



# Clearing Permit Decision Report

## 1. Application details and outcome

### 1.1. Permit application details

<b>Permit number:</b>	CPS 9310/1
<b>Permit type:</b>	Purpose Permit
<b>Applicant name:</b>	City of Rockingham
<b>Application received:</b>	3 June 2021
<b>Application area:</b>	0.34 hectares of native vegetation
<b>Purpose of clearing:</b>	Shared path
<b>Method of clearing:</b>	Mechanical removal
<b>Property:</b>	Ennis Avenue Road Reserve (PINs 11773882 and 1193223)
<b>Location (LGA area):</b>	City of Rockingham
<b>Localities (suburb):</b>	Rockingham

### 1.2. Description of clearing activities

The City of Rockingham propose to construct a shared path for pedestrians and cyclists that forms a network that provides a link between Patterson Road, Dixon Road and the Rockingham Train Station. Proposed clearing is required to facilitate the construction of a portion of the shared path along the west side of Ennis Avenue to complete a missing link within the network.

### 1.3. Decision on application and key considerations

<b>Decision:</b>	Granted
<b>Decision date:</b>	22 July 2021
<b>Decision area:</b>	0.34 hectares of native vegetation on the west side of Ennis Avenue, Rockingham as depicted in Figure 1 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 public comment for 21 days and no submissions were received.

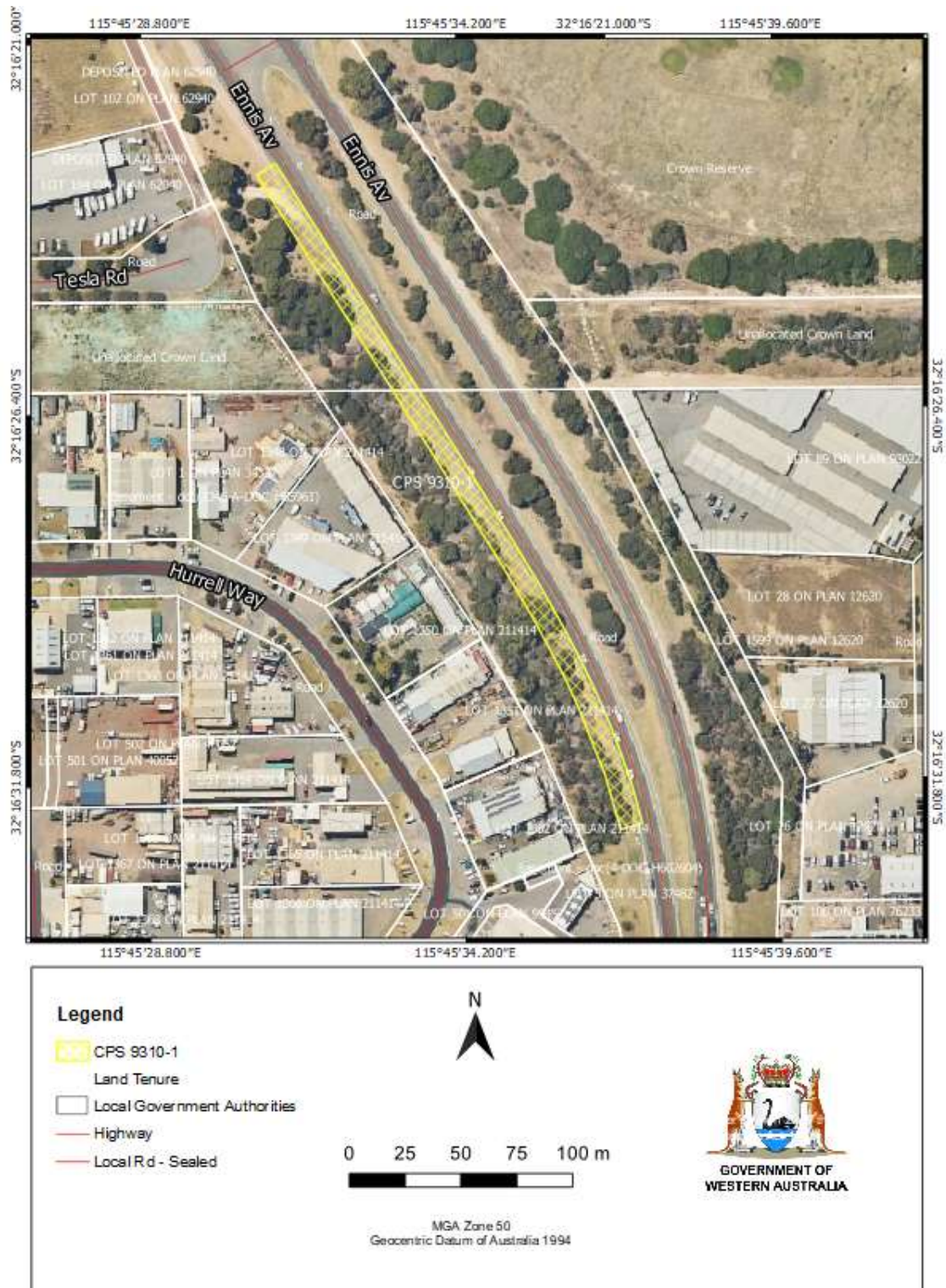
In making this decision, the Delegated Officer had regard for the site characteristics (Appendix B), relevant datasets (Appendix G2), the findings of a flora and vegetation survey (Appendix A), the clearing principles set out in Schedule 5 of the EP Act (Appendix C), proposed avoidance and minimisation measures (Section 3.1), relevant planning instruments, and any other matters considered relevant to the assessment (Section 3.3). The Delegated Officer also took into consideration the purpose of the clearing is to complete a shared path network within the City of Rockingham.

The vegetation within the application area is in a completely degraded to degraded condition and consists of four common native plant species. The entire Ennis Avenue Road Reserve will not be cleared to support the shared path, with a minimum 20 metre width of native vegetation retained within the western side of the road reserve. The assessment identified that the proposed clearing may result in the potential introduction and spread of weeds and dieback into adjacent native vegetation which could impact on the quality of that vegetation.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (Section 3.1) the Delegated Officer decided to grant a clearing permit subject to a condition to implement weed and dieback management strategies to minimise the risk to adjacent native vegetation.

## 1.5. Site map

A site map of proposed clearing is provided in Figure 1 below.



**Figure 1: Map of the application area CPS 9310/1. The area cross-hatched yellow indicates the area within which 0.34 hectares of native vegetation is 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 3), 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; and
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment includes:

- *Biodiversity Conservation Act 2016* (WA) (BC Act);
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act); and
- *Rights in Water and Irrigation Act 1914* (RIWI Act).

The key guidance documents which inform this assessment are:

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

## 3. Detailed assessment of application

### 3.1. Avoidance and mitigation measures

A number of alternative options for the shared path location were considered within the existing road network. However, alternative options were discounted due to logistics and safety concerns (City of Rockingham 2021). In particular:

- A shared path on the eastern verge was considered but requires the crossing by pedestrians and cyclists of the four traffic lanes of Ennis Avenue that experiences high traffic volumes.
- A shared path next to the western boundary was considered but the path would be isolated from passive surveillance, and away from existing streetlights.
- A shared path at either of the above options above would require the clearing of native vegetation.

