GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 9393/1
Permit Holder:	City of Gosnells
Duration of Permit:	From 09 January 2022 to 09 January 2027

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 road construction and upgrades.

2. Land on which clearing is to be done

Warton Road Reserve (PINs 381055 and 11915102), Harrisdale

3. Clearing authorised

The permit holder must not clear more than 0.0168 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 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.

PART III - RECORD KEEPING AND REPORTING

6. Records that must be kept

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

Table 1: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	(a) the species composition, structure, and density of the cleared area; (b) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings; (c) the date that the area was cleared; (d) the size of the area cleared (in hectares); (e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 4; and (f) actions taken to minimise the risk of the introduction and spread of *weeds* and *dieback* in accordance with condition 5.

7. Reporting

The permit holder must provide to the *CEO* the records required under condition 6 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 *Environmental Protection Act 1986*.
clearing	has the meaning given under section 3(1) of the EP Act.

Term	Definition
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 *Phytophthora* species on native vegetation.
department	means the department established under section 35 of the *Public Sector Management Act 1994* (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
EP Act	*Environmental Protection Act 1986* (WA)
mulch	means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation.
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
weeds	means any plant – (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.

END OF CONDITIONS

Mathew Gannaway
MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

16 December 2021

Schedule 1

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

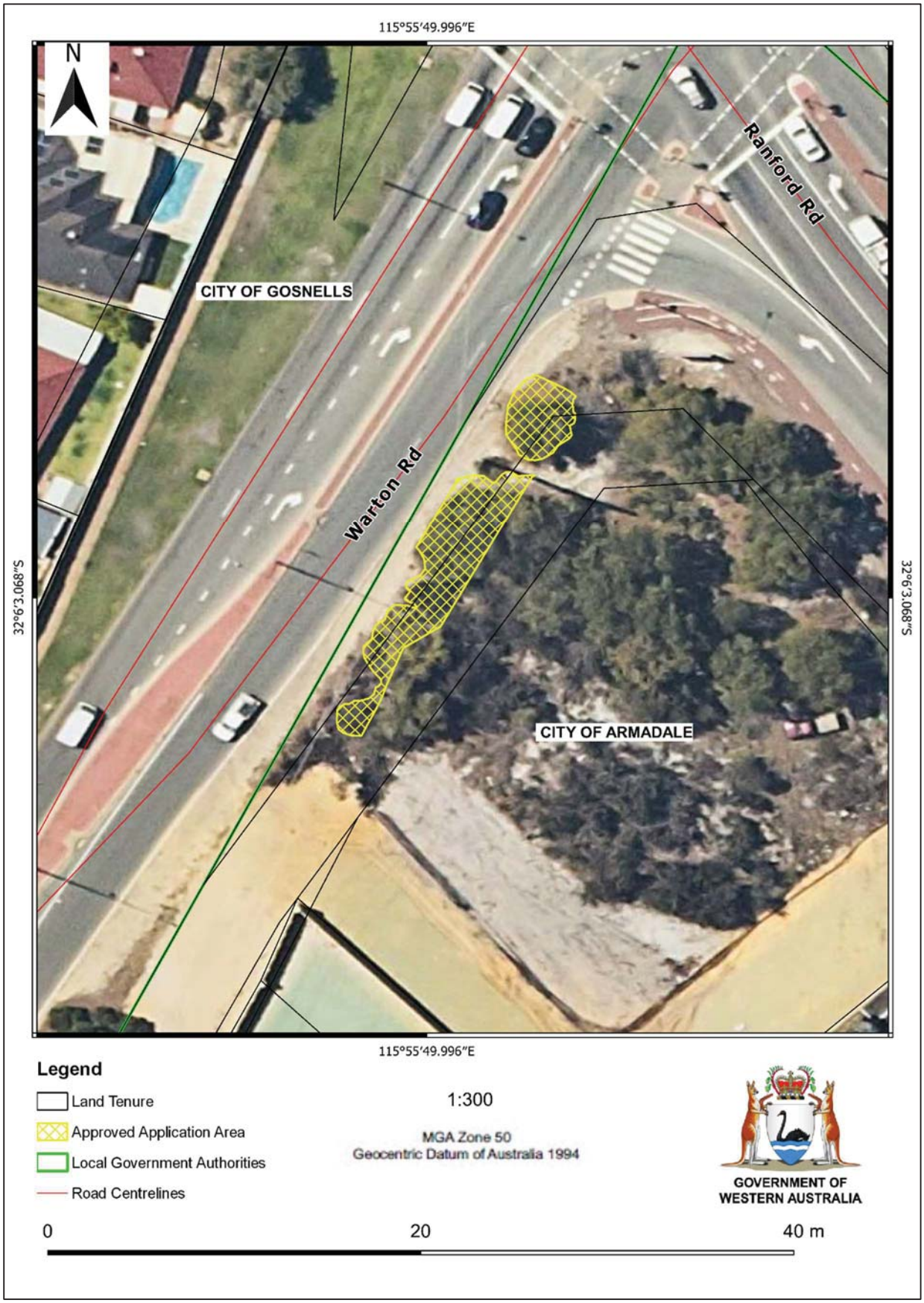

Figure 1: Map of the boundary of the area within which clearing may occur

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 9393/1
Permit type:	Purpose permit
Applicant name:	City of Gosnells
Application received:	17 August 2021
Application area:	0.0168 hectares
Purpose of clearing:	Warton Road duplication (road construction and update)
Method of clearing:	Mechanical removal
Property:	Warton Road Reserve (PINs 11915102 and 381055)
Location (LGA area/s):	City of Armadale
Localities (suburb/s):	Harrisdale

1.2. Description of clearing activities

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

The proposed clearing is to facilitate the duplication of Warton Road near the junction of Warton Road and Ranford Road in Canning Vale (City of Gosnells, 2021). The vegetation proposed to be cleared is comprised of a woodland of *Melaleuca preissiana* and *Allocasuarina fraseriana* over an open shrubland of *Adenanthos cygnorum* subsp. *Cygnorum* and *Rhagodia baccata* subsp. *baccata* in a degraded to completely degraded condition (Keighery, 1994) (Emerge, 2021).

