



## CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

<b>Purpose Permit number:</b>	CPS 10014/1
<b>Permit Holder:</b>	City of Wanneroo
<b>Duration of Permit:</b>	From 24 July 2023 to 24 July 2033

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 upgrades and maintenance of a dual use path.

#### **2. Land on which clearing is to be done**

Lot 300 on Deposited Plan 413701 (Crown Reserve 50955), Woodvale  
Lot 3000 on Deposited Plan 69603 (Crown Reserve 50955), Woodvale  
Lot 61 on Deposited Plan 411618 (Crown Reserve 50885), Woodvale  
Lot 8001 on Deposited Plan 68139 (Crown Reserve 50885), Woodvale  
Lot 8004 on Deposited Plan 414951 (Crown Reserve 53504), Woodvale  
Lot 84 on Diagram 70131, Woodvale  
Lot 9002 on Deposited Plan 414951, Woodvale

#### **3. Clearing authorised**

The permit holder must not clear more than 0.17 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1-2 of Schedule 1.

### **PART II – MANAGEMENT CONDITIONS**

#### **4. Avoid, minimise, and reduce impacts and extent of clearing**

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

- (a) avoid the clearing of *native vegetation*;
- (b) minimise the amount of *native vegetation* to be cleared; and
- (c) reduce the impact of clearing on any environmental value.

## 5. Weed and dieback management

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

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) ensure that no known *dieback* or *weed*-affected soil, *mulch*, *fill*, or other material is brought into the area to be cleared; and
- (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

## 6. Directional clearing

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

## **PART III - RECORD KEEPING AND REPORTING**

### 7. 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	<ol style="list-style-type: none"><li>(a) the species composition, structure, and density of the cleared area;</li><li>(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;</li><li>(c) the date that the area was cleared;</li><li>(d) the size of the area cleared (in hectares); and</li><li>(e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 4; and</li><li>(f) actions taken to minimise the risk of the introduction and spread of <i>weeds</i> and <i>dieback</i> in accordance with condition 5; and</li><li>(g) evidence that clearing was undertaken in a slow, progressive manner in accordance with condition 6.</li></ol>

## 8. Reporting

The permit holder must provide to the *CEO* the records required under condition 7 of this permit when requested by the *CEO*.

## DEFINITIONS

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

**Table 2: Definitions**

Term	Definition
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the <i>Environmental Protection Act 1986</i> .
clearing	has the meaning given under section 3(1) of the EP Act.
condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
fill	means material used to increase the ground level, or to fill a depression.
dieback	means the effect of <i>Phytophthora</i> species on native vegetation.
department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
EP Act	<i>Environmental Protection Act 1986</i> (WA)
mulch	means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation.
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
weeds	means any plant – (a) that is a declared pest under section 22 of the <i>Biosecurity and Agriculture Management Act 2007</i> ; or (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.

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## END OF CONDITIONS



**Meenu Vitarana**  
**MANAGER**

NATIVE VEGETATION REGULATION

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

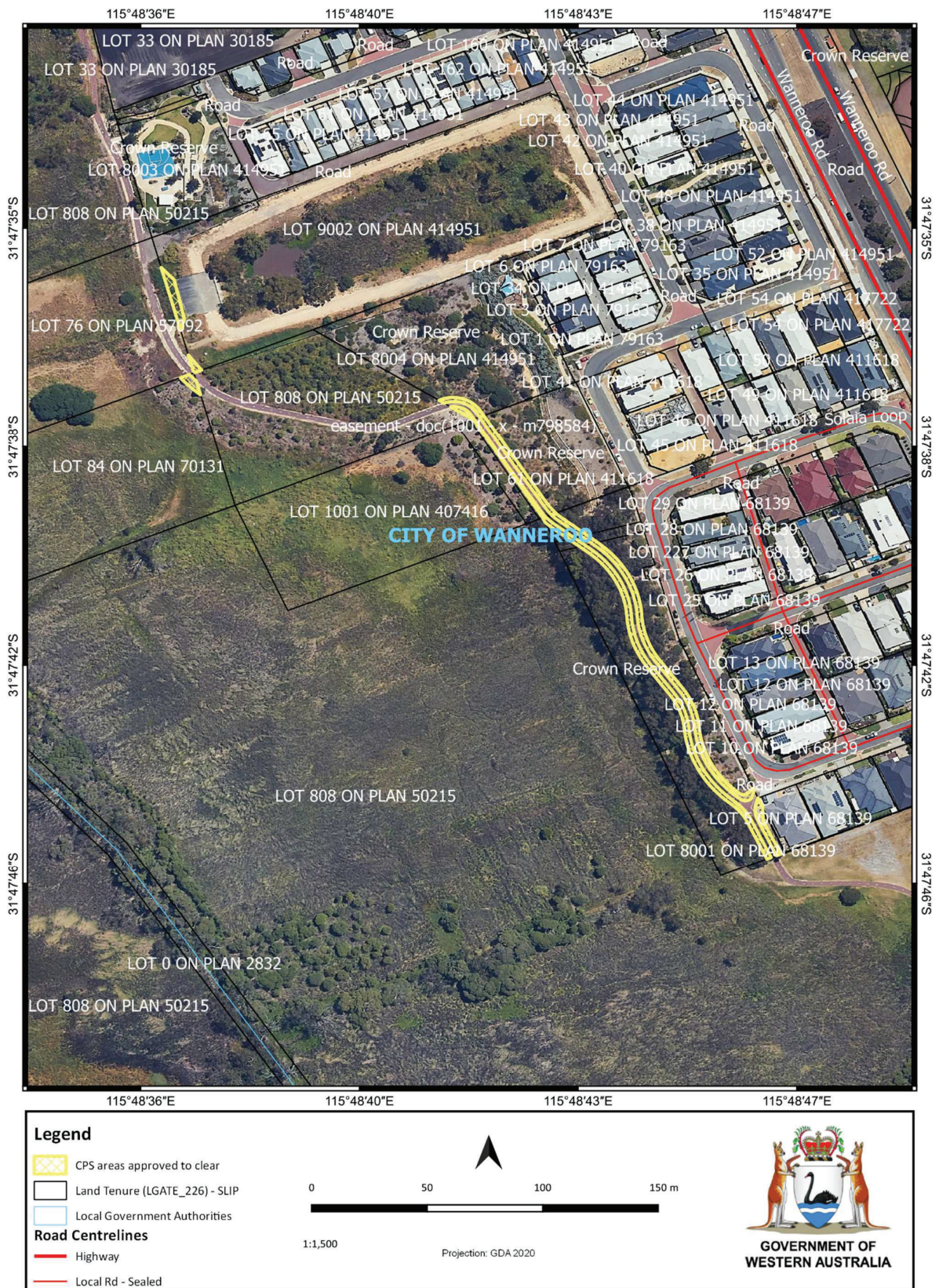
29 June 2023

# Schedule 1

The boundary of the area authorised to be cleared is shown in the maps below (Figures 1-2).



