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 9092/1
Permit type:	Purpose permit
Applicant name:	NEWest Alliance
Application received:	26 October 2020
Application area:	0.4083 hectares of native vegetation within a 0.5958 hectare footprint, as depicted in Figure 1, Section 1.5.
Purpose of clearing:	Temporary road diversion, relocation of utility services, road widening and associated infrastructure
Method of clearing:	Mechanical
Property:	Pipidinny Road reserve (PIN 11749609)
Location (LGA area/s):	City of Wanneroo
Localities (suburb/s):	Eglinton

1.2. Description of clearing activities

The applicant applied to clear 0.4083 hectares of native vegetation within an application area measuring 0.593 hectares. The application area is made up of four separate areas, two on the northern side and two on the southern side of Pipidinny Road (see Figure 1, Section 1.5). Each area is approximately 7 metres wide, with the two western areas approximately 430 metres long and the two eastern areas approximately 20 metres long.

Following a request for further information dated 12 January 2021, the applicant revised the application area on 21 July 2021 to exclude three of the four areas. The revised clearing proposed is 0.188 hectares of native vegetation within a 0.275 hectare application area.

On the 18 January 2022, the applicant revised the application area again to add an additional area along the northern side of Pipidinny Road Reserve due to necessary engineering and design changes. The revised clearing proposal is 0.408 hectares of native vegetation within a 0.595 hectare footprint as shown in Figure 2, Section 1.5.

1.3. Decision on application

Decision:	Granted
Decision date:	7 February 2022
Decision area:	0.408 hectares of native vegetation within a 0.595 hectare footprint, as depicted in Figure 2, Section 1.5.

1.4. Reasons for decision

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

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix C), relevant datasets (see Appendix H.1), the findings of a flora and vegetation survey and black cockatoo habitat assessment (see Appendix G), the clearing principles set out in Schedule 5 of the EP Act (see Appendix D), 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 loss of 0.186 ha of native vegetation that provides high value foraging habitat for Carnaby's cockatoo;
- the loss of 0.211 ha of native vegetation that represents the Priority Ecological Community (PEC) Northern Spearwood shrublands and woodlands (FCT 24); and
- the potential introduction and spread of weeds and dieback into adjacent vegetation, which could impact on the quality of the adjacent vegetation.

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 environmental impacts of the proposed clearing can be minimised and managed to be unlikely to lead to an unacceptable risk to environmental values. The applicant has suitably demonstrated avoidance and minimisation measures and the offset provided sufficiently counterbalances the impacts to black cockatoo foraging habitat (see Section 4).

The Delegated Officer decided to grant a clearing permit subject to conditions to:

- Avoid and minimise clearing where possible.
- Take hygiene steps to minimise the risk of the introduction and spread of weeds; and
- Offset: Applicant to provide a monetary offset contribution, which will be used to acquire 1.15 hectares of native vegetation that includes high value black cockatoo foraging habitat.

The Delegated Officer also took into consideration the purpose of the clearing which is for the widening of Pipidinny Road which is required to support the construction of Part 1 of the Yanchep Rail Extension project. This project will support existing communities north of the existing Joondalup train station with improved transport connections and has been formally assessed and approved by the Environmental Protection Authority (EPA) (Ministerial statement MS1100).

In granting a clearing permit subject to the above requirements, the Delegated Officer determined that the proposed clearing is unlikely to lead to an unacceptable risk to the environment.

1.5. Site maps

Figure 1 Map of the application area (cross-hatched blue)

Figure 2 Map of the granted permit area (cross-hatched yellow)

The area hatched yellow indicates the revised application area which is 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 polluter pays principle
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)

Relevant policies considered during the assessment include:

- *Environmental Offsets Policy* (2011)

The key guidance documents which inform this assessment are:

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

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

Evidence was submitted by the applicant, demonstrating that avoidance and mitigation of environmental impacts of the proposed clearing has been considered. The applicant advised that through a design process, the clearing footprint was amended, reducing impacts to excellent condition vegetation, black cockatoo foraging habitat and the FCT24 Priority Ecological Community (PEC).