1.3. Decision on application

Decision:	Granted
Decision date:	16 December 2021
Decision area:	0.0168 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 14 days and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix B), relevant datasets (see Appendix F.1), the findings of a reconnaissance survey (see Appendix E), the clearing principles set out in Schedule 5 of the EP Act (see Appendix C), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3).

The assessment identified that the proposed clearing will result in:

- the potential introduction and spread of weeds and dieback into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values.

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 is unlikely to lead to appreciable land degradation and will not have any long-term adverse impacts on biological and environmental values. The minor impacts identified can be minimised and managed to unlikely 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 dieback.

1.5. Site map

Figure 1 Map of the application area

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

2 Legislative context

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

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

- the precautionary principle
- the principle of intergenerational equity
- the 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)
- *Biosecurity and Agriculture Management Act 2007 (BAM Act)*
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *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* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019).
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

Applicant has advised that avoidance and mitigation measures have been considered to ensure the environmental impact from the proposed clearing for the project was kept to a minimum (City of Gosnells, 2021). Below are the avoidance measures considered by the applicant.

- The design has incorporated a retaining wall to retain the new fill avoiding the necessity of battering into the existing ground at one in three slope. The City of Gosnells has further considered installing a Twinside retaining wall instead if a limestone block retaining wall. By selecting a Twinside retaining wall, area of construction disturbance is minimised and hence the clearing footprint is minimised (City of Gosnells, 2021a).
- The works area is largely located within an area that had previously been cleared of native vegetation. Areas of lower quality vegetation were targeted for the proposed work (City of Gosnells, 2021a).
- Ongoing liaison with land managers and civil engineers was conducted to ensure that areas of clearing were minimised within the works areas (City of Gosnells, 2021a).

The applicant has proposed to move vegetation removed during clearing to Jandakot Regional Park to support fauna habitat (City of Gosnells, 2021a).

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 B) and the extent to which the impacts of the proposed clearing present a risk to biological (fauna) values and environmental values.

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

3.2.1. Biological values - Clearing Principles (a and b)

Assessment:

Vegetation over the application area consists of a woodland of *Melaleuca preissiana* and *Allocasuarina fraseriana* over an open shrubland of *Adenanthos cygnorum* subsp*. cygnorum* and *Rhagodia baccata* subsp*. baccata* along with non-native species and disturbed bare ground (Appendix E). Condition of the native vegetation over the application area ranged from degraded to completely degraded (Keighery, 1994) due to the absence of native understorey layer, weed invasion, and being located adjacent to two main roads to the south and east of the

application area (Emerge, 2021a). Noting the above, the application area will not provide suitable habitat for the existence of the conservation significant flora species identified within the ten-kilometre radius local buffer.

As detailed in Appendix B, the area proposed to be cleared is mapped within a commonwealth-listed Threatened Ecological Community (TEC) and a state listed Priority Ecological Community (PEC) (GIS database). Considering the highly disturbed, fragmented and significantly altered condition of the vegetation and the findings of the reconnaissance vegetation survey (Emerge, 2021a), it is unlikely the proposed application area will represent the Banksia Woodland of the Swan Coastal Plain.