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



**Figure 2: Map of the boundary of the area within which clearing may occur**



# Clearing Permit Decision Report

## 1 Application details and outcome

### 1.1. Permit application details

<b>Permit number:</b>	CPS 10014/1
<b>Permit type:</b>	Purpose permit
<b>Applicant name:</b>	City of Wanneroo
<b>Application received:</b>	16 December 2022
<b>Application area:</b>	0.17 hectares of native vegetation
<b>Purpose of clearing:</b>	Upgrades and maintenance of a dual use path
<b>Method of clearing:</b>	Mechanical clearing
<b>Property:</b>	Lot 300 on Deposited Plan 413701 (Crown Reserve 50955) Lot 3000 on Deposited Plan 69603 (Crown Reserve 50955) Lot 61 on Deposited Plan 411618 (Crown Reserve 50885) Lot 8001 on Deposited Plan 68139 (Crown Reserve 50885) Lot 8004 on Deposited Plan 414951 (Crown Reserve 53504) Lot 84 on Diagram 70131 Lot 9002 on Deposited Plan 414951
<b>Location (LGA area/s):</b>	City of Wanneroo
<b>Localities (suburb/s):</b>	Woodvale

### 1.2. Description of clearing activities

The vegetation proposed to be cleared is along the edge of an approximately one-kilometre section of footpath (see Table 1 below and Figure 1, Section 1.5). The application is to selectively clear vegetation to upgrade the footpath and drainage system, including maintenance clearing of vegetation regrowth. The application area consists entirely of vegetation planted to satisfy a subdivision condition under the *Planning and Development Act 2005*. The entire application area has been previously cleared.

Table 1. Application area description. See Figure 1, Section 1.5 for a map of the areas.

Area ID	Property	Area (ha)
Area 1	Lot 3000 on Deposited Plan 69603	0.01
Area 2	Lot 3000 on Deposited Plan 69603 Lot 300 on Deposited Plan 413701	0.043
Area 3	Lot 300 on Deposited Plan 413701	0.010
Area 4	Lot 9002 on Deposited Plan 414951	0.009
Area 5	Lot 9002 on Deposited Plan 414951 Lot 84 on Diagram 70131	0.005
Area 6	Lot 8004 on Deposited Plan 414951	0.006
Area 7	Lot 61 on Deposited Plan 411618 Lot 8001 on Deposited Plan 68139	0.099

### 1.3. Decision on application

<b>Decision:</b>	Granted
<b>Decision date:</b>	29 June 2023
<b>Decision area:</b>	0.17 hectares of native vegetation, as depicted in Section 1.5, below.

### 1.4. Reasons for decision

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

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix A), relevant datasets (see Appendix F.1), the clearing principles set out in Schedule 5 of the EP Act (see Appendix B), relevant planning instruments and any other matters considered relevant to the assessment (see section 3.3). The Delegated Officer also took into consideration the purpose of the clearing is to improve community safety by upgrading drainage around a footpath.

The assessment identified that the proposed clearing will result in:

- potential impacts to fauna individuals if present at the time of clearing, and
- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the vegetation and its habitat values.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing can be minimised and managed to be unlikely to lead to an unacceptable risk to environmental values.

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, and
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity.

1.5. Site maps

### CPS 10014/1 - Map A





# CPS 10014/1 - Map B



**Figure 1 Maps of the application area**

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

## 2 Legislative context

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

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

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

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Planning and Development Act 2005* (WA) (P&D Act)

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)

## 3 Detailed assessment of application

### 3.1. Avoidance and mitigation measures

Evidence was submitted by the applicant demonstrating that they will avoid clearing trees and shrubs where possible, with pruning being preferred over clearing. Additionally, where possible the applicant is avoiding species considered suitable foraging habitat for black cockatoos. Total black cockatoo foraging habitat proposed to be cleared consists of one tree (*Eucalyptus rudis*) and one *hakea prostrata* shrub (see Table 2). All other trees will be retained. After the upgrade works are completed, clearing will be limited to regrowth vegetation for on-going maintenance of the path and drainage system.

A portion of the application area is authorised to be cleared under a separate permit (CPS 6661/3). See section 3.3 for further details.

Table 2. Avoidance and mitigation measures

Area ID	Area (ha)	Proposed clearing activities
Area 1	0.01	Minor clearing proposed if not undertaken under CPS 6661/3.
Area 2	0.043	Minor clearing proposed if not undertaken under CPS 6661/3. One tree ( <i>Eucalyptus rudis</i> ) is required to be cleared for the works. The remaining trees and shrubs will be retained.
Area 3	0.010	Minor clearing proposed if not undertaken under CPS 6661/3.
Area 4	0.009	Planned to be entirely cleared. There are no trees in Area 4.
Area 5	0.005	The two <i>Eucalyptus rudis</i> trees in Area 5 will be retained. Works are unlikely to impact these trees. Remaining vegetation planned to be cleared.
Area 6	0.006	Planned to be entirely cleared (including a <i>hakea prostrata</i> shrub). There are no trees in Area 6.
Area 7	0.099	No drain upgrade works are planned in Area 7. Proposed clearing is of understorey vegetation as needed for on-going path maintenance. No trees will be cleared.

The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values.

### 3.2. Assessment of impacts on environmental values

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

The assessment against the clearing principles (see Appendix B) identified that the impacts of the proposed clearing present a risk to biological values (fauna, adjacent flora and vegetation), significant remnant vegetation, conservation

areas, and water resources. The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

### **3.2.1. Biological values (flora) – Clearing Principle (a) and (c)**

#### Assessment

Photographs and supporting information provided by the City of Wanneroo (see Appendix D) show the application area generally consists of:

- *Melaleuca* species and *Eucalyptus rudis* over an understorey of sedges, rushes and weeds,
- open woodland of *Melaleuca raphiophylla* and *Eucalyptus rudis*,
- *Machaerina* – *Schoenoplectus* sedgeland community type, and
- Shrubland of *Regelia inops* and *Acacia pulchella* over *Juncus pallidus* (see Appendix A.1).