	Original Footprint	Revised Footprint	% Reduction
Total Native Veg Cleared (ha)	0.398	0.4083	0%
CBC Foraging Habitat Cleared (ha)	0.332	0.186	43.9
PEC Cleared (ha)	0.286	0.210	26.7

The applicant has also committed to the following:

- Clearing areas will be demarcated prior to clearing works commencing.
- Existing cleared areas will be utilised for laydown and temporary construction areas.
- A licenced and qualified fauna spotter will be present on site at the time of clearing
- Weed management protocols will be implemented to control any weed species within he proposed clearing areas during construction.
- Appropriate hygiene protocols will be implemented to reduce the risk of dieback spread, although the risk of dieback within the soils that occur within the application area is considered very low.

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.

After consideration of avoidance and mitigation measures, it was determined that an offset to counterbalance the significant residual impacts to black cockatoo foraging habitat was necessary. In accordance with the Government of Western Australia's *Environmental Offsets Policy* and *Environmental Offsets Guidelines*, this significant residual impact has been addressed through the conditioning of environmental offset requirements on the permit. The nature and suitability of the offset provided are summarised in Section 4.

3.2. Assessment of impacts on environmental values

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

resource values.

The assessment against the clearing principles (see **Error! Reference source not found.**) identified that the impacts of the proposed clearing present a risk to biological values (fauna, flora and vegetation). The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

3.2.1. Biological values (flora and fauna) - Clearing Principles (a), (b) and (c).

Assessment

Flora
According to available datasets, no threatened flora species have been recorded within the application area. There are two known threatened flora species and 22 priority flora species recorded within the local area, 12 of which are found on the same or similar soil type as the application area.

Targeted searches for conservation significant flora taxa were undertaken during the flora survey of the Survey Area, which included areas outside of the proposed clearing area, and no threatened or priority flora species were recorded (GHD, 2020).

In addition, a likelihood of occurrence assessment, which took into account the habitats present, known species distribution, previous records and intensity of field surveys and season, for threatened and priority flora taxa identified in desktop searches was conducted. This assessment determined that no threatened and one priority flora species is likely to occur within the application area (GHD, 2020, 2021). This species is *Hibbertia leptotheca* (Priority 3), a small, spreading shrub with yellow flowers, between August and October which grows in sand over limestone in coastal heaths and thickets (WA Herbarium, 1998-). This species was searched for during the survey however, the survey was undertaken outside of its reported flowering period. This species can be cryptic and is most readily distinguished by its flowers and therefore may occur within the application area (GHD, 2021). There is suitable vegetation for this species within vegetation types VT03 and VT04 in which is mapped over 0.33 ha of the application area.

Department of Biodiversity and Conservation and Attractions (DBCA) has previously provided advice on this species for a clearing application for geotechnical investigations related to the larger Yanchep Rail Extension project that occurs adjacent to the application area (CPS 7843/1) (DBCA, 2018). DBCA advised that this taxon occurs in sand, near-coastal limestone ridges, outcrops and cliffs. They advised that if impacts to the potential habitat (limestone outcropping) are minimised, it is unlikely that clearing would significantly impact on the conservation status of this species (DBCA, 2018). Given this advice and that there are no limestone outcrops within the application area it is considered unlikely for the proposed clearing to significantly impact habitat for this species.

Fauna
According to available databases, there are records of 19 threatened fauna species, 10 priority species, 11 migratory species and two other specially protected species and 13 known black cockatoo roost sites within the local area.

A habitat assessment of the application area and surrounds identified suitable habitat for Carnaby's cockatoo (*Calyptorhynchus latirostris*); Quenda (*Isoodon obesulus fusciventer*), Western Brush Wallaby (*Macropus irma*), Peregrine Falcon (*Falco peregrinus*), Black Striped Snake (*Neelaps calonotos*), Graceful Sun moth and the Jewelled South West Ctenotus (*Ctenotus gemmula*).