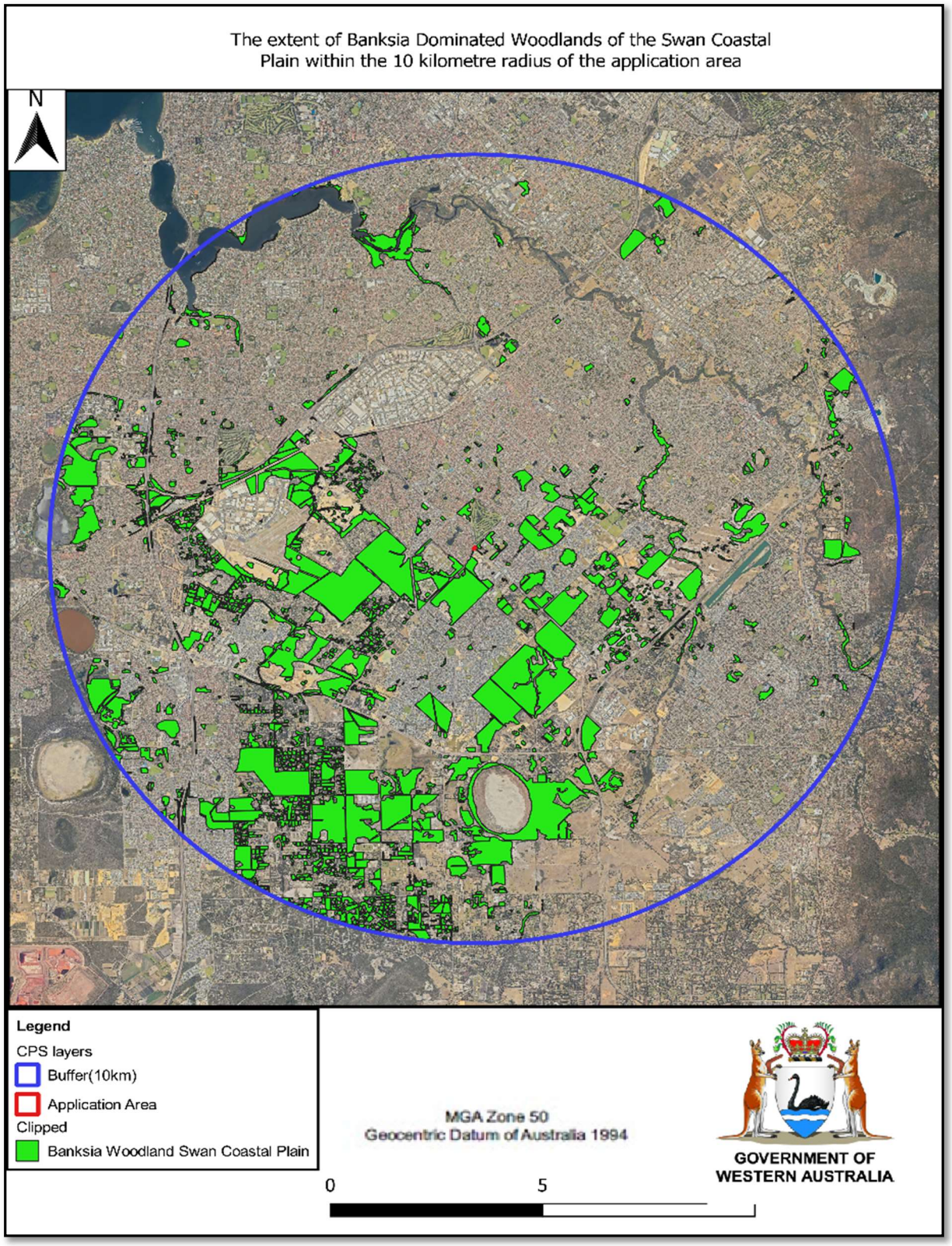

Figure 2: Mapped banksia woodland of Swan Coastal Plain within the ten-kilometre radius local buffer.

The desktop assessment of the application area identified 58 conservation significant fauna species within the ten-kilometre radius of the application area which includes 37 bird species, nine invertebrate species, seven mammal species and five reptile species.

Class: Birds

Majority of the birds identified through the desktop study are migratory species associated with mudflats, freshwater wetlands, saltmarshes, mangroves and riparian vegetation and does not breed in Western Australia. Based on the known distribution and habitat preference, the bird species most likely to occur over the application area are the three vagile species of black cockatoos; the endangered *Calyptorhynchus latirostris* (Carnaby's black cockatoo), vulnerable *Calyptorhynchus banksii naso* (Forest red-tailed black cockatoo) and endangered *Calyptorhynchus baudinii* (Baudin's cockatoo). Majority of the black cockatoos were identified as *Calyptorhynchus latirostris* (Carnaby's cockatoo) within the ten-kilometre radius local buffer.

Carnaby's cockatoos were once very numerous in the southwest of Western Australia (DPaW, 2013), however has suffered at least a 50 per cent decline in the total population and has disappeared from more than a third of its breeding range between 1968 and 1990 (Saunders and Ingram, 1998). It is now listed as endangered under both the federal EPBC Act and state BC Act. The decline of Carnaby's cockatoo has been due primarily to the loss and fragmentation of habitat, as a result of clearing of native vegetation, since the middle of the 20th century (DPaW, 2013). Identified breeding and nearby feeding habitat, former breeding habitat that has hollows intact and vegetation that provides habitat for feeding, watering and regular night roosting is considered habitat critical for recovery of the species (DPaW, 2013).

Breeding Habitat

Carnaby's cockatoo nests in the hollows of live or dead eucalypts and in the past 60 years there has been a shift in the breeding range towards the south and west, including a more rapid increase in the Darling Scarp and Swan Coastal Plain (Johnstone and Kirkby, 2008; Johnstone et al., 2011). Breeding habitat includes:

- trees of these species that either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow, which is 500 millimetres for most tree species (Commonwealth of Australia, 2012).
- together with feeding areas and watering sites within foraging distance (12 kilometres) of breeding sites (DPaW, 2013).

The reconnaissance vegetation survey (Emerge, 2021) did not identify trees which fits into the above description and therefore, the application area will not provide suitable breeding habitat for black cockatoos.

Foraging Habitat

The Forest Red-tailed black cockatoo feeds mainly on the seeds of marri (*Corymbia calophylla)* and jarrah (*Eucalyptus marginata*); other foods include sheoak (*Allocasuarina fraseriana)*, snottygobble *(Persoonia longifolia)*, blackbutt (*Eucalyptus patens)* and introduced species including white cedar (Cape Lilac) (*Melia azedarach)* and lemon-scented gum (*Corymbia citriodora)* (Johnstone and Kirkby, 2008).

Carnaby's cockatoo forages on the seeds, nuts and flowers of a variety of plants, including Proteaceous species (banksia, hakea and grevillea), as well as allocasuarina and eucalyptus species, marri and a range of introduced species (Valentine and Stock, 2008). Carnaby's cockatoos generally forages within six (and up to 12 kilometres) of its nesting or night roost site (Commonwealth of Australia, 2012).

Baudin's cockatoos are also known to feed on a range of foods including the seeds of *Allocasuarina fraseriana*. However, marri is the primary food source with the birds using its seeds, flowers, nectar and buds (R.E. & C.Johnstone and Kirkby, 2010).

There are 19 known black cockatoo roost sites within a six-kilometre radius buffer from the application area with the closest known black cockatoo roost site approximately 520 metres north of the application area. The vegetation proposed to be cleared includes Forest Red-tailed black cockatoo, Carnaby's cockatoo and Baudin's cockatoo foraging species within the foraging distance to numerous roost sites. However, the area proposed to be cleared is very small and quality of the foraging habitat is low (Emerge, 2021a) in relation to that within the surrounding Jandakot Regional Park and the Bush Forever sites within the local area. Noting the above and the application area being a small isolated patch of vegetation located adjacent to a busy main road, the possibility of black cockatoos utilising the vegetation within the application area is minimal. The proposed clearing is unlikely to represent a significant loss of black cockatoo foraging habitat. The figure below represents the extent of suitable foraging habitat available for black cockatoos in the local area.