Photographs supplied by the applicant indicate the vegetation within the proposed clearing areas are in Good to Completely Degraded (Keighery 1994) condition (see Appendix D). No conservation significant flora were found during a site visit conducted by the applicant in August 2022 (City of Wanneroo, 2022). A list of native species recorded during the site visit is available in Appendix E.

According to available databases, there are no conservation significant flora records within the application area. The closest flora record is the Priority 1 *Baeckea sp. Limestone* (N. Gibson & M.N. Lyons 1425), approximately 2.4 kilometres north of the application area. Two species of threatened flora have been recorded in the local area (10-kilometre radius of the application area).

A likelihood assessment was conducted based on habitat and soil preferences, vegetation within the application area, and known species distribution (see Appendix A.3). The assessment identified one conservation significant flora species, *Styloidium paludicola* (P3), is likely to occur within the application area.

*Styloidium paludicola* (P3) is associated with marri and *Melaleuca* woodland and *Melaleuca* shrubland (WA Herb 1998-). According to available databases, the closest *S. paludicola* record is approximately 5.7 kilometres northwest of the application area. Of the records available in Florabase, none are within a degraded area (WA Herb 1998-). Given the habitat requirements of *S. paludicola* and that the application area has been previously cleared, this species is considered unlikely to occur within the application area. If present within the application area, the proposed clearing is unlikely to affect the conservation status of this species given the size and condition of the area, that it has been previously cleared and is located along a cleared path.

The application area is within the mapped buffer of a possible occurrence of the EPBC Act listed Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region threatened ecological community (Banksia Woodland TEC). Impacts to Banksia Woodland TEC are discussed under section 3.2.3.

#### Conclusion

Based on the above assessment, it is unlikely that conservation significant flora are present in the application area. If present, the proposed clearing is unlikely to have a significant residual impact on the conservation status of flora species given the size and condition of the application area, that it has been previously cleared and is located along a cleared path.

#### Conditions

No flora management conditions required.

### **3.2.2. Biological values (fauna) – Clearing Principle (a) and (b)**

#### Assessment

Photographs and supporting information provided by the City of Wanneroo (see Appendix D) show the application area generally consists of:

- *Melaleuca* species and *Eucalyptus rudis* over an understorey of sedges, rushes and weeds,
- open woodland of *Melaleuca raphiophylla* and *Eucalyptus rudis*,
- *Machaerina* – *Schoenoplectus* sedgeland community type, and
- Shrubland of *Regelia inops* and *Acacia pulchella* over *Juncus pallidus* (see Appendix A.1).

Photographs supplied by the applicant indicate the vegetation within the proposed clearing area is in Good to Completely Degraded (Keighery 1994) condition (see Appendix D). The desktop assessment identified 48 conservation significant fauna recorded within the local area. In forming a view on the likelihood of each species occurring within the application area, the following was considered:

- the preferred habitat and vegetation types of the species,
- their recorded proximity to the application area, and

- date of record (See Appendix A.4).

The likelihood analysis identified 16 fauna species which may occur within or near the application area (see Appendix A.4).

### **Black cockatoos**

The application area is within the mapped distribution of *Zanda latirostris* (Carnaby's cockatoo) and *Calyptorhynchus banksia naso* (forest red-tailed black cockatoo). *Zanda calyptorhynchus* (Baudin's cockatoo) has been recorded within the local area.

According to available databases, there are 23 identified black cockatoo breeding sites within the local area. The closest confirmed breeding site is approximately 4.8 kilometres northwest of the application area. According to available data bases, the closest black cockatoo roost site is approximately 2.2 kilometres north of the application area. The application area is not mapped as black cockatoo feeding habitat, however vegetation within the adjoining wetland is mapped as black cockatoo feeding habitat.

According to the referral guideline for threatened black cockatoo species, published by the Department of Agriculture, Water and the Environment (2022), habitat critical for recovery of black cockatoos includes foraging habitat (including remnant patches of vegetation), night roosting habitat and nesting trees for breeding. Suitable breeding habitat for black cockatoos includes trees with a suitable nest hollow (DAWE, 2022).

The vegetation proposed to be cleared has been planted since 2011, having been previously cleared. In total, one tree is proposed to be cleared under this application. This tree is not considered of suitable age to develop a nesting hollow and is not considered mature enough to provide suitable roosting habitat (DAWE, 2022).

Two flora individuals proposed to be cleared are considered suitable foraging species for black cockatoos (Bamford, 2013): a *Eucalyptus rudis* tree (as above) and a *hakea prostrata* shrub. The remaining black cockatoo foraging species will be retained, including all *banksia* and other *hakea* individuals. A list of native species recorded during a site visit by the applicant is available in Appendix E.

Given the age of the vegetation in the application area, the size and extent of the proposed clearing, and the applicants avoid and minimisation measures, the area proposed to be cleared is unlikely to provide significant habitat for black cockatoos in the local area.

### **Transient visitors**

***Isoodon fusciventer* (Quenda) P4.** Quenda are ground-dwelling marsupials, typically associated with forest or woodlands near watercourses, where understorey consists of dense scrub and leaf litter is abundant (DEC, 2012). Quenda diggings were observed in the application area during site inspections by the City of Wanneroo in August and November 2022 (City of Wanneroo, 2022; photographs are available in Appendix D). Quenda are likely to be transient visitors to the application area while moving through adjacent vegetation. Given the application area is linear and located along an already cleared path, it is unlikely to represent significant habitat for this species.

***Hydromys chrysogaster* (Rakali) P4.** Rakali are semiaquatic animals which live in burrows on the banks of rivers and wetlands and have a home range up to 4 kilometres of a waterway (DWER 2023d). Rakali may be transient visitors to the application area. Given the size and extent of proposed clearing, the application area has been previously cleared and that it is located along a cleared footpath, it is unlikely to represent significant habitat for this species.

**Migratory birds.** Multiple species of migratory birds may be transient visitors to the application area: *Calidris ferruginea* (curlew sandpiper; CR), *Plegadis falcinellus* (Glossy ibis), *Tringa nebularia* (Common greenshank), *Calidris ruficollis* (Red-necked stint), *Apus pacificus* (Fork-tailed swift), *Tringa glareola* (Wood sandpiper) and *Calidris acuminata* (Sharp-tailed sandpiper). Of these, the glossy ibis is the only species with breeding habitat in Australia. Given the size and condition of the application area, the better-quality habitat present within the local area, and that most of these species do not breed in Australia, clearing the application area is unlikely to affect the conservation status of these species.