Large flocks of the Carnaby's Cockatoo were recorded foraging within and flying over the application area during the habitat assessment. The application area is located within the modelled feeding and breeding distribution for Carnaby's Cockatoo (Commonwealth of Australia, 2012). There are numerous records of this species occurring within and around the application area.

Approximately 0.2106 hectares of *Banksia sessilis* shrublands and a small patch of *Banksia attenuata* and *B. menziesii* low woodland in degraded to good (Keighery, 1994) condition occurs within the application area and provides high value foraging habitat for the Carnaby's cockatoo (GHD, 2020). These two habitat types support high densities of proteaceous species that are well known to be primary or important foraging plant for Carnaby's cockatoo. No potential breeding or roosting habitat is present (suitable Eucalypt species with a DBH >500 mm) within the application area (GHD, 2020).

According to available datasets,12 Black cockatoo roost sites have been recorded within the local area. Roost sites are usually located in the tallest trees within a land scape, and in proximity to a food and water supply (Commonwealth of Australia, 2012). Foraging resources within 6 kilometres, and up to 12 kilometres of roost sites are important to sustain populations (Commonwealth of Australia 2012). Given this, and the presence of high-quality foraging habitat

within the application area, the proposed clearing is considered likely to impact significant habitat for Carnaby's cockatoos.

The application area is considered to provide suitable habitat for quenda, peregrine falcon, jewelled southwest ctenotus, black striped snake, and Graceful Sun moth. Noting the extent of clearing proposed, which comprises two narrow linear portions and one small patch over a distance of 690 meters, within a local area that retains approximately 63.6 per cent native vegetation, the application area is unlikely to provide significant habitat for these species.

Vegetation
A Priority Ecological Community (PEC) has been recorded within the application area, Northern Spearwood shrublands and woodland (FCT 24) (0.1862 ha), in degraded to good (Keighery, 1994) condition.

The Northern Spearwood shrublands and woodlands (FCT24) PEC occurs as heaths or heaths with scattered *Eucalyptus gomphocephala* occurring on deeper soils north from Woodman Point. Banksias found in this community include *Banksia attenuata* and *B. menziesii.* The heathlands in this group typically include *Banksia sessilis*, *Calothamnus quadrifidus* and *Schoenus grandiflorus,* with other common species including *Hardenbergia comptoniana, Melaleuca systena* and *Xanthorrhoea preissii* (GHD, 2020).

Noting that the proposed clearing comprises several small, scattered areas along a 690-metre distance and occurs within a road verge, the proposed clearing is not considered likely to significantly impact the current occurrence of this PEC.

Conclusion
Based on the above assessment, the proposed clearing will result in the clearing of 0.2106 hectares of high-quality foraging habitat for Carnaby's cockatoo.

For the reasons set out above, it is considered that the proposed clearing will have a significant residual impact on foraging habitat for Carnaby's cockatoo. In accordance with the Government of Western Australia's *Environmental Offsets Policy* and *Environmental Offsets Guidelines*, this significant residual impact has been addressed through the conditioning of environmental offset requirements.

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

- Weed and dieback management
- Offset

3.3. Relevant planning instruments and other matters

The Yanchep Rail Extension (YRE) is an extension to the Northern Suburbs Railway (also known as the Joondalup line) to support existing communities with improved transport connections and create new communities through integrated station precincts. The YRE was split into two parts during the environmental approvals assessment, Part 1: Butler Station to Eglinton Station and Part 2: Eglinton Station to Yanchep Station. YRE Part 1 was approved under the Environmental Protection Act 1986 (EP Act) through Ministerial Statement (MS) 1100 in June 2019. Subsequent to approval, an additional area along Pipidinny Road has been identified as requiring disturbance for construction of the YRE Part 1 and is covered by this application to clear.

The City of Wanneroo (2020) advised that local government approvals are not required, and that the proposed clearing is consistent with the Shire's Local Planning Scheme. The City did not have any objections to the proposed clearing however notes that the vegetation mapped on site is of the Quindalup complex which is a high priority for protection according to the City's Local Biodiversity Strategy 2011-16. The City also advised that they have supported a Development Application (DA2020/1212) for works in relation to the future Yanchep Rail Station which is related to this clearing application.