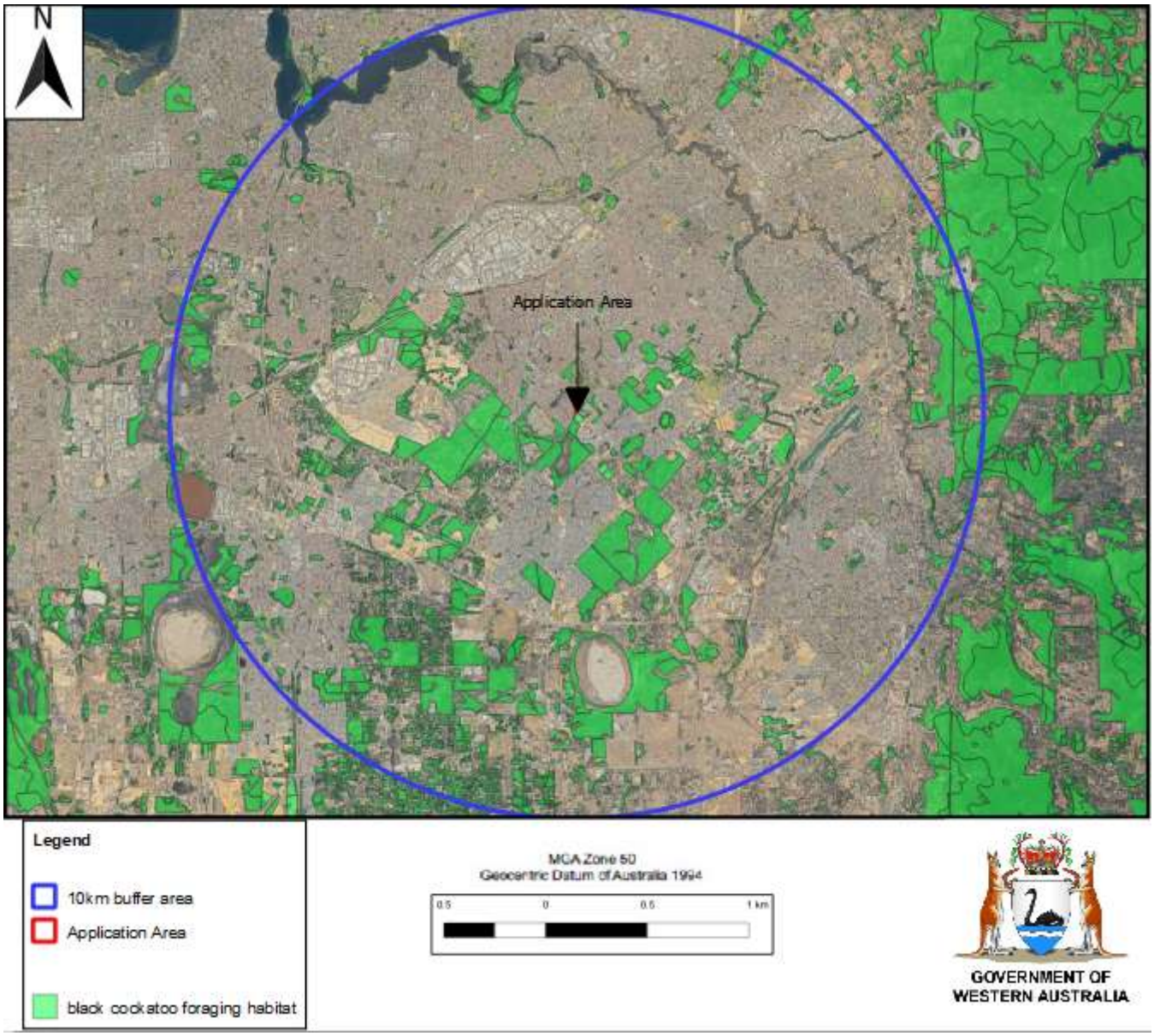

Figure 3: Black cockatoo foraging habitat within the surroundings of the application area.

Roosting Habitat

The desktop assessment identified over 50 individual roost sites within the ten-kilometres local buffer area in which 19 roost sites were identified within the six-kilometre buffer area.

Black cockatoo roosting is typically noted to occur within suitable trees close to an important water source and within an area of quality foraging habitat (Commonwealth of Australia, 2012). Carnaby's cockatoo night roost sites typically have tall, dense canopied trees, are close to water where the birds can drink and close to food trees such as banksias, bottlebrush and marri. The roost trees are usually clumped and, at larger roosts and cover an area of at least five hectares (Government of Western Australia, 2010).

Photographs with the reconnaissance survey (Emerge, 2021) provided by the applicant, indicate the vegetation within the area proposed to be cleared is unlikely to represent suitable black cockatoo night roost site due to the distance to standing water source (closest water source is 500 metres from the application area) and lack of clumps of trees with typical roost features. The proposed clearing is unlikely to represent significant loss of Carnaby's cockatoo roosting habitat.

Class: Invertebrates, Mammals and Reptiles

The degraded to completely degraded nature of the native vegetation (Keighery, 1994), and in particular the lack of an understorey, combined with the isolation of the application area from areas of native vegetation in good or better

condition (Emerge, 2021a), the absence of watercourse and being located in a corner of two major roads, excludes the likelihood of invertebrates, mammals and reptiles likely to occur within the ten-kilometre radius local area occurring over the application area.

The proposed clearing of 0.0168 hectares of native vegetation may depreciate the condition of the adjacent remnant vegetation due to the increased risk of spread of weed and dieback. Implementation of weed and dieback management strategies will mitigate the risk.

Conclusion:

Given the size of the clearing and the degraded to completely degraded condition (Keighery, 1994) of the vegetation in relation to its position in the landscape, and the location of known roost sites and mapped foraging habitats, it is unlikely that the native vegetation within the application area represents an important foraging resource to support black cockatoo populations. For the reason set out above, it is considered that the impacts of the proposed clearing on fauna habitat does not constitute a significant residual impact.

It is also considered appropriate that hygiene measures should be implemented during clearing to help protect remnant vegetation from weed and dieback spread and the resultant degradation in habitat that can occur.

Conditions:

- No specific fauna management conditions required.
- The permit holder is required to take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback.