**Other birds.** Multiple species of other birds may be transient visitors to the application area: *Botaurus poiciloptilus* (Australasian bittern; EN), *Ixobrychus flavicollis australis* (black bittern (southwest subpop.); P2), *Oxyura australis* (Blue-billed duck; P4), and *Ixobrychus dubius* (Australian little bittern; P4). Given the size and extent of proposed clearing, the condition of the application area and that clearing is along an already cleared path, the application area is unlikely to represent significant habitat for these species.

***Phylidonyris novaehollandiae* (New Holland honeyeater).** New Holland honeyeaters were observed in the application area during site inspections by the City of Wanneroo in August 2022 (City of Wanneroo, 2022). The New Holland honeyeater is not currently listed as a threatened fauna species under the BC Act or EPBC Act. Given the

size and extent of proposed clearing and condition of the vegetation, the application area is unlikely to represent significant habitat for this species.

### **Ecological Linkages**

The application area is within and adjacent to two mapped ecological linkages: Perth Regional Ecological Linkage and Bush Forever Site 299, which is associated with the conceptual Gnangara Ecological Linkage. Impacts to the Bush Forever site are discussed under section 3.2.3.

The application area is located on the edge of both linkages, along an already cleared path. Given this, the proposed clearing is unlikely to exacerbate edge effects within adjacent vegetation and is unlikely to disrupt fauna movement within the linkages. As such, the proposed clearing is unlikely to impact the ecological linkages any further than is already being impacted by the existing path. Weed and dieback management will mitigate impacts to vegetation adjacent to the application area.

### Conclusion

Based on the above assessment, it is unlikely the application area provides significant habitat for conservation significant fauna. However, clearing may impact fauna individuals (eg; quenda) present at the time of clearing.

It is considered that this impact can be managed by slow directional clearing to allow fauna to move into adjacent vegetation. Additionally, weed and dieback management will mitigate impacts to adjacent vegetation and ecological linkages.

### Conditions

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

- implement slow and directional clearing to allow any fauna present to move into adjacent vegetation ahead of the clearing activity
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback to adjacent vegetation

### **3.2.3. Significant remnant vegetation and conservation areas - Clearing Principles (d), (e) and (h)**

#### Assessment

#### **Conservation areas**

The application area borders and is partially within two Environmentally Sensitive Areas (ESA): an area within 50 metres of a defined wetland (Wallubuenup Swamp) and Bush Forever Site 299, which is associated with the conceptual Gnangara Ecological Linkage (Brown *et al.* 2009). Bush Forever Site 299 comprises an approximately three by one kilometre area of native vegetation around Wallubuenup Swamp. Impacts to ecological linkages are discussed under section 3.2.2 and impacts to water resources, including Wallubuenup Swamp, are detailed in section 3.2.4.

The application area is also within the mapped buffer of the EPBC Act listed Banksia Woodlands TEC. The application area is not considered representative of this TEC. The nearest mapped occurrence of the Banksia Woodland TEC is approximately 10 metres from the application area.

As the application area is along an already cleared path, edge effects on adjacent vegetation already occur through normal use of the path. The proposed clearing is unlikely to increase edge effects for vegetation adjacent to the application area. However, there is potential the proposed clearing could impact on the environmental values of the nearby conservation areas through the introduction or spread of weeds and dieback into adjacent vegetation.

The proposed clearing is unlikely to have a significant environmental impact on nearby conservation areas, given:

- the size and extent of the proposed clearing,
- the composition and condition of the vegetation proposed to be cleared,
- the applicant's measures to avoid and minimise impacts, and
- the application area has been previously cleared.

#### **Remnant vegetation**

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 (i.e., pre-European settlement), below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).

The application area is located within the Swan Coastal Plain IBRA Bioregion which retains approximately 38.62 per cent of its pre-European vegetation extent (Government of Western Australia, 2019). The application area is mapped within the Karrakatta Complex - Central and South (System 49) vegetation community, which retains approximately 23.5 per cent of its pre-European vegetation extent (see Appendix A.2). The vegetation within the application area is

not considered to be representative of this community. The vegetation extent within the local area falls below national targets, with approximately 14.2 per cent of pre-European vegetation remaining.

The Environmental Protection Authority (EPA) recognises the Perth Metropolitan Region to be a constrained area, within which a minimum 10 per cent representation threshold for ecological communities is recommended (EPA, 2008). The current vegetation extent for the Swan Coastal Plain IBRA Bioregion, the Karrakatta Complex - Central and South, and the local area are all above the 10 per cent threshold for constrained areas (see Appendix A.2).

The application area comprises linear remnants of native vegetation in Good to Completely Degraded (Keighery, 1994) condition, within a highly urbanised local area likely to be subject to ongoing disturbance. As the application area has not been found to provide any significant environmental values, the proposed clearing is not considered likely to have a significant impact on remnant vegetation within the extensively cleared local area.

#### Conclusion

Based on the above assessment, the proposed clearing is considered unlikely to have a significant impact on nearby conservation areas or extent of remnant vegetation in the local area.

There is potential the proposed clearing activities could result in the introduction or spread of weeds and dieback into adjacent vegetation. It is considered that impacts to adjacent vegetation can be managed by requiring the applicant to undertake weed and dieback management.

#### Conditions

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

- avoidance and minimisation to reduce the impacts and extent of clearing
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback to adjacent vegetation

### **3.2.4. Water resources – Clearing Principle (f), (i) and (j)**

#### Assessment

The vegetation proposed to be cleared is riparian vegetation. Portions of the application area intersect Wallubuenup Swamp, a mapped conservation sumpland (seasonally inundated basin). Wallubuenup Swamp is approximately 2.5 kilometres long and 0.5 kilometres wide. The application area is on the eastern edge of the wetland.

The application area falls within the Perth Groundwater Area as proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act) and a Priority 3 Public Drinking Water Source Area (Perth Coastal and Gwelup Underground Water Pollution Control Area). These matters are discussed under section 3.3.

The purpose of the clearing is to upgrade drainage infrastructure within the application area in response to annual flooding of the path (City of Wanneroo, 2022). The drainage works include an additional culvert planned to be incorporated underneath the path to channel excess surface water. Clearing of regrowth vegetation is planned to maintain the new drainage system and ensure the disposal of flood water is not obstructed. Completing the upgrade works is likely to reduce the incidence and intensity of flooding within the application area.

The proposed clearing is not expected to result in changes to groundwater levels or quality given the extent and purpose of the clearing. If water is present at the time of clearing, the proposed clearing may generate localised sedimentation. Given the small size of clearing, it is unlikely minor sedimentation would cause deterioration of the surface water quality within the wetland.

Given the purpose of the proposed clearing, the size of the application area and condition of the vegetation, the clearing is unlikely to have a significant impact on water resources within and near the application area.

