation survey.

Quadrat No.:	Q2
Survey Date:	10/11/2023
Personnel:	KG, AC
Latitude:	-31.3870
Longitude:	116.5305
Topography:	Mid
Aspect:	South-west
Slope:	2%
Soil:	Brown-red sandy clay
Gravel:	5%
Rock:	1%
Leaf Litter:	45%
Bare Ground:	9%
Drainage:	Well
Condition:	Completely Degraded

Notes: *Eucalyptus loxophleba* Open Woodland

Species	Cover (%)	Height (m)
**Avena barbata*	5	0.2
**Ehrharta longiflora*	3	0.3
**Hordeum leporinum*	5	0.3
**Lolium rigidum*	1	0.2
**Sonchus oleraceus*	0.1	0.2
Atriplex semibaccata	5	0.2
Austrostipa sp.	1	0.5
Eucalyptus loxophleba	90	15
Eucalyptus salmonophloia	10	16
Maireana trichoptera	3	0.1
Maireana georgei	5	0.6

Note: *denotes introduced species.

Figure 14: Data collected from Quadrat 2 of the flora and vegetation survey.

Quadrat No.:	Q3
Survey Date:	10/11/2023
Personnel:	KG, AC
Latitude:	-31.3845
Longitude:	116.5330
Topography:	Flat
Aspect:	NA
Slope:	0%
Soil:	Brown-red sandy clay
Gravel:	7%
Rock:	1%
Leaf Litter:	25%
Bare Ground:	10%
Drainage:	Well
Condition:	Completely Degraded

Notes: *Eucalyptus loxophleba* Open Woodland

Species	Cover (%)	Height (m)
**Avena barbata*	1	0.3
**Ehrharta longiflora*	1	0.3
**Erigeron bonariensis*	0.1	0.2
**Hordeum leporinum*	2	0.3
**Lolium rigidum*	3	0.2
**Sonchus oleraceus*	1	0.2
Eucalyptus loxophleba	50	15

Note: *denotes introduced species

Figure 15: Data collected from Quadrat 3 of the flora and vegetation survey.

Figure 16: A map representing the vegetation condition within the proposed offset location

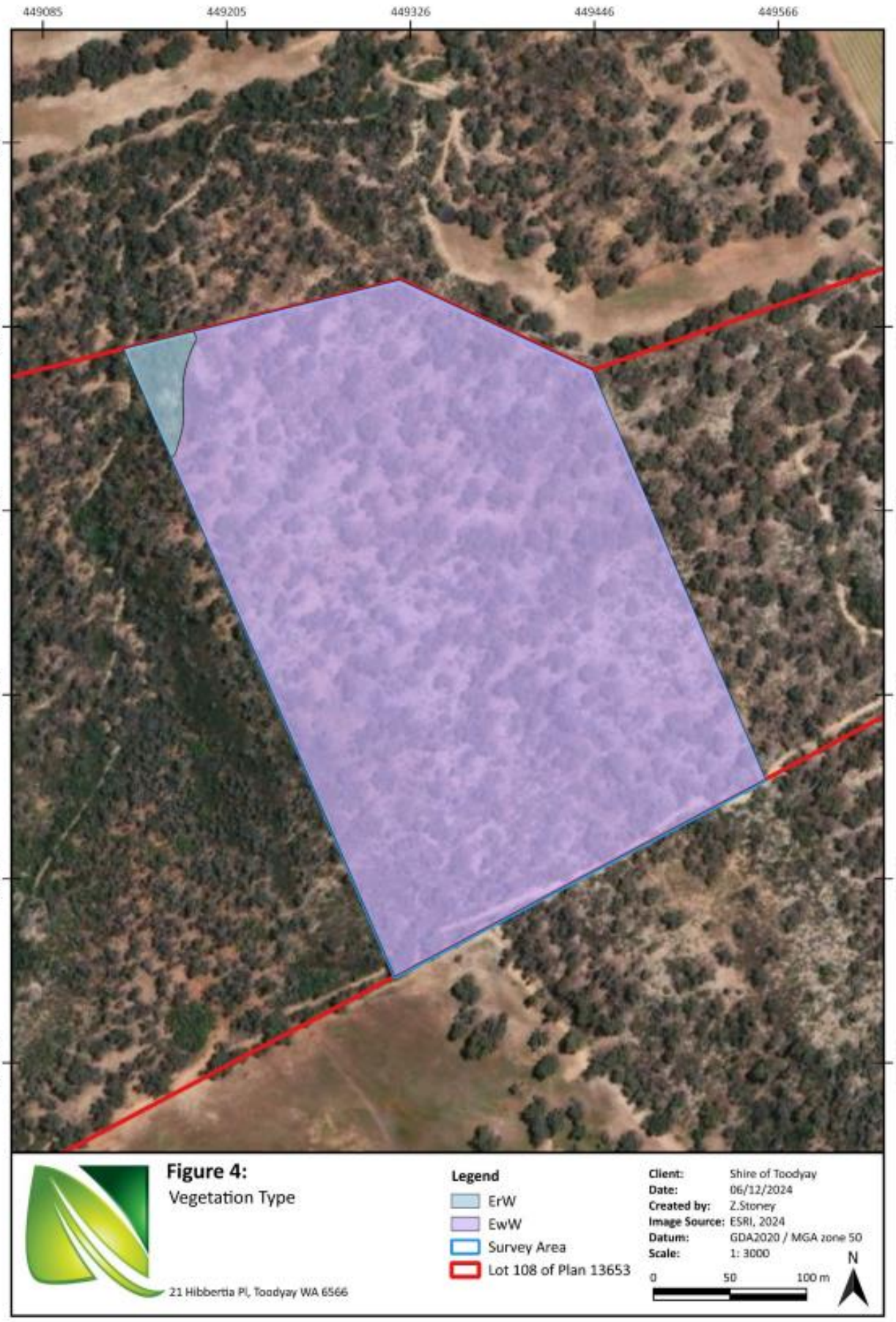

Figure 17: A map representing the vegetation type within the proposed offset location.

Appendix G. Sources of information

G.1. GIS databases

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

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

Restricted GIS Databases used:

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