The proposed clearing is within a Priority 3 area of the Perth Coastal Underground Water Pollution Control Area, which supplies drinking water to the Perth Integrated Water Supply System. The proposed clearing is not within any wellhead protection zones. The Water Source Protection Planning section, DWER, has no objection to the clearing proposal, but advises that the applicant should refer to' Water Quality Protection Notice 83: Infrastructure corridors' for advice on best management practices to be undertaken during both the clearing and the works to widen the road and install sewerage pipes to ensure the drinking water source is protected.

No Aboriginal sites of significance have been mapped within the application areas. 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.

4 Suitability of offsets

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

- 0.2106 hectares of high value black cockatoo foraging habitat.

To counterbalance the above impacts, the applicant has committed to provide monetary offset contribution for purchase of 1.15 hectares of land within the Shire of Gingin to address impacts specific to Carnaby's cockatoo foraging habitat.

Offset Adequacy

In assessing whether the proposed offset is adequately proportionate to the significance of the habitat values being impacted, DWER undertook a calculation using the Commonwealth Offset Assessment Guide. The calculation determined that the allocation of the following areas of native vegetation to be placed to conservation estate is adequate to counterbalance the significant residual impacts:

- 1.15 hectares of native vegetation in a good to excellent condition that provides suitable foraging habitat for Carnaby's cockatoo.

The cost of acquiring a 1.15 hectare parcel of land equates to a monetary contribution of $4,416 determined based on the estimated value per hectare of a 50 hectare vegetated parcel of land in the Shire of Gingin.

Given the above and consistent with the WA Environmental Offsets Policy September 2011, a monetary contribution of $4,416 for the acquisition of 1.15 hectares of native vegetation that contains Carnaby's cockatoo foraging habitat is considered adequate to counterbalance the significant residual impacts of clearing.

Related Project and Cumulative Offsets

In the assessment of the proposed offset, the impacts of an associated larger project, Part 1 of the Yanchep Rail Extension Project which has been assessed and approved by the Environmental Protection Authority (EPA) has been considered. The following significant residual impacts were determined by the applicant to include impacts to 17.4 hectares of critical habitat for Carnaby's cockatoo.

At the time of the assessment it is considered that the following offsets proposed are currently being considered by the EPA:

- Land acquisition of 19.3 ha (Lot 21 Dayrell RD, Nowergup) of black cockatoo habitat; and
- Land acquisition of 37.02 ha (Lot 333 Mimegarra Rd, Cataby) of black cockatoo foraging habitat (also includes 5.34 ha of FCT 24 PEC) .

Taking into account these proposed offsets for the related larger project, it has been established that a 50 ha land value is, in the instance, is appropriate and is consistent with the WA Environmental Offsets Policy September 2011.

Based on unimproved land values for the Shire of Gingin, a 50-hectare parcel would have a market value of $3,840. Therefore, a monetary contribution of $4,416 would be required to fund the acquisition of 1.15 hectares of suitable native vegetation in very good condition that provides high value foraging habitat for the Carnaby's cockatoo.

The Delegated Officer considers that this adequately counterbalances the significant residual impacts of the proposed clearing. The justification for the values used in the offset calculation is provided in Appendix E.