#### Conclusion

For the reasons set out above, the impacts of the proposed clearing on water resource values are considered minimal and short term.

#### Conditions

No management conditions required.

### **3.3. Relevant planning instruments and other matters**

Other relevant authorisations which may be required for the proposed land use include:

- Licence to abstract water under the *Rights in Water and Irrigation Act 1914*.

DWER's Water Licensing branch advised a Section 5C license to take groundwater is required prior to works commencing if removal of groundwater is necessary as part of the drainage works (DWER, 2023a).

DWER's Water Source Protection Planning branch advised the purpose of the clearing is compatible with the Priority 3 Perth Coastal and Gwelup Underground Water Pollution Control Area (DWER, 2023c). Before undertaking the proposed maintenance and upgrade work, best management practices should be applied as outlined in the *Water quality protection note 81: Tracks and trails near sensitive water resources* (Department of Water, 2015).

The application area intersects a suspected contaminated site within Lot 9002 on Deposited Plan 414951. DWER's Contaminated Sites branch advised an appropriate management plan should be prepared, including an unexpected finds protocol, prior to the proposed clearing and upgrade works commencing (DWER, 2023b).

A portion of the application area is authorised to be cleared under a separate permit for the same applicant (CPS 6661/3). CPS 6661/3 expires on 31 January 2024. Overlapping areas have been included in this application to allow on-going maintenance of the path and in case upgrade works are not finalised before CPS 6661/3 expires (City of Wanneroo, 2022).

The applicant has indicated native vegetation additional to the application area for CPS 10014/1 will be cleared under an exemption pursuant to Schedule 6(3) of the EP Act (City of Wanneroo, 2022; see Figure 10 in Appendix E). The decision to utilise an exemption is the responsibility of the individual or entity intending to clear native vegetation.

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

**End**

## Appendix A. Site characteristics

### A.1. Site characteristics

Characteristic	Details																
Local context	<p>The application area is located along a cleared path in a highly cleared landscape. On the eastern side of the path the application area is part of a linear strip of vegetation. On the western side of the path the application area forms part of an approximately 78-hectare patch of vegetation. The application area is in the intensive land use zone of Western Australia and is surrounded by areas cleared for residential and commercial use.</p> <p>Spatial data indicates the local area (10-kilometre radius from the centre of the application area) retains approximately 14.17 per cent of the original native vegetation cover.</p>																
Ecological linkage	A mapped Perth Regional Ecological Linkage and Gnangara Mound Ecological Conceptual Linkage transect the application area. The application area occurs on the eastern edge of these mapped ecological linkages.																
Conservation areas	The application area borders and is partially within two Environmentally Sensitive Areas: an area within 50 metres of a defined wetland (Wallubuenup Swamp) and Bush Forever Site 299.																
Vegetation description	<p>The application area consists entirely of vegetation planted to satisfy a subdivision condition. Information provided by the applicant indicates the species planted were typically found within a <i>Machaerina – Schoenoplectus</i> sedgeland community type, <i>Melaleuca raphiophylla</i> open forest community type, and <i>Melaleuca raphiophylla/Eucalyptus rudis</i> forest community type (City of Wanneroo, 2022). Vegetation types by area are summarised in Table 2. A flora list is available in Appendix E. Representative photos are available in Appendix D.</p> <p>This is inconsistent with the Swan Coastal Plain mapped vegetation type:</p> <ul style="list-style-type: none"> <li>Karrakatta Complex - Central and South (System 49), which is described as predominantly open forest of <i>Eucalyptus gomphocephala</i> (Tuart) - <i>Eucalyptus marginata</i> (Jarrah) - <i>Corymbia calophylla</i> (Marri) and woodland of <i>Eucalyptus marginata</i> (Jarrah) - <i>Banksia</i> species. <i>Agonis flexuosa</i> (Peppermint) is co-dominant south of the Capel River (Government of Western Australia, 2019).</li> </ul> <p>The mapped vegetation type retains approximately 23.49 per cent of the original extent (Government of Western Australia, 2019).</p> <p>Table 2. Vegetation type by area</p> <table border="1"> <thead> <tr> <th>Area ID</th> <th>Vegetation type</th> </tr> </thead> <tbody> <tr> <td>Area 1</td> <td><i>Melaleuca</i> open forest community type</td> </tr> <tr> <td>Area 2</td> <td><i>Melaleuca, Eucalyptus rudis</i> forest community type</td> </tr> <tr> <td>Area 3</td> <td><i>Machaerina – Schoenoplectus</i> sedgeland community type <i>Melaleuca</i> open forest community type</td> </tr> <tr> <td>Area 4</td> <td><i>Machaerina – Schoenoplectus</i> sedgeland community type</td> </tr> <tr> <td>Area 5</td> <td><i>Melaleuca, Eucalyptus rudis</i> forest community type</td> </tr> <tr> <td>Area 6</td> <td>Shrubland of <i>Regelia inops</i> and <i>Acacia pulchella</i> over <i>Juncus pallidus</i></td> </tr> <tr> <td>Area 7</td> <td><i>Melaleuca, Eucalyptus rudis</i> forest community type</td> </tr> </tbody> </table>	Area ID	Vegetation type	Area 1	<i>Melaleuca</i> open forest community type	Area 2	<i>Melaleuca, Eucalyptus rudis</i> forest community type	Area 3	<i>Machaerina – Schoenoplectus</i> sedgeland community type <i>Melaleuca</i> open forest community type	Area 4	<i>Machaerina – Schoenoplectus</i> sedgeland community type	Area 5	<i>Melaleuca, Eucalyptus rudis</i> forest community type	Area 6	Shrubland of <i>Regelia inops</i> and <i>Acacia pulchella</i> over <i>Juncus pallidus</i>	Area 7	<i>Melaleuca, Eucalyptus rudis</i> forest community type
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Area 7	<i>Melaleuca, Eucalyptus rudis</i> forest community type																
Vegetation condition	<p>Photographs and site information supplied by the applicant indicate the vegetation within the proposed clearing area is in Good to Completely Degraded (Keighery, 1994) condition, described as:</p> <ul style="list-style-type: none"> <li>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.</li> </ul>																