3.2.2. Environmental values - Clearing Principle (e)

Assessment:

The application area is located within the Swan Coastal Plain (SCP) IBRA bioregion, and the Bassendean subsystem (1001). The SCP bioregion has approximately 579,813.47 hectares of native vegetation remaining, equating to approximately 38.62 per cent of its original extent (Government of Western Australia 2019b) (Appendix B.2.). Bassendean subsystem has approximately 22.05 per cent of its original extent remaining (Government of Western Australia 2019a).

The southern river vegetation complex and the ten-kilometre radius local area both retains less than 30 per cent of the original extent. However, the area proposed to be cleared is within the Perth Metropolitan Region constrained area, where a minimum ten per cent representation threshold for ecological communities is recommended (EPA, 2008). The current vegetation extent for the SCP IBRA Bioregion, the southern river vegetation complex, and the local area are all above the ten per cent threshold. In addition, the vegetation proposed to be cleared is in two small pockets of highly disturbed roadside native vegetation.

Although the southern river vegetation complex meets the ten per cent threshold, the extent of this vegetation complex remaining within the Department of Biodiversity Conservation and Attraction (DBCA) managed land is 1.6 per cent and the extent of the beard vegetation association 1001 remaining within the DBCA managed land is 3.13 per cent.

Bassendean vegetation association (1001) comprise of medium very sparse woodland; jarrah, with low woodland; banksia and casuarina (Government of Western Australia, 2019a). Southern River vegetation complex (42) comprise of open woodland of *Corymbia calophylla* (marri) - *Eucalyptus marginata* (jarrah) - Banksia species with fringing woodland of *Eucalyptus rudis* (flooded gum) - *Melaleuca rhaphiophylla* (swamp paperbark) along creek beds (Government of Western Australia, 2019b).

Given the vegetation community (MpAfAc) within the application area and the degraded to completely degraded nature of the vegetation, the proposed clearing area is not considered representative of the southern river vegetation complex or the Bassendean vegetation association.

Conclusion:
Noting the above, the proposed clearing is not likely to be significant as a remnant of native vegetation in an extensively cleared area.

Conditions:
Nil conditions required to manage this environmental value.

3.3. Relevant planning instruments and other matters

The City of Armadale advised DWER that local government approvals are not required. The City of Armadale did not have any objections to the proposed clearing however, the City of Armadale has requested that the "City of Gosnells ensure that appropriate controls area implemented throughout the construction works to ensure the protection of the adjacent bushland area located 23 Cypress Cr Harrisdale" (City of Armadale, 2021). Weed and dieback management conditions imposed on the clearing permit should mitigate the risk to adjacent vegetation.

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

End

Appendix A. Additional information provided by applicant

Information	Description
Emerge Associates – Duplication of Warton Road between Ranford Road and Nicholson Road – Supporting Document	Applicant has provided a letter addressing the *Environmental Protection Act 1986* ten clearing principles to support the proposed duplication of Warton Road between Ranford Road and Nicholson Road in canning vale within the additional area of clearing within Warton Road reserve (land ID numbers 3536574 and 3951316) (Emerge, 2021a).

Appendix B. Site characteristics

B.1. Site characteristics

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

Characteristic	Details
Local context	The area proposed to be cleared is a small, isolated patch of native vegetation in the intensive land use zone of Western Australia. It is surrounded by Ranford Road to the east and Warton Road to the south. The proposed clearing area is located in the Perth suburb of Canning Vale, approximately 25 kilometres south of Perth CBD (Emerge, 2021a). Aerial imagery and Spatial data indicate the local area (ten-kilometre radius from the centre of the application area) retains approximately 15 per cent of the original native vegetation cover.
Ecological linkage	No ecological linkages are mapped or considered to exist within the application area. No surrounding native vegetation link with the proposed application area.
Conservation areas	There are several conservation areas within the local area, the closest being Bush Forever Site 253 which is approximately 200 metres southwest from the application area. The application area is not within a conservation covenant, regional park or DBCA areas of interest (DBCA-012, DBCA-026).
Vegetation description	The supporting document supplied by the applicant indicate the vegetation within the proposed clearing area consists of the vegetation community (MpAfAc) which is described as a woodland of *Melaleuca preissiana* and *Allocasuarina fraseriana* over an open shrubland of *Adenanthos cygnorum* subsp*. cygnorum* and *Rhagodia baccata* subsp*. baccata*. Remainder of the application area contains bare ground or non-native species (Emerge, 2021a). Representative photos and a survey description are available in Appendix E. The mapped vegetation types: • Beard vegetation association (1001): which is described as jarrah, banksia or casuarina, *Eucalyptus marginata*, *Banksia* spp., *Allocasuarina* spp. (Shepherd et al, 2001). • Southern River complex (42): which is described as open woodland of *Corymbia calophylla* (marri), *Eucalyptus marginata* (jarrah), banksia species with fringing