The scale of clearing has been scaled back to reduce the impact on existing native vegetation. The proposed alignment on the western verge is suitably located to connect the majority of the commercial centre, TAFE College, and Murdoch University to the Rockingham train station (City of Rockingham 2021).

Works will occur within a clearly defined area. Due to the proximity to the proposed path, the clearing alignment proposed may impact 20 individual native plants consisting of four common species (Natural Areas 2021). These plants have been identified and marked in the field during the flora survey of Natural Areas (2021). Adjacent Tuart trees (*Eucalyptus gomphocephala*) will not be cleared. Clearing will consist of grubbing and disposal of all shrubs, stumps, fallen timber, roots, logs, grass, weeds and the replacement with clean fill to support the shared path (City of Rockingham 2021). Impacts to native vegetation will range from minor pruning to the removal of the entire plant.

### 3.2. Assessment of environmental impacts

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

The assessment against the clearing principles (Appendix C) identified that the impacts of the proposed clearing are limited and able to be managed with standard avoid and minimise and weed and dieback hygiene management conditions.

### 3.3. Relevant planning instruments and other matters

The application was advertised on the DWER website for a 21 day public comment period. No public submissions were received in relation to this application.

Proposed clearing will occur in the Ennis Avenue Road Reserve (PIN 11773882 and PIN 1193223). Main Roads Western Australia (MRWA) has management authority over the application area. A letter of authority from MRWA to the City of Rockingham has been granted which allows the City of Rockingham to undertake the works dependent upon conditions including that no Tuart trees (*Eucalyptus gomphocephala*) are impacted (City of Rockingham 2021).

The Ennis Avenue Road Reserve is a Public Road with a description of dedicated and undedicated, widenings, casement and closed roads. The clearing purpose is consistent with the City of Rockingham Local Planning Strategy and Town Planning Scheme No. 2. Additional local government approvals under the *Planning and Development Act 2005*, or any other Act, are not required.

The application area is located within the Rockingham Groundwater Area (UFI 33) proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act). Proposed clearing will not intersect groundwater and no groundwater abstraction is required. No beds or banks of any watercourse will be impacted, groundwater will not be intercepted, abstraction of groundwater or surface water will not be undertaken, and additional permitting under the RIWI Act will not be required.

The application area is not located within any *Country Areas Water Supply Act 1947* (CAWS Act) Clearing Control Catchments, Public Drinking Water Source Areas (PDWSA), or within any wellhead or reservoir protection zones.

A Registered Native Title Claim encompasses the application area. That is, Gnaala Karla Booja (WAD6274/1998), and the associated Gnaala Karla Booja Indigenous Land Use Agreement (ILUA) (WI2015/005). A Native Title Claim has also been filed that encompasses the application area. That is, the Single Noongar Claim - Area 1 (WAD6006/2003).

Spatial data indicates that no Aboriginal Heritage sites occur within the application area. Several Registered and other Aboriginal Heritage sites occur within the local area including; Place 18942, Place 3334, Place 18501, and Place 18502 approximately 335 metres to the south-east of the application area, and Registered Site (Place 31742) approximately 1.89 kilometres to the north-east. 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.

**Appendix A – Information provided by applicant**

<b>Summary</b>	<b>Reference</b>
Supporting information for clearing permit application CPS 9310/1 including a description of clearing activities, alternatives considered and engineering drawings of the shared path.	City of Rockingham (2021)
Supporting information for clearing permit application CPS 9310/1 consisting of a flora and vegetation survey along the Ennis Avenue road reserve for a proposed shared path that consisted of an area larger than the application area, but that included the application area. The outcomes of the survey were aimed at informing environmental approvals, and procedures associated with the implementation of the proposed works.	Natural Areas (2021)

## Appendix B – 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 DWER at the time of this assessment. This information was used to inform the assessment of the clearing against the Clearing Principles, contained in Appendix C.