Characteristic	Details																
	<ul style="list-style-type: none"> <li>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.</li> </ul> <p>Table 3. Vegetation condition by area</p> <table border="1"> <thead> <tr> <th>Area ID</th> <th>Vegetation condition</th> </tr> </thead> <tbody> <tr> <td>Area 1</td> <td>Degraded</td> </tr> <tr> <td>Area 2</td> <td>Good to Degraded</td> </tr> <tr> <td>Area 3</td> <td>Good to Degraded</td> </tr> <tr> <td>Area 4</td> <td>Degraded to Completely Degraded</td> </tr> <tr> <td>Area 5</td> <td>Degraded to Completely Degraded</td> </tr> <tr> <td>Area 6</td> <td>Good to Completely Degraded</td> </tr> <tr> <td>Area 7</td> <td>Good to Completely Degraded</td> </tr> </tbody> </table> <p>The full Keighery (1994) condition rating scale is provided in Appendix C. Representative photos are available in Appendix D.</p>	Area ID	Vegetation condition	Area 1	Degraded	Area 2	Good to Degraded	Area 3	Good to Degraded	Area 4	Degraded to Completely Degraded	Area 5	Degraded to Completely Degraded	Area 6	Good to Completely Degraded	Area 7	Good to Completely Degraded
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Area 7	Good to Completely Degraded																
Climate and landform	The average annual rainfall received over the application area from 1991 to 2020 is 600 to 1000 millimetres (Commonwealth of Australia 2021). The application area is at an altitude of 20 to 30 meters above sea level.																
Soil description	<p>The soil is mapped as:</p> <ul style="list-style-type: none"> <li>Karrakatta Sand Yellow Phase (211Sp_Ky) described as low hilly to gently undulating terrain. Yellow sand over limestone at 1-2 m. Banksia spp. woodland with scattered emergent <i>E. gomphocephala</i> and <i>E. marginata</i> and a dense shrub layer, and</li> <li>Spearwood wet, swamp Phase (211SpW_SWAMP) described as a swamp (DPIRD, 2019).</li> </ul> <p>Table 4. Mapped soil by area</p> <table border="1"> <thead> <tr> <th>Area ID</th> <th>Mapped soil</th> </tr> </thead> <tbody> <tr> <td>Area 1</td> <td>Karrakatta Sand Yellow Phase (211Sp_Ky)</td> </tr> <tr> <td>Area 2</td> <td>Karrakatta Sand Yellow Phase (211Sp_Ky) Spearwood wet, swamp Phase (211SpW_SWAMP)</td> </tr> <tr> <td>Area 3</td> <td>Spearwood wet, swamp Phase (211SpW_SWAMP)</td> </tr> <tr> <td>Area 4</td> <td>Karrakatta Sand Yellow Phase (211Sp_Ky)</td> </tr> <tr> <td>Area 5</td> <td>Karrakatta Sand Yellow Phase (211Sp_Ky)</td> </tr> <tr> <td>Area 6</td> <td>Karrakatta Sand Yellow Phase (211Sp_Ky)</td> </tr> <tr> <td>Area 7</td> <td>Karrakatta Sand Yellow Phase (211Sp_Ky)</td> </tr> </tbody> </table>	Area ID	Mapped soil	Area 1	Karrakatta Sand Yellow Phase (211Sp_Ky)	Area 2	Karrakatta Sand Yellow Phase (211Sp_Ky) Spearwood wet, swamp Phase (211SpW_SWAMP)	Area 3	Spearwood wet, swamp Phase (211SpW_SWAMP)	Area 4	Karrakatta Sand Yellow Phase (211Sp_Ky)	Area 5	Karrakatta Sand Yellow Phase (211Sp_Ky)	Area 6	Karrakatta Sand Yellow Phase (211Sp_Ky)	Area 7	Karrakatta Sand Yellow Phase (211Sp_Ky)
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Area 7	Karrakatta Sand Yellow Phase (211Sp_Ky)																
Land degradation risk	Land degradation risks are summarised in Table A.5.																
Waterbodies	<p>The application area is mapped over the Coastal Plain hydrological zone of Western Australia, described as:</p> <ul style="list-style-type: none"> <li>Coastal and fixed sand dunes and calcarenite. Non-calcareous sands, podsolised soils with low-lying wet areas. Further inland, alluvial deposits, colluvial deposits adjacent to the Darling Scarp. Clayey to sandy alluvial soils with wet areas.</li> </ul> <p>The desktop assessment and aerial imagery indicate a wetland (Wallubuenup Swamp, conservation sumpland) transects the area proposed to be cleared. The application area is within the Wanneroo Coastal Lakes catchment.</p>																
Hydrogeography	The application area falls within the Perth Groundwater Area as proclaimed under the <i>Rights in Water and Irrigation Act 1914</i> (RIWI Act) and a Priority 3 Public Drinking Water Source Area (Perth Coastal and Gwelup Underground Water Pollution Control Area). The application area is not subject to an area protected under the <i>Country Water Supply Act 1917</i> .																

Characteristic	Details
	The groundwater salinity level (Total Dissolved Solids) is mapped as <500 milligrams per litre.
Flora	The desktop assessment identified 23 conservation significant flora taxa within the local area which comprises of two threatened flora and 21 priority flora taxa. The nearest record is a Priority 4 species, <i>Jacksonia sericea</i> , located approximately 2.4 kilometres from the application area.
Ecological communities	No conservation significant ecological communities are mapped over the application area. The application area is within the mapped buffer of the Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region TEC. The nearest mapped occurrence of Banksia Woodland TEC is approximately 10 metres west of the application area.
Fauna	The desktop assessment identified 48 conservation significant fauna species within the local area. The closest record is <i>Zanda latirostris</i> (Carnaby's cockatoo) recorded 300 metres from the application area.  There are ten known black cockatoo roost sites within five kilometres of the application area. The application area is within Carnaby's cockatoo and forest red-tailed black cockatoo known distribution zones. Baudin's cockatoo has been recorded within the local area. The southern section of the application area is adjacent to mapped black cockatoo feeding habitat.