Characteristic	Details
	woodland of *Eucalyptus rudis* (flooded gum) and *Melaleuca rhaphiophylla* (Swamp Paperbark) along creek beds. The mapped vegetation types retain approximately 22.5 per cent and 18.4 per cent respectively of the original extent (Government of Western Australia, 2019b).
Vegetation condition	Photographs supplied by the applicant and the vegetation survey description (Emerge, 2021) indicate the vegetation within the proposed clearing area is in a degraded to completely degraded condition (Keighery, 1994). The full Keighery (1994) condition rating scale is provided in Appendix D. Representative photos and survey descriptions are available in Appendix E.
Climate and landform	The southwest of Western Australia experience a Mediterranean climate of hot dry summers and cool wet winters. The area receives an average rainfall of 819.6 millimetres (mm) of rainfall annually recorded from the Jandakot Aero weather station. Mean maximum temperature recorded at the Jandakot Aero weather station, range from 19.9 degrees Celsius in July to 32.8 degrees Celsius in December (Emerge, 2021b). The application area is within the Bassendean system (212Bs) described as Swan Coastal Plain from Busselton to Jurien. Sand dunes and sandplains with pale deep sand, semi-wet and wet soil (DPIRD, 2019).
Soil description	The soils within the application area are predominantly mapped as B2 Bassendean sands: flat to very gently undulating sandplain with well to moderately well drained deep bleached grey sands with a pale-yellow B horizon or a weak inorganic hardpan one to two metres (DPIRD, 2019).
Land degradation risk	The soils in which the application area falls into have a (DPIRD, 2019): - high risk of nutrient export and subsurface acidification - moderate risk of wind erosion and - low risk of waterlogging, water erosion and salinity The land degradation table B.5. below further summaries the soil degradation risk within the application area.
Waterbodies	The application area is within the Coastal Plain hydrological zone and within the Swan Avon-Canning River hydrographic catchment (DPIRD-069). The desktop assessment and aerial imagery indicate no significant watercourses or wetlands are mapped over the area proposed to be cleared (DBCA-045). The closest conservation wetland is located approximately 450 metres to the west of the application area. Forestdale and Thomsons Lakes (RAMSAR wetland ID246) is approximately 14 kilometres to the south.
Hydrogeography	The area proposed to be cleared is within the proclaimed Perth Groundwater area under the *Rights in Water and Irrigation Act 1914* (RIWI Act). The application area does not occur within a Public Drinking Water Source Area or a Surface water area under the RIWI Act nor does it occur within an area subject to the *Country Areas Water Supply Act 1947* (DWER-034). Groundwater salinity level (Total Dissolved Solids) is mapped as less than 500 milligrams per litre (fresh water) (DWER-026).

Characteristic	Details
Flora	20 threatened and 72 priority flora species are known to occur within the ten-kilometre local area. The closest records identified are 0.63 kilometres (*Aponogeton hexatepalus* and *Schoenus capillifolius*) away from the application area. The survey undertaken by Emerge Associates did not identify any threatened or priority flora within the application area. However, given the survey occurred during April, confirmation of these species' absence would not have been detected (Emerge, 2021). The DWER considers the risk of threatened or priority flora to occur within the application area is low.
Ecological communities	The application area is mapped within the Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region (priority three). Only vegetation in a good or better condition will have the possibility to represent banksia woodland community and given vegetation within the application area is in a degraded to a completely degraded condition (Keighery, 1994), it is not representative of this PEC (Emerge, 2021). No state listed TEC communities are identified within the application area.
Fauna	There are records of 58 fauna of conservation significance within the local area which include 37 bird species, nine invertebrate species, seven mammal species and five reptile species. There are numerous records of Carnaby's and Forest red-tail black cockatoo in the local area and 19 known black cockatoo roost sites within six kilometres (the typical foraging distance for black cockatoos from a night roost) from the application area. Several artificial hollows for white tail black cockatoos are located approximately 9.2 kilometres to the northwest of the application area. The application area contains suitable low quality foraging habitat for black cockatoos however, vegetation within the application area will not support breeding by black cockatoos.

B.2. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion*					
Swan Coastal Plain	1,501.221.93	579,813.47	38.62	222,916.97	14.85
Vegetation Association*					
Beard Vegetation Association (1001)*	57,410.23	12,660.76	22.05	1,796.27	3.13
Vegetation complex**					
Heddle Vegetation Complex Southern river (42)	58,781.48	10,832.18	18.43	940.36	1.6
Local area					

	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
10km radius	31,436.59	4,904.49	15.60	-	-

*Government of Western Australia (2019a)

**Government of Western Australia (2019b)

B.3. Fauna analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix F) and reconnaissance survey over the application area, impacts to the following conservation significant bird species required further consideration.

Species name	Common name	Conservation status	Number of known records (total)	Year of most recent record	Distance of closest record to application area (km)	Suitable habitat features? [Y/N]	Are surveys adequate to identify? [Y, N, N/A]
Actitis hypoleucos	common sandpiper	MI	1	1976	9.65	N	N
Apus pacificus	Fork-tailed swift	MI	1	2000	6.50	N	N
Arenaria interpres	Ruddy turnstone	MI	2	2001	6.50	N	N
Botaurus poiciloptilus	Australasian bittern	EN	11	2012	2.37	N	N
Calidris acuminata	Sharp-tailed sandpiper	MI	64	2012	2.37	N	N
Calidris canutus	Red knot	EN	2	1980	2.37	N	N
Calidris ferruginea	curlew sandpiper	CR	44	2009	2.37	N	N
Calidris melanotos	pectoral sandpiper	MI	11	2011	2.37	N	N
Calidris ruficollis	Red-necked stint	MI	99	2013	2.37	N	N
Calidris subminuta	Long-toed Stint	MI	25	2009	2.37	N	N
Calidris tenuirostris	Great knot	CR	1	1980	2.37	N	N
Calyptorhynchus banksii naso	Forest red-tailed black cockatoo	VU	110	2018	0.16	Y (foraging habitat)	N
Calyptorhynchus baudinii	Baudin's cockatoo	EN	80	2015	8.12	Y (foraging habitat)	N
Calyptorhynchus latirostris	Carnaby's cockatoo	EN	1701	2020	0.14	Y (foraging habitat)	N
Calyptorhynchus sp. 'white-tailed black cockatoo'	white-tailed black cockatoo	EN	95	2018	0.16	Y (foraging habitat)	N
Charadrius dubius	little ringed plover	MI	5	1999	2.37	N	N
Charadrius leschenaultii	Greater sand plover, large sand plover	VU	4	1999	2.37	N	N
Elanus scriptus	Letter-winged kite	P4	1	1977	2.37	N	N
Falco peregrinus	Peregrine falcon	OS	46	2016	2.37	N	N
Glareola maldivarum	Oriental pratincole	MI	6	1981	2.37	N	N
Hydroprogne caspia	Caspian Tern	MI	1	2016	9.94	N	N
Limosa lapponica	Bar-tailed godwit	MI	2	1980	2.37	N	N
Limosa limosa	Black-tailed godwit	MI	6	2009	2.37	N	N
Ninox connivens connivens	Barking owl (southwest subpop.)	P3	4	2010	7.34	N	N
Oxyura australis	Blue-billed duck	P4	258	2013	1.47	N	N
Pandion cristatus	Osprey, eastern osprey	MI	3	2016	5.15	N	N
Philomachus pugnax	Ruff (reeve)	MI	2	1980	2.37	N	N
Plegadis falcinellus	Glossy ibis	MI	36	2011	1.47	N	N
Pluvialis fulva	Pacific golden plover	MI	5	2009	2.37	N	N
Pluvialis squatarola	Grey plover	MI	6	2007	2.37	N	N
Stercorarius longicaudus	Long-tailed jaeger, long-tailed skua	MI	1	1992	7.31	N	N
Thalassarche chrysostoma	Grey-headed albatross	VU	1	1963	7.44	N	N
Thalasseus bergii	Crested tern	MI	52	2013	2.37	N	N
Thinornis rubricollis	hooded plover, hooded dotterel	P4	1	2005	9.99	N	N