### 1. Site summary

Site characteristic	Details						
<b>Local context</b>	The application area is situated within the Swan Coastal Plain Bioregion of Thackway and Cresswell (1995). The proposed clearing area comprises 0.34 hectares of native vegetation on the western side of Ennis Avenue. Spatial data indicates that the local area (within a ten kilometre radius of the proposed clearing area) retains over 30.64 per cent of the original native vegetation cover.						
<b>Vegetation description (Heddle <i>et al.</i>, 1980)</b>	<p>Heddle <i>et al.</i>, (1980) as updated by Webb <i>et al.</i> (2016) described and mapped the application area as the Quindalup Complex (System 6 ID 55), that is:</p> <ul style="list-style-type: none"> <li>A coastal dune complex consisting mainly of two alliances - the strand and fore-dune alliance and the mobile and stable dune alliance. Local variations include the low closed forest of <i>Melaleuca lanceolata</i> (Rottnest Teatree) - <i>Callitris preissii</i> (Rottnest Island Pine), the closed scrub of <i>Acacia rostellifera</i> (Summer-scented Wattle).</li> </ul> <p>The flora and vegetation survey of Natural Areas (2021) over a broader area than the application area recorded two native vegetation types:</p> <ul style="list-style-type: none"> <li>Eg Woodland: <i>Eucalyptus gomphocephala</i> (Tuart) Open Woodland consisting of <i>Eucalyptus gomphocephala</i> over <i>Xanthorrhoea preissii</i> and weedy grass understorey.</li> <li>EgMp Woodland: <i>Eucalyptus gomphocephala</i> (Tuart) and <i>Melaleuca huegelii</i> Open Woodland consisting of <i>Eucalyptus gomphocephala</i>, <i>Melaleuca huegelii</i>, and <i>Acacia rostellifera</i> over weedy grass understorey</li> </ul> <p>A third, non-native, component consisted of maintained grassed areas of couch grass (<i>Cynodon dactylon</i>).</p> <p>The application area consists of four native flora species; <i>Acacia rostellifera</i>, <i>Clematis linearifolia</i>, <i>Melaleuca huegelii</i>, and <i>Melaleuca systena</i>. No <i>Eucalyptus gomphocephala</i> (Tuart) are proposed to be cleared.</p>						
<b>Vegetation condition (Keighery 1994)</b>	<p>Natural Areas (2020) recorded 56 per cent of the application area to be completely degraded (0.19 hectares) with the remainder in degraded condition.</p> <p>The full vegetation condition rating scale is provided in Appendix D (Keighery 1994).</p>						
<b>Soil description (Schoknecht, <i>et al.</i> 2004)</b>	<p>One soil type has been mapped over the application area.</p> <table border="1"> <thead> <tr> <th>Symbol</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>211Qu_Qf2</td> <td>Quindalup South Qf2 Phase</td> <td>Relict foredunes and gently undulating beach ridge plain with deep uniform calcareous sands.</td> </tr> </tbody> </table>	Symbol	Name	Description	211Qu_Qf2	Quindalup South Qf2 Phase	Relict foredunes and gently undulating beach ridge plain with deep uniform calcareous sands.
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<b>Land degradation risk (DPIRD 2017)</b>	<p>Land degradation risk ratings are provided in the table below.</p> <table border="1" data-bbox="505 260 1393 636"> <thead> <tr> <th data-bbox="505 260 776 302">Aspect</th> <th colspan="3" data-bbox="776 260 1393 302">Mapped risk</th> </tr> </thead> <tbody> <tr> <td data-bbox="505 302 776 344">Wind Erosion</td> <td data-bbox="776 302 841 344">M2</td> <td data-bbox="841 302 948 344">30-50%</td> <td data-bbox="948 302 1393 344">of mapped unit has a high to extreme risk</td> </tr> <tr> <td data-bbox="505 344 776 386">Water Erosion</td> <td data-bbox="776 344 841 386">L1</td> <td data-bbox="841 344 948 386">&lt;3%</td> <td data-bbox="948 344 1393 386">of mapped unit has a high to extreme risk</td> </tr> <tr> <td data-bbox="505 386 776 428">Water-logging</td> <td data-bbox="776 386 841 428">L1</td> <td data-bbox="841 386 948 428">&lt;3%</td> <td data-bbox="948 386 1393 428">of mapped unit has a high to extreme risk</td> </tr> <tr> <td data-bbox="505 428 776 470">Water repellance</td> <td data-bbox="776 428 841 470">L1</td> <td data-bbox="841 428 948 470">&lt;3%</td> <td data-bbox="948 428 1393 470">of mapped unit has a high to extreme risk</td> </tr> <tr> <td data-bbox="505 470 776 512">Phosphorus export</td> <td data-bbox="776 470 841 512">L1</td> <td data-bbox="841 470 948 512">&lt;3%</td> <td data-bbox="948 470 1393 512">of mapped unit has a high to extreme risk</td> </tr> <tr> <td data-bbox="505 512 776 554">Salinity</td> <td data-bbox="776 512 841 554">L1</td> <td data-bbox="841 512 948 554">&lt;3%</td> <td data-bbox="948 512 1393 554">of mapped unit has a high to extreme risk</td> </tr> <tr> <td data-bbox="505 554 776 596">Sub surface acidification</td> <td data-bbox="776 554 841 596">L1</td> <td data-bbox="841 554 948 596">&lt;3%</td> <td data-bbox="948 554 1393 596">of mapped unit has a high to extreme risk</td> </tr> <tr> <td data-bbox="505 596 776 636">ASS</td> <td colspan="3" data-bbox="776 596 1393 636">Low</td> </tr> <tr> <td data-bbox="505 636 776 678">Flood Risk</td> <td data-bbox="776 636 841 678">L1</td> <td data-bbox="841 636 948 678">&lt;3%</td> <td data-bbox="948 636 1393 678">of mapped unit has a high to extreme risk</td> </tr> </tbody> </table> <table border="1" data-bbox="505 659 1084 699"> <tr> <td data-bbox="505 659 776 699">FPM Floodplain</td> <td data-bbox="776 659 1084 699">None within vicinity</td> </tr> </table>	Aspect	Mapped risk			Wind Erosion	M2	30-50%	of mapped unit has a high to extreme risk	Water Erosion	L1	<3%	of mapped unit has a high to extreme risk	Water-logging	L1	<3%	of mapped unit has a high to extreme risk	Water repellance	L1	<3%	of mapped unit has a high to extreme risk	Phosphorus export	L1	<3%	of mapped unit has a high to extreme risk	Salinity	L1	<3%	of mapped unit has a high to extreme risk	Sub surface acidification	L1	<3%	of mapped unit has a high to extreme risk	ASS	Low			Flood Risk	L1	<3%	of mapped unit has a high to extreme risk	FPM Floodplain	None within vicinity
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<b>Waterbodies</b>	<p>The application area does not intersect any watercourses or wetlands. A Conservation Category Wetland (Sumpland UFI 6221) is mapped within 680 metres to the east, and a Resource Enhancement Wetland (Dampland UFI 6225) within 700 metre to the south-east of the application area.</p> <p>There are no mapped watercourses within four kilometres of the application area.</p>																																										
<b>Hydrogeography</b>	<table border="1" data-bbox="505 961 1073 1087"> <tr> <td data-bbox="505 961 808 1003">Hydrological Zone</td> <td data-bbox="808 961 1073 1003">Coastal Plain</td> </tr> <tr> <td data-bbox="505 1003 808 1045">Basin</td> <td data-bbox="808 1003 1073 1045">Murray River (UFI 226)</td> </tr> <tr> <td data-bbox="505 1045 808 1087">Hydrographic Catchment</td> <td data-bbox="808 1045 1073 1087">South West</td> </tr> </table> <table border="1" data-bbox="505 1115 1357 1430"> <tr> <td data-bbox="505 1115 915 1171">RIWI Act Surface Water and Irrigation District</td> <td data-bbox="915 1115 1008 1171">No</td> <td data-bbox="1008 1115 1357 1171"></td> </tr> <tr> <td data-bbox="505 1171 915 1213">RIWI Act Rivers</td> <td data-bbox="915 1171 1008 1213">No</td> <td data-bbox="1008 1171 1357 1213"></td> </tr> <tr> <td data-bbox="505 1213 915 1270">RIWI Act Groundwater Areas</td> <td data-bbox="915 1213 1008 1270">Yes</td> <td data-bbox="1008 1213 1357 1270">Rockingham Groundwater Area (UFI 33)</td> </tr> <tr> <td data-bbox="505 1270 915 1327">CAWS Act Clearing Control Catchment</td> <td data-bbox="915 1270 1008 1327">No</td> <td data-bbox="1008 1270 1357 1327"></td> </tr> <tr> <td data-bbox="505 1327 915 1369">Public Drinking Water Source Areas</td> <td data-bbox="915 1327 1008 1369">No</td> <td data-bbox="1008 1327 1357 1369"></td> </tr> <tr> <td data-bbox="505 1369 915 1411">Wellhead Protection Zone</td> <td data-bbox="915 1369 1008 1411">No</td> <td data-bbox="1008 1369 1357 1411"></td> </tr> <tr> <td data-bbox="505 1411 915 1430">Reservoir Protection Zone</td> <td data-bbox="915 1411 1008 1430">No</td> <td data-bbox="1008 1411 1357 1430"></td> </tr> </table> <p>Groundwater has been mapped at 500-1,000 TDS/Mg/L (that is, fresh)</p>	Hydrological Zone	Coastal Plain	Basin	Murray River (UFI 226)	Hydrographic Catchment	South West	RIWI Act Surface Water and Irrigation District	No		RIWI Act Rivers	No		RIWI Act Groundwater Areas	Yes	Rockingham Groundwater Area (UFI 33)	CAWS Act Clearing Control Catchment	No		Public Drinking Water Source Areas	No		Wellhead Protection Zone	No		Reservoir Protection Zone	No																
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<b>Conservation areas</b>	<p>DBCAs managed lands occur approximately 1.2 kilometres to the south-east of the application area in association with Bush Forever Site 356 Lake Cooloongup, Lake Walyungup and Adjacent Bushland, Hillman to Port Kennedy. Bush Forever Site 356 is within 200 metres to the south of the application area at its closest point.</p> <p>Approximately 415 metres to the east of the application area is an offset site associated with the Rockingham Industrial Zone Strategic Environmental Assessment (R 52979, Lot 8100 on Deposited Plan 48637). The site will be ceded to the Crown for conservation and vested to the Conservation and Parks Commission. Approximately 1,035 metres south-east of the application area is the Rockingham Lakes Regional Park. Leda Nature Reserve is located 2.9 kilometres to the east of the application area.</p>																																										

Site characteristic	Details
<b>Climate and landform</b>	<p>The climate experienced in the area is a Mediterranean climate, with dry, hot summers and cool, wet winters. Average rainfall is 816 millimetres per annum with the majority falling between June and August (BOM 2021). The predominant wind directions include morning easterlies and south-westerly sea breezes during the summer months, with an average wind speed of 18.6 kilometres per hour and gusts of more than 100 kilometres per hour (Natural Areas 2021).</p> <p>The application area is located within relict foredunes and gently undulating beach ridge plain with deep uniform calcareous sands (Schoknecht <i>et al.</i> 2004).</p>

## 2. Ecosystem, flora, and fauna analysis

With consideration for the site characteristics set out above, and relevant datasets (Appendix G2), an analysis of relevant ecosystem, flora, and fauna factors are presented below.