End

Appendix A. Additional information provided by applicant

Summary of comments	Consideration of comment
A request for evidence of efforts taken to avoid and mitigate the significant environmental impacts of the proposed clearing was requested from the applicant on 21 January 2021, as well as additional information regarding the survey method and effort undertaken during the flora and vegetation survey provided in support of the application (GHD, September 2020). Details were requested of the conservation significant species which was searched for by GHD (September 2020) to clarify if the survey effort was adequate to confirm the presence/absence of 1 threatened and 5 priority flora species of concern. The applicant responded to this request on 21 July 2021, amending the application area by reducing the total amount of proposed clearing from 0.398 ha to 0.1881 ha and proposing a land acquisition offset to mitigate the remaining residual impact to high value cockatoo foraging habitat. The applicant (GHD, 2021) also provided a likelihood of occurrence assessment (GHD, 2021) for the 1 threatened and 5 priority flora species of concern and concluded that one Priority 3 flora species may possibly occur within the proposed clearing area. On the 18 January 2022, the applicant revised the application area to add an additional area along the northern side of Pipidinny Road Reserve. The revised clearing proposal is 0.408 hectares of native vegetation within a 0.5958 hectare footprint. The applicant also provided a more suitable offset proposal, proposing a monetary contribution to the offset fund to mitigate the remaining residual impact to high value cockatoo foraging habitat.	The additional information provided from the applicant has been taken into consideration under section 3.1 (Avoid and Minimise Measures), section 3.2 (Assessment of Impacts on Environmental Values) and section 4 (Suitability of Offsets) of this report.

Appendix B. Details of public submissions

The clearing application was advertised for 21 days for public comment on 17 November 2020. No public submissions received.

Appendix C. Site characteristics

C.1. Site characteristics

Characteristic	Details
Local context	The original areas proposed to be cleared are part of discrete expansive tracts of native vegetation, separated from each other by roads and clearing previously undertaken for the Yanchep rail extension corridor. The northern proposed clearing area is adjacent to native vegetation to the north and Pipiddiny Road to the south, and the southern proposed clearing area is adjacent to Pipiddiny Road to the north and native vegetation to the south. The proposed clearing areas are in the intensive land use zone of Western Australia. Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 53 per cent of the original native vegetation cover.

Characteristic	Details
Ecological linkage	The application areas are not within any mapped ecological linkages. The closest mapped ecological linkages (Gnangara Mound Ecological Linkages) are 640 m east and 940 west of the application area.
Conservation areas	The application areas are not within any conservation areas. The closest conservation area is Yanchep National Park located 515 m east of the application areas.
Vegetation description	A vegetation survey (GHD, 2020) conducted within the original application area indicates the vegetation proposed to be cleared consists of: • *Acacia saligna* and *Xanthorrhoea preissii* tall shrubland (0.025 ha); • *Banksia attenuata* and *B. menziesii* low woodland (0.046 ha); • *Banksia sessilis* and *Spyridium globulosum* tall shrubland (0.286 ha); and • Scattered native species (0.041 ha). The full survey descriptions and maps are available in Appendix G. The amended application area consists of: • VT01: Acacia saligna and Xanthorrhoea preissii tall shrubland (0.026 ha) • VT03: Banksia sessilis and Spyridium globulosum tall shrubland (0.286 ha) • VT04: Banksia attenuata and B. menziesii low woodland (0.046 ha) • VT13: Scattered natives (0.049 ha) This is inconsistent with the mapped vegetation type(s): • Quindalup Complex (55), which is described as 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 *Melaleuca lanceolata* (Rottnest Teatree) - *Callitris preissii* (Rottnest Island Pine), the closed scrub of *Acacia rostellifera* (Summer-scented Wattle) and the low closed *Agonis flexuosa* (Peppermint) forest of Geographe Bay (Heddle et at, 1980). The mapped vegetation type retains approximately 60 per cent of the original extent (Government of Western Australia, 2019).
Vegetation condition	GHD (2020) indicates the vegetation within the original proposed clearing area is largely in Degraded to Good condition, with a small portion in Excellent condition (Keighery, 1994), described as: • Degraded (0.229 ha) - 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. • Good (0.128 ha) - 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. • Excellent (0.003 ha) - Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species. The amended proposed clearing area occurs in a predominantly Degraded (0.265 ha) to Completely Degraded (0.037 ha) (Keighery, 1994) condition, with 0.102 ha in Good (Keighery, 1994) condition and a very small area (0.0037 ha) in excellent (Keighery, 1994) condition. The full Keighery (1994) condition rating scale is provided in Appendix E. The full survey descriptions and mapping are available in Appendix G.