### A.2. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion*					
Swan Coastal Plain	1,501,221.93	579,813.47	38.62	222,916.97	14.85
Vegetation complex**					
Karrakatta Complex-Central and South (system 49)	53,080.99	12,467.20	23.49	4,282.73	8.07
Local area					
10km radius	29 695.3	4,207.05	14.17	-	-

\*Government of Western Australia (2019a)

\*\*Government of Western Australia (2019b)

### A.3. Flora analysis table

Species 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)
<i>Baeckea sp. Limestone</i> (N. Gibson & M.N. Lyons 1425)	1	N	Y	Y	2.41
<i>Jacksonia sericea</i>	4	N	Y	Y	2.68
<i>Stylidium paludicola</i>	3	Y	Y	Y	5.67

#### A.4. 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)
<i>Zanda latirostris</i> (Carnaby's cockatoo)	EN	Y	Y	0.30
<i>Isoodon fusciventer</i> (quenda)	P4	Y	Y	0.63
<i>Plegadis falcinellus</i> (Glossy ibis)	MI	Y	Y	1.30
<i>Oxyura australis</i> (Blue-billed duck)	P4	Y	Y	1.41
<i>Tringa nebularia</i> (Common greenshank)	MI	N	Y	1.53
<i>Hydromys chrysogaster</i> (Water-rat, rakali)	P4	Y	Y	1.59
<i>Ixobrychus dubius</i> (Australian little bittern)	P4	Y	Y	1.62
<i>Calyptorhynchus banksii naso</i> (forest red-tailed black cockatoo)	VU	Y	Y	1.89
<i>Calidris ruficollis</i> (red-necked stint)	MI	Y	Y	4.97
<i>Ixobrychus flavicollis australis</i> (black bittern (southwest subpop.))	P2	Y	Y	4.98
<i>Calidris ferruginea</i> (curlew sandpiper)	CR	Y	Y	5.51
<i>Apus pacificus</i> (fork-tailed swift)	MI	Y	Y	5.56
<i>Tringa glareola</i> (Wood sandpiper)	MI	N	Y	5.75
<i>Botaurus poiciloptilus</i> (Australasian bittern)	EN	N	Y	5.79
<i>Zanda calyptorhynchus</i> (Baudin's cockatoo)	EN	Y	Y	6.19
<i>Calidris acuminata</i> (Sharp-tailed sandpiper)	MI	N	Y	7.01

#### A.5. Land degradation risk table

Risk categories	Land Unit 1
Wind erosion	H2 >70% of map unit has a high to extreme wind erosion risk L1 <3% of map unit has a high to extreme wind erosion risk
Water erosion	L1 <3% of map unit has a high to extreme water erosion risk
Salinity	L1 <3% of map unit has a moderate to high salinity risk or is presently saline
Subsurface Acidification	H2 >70% of 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
Water logging	H2 >70% of map unit has a moderate to very high waterlogging risk L1 <3% of map unit has a moderate to very high waterlogging risk
Phosphorus export risk	L2 3-10% of map unit has a high to extreme phosphorus export risk H2 >70% of map unit has a high to extreme phosphorus export risk
Water repellence risk	L2 3-10% of map unit has a high water repellence risk L1 <3% of map unit has a high water repellence risk

## Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
<b>Environmental value: biological values</b>		
<p><u>Principle (a):</u> <i>“Native vegetation should not be cleared if it comprises a high level of biodiversity.”</i></p> <p><u>Assessment:</u></p> <p>Given the size and condition of the application area, that it has been previously cleared, is along a cleared path, and is within a built-up area, the application area is unlikely to comprise a high level of biodiversity.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (b):</u> <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.”</i></p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared may contain habitat for conservation significant fauna. Potential impacts are not considered to be significant.</p>	May be at variance	Yes <i>Refer to Section 3.2.2, above.</i>
<p><u>Principle (c):</u> <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared is unlikely to contain habitat for flora species listed under the BC Act.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (d):</u> <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community.”</i></p> <p><u>Assessment:</u></p> <p>The application area is within the mapped buffer of the Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region threatened ecological community. The application area is not considered representative of this TEC. The proposed clearing is unlikely to significantly impact the nearby occurrence of this TEC.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.3, above.</i>
<b>Environmental value: significant remnant vegetation and conservation areas</b>		
<p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u></p> <p>The extent of native vegetation within the local area falls below national targets for biodiversity conservation in Australia. However, the vegetation extent for the Swan Coastal Plain IBRA bioregion, the Karrakatta Complex - Central and South and the local area are above the minimum threshold for constrained areas (EPA 2008).</p> <p>The application area is not considered to significantly contribute to mapped ecological linkages.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.3, above.</i>
<p><u>Principle (h):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.”</i></p> <p><u>Assessment:</u></p> <p>The application area borders and is partially within two Environmentally Sensitive Areas (ESA): an area within 50 metres of a defined wetland (Wallubuenup Swamp) and Bush Forever Site 299.</p>	May be at variance	Yes <i>Refer to Section 3.2.3, above.</i>

Assessment against the clearing principles	Variance level	Is further consideration required?
<b>Environmental value: land and water resources</b>		
<p><u>Principle (f):</u> "Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."</p> <p><u>Assessment:</u></p> <p>The application area consists of riparian vegetation associated with a wetland.</p>	At variance	Yes <i>Refer to Section 3.2.4, above.</i>
<p><u>Principle (g):</u> "Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."</p> <p><u>Assessment:</u></p> <p>The soils mapped over the application area are highly susceptible to wind erosion, subsurface acidification, water logging and phosphorus export risk. Noting the extent of the proposed clearing, condition of the vegetation and that the purpose of the clearing is to improve water flow, the proposed clearing is not likely to have an appreciable impact on land degradation.</p>	Not likely to be at variance	No
<p><u>Principle (i):</u> "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."</p> <p><u>Assessment:</u></p> <p>Given the extent of the application area, condition of the vegetation and that the purpose of the clearing is to improve water flow, the proposed clearing is unlikely to cause deterioration in surface or underground water quality. Any impacts to water quality are likely to be minimal and short term.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.4, above.</i>
<p><u>Principle (j):</u> "Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."</p> <p><u>Assessment:</u></p> <p>The purpose of the clearing is to upgrade the adjacent path to mitigate drainage issues and reduce localised flooding. The path will be raised and incorporate a new culvert drainage system to allow for flow of water under the path. Given this, the proposed clearing is unlikely to contribute to the incidence or intensity flooding within the local area.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.4, above.</i>

## 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.

### 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.

Condition	Description
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. Representative photographs of the vegetation**



Figure 2. Photograph of vegetation in Area 1





Figure 3 Photographs of vegetation in Area 2



Figure 4 Photographs of vegetation in Area 3





Figure 5 Photographs of vegetation in Area 4





Figure 6 Photographs of vegetation in Area 5



Figure 7 Photographs of Quenda diggings in Area 5



Figure 8 Photographs of vegetation in Area 6

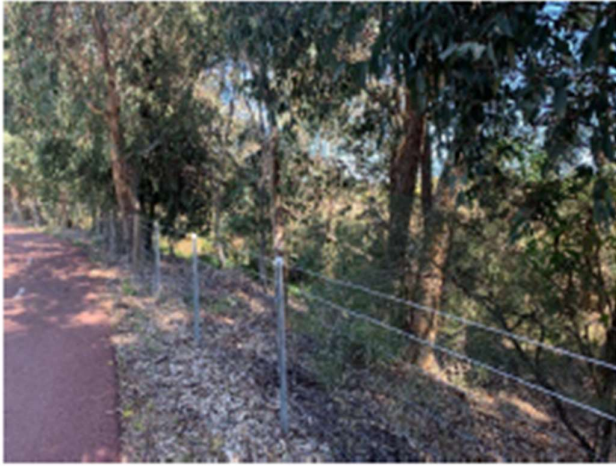


Figure 9 Photographs of vegetation in Area 7

## Appendix E. Flora list and map of proposed works

Table 3. List of native species recorded in a site visit by the City of Wanneroo (2022)