Tringa glareola	wood sandpiper	MI	29	2013	2.37	N	N
Tringa nebularia	common greenshank, greenshank	MI	134	2013	2.37	N	N
Tringa stagnatilis	Marsh sandpiper, little greenshank	MI	7	2011	2.37	N	N

B.4. Land degradation risk table

Risk categories	***Risk***	***Description***
Water Erosion	L1	0% of map unit has a very high to extreme hazard
Wind Erosion	M2	40% of map unit has a high to extreme hazard
Salinity	L1	0% of map unit has a moderate hazard
Flood	L1	0% of the map unit has a moderate to high hazard
Waterlogging	L2	5% of map unit has a moderate to very high risk
Subsurface Acidification	H2	100% of map unit has a high susceptibility
Phosphorus Export	H1	90% of map unit has a high to extreme hazard

Appendix C. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: The area proposed to be cleared does not contain suitable habitat for conservation significant flora due to the occurrence of species such as *Allocasuarina fraseriana,* steep sandy bund that drops away into a low-lying area of vegetation to the east and the findings of a reconnaissance survey (Emerge, 2021). The application area contains *Allocasuarina fraseriana* which the black cockatoos are known to forage on. A portion of the application area is mapped as 'Banksia Dominated Woodlands of the Swan Coastal Plain' (Priority 3) PEC.	May be at variance	Yes *Refer to Section 3.2.1, above.*
Principle (b): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna."* Assessment: The area proposed to be cleared contains potential foraging habitat for black cockatoos. However, considering the condition and location of the vegetation proposed to be cleared, along with fauna habitat preferences, it is unlikely the application area represent important habitat for native fauna, or the remaining conservation significant fauna recorded in the local area.	May be at variance	Yes *Refer to Section 3.2.1, above.*
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: No threatened flora species were recorded within the ten-kilometre radius of the application area, nor will the application area provide suitable habitat for the existence of threatened flora.	Not likely to be at variance	No
Principle (d): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community."* Assessment: The southern area proposed to be cleared is mapped as Banksia Dominated Woodlands of the Swan Coastal Plain which is a federally listed as an Endangered TEC. However, the degraded, highly disturbed condition (Keighery, 1994) of the application area is not suitable to represent the 'Banksia woodlands of the Swan Coastal Plain' TEC. The reconnaissance survey did not identify banksia species within the application area (Emerge, 2021).	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		

Assessment against the clearing principles	Variance level	Is further consideration required?
Principle (e): *"Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."* Assessment: The vegetation under the application is a component of beard vegetation 1001 (Shepherd et al, 2001) and Heddle vegetation complex Southern River (Heddle et al, 1980) of which 22.5 per cent and 18.4 per cent of pre-European native vegetation extent remain respectively. However, vegetation within the application area is not representative of the southern river vegetation complex. The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.	Not likely to be at variance	Yes *Refer to Section 3.2.2, above*
Principle (h): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area."* Assessment: Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.	Not at variance	No
Environmental value: land and water resources		
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment: Given no water courses or wetlands are recorded within the application area (DBCA-045), the proposed clearing is unlikely to impact an environment associated with a watercourse or wetland. The proposed application area does not include any riparian vegetation.	Not at variance	No
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: The mapped soils are highly susceptible to subsurface acidification and nutrient export (DPIRD, 2019). Noting the extent of the application area, degraded to completely degraded condition of the vegetation (Keighery, 1994) and the absence of watercourses within the application area, nutrient export from the proposed clearing is unlikely to have an appreciable impact on land degradation. During the clearing and duplication of the road, methodologies such as dust control and drainage control will ameliorate any potential land degradation. Based on the scale of the proposed clearing and the standard methodologies proposed, clearing is unlikely to cause appreciable land degradation during operations.	Not likely to be at variance	No
Principle (i): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water."* Assessment: Given no water courses, wetlands or Public Drinking Water Sources Areas (DWER-033) are recorded within the application area and the application area not being located within a surface water area and irrigation district (DWER-037), the proposed clearing is unlikely to impact surface water quality.	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
The application area is located within the Perth Groundwater Area proclaimed under the RIWI Act (DWER-034), and groundwater salinity is mapped at 0-500 total dissolved salts (TDS) milligrams per litter (mg/L), that is fresh (DWER-026). The proposal is not likely to intersect groundwater and is therefore not likely to cause deterioration in the ground water.		
Principle (j): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."* Assessment: No water courses or wetlands are recorded within the application area. In addition, the soils are free draining and topographic contours do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding. Incident of flooding within the application area is mapped as low (DPIRD, 2019).	Not at variance	No

Appendix D. Vegetation condition rating scale

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

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

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

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.
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. Biological survey information excerpts (Emerge, 2021)

Vegetation descriptions, extents within the area proposed to be cleared and representative photographs taken from "letter addressing the *Environmental Protection Act 1986* Clearing principles to support the proposed duplication of Warton Road between Ranford Road and Nicholson Road in Canning vale within the additional area of clearing within Warton Road reserve (land id numbers 3536574 and 3951316).