Characteristic	Details
Climate	Rainfall: 800 mm Evapotranspiration: 700 mm
Topography	Elevation of the two western areas ranges from 40 m AHD in the west and east to 35 m AHD in the centre, and elevation of the two eastern areas is approximately 45-50 m AHD.
Soil description	The following soil types are mapped within the application areas; • 211Sp__Kls (Karrakatta shallow soils Phase), described as Low hills and ridges. Bare limestone or shallow siliceous or calcareous sand over limestone. Dense low shrub dominated by *Dryandra sessilis*, *Melaleuca huegellii* and species of *Grevillea*. • 211Qu__Q1 (Quindalup South oldest dune Phase), described as the oldest phase, dunes or remnants with low relief. Calcareous sands have organic staining to about 30 cm, overlying pale brown sand with definite cementation below 1 m.
Land degradation risk	• Flood risk: <3% of the map unit has a moderate to high flood risk • Waterlogging risk: <3% of map unit has a high to extreme water erosion risk • Salinity risk: <3% of map unit has a moderate to high salinity risk or is presently saline • Phosphorus export risk: o 211Sp__Kls: 3-10% of map unit has a high to extreme phosphorus export risk o 211Qu__Q1: 30-50% of map unit has a high to extreme phosphorus export risk • Wind erosion risk: o 211Sp__Kls: 50-70% of map unit has a high to extreme wind erosion risk o 211Qu__Q1: 30-50% of map unit has a high to extreme wind erosion risk • Water erosion risk: o 211Sp__Kls: <3% of map unit has a high to extreme water erosion risk o 211Qu__Q1: 30-50% of map unit has a high to extreme water erosion risk • Subsurface acidification risk: o 211Sp__Kls: 3-10% of map unit has a high subsurface acidification risk or is presently acid o 211Qu__Q1: <3% of map unit has a high subsurface acidification risk or is presently acid
Waterbodies	The closest waterbody to the application area is Pippidinny Swamp, a Conservation category wetland, located approximately 865 m northeast of the application areas.
Hydrogeography	The application areas are located within the RIWI Act proclaimed Perth Groundwater Area. The application areas are located within the Public Drinking Water Source Protection Area – Zone Priority 3 -Perth Coastal and Gwelup Underground Water Pollution Control Area. Hydrogeology of the application area is described as surficial sediments with shallow aquifers (limestone, calcrete lithology). Groundwater salinity: 500-1000 mg/L
Flora	There are records of two threatened flora and 22 priority flora species within the local areas (10 km), 12 of which are found on the same or similar soil type as the application areas.
Ecological communities	There are records of three threatened ecological communities and three priority ecological communities within the local areas (10 km), all of which are found on the same soil type as the application areas.

Characteristic	Details
Fauna	There are records of 19 threatened fauna species, 10 priority species, 11 migratory species and two other specially protected species and 13 known black cockatoo roost sites within the local area.

C.2. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion*					
Swan Coastal Plain	1,501,221.93	579,813.47	38.62	222,916.97	14.85
Vegetation complex					
Heddle vegetation complex 55**	54,573.87	33,011.64	60.49	6,632.92	5,994.64
Local area (calculation - delete if not required)					
10km radius	21212.08	11353.54	53	-	-

*Government of Western Australia (2019a)

**Government of Western Australia (2019b)

C.3. Flora analysis table

Species name	Conservation status	Suitable habitat features ? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records in local area	Are surveys adequate to identify? [Y, N, N/A]
Baeckea sp. Limestone (N. Gibson & M.N. Lyons 1425)	P1	Y	Y	N	3.3	4	Y
Conostylis pauciflora subsp. euryrhipis	P4	Y	Y	Y	1.7	11	Y
Conostylis pauciflora subsp. pauciflora	P4	N	N	Y	1.2	2	Y
Eucalyptus argutifolia	T	Y	Y	Y	4.7	7	Y
Haloragis luminosa	P1	Y	Y	N	9.9	2	Y
Hibbertia leptotheca	P3	N	Y	Y	2.9	6	Y
Jacksonia sericea	P4	Y	Y	N	9.9	1	Y
Lepidium pseudotasmanicum	P4	N	Y	Y	3.8	3	Y
Leucopogon maritimus	P1	Y	Y	Y	1.1	6	Y
Leucopogon sp. Yanchep (M. Hislop 1986)	P3	Y	Y	Y	3.8	15	Y
Melaleuca sp. Wanneroo (G.J. Keighery 16705)	T	N	N	N	9.6	5	Y
Pimelea calcicola	P3	Y	Y	N	5.8	5	Y
Stylidium maritimum	P3	Y	N	Y	1.6	14	Y
Styphelia filifolia	P3	Y	Y	N	9.2	1	Y