Area 1	Area 5
<i>Melaleuca preissiana</i>	<i>Eucalyptus rudis</i>
Area 2	<i>Juncus pallidus</i>
<i>Banksia littoralis</i>	<i>Machaerina preissii</i>
<i>Centella asiatica</i>	<i>Melaleuca lateritia</i>
<i>Eucalyptus rudis</i>	<i>Senecio condylus</i>
<i>Ficinia nodosa</i>	<i>Typha orientalis</i>
<i>Juncus pallidus</i>	Area 6
<i>Machaerina articulata</i>	<i>Acacia pulchella</i>
<i>Machaerina preissii</i>	<i>Hakea prostrata</i>
<i>Melaleuca preissiana</i>	<i>Jacksonia sternbergiana</i>
<i>Melaleuca raphiophylla</i>	<i>Juncus pallidus</i>
<i>Rhagodia baccata</i>	<i>Regelia inops</i>
<i>Schoenoplectus tabernaemontani</i>	<i>Senecio condylus</i>
<i>Typha orientalis</i>	Area 7
Area 3	<i>Eucalyptus rudis</i>
<i>Azolla rubra</i>	<i>Ficinia nodosa</i>
<i>Machaerina articulata</i>	<i>Hakea prostrata</i>
<i>Machaerina preissii</i>	<i>Hakea trifurcata</i>
<i>Melaleuca preissiana</i>	<i>Hardenbergia comptoniana</i>
<i>Melaleuca raphiophylla</i>	<i>Jacksonia furcellata</i>
<i>Schoenoplectus tabernaemontani</i>	<i>Jacksonia sternbergiana</i>
<i>Typha orientalis</i>	<i>Juncus pallidus</i>
<i>Viminaria juncea</i>	<i>Machaerina juncea</i>
Area 4	<i>Melaleuca raphiophylla</i>
<i>Juncus pallidus</i>	<i>Melaleuca teretifolia</i>
<i>Schoenoplectus tabernaemontani</i>	<i>Regelia inops</i>
<i>Senecio condylus</i>	<i>Senecio condylus</i>
<i>Typha orientalis</i>	<i>Viminaria juncea</i>

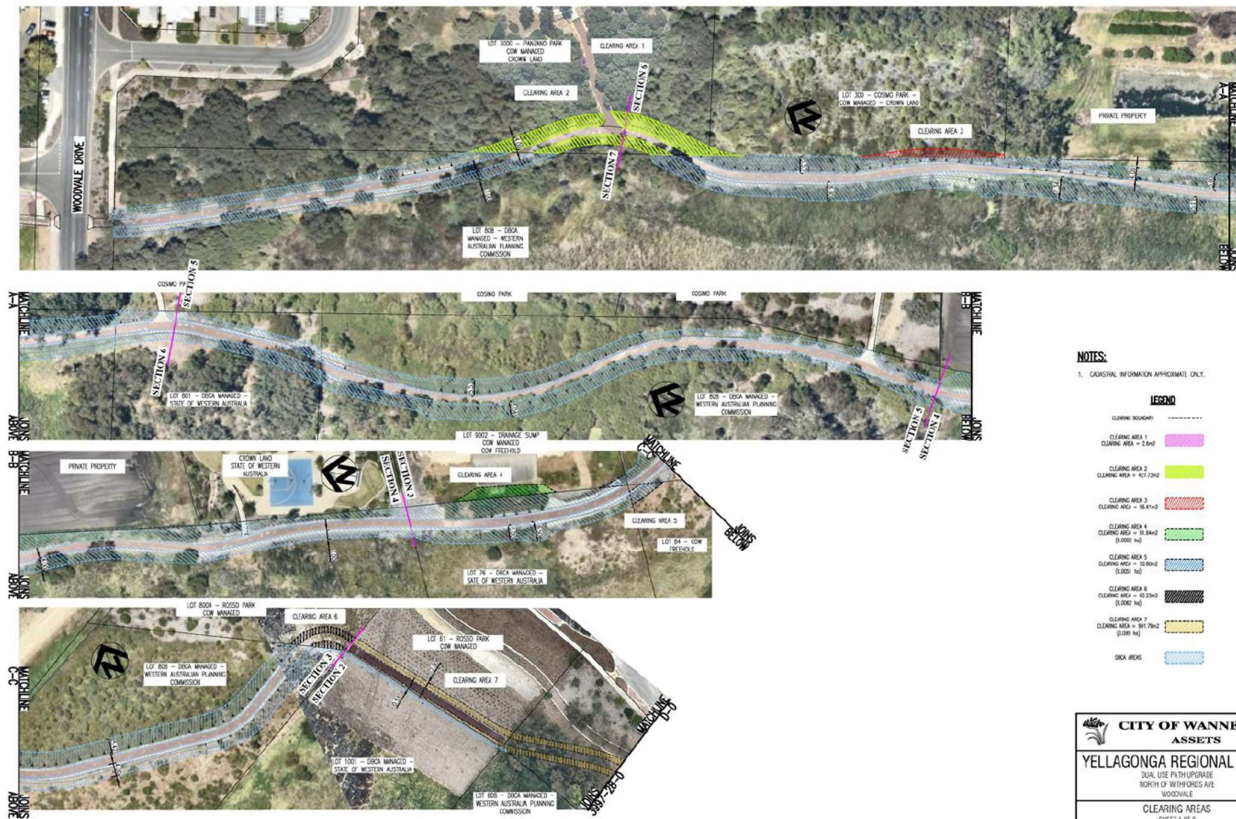


Figure 10 Proposed clearing areas for upgrades to drainage along the path. The applicant indicated the blue hatched areas will be cleared under an exemption pursuant to Schedule 6(3) of the EP Act. The decision to utilise an exemption is the responsibility of the individual or entity intending to clear native vegetation.

## Appendix F. Sources of information

### F.1. GIS databases

Publicly available GIS Databases used (sourced from [www.data.wa.gov.au](http://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
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

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