### 2a) Ecological Linkages

There are no formal Regional Ecological Linkages within the local area.

### 2b) Ecological Communities

There are five mapped Threatened Ecological Communities (TECs) endorsed by the Western Australian Minister for the Environment within the local area of a ten kilometre radius on the application area. The closest is 520 metres to the north-east of the application area (SCP19b). Vegetation of the application area does not align with any TECs (Natural Areas 2021).

ID	Name	Status (WA)	Status (Comm.)
SCP19a	Sedgeland in Holocene dune swales of the southern Swan Coastal Plain (floristic community type 19 as originally described in Gibson <i>et al.</i> (1994))	CR	EN
Richmond-microbial	Stromatolite like microbialite community of coastal freshwater lakes (Lake Richmond)	CR	EN
SCP19b	Woodlands over sedgeland in Holocene dune swales of the southern Swan Coastal Plain (original description; Gibson <i>et al.</i> (1994).	CR	EN
SCP26a	<i>Melaleuca huegelii</i> - <i>Melaleuca systema</i> shrublands on limestone ridges (floristic community type 26a as originally described in Gibson <i>et al.</i> (1994))	EN	
SCP30a	<i>Callitris preissii</i> (or <i>Melaleuca lanceolata</i> ) forests and woodlands, Swan Coastal Plain (floristic community type 30a as originally described in Gibson <i>et al.</i> (1994))	VU	

There are five mapped Priority Ecological Communities (PECs) listed by DBCA within the local area of a ten kilometre radius on the application area. The closest is mapped approximately 400 metres to the east of the application area. That is, Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain. Vegetation of the application area does not align with any PECs (Natural Areas 2021).

### 2c) Conservation significant flora recorded within ten kilometres of the application area

Two Threatened orchids have been recorded within ten kilometres of the application area.

Taxon	WA Status	Records within 10km
<i>Caladenia huegelii</i>	CR	1
<i>Diuris micrantha</i>	VU	6

Ten Priority flora taxa have been recorded within ten kilometres of the application area; two P1; four P3 and four P4.



Taxon	WA Status	Records within 10km
<i>Acacia</i> sp. Binningup (G. Cockerton <i>et al.</i> WB 37784)	P1	1
<i>Lachnagrostis nesomytica</i> subsp. <i>paralia</i>	P1	1
<i>Cyathochaeta teretifolia</i>	P3	1
<i>Jacksonia gracillima</i>	P3	1
<i>Pimelea calcicola</i>	P3	2
<i>Sphaerolobium calcicola</i>	P3	1
<i>Aponogeton hexatepalus</i>	P4	1
<i>Dodonaea hackettiana</i>	P4	6
<i>Jacksonia sericea</i>	P4	1
<i>Stylidium ireneae</i>	P4	1

No threatened or priority species were recorded by Natural Areas (2021) and due to the highly degraded nature of the road verge vegetation none are expected to occur within the application area (Natural Areas 2021).

#### 2d) Conservation significant fauna recorded within ten kilometres of the application area:

Discounting marine species, 32 vertebrates of conservation significance have been recorded in the local area including; 24 birds, five mammals and three reptiles.

Common name	Scientific name	WA Status	Records within 10km
<b>BIRDS</b>			
Carnaby's Cockatoo	<i>Calyptorhynchus latirostris</i>	EN	142
White-Tailed Black Cockatoo	<i>Calyptorhynchus</i> sp. 'white-tailed'	EN	10
Baudin's Cockatoo	<i>Calyptorhynchus baudinii</i>	EN	1
Forest Red-Tailed Black Cockatoo	<i>Calyptorhynchus banksii naso</i>	VU	32
Fork-tailed Swift	<i>Apus pacificus</i>	MI	1
Peregrine Falcon	<i>Falco peregrinus</i>	OS	5
Blue-billed Duck	<i>Oxyura australis</i>	P4	67
Glossy Ibis	<i>Plegadis falcinellus</i>	MI	5
Curlew Sandpiper	<i>Calidris ferruginea</i>	CR	12
Great Knot	<i>Calidris tenuirostris</i>	CR	1
Eastern Curlew	<i>Numenius madagascariensis</i>	CR	2
Red Knot	<i>Calidris canutus</i>	EN	1
Australian Little Bittern	<i>Ixobrychus dubius</i>	P4	1
Hooded Plover	<i>Thinornis rubricollis</i>	P4	3
Common Sandpiper	<i>Actitis hypoleucos</i>	MI	1
Ruddy Turnstone	<i>Arenaria interpres</i>	MI	7
Sharp-tailed Sandpiper	<i>Calidris acuminata</i>	MI	11
Sanderling	<i>Calidris alba</i>	MI	1
Red-necked Stint	<i>Calidris ruficollis</i>	MI	23
Long-toed Stint	<i>Calidris subminuta</i>	MI	2
Bar-tailed Godwit	<i>Limosa lapponica</i>	MI	1
Whimbrel	<i>Numenius phaeopus</i>	MI	1

Common name	Scientific name	WA Status	Records within 10km
Wood Sandpiper	<i>Tringa glareola</i>	MI	8
Common Greenshank	<i>Tringa nebularia</i>	MI	42
Marsh Sandpiper	<i>Tringa stagnatilis</i>	MI	2
<b>MAMMALS</b>			
Brush-Tailed Phascogale (SW)	<i>Phascogale tapoatafa wambenger</i>	CD	3
Quenda	<i>Isodon fusciventer</i>	P4	423
Water-Rat	<i>Hydromys chrysogaster</i>	P4	1
Tammar Wallaby	<i>Notamacropus eugenii derbianus</i>	P4	76
Western Brush Wallaby	<i>Notamacropus irma</i>	P4	4
<b>REPTILES</b>			
Perth Slider	<i>Lerista lineata</i>	P3	19
Jewelled Southwest Ctenotus (SCP)	<i>Ctenotus gemmula</i>	P3	1
Black-Striped Snake	<i>Neelaps calonotos</i>	P3	5

### 3. Vegetation extent

#### 3a) Regional vegetation mapping

	Pre-European extent (ha)	Current extent (ha)	Remaining (%)	Current extent in all DBCA managed land (ha)	Current extent in all DBCA managed land (%)
<b>IBRA bioregion:</b>					
Swan Coastal Plain (SCP)	1,501,222	579,813	38.62	222,917	38.45
<b>SCP vegetation complex:</b>					
Quindalup Complex (ID 55)	54,574	33,012	60.49	5,995	10.98

Local Area	Pre-European extent (ha)	Current extent (ha)	Remaining (%)
10 km radius	19,738	6,047	30.6