Table 1: Extent of vegetation condition categories within the works area and clearing permit application area

Condition category (Keighery 1994)	Size (ha)	
	Works area	Clearing permit application area
Pristine	0	0
Excellent	0	0
Very good	0	0
Good	0	0
Degraded	0.0168	0.0168
Completely degraded	0.0118	0
TOTAL	0.0287	0.0168

*Plate 1: Plant community **MpAfAc** in 'degraded' condition (centre) and cleared areas with non-native species (left) located within the works area. Blue flagging tape in the centre of the photograph shows eastern extent of the clearing permit application area. Note the presence of a steep bund throughout most of the works area. Photograph taken looking north near the southern extent of the works area.*

Plate 2: Photograph taken looking down the bund in the central portion of the works area. Blue flagging shows eastern extent of the clearing permit application area.

Plate 3: The northern most portion of the works area containing an Allocasuarina fraseriana tree with no native understorey.

Figure 2: Plant Communities

Project: Clearing Permit Application
Proposed Warton Road Duplication, Forrestdale

Client: City of Gosnells

Plan Number: EP20-099(04)--F21a

Drawn:	GAR
Date:	06/05/2021
Checked:	SKP
Approved:	TAA
Date:	06/05/2021

N

0 2 4 6
Metres

Scale: 1:200@A4

GDA 1994 MGA Zone 50

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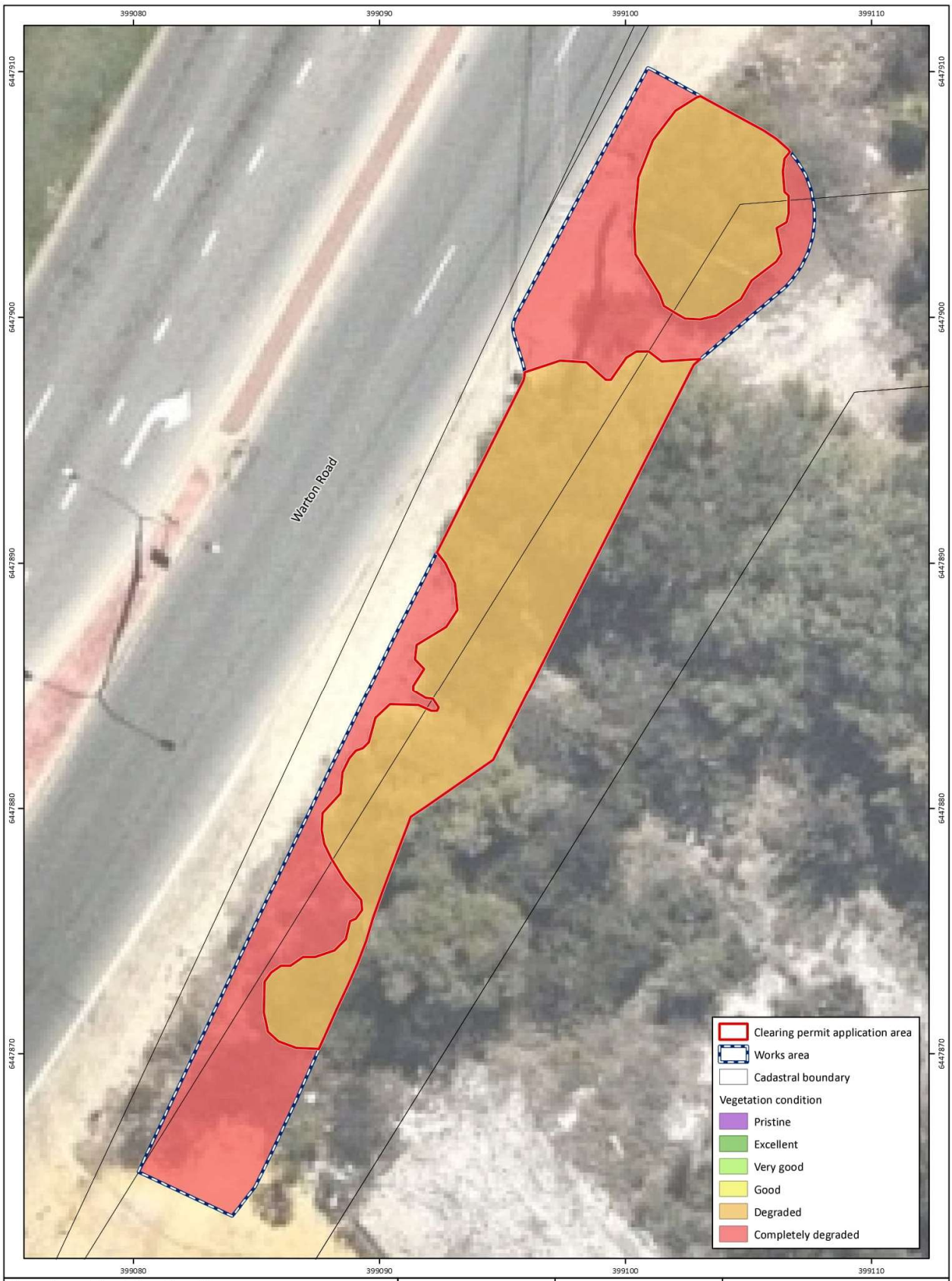

Figure 3: Vegetation Condition

Project:	Clearing Permit Application Proposed Warton Road Duplication, Forrestdale
Client:	City of Gosnells

Plan Number: EP20-099(04)--F22a

Drawn:	GAR
Date:	06/05/2021
Checked:	SKP
Approved:	TAA
Date:	06/05/2021

N

0 2 4 6

Metres

Scale: 1:200@A4

GDA 1994 MGA Zone 50

emerge ASSOCIATES

While Emerge Associates makes every attempt to ensure the accuracy and completeness of data, Emerge accepts no responsibility for externally sourced data used.

Appendix F. Sources of information

F.1. GIS databases

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

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- 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)

F.2. References

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