## Appendix C – 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> Vegetation is along an existing road verge and in completely degraded to degraded condition (Keighery 1994). Natural Areas (2021) recorded the presence of just four native flora species (<i>Acacia rostellifera</i>, <i>Clematis linearifolia</i>, <i>Melaleuca huegelii</i>, and <i>Melaleuca systema</i>) (Appendix F2), along with eight introduced (weed) species within a survey area larger than the application area. No Threatened or Priority flora or fauna species are known from the application area, or are likely to occur.</p> <p>Two vegetation types were described and mapped by Natural Areas (2021) over an area larger than, but including, the application area (Eg Woodland, and EgMp Woodland). Both vegetation types consist of Tuart (<i>Eucalyptus gomphocephala</i>) as an overstorey. Tuart (<i>Eucalyptus gomphocephala</i>) woodlands and forests of the Swan Coastal Plain is a Threatened Ecological Community (TEC) under the EPBC Act and listed by DBCA as a Priority Ecological Community. The vegetation types described and mapped by Natural Areas (2021) did not meet the minimum key diagnostic characteristics as stipulated by the DoEE (2019) approved conservation and listing advice to be considered a TEC or PEC (Natural Areas 2021). No Tuarts will be cleared by the proposed clearing. Vegetation present does not align with or comprise floristics or structure that aligns with any TECs or PECs (Natural Areas 2021), and the application area does not comprise a high level of biodiversity.</p>	Not at variance	No
<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> Discounting marine species, 32 vertebrates of conservation significance have been recorded in the local area including; 24 birds, five mammals and three reptiles. Of the birds, 17 are wading shorebird species. The application area does not provide shoreline, tidal, estuarine or wetland habitat required by these species. For the remaining birds, no trees suitable for providing breeding hollows, night-roosting or significant foraging habitat are present over the application area (Bamford 2013; DPaW 2013; Groom 2011). No suitable habitat is present within the application area for the five mammals of conservation significance recorded from the local area. There is no ecological linkage from the application area to Reserve R 52979. Similarly, the degraded condition of the vegetation present, and the lack of ecological connection to suitable habitat, makes it highly unlikely that any of the three reptiles of conservation significance recorded from the local area occur. The native vegetation of the application area does not comprise the whole, or a part of, nor is it necessary for the maintenance of a significant habitat for fauna.</p>	Not at variance	No
<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> Two Threatened orchid species have been recorded within ten kilometres of the application area. The on-ground survey did not identify either species, and due to separation distances and the highly degraded nature of the road verge vegetation, no Threatened flora species are likely to occur (Natural Areas 2021).</p>	Not at variance	No

Assessment against the Clearing Principles	Variance level	Is further consideration required?
<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> There are five mapped Threatened Ecological Communities (TECs) endorsed by the Western Australian Minister for the Environment within the local area. The vegetation descriptions of Natural Areas (2021) do not align with any of the five TECs mapped within the local area. Native vegetation of the application area does not comprise the whole, or a part of, nor is it necessary for the maintenance of any Threatened Ecological Communities endorsed by the Western Australian Minister for the Environment.</p>	Not at variance	No
<b>Environmental values: 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> 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 the year 1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia 2001). The extent of native vegetation retained can be considered at different scales. The application area is located within the Swan Coastal Plain Bioregion which retains approximately 38.62 per cent of its original extent (Government of Western Australia 2019a) (Appendix B3).</p> <p>The mapped Quindalup Complex retains approximately 33,012 hectares, representing 60.49 per cent of the its original extent (Government of Western Australia 2019b). The application area is considered a severely degraded occurrence of the Quindalup Complex.</p> <p>Utilising remnant native vegetation mapping data, approximately 19,735 hectares of native vegetation is retained within the local area of a ten kilometre radius of the application area, representing 30.6 per cent of the original occurrence (Appendix E, Figure (a)). The application area is not considered significant as a remnant of native vegetation in an area that has been extensively cleared. The application area is adjacent to a remnant of a native vegetation that may be susceptible to weeds and dieback. Standard weed and dieback management strategies would reduce this risk.</p>	Not likely to be at variance	No
<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> The entire Ennis Avenue Road Reserve will not be cleared, with a minimum 20 metre width of native vegetation retained within the western side of the road reserve (Figure 1). Given the separation distances to conservation areas within the local area (Appendix E, Figure (b)), and retention of native vegetation within the Ennis Avenue Road Reserve, proposed clearing is unlikely to impact environmental values of any nearby conservation area.</p>	Not likely to be at variance	Yes See Section 3.2.3
<b>Environmental values: land and water resources</b>		
<p><u>Principle (f):</u> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u> No watercourses or wetlands occur within the application area, and the application area does not support riparian vegetation (Natural Areas 2021).</p>	Not at variance	No

Assessment against the Clearing Principles	Variance level	Is further consideration required?
<p>The native vegetation proposed for clearing is not growing in, or in association with, an environment associated with a watercourse or wetland.</p>		
<p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u> The 211Qu_Qf2 soil type has been mapped over the application area associated with the Quindalup South Qf2 Phase. Land degradation risks for water erosion, water-logging, water repellence, phosphorous export, salinity, acid sulphate soils and sub-surface acidification associated with this soil type, within this locality, are rated low (DPIRD 2017; Appendix B1).</p> <p>Due to the unconsolidated nature of the 211Qu_Qf2 sands, wind erosion is rated at a medium risk. Standard and staged construction methodologies will be implemented including strategies for dust control and wind erosion. The amount of clearing required for the shared path is relatively small and soils will not be excavated at depth. Noting the minor extent of proposed clearing along an existing road, the proposed clearing is not likely to cause appreciable land degradation.</p>	Not likely to be at variance	No
<p><u>Principle (i):</u> <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.”</i></p> <p><u>Assessment:</u> No watercourses, wetlands, or drainage lines intersect the application area. Proposed clearing will not intersect groundwater and no groundwater abstraction is required. Soils will not be excavated at depth and proposed clearing of native vegetation is not likely to cause any deterioration in the quality of surface water or groundwater.</p>	Not at variance	No
<p><u>Principle (j):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment:</u> The mapped 211Qu_Qf2 soil type has a low flood risk and low water-logging risk. The hydrology of the area is altered due to the adjacent roadside infrastructure. Standard construction methodologies will be implemented including strategies for drainage controls and water erosion and any potential for flooding can be managed through appropriate design (Appendix G). Given the small scale and linear nature of the proposed clearing, and the standard construction methodologies employed, proposed clearing is unlikely to cause, or exacerbate, the incidence or intensity of flooding.</p>	Not at variance	No

## Appendix D – Vegetation condition rating scale

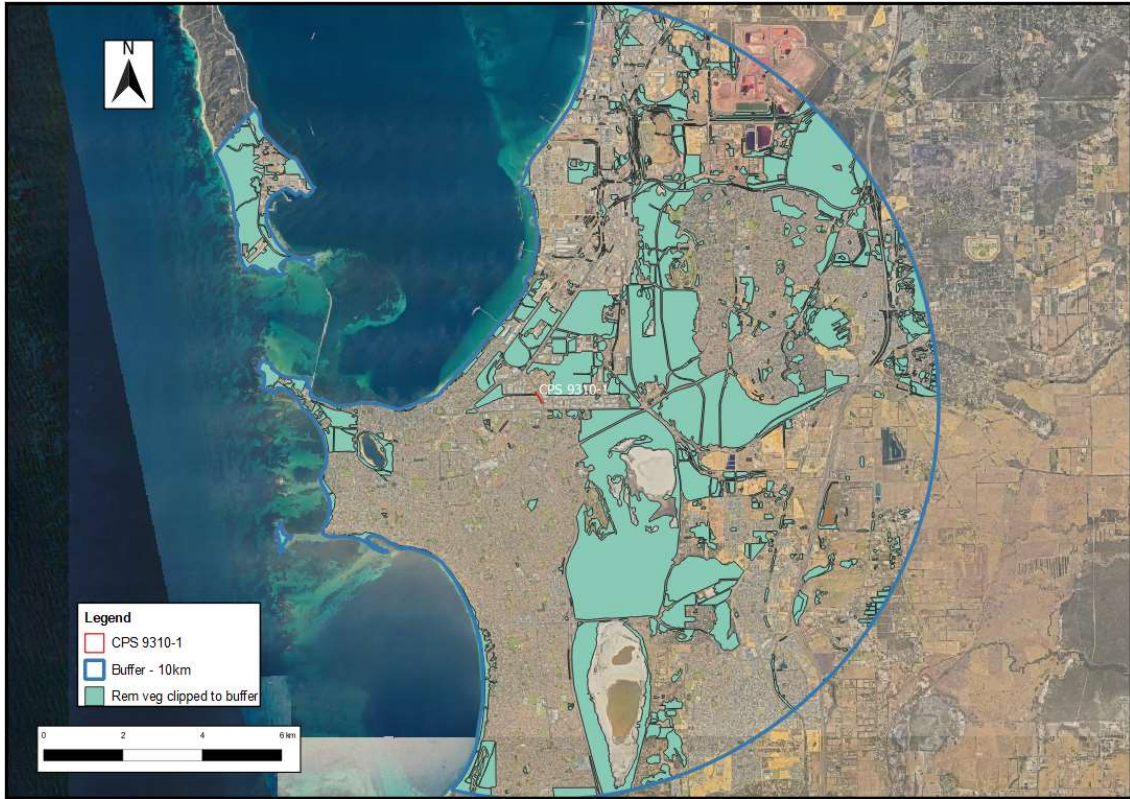
Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree 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.

### Measuring Vegetation Condition for the South West and Interzone Botanical Province (Keighery, 1994)

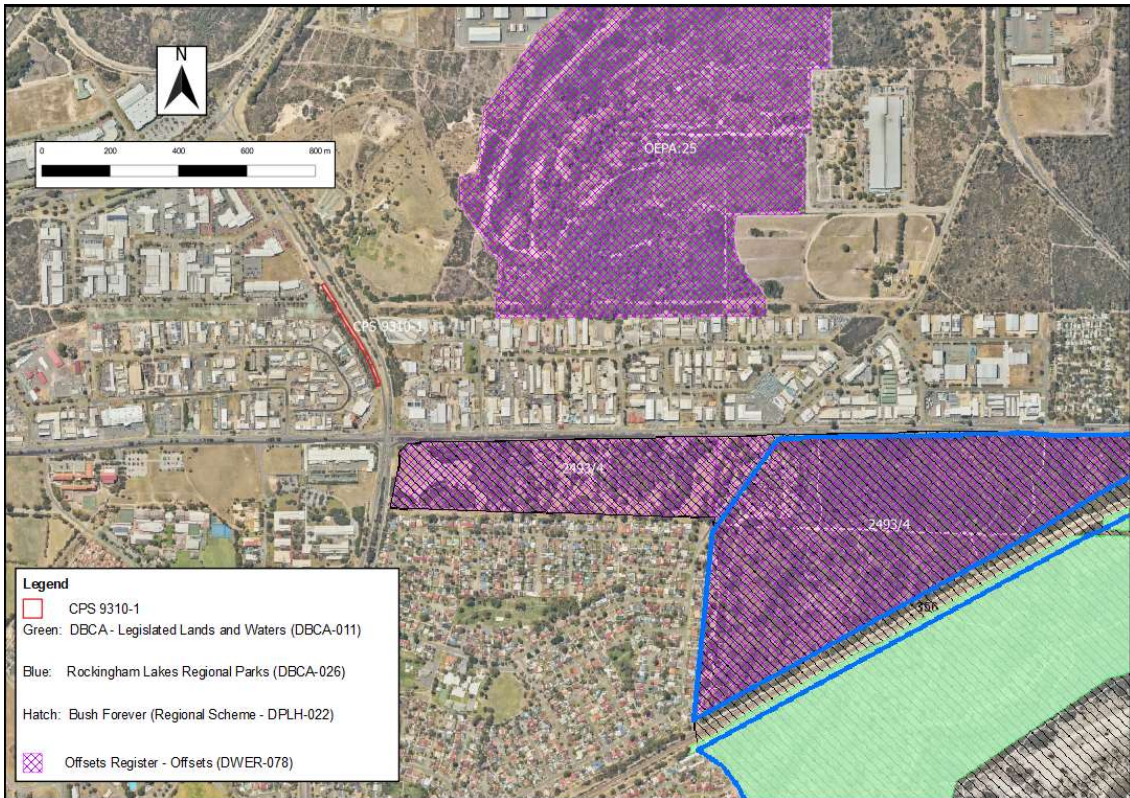
Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very Good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance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



**Appendix E – Figures**



**Figure (a) Mapped remnant vegetation in the local area**



**Figure (b) Conservation areas within the vicinity of CPS 9310-1**



**Appendix F – Biological survey information**

**1. Representative photograph of the application area (City of Rockingham 2021)**





## 2. Flora and vegetation survey excerpts (Natural Areas 2021)



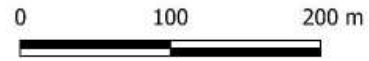
Natural Area Holdings Pty Ltd



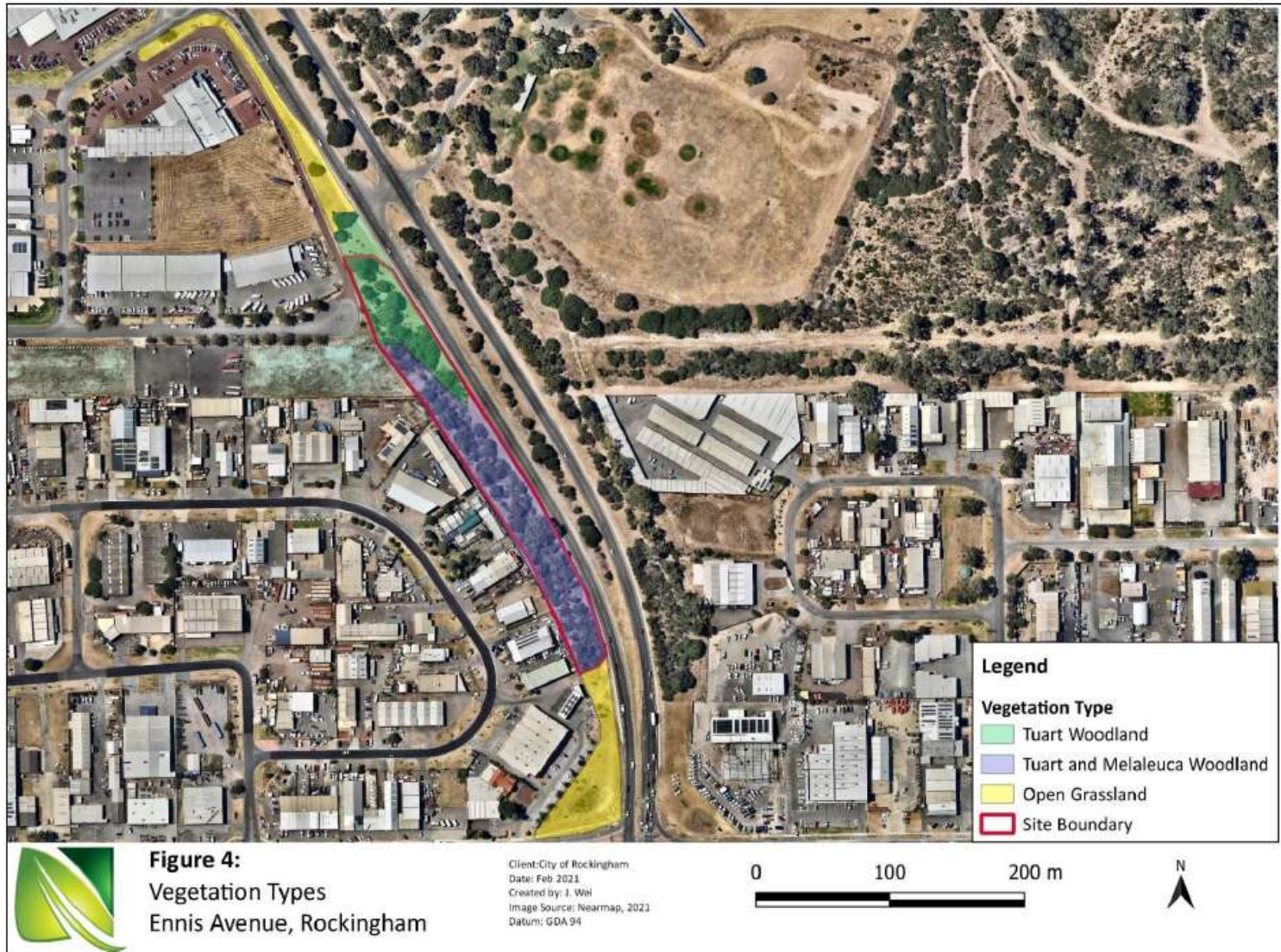


**Figure 5:**  
Vegetation Condition  
Ennis Avenue, Rockingham

Client: City of Rockingham  
Date: Feb 2021  
Created by: J. Weil  
Image Source: Nearmap, 2021  
Datum: GDA 94







Natural Area Holdings Pty Ltd

## 4.2 Flora On-ground Survey

The survey confirmed the presence of 12 flora species from seven families, including four (33%) native species and eight (67%) introduced species (Table 5). No threatened or priority species were recorded during the survey, with majority of the species recorded being non-native (introduced) species. Examples of flora species recorded on site are included in Figure 3.

Table 5: Species recorded during the survey. \* Denotes introduced species

Family	Species
Fabaceae	<i>Acacia rostellifera</i>
Myrtaceae	<i>Callistemon citrinus</i> *
Myrtaceae	<i>Chamelaucium uncinatum</i> *
Ranunculaceae	<i>Clematis linearifolia</i>
Poaceae	<i>Cynodon dactylon</i> *
Poaceae	<i>Eragrostis curvula</i> *
Asteraceae	<i>Erigeron bonariensis</i> *
Myrtaceae	<i>Eucalyptus sp.</i> *
Euphorbiaceae	<i>Euphorbia terracina</i> *
Myrtaceae	<i>Melaleuca huegellii</i>
Myrtaceae	<i>Melaleuca systema</i>
Anacardiaceae	<i>Schinus terebinthifolia</i> *

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### 4.2.1 Vegetation Type

Three vegetation types were recorded within the survey area (Table 6 and Figure 4), namely:

- Open Grassland
- *Eucalyptus gomphocephala* and *Melaleuca huegellii* Open Woodland
- *Eucalyptus gomphocephala* Open Woodland.

Table 6: Vegetation type and description

Vegetation Type	Description
Open Grassland	Maintained grassed areas of <i>Cynodon dactylon</i>
<i>Eucalyptus gomphocephala</i> and <i>Melaleuca huegellii</i> Open Woodland	<i>Eucalyptus gomphocephala</i> , <i>Melaleuca huegellii</i> , <i>Acacia rostellifera</i> over weedy grass understorey
<i>Eucalyptus gomphocephala</i> Open Woodland	<i>Eucalyptus gomphocephala</i> over <i>Xanthorrhoea preissii</i> and weedy grass understorey

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#### 4.2.2 Vegetation Condition

Vegetation condition across the site ranges from Completed Degraded to Degraded, with most of the basic vegetation structures impacted from previous clearing (Table 7). Understorey comprises of mainly weedy grass with maintained turfed grass lawns in the surrounding areas.

Table 7: Vegetation Condition

Vegetation Condition	Pristine	Excellent	Very Good	Good	Degraded	Completely Degraded	Total
Area (ha)	0	0	0	0	0.69	1.27	1.96
Area (%)	0	0	0	0	35	65	100

City of Rockingham  
Ennis Avenue Shared Path Flora Survey

## 5.0 Discussion

### 5.1 Flora and Vegetation

Flora diversity within the survey area is relatively low with majority (67%) being non-native (weed) species. This is not uncommon for an urban roadside verges with close proximity to anthropogenic influences such as housing development and vehicular traffic. Surrounding areas have been turfed with remnant vegetation losing most of its vegetative structure and containing high weed loads resulting in a classification of mostly Degraded to Completely Degraded vegetation condition.

The proposed alignment, running along the road carriageway may impact 20 individual native plants (Figure 6) due to close proximity (less than 2m) to the proposed path. These plants have been identified and marked during the flora survey. Impacts may range from minor pruning to the removal of the entire plant depending on the construction design and installation methodology. Natural Area note that there is an existing firebreak running behind industrial developments along Hurrell Way. As the existing firebreaks are cleared of vegetation, this may be a potential alternative for the proposed footpath to avoid impact any existing vegetation. Another alternative is to reclaim road space from the carriageway, but this is subjected to approval from relevant road authorities, with traffic impact assessments to determine feasibility.

The four native species recorded for the site are common species throughout the Perth Region. These species are relatively easy to propagate and are commonly used in revegetation projects. It is recommended that if any native vegetation is removed, it is replaced accordingly, in another section of the road verge to mitigate the loss and potentially improve the vegetation condition of road verge.

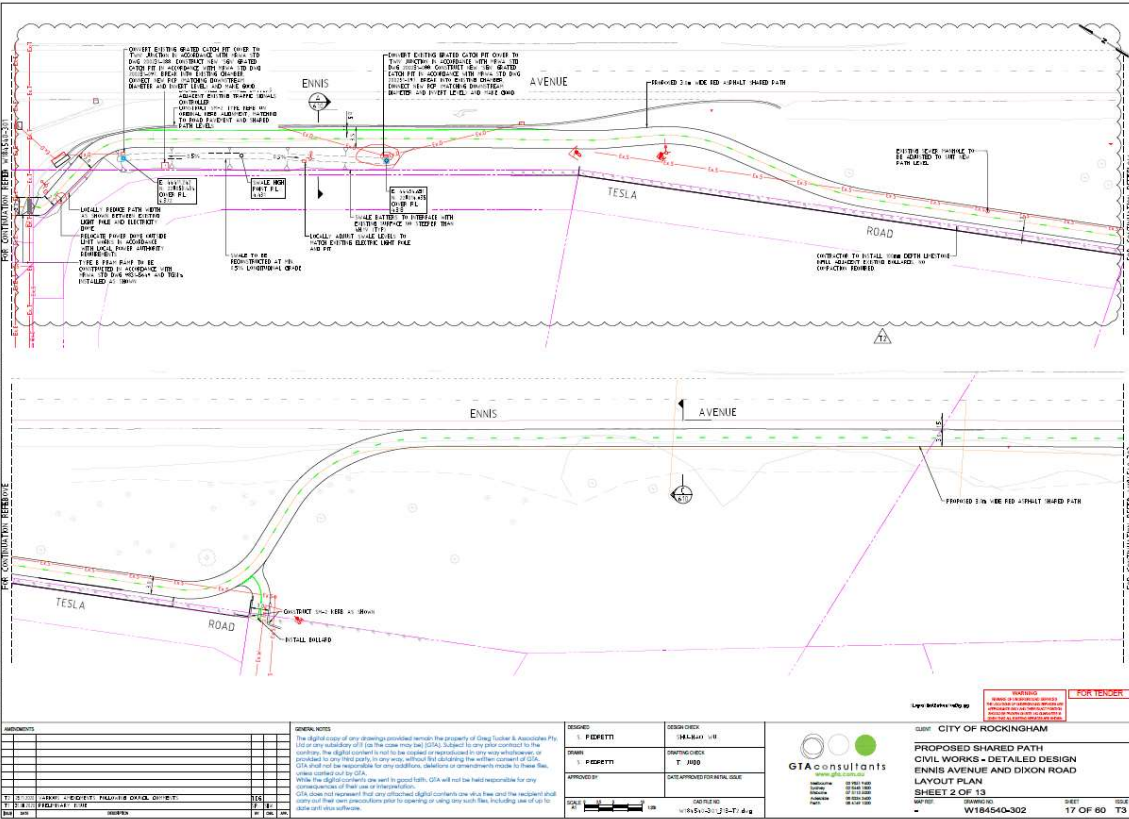
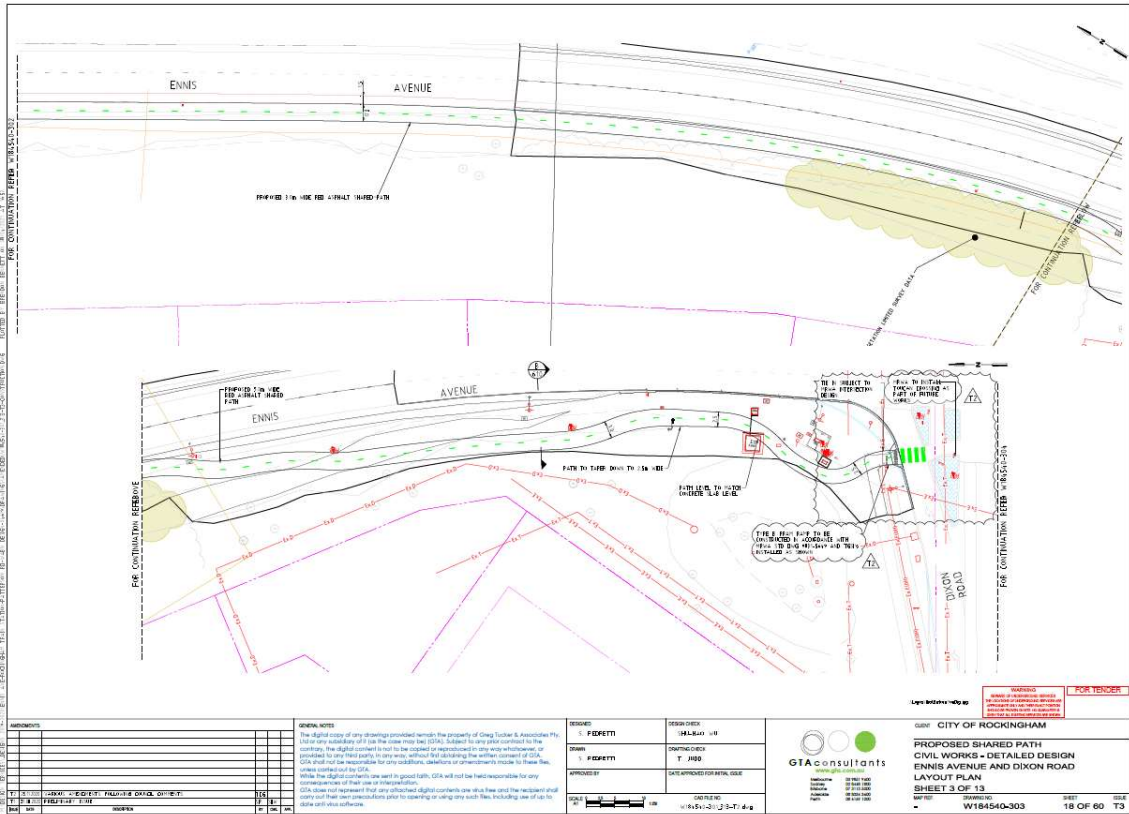
### 5.2 Significant Flora

No threatened or priority species are recorded during the survey, and due to the highly degraded nature of the road verge vegetation none are expected to occur within the area.

### 5.3 Threatened Ecological Communities

No threatened or priority ecological communities are recorded during the survey, as the Tuart Woodland present does not meet the patch size or condition requirements to be classified as the TEC.

# Appendix G – Engineering drawings



## Appendix H – References and databases

### 1. References

- Bamford Consulting Ecologists (Bamford) (2013). Plants known to be used for foraging, roosting and nesting by black cockatoos in south-western Western Australia. Data compiled from the literature (Davies, 1966; Saunders, 1974, 1979a, b, 1980; Saunders et al. 1982; Saunders, 1986; Johnstone and Storr, 1998; Higgins 1999; Johnstone and Kirkby, 1999, 2008; Groom, 2011; Johnstone et al. 2011; DSEWPaC, 2012a, b; c, R. Johnstone pers. comm.) in Bamford (2013) Wedgetail Circle, Parkerville Fauna Assessment. Prepared for Coterra Environment. Bamford Consulting Ecologists. Prepared by Jeff Turpin, Simon Cherriman and Mike Bamford. 14th August 2013.
- Bureau of Meteorology (BOM) (2020) Climate classification maps. Available from: [http://www.bom.gov.au/jsp/ncc/climate\\_averages/climate-classifications/index.jsp?maptype=kpn#maps](http://www.bom.gov.au/jsp/ncc/climate_averages/climate-classifications/index.jsp?maptype=kpn#maps)
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- Government of Western Australia (2019a). 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions. <https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics>.
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## 2. GIS datasets

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

- Aboriginal Heritage Places (DPLH-001)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- 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

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)