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

C.4. Fauna analysis table

Species name	Conservation status	Suitable habitat features? [Y/N]	Most recent record	Distance of closest record to application area (km)	Number of known records within local area	Are surveys adequate to identify? [Y, N, N/A]
Calyptorhynchus latirostris (Carnaby's cockatoo)	EN	Y	2019	0.19	508	Y
Falco peregrinus (Peregrine falcon)	OS	Y	1980	7.4	6	Y
Isoodon fusciventer (Quenda, southwestern brown bandicoot)	P4	Y	2018	3.1	47	Y
Neelaps calonotos (black-striped snake, black-striped burrowing snake)	P3	Y	1995	3.6	4	Y
Notamacropus irma (western brush wallaby)	P4	Y	2018	3.8	5	Y
Synemon gratiosa (Graceful sunmoth)	P4	Y	2012	0.035	300	Y
Jewelled South West Ctenotus	P3	Y	-	5	-	Y

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

Appendix D. 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 vegetation within the application area provides high value foraging habitat for the threatened Carnaby's cockatoo, and the vegetation represents the PEC, 'Northern Spearwood shrublands and woodland' (FCT 24).	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 high value foraging habitat for the threatened Carnaby's cockatoo.	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: A flora survey of the application area (GHD, 2020) and flora analysis (GHD, 2021) did not identify suitable habitat for threatened flora species listed under the BC Act. Given this, and the predominately degraded to completely degraded condition of the vegetation under application, the proposed clearing is not likely to be at variance to this principle.	Not likely to be at variance	Yes *Refer to Section 3.2.1, above.*
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: A flora survey (GHD, 2020) of the application area did not identify any TECs within the application area.	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: significant remnant vegetation and conservation areas		
Principle (e): *"Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."* Assessment: Aerial imagery and spatial data indicate that the local area (10-kilometre radius) retains approximately 60 per cent of the original native vegetation cover. This is consistent with the national objectives and targets for biodiversity conservation in Australia and therefore the proposed clearing does not occur within an extensively cleared area. Additionally, the vegetation proposed to be cleared is not considered to be part of a significant ecological linkage or a significant remnant of vegetation.	Not likely to be at variance	No
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 and that the proposed clearing area does not occur within an ecological linkage, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.	Not likely to be 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: There are no watercourses or wetlands occurring within the application area. A flora survey of the application area did not identify riparian vegetation (GD, 2020). Given this, the proposed clearing is unlikely to impact vegetation growing in an environment associated with a watercourse or wetland.	Not likely to be 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 wind and water erosion. However, noting the relatively small extent of the proposed clearing and that it is linear in nature, the proposed clearing is not likely to cause appreciable land degradation.	Not likely to be at variance	No
Principle (i): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water."* Assessment: Given no watercourses or wetlands are recorded within the application area, the proposed clearing is unlikely to impact surface water quality. The application area falls within the priority 3 zone of the Perth Coastal and Gwelup Underground Water Pollution Control Area however not within a wellhead protection zone. Given this, the low salinity risk mapped within the application area and the relatively small extent of the proposed clearing, it is considered unlikely for the proposed clearing to impact groundwater quality.	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
Principle (j): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."* Assessment: The mapped soils and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding. Given no watercourses or wetlands are recorded within the application area, the proposed clearing is unlikely to contribute to waterlogging.	Not likely to be at variance	No

Appendix E. 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.

Clearing Permit Decision Report

Appendix F. Offset calculator value justification

Offset Calculation 1 - Black cockatoo

Note: Complete the following calculation for each relevant residual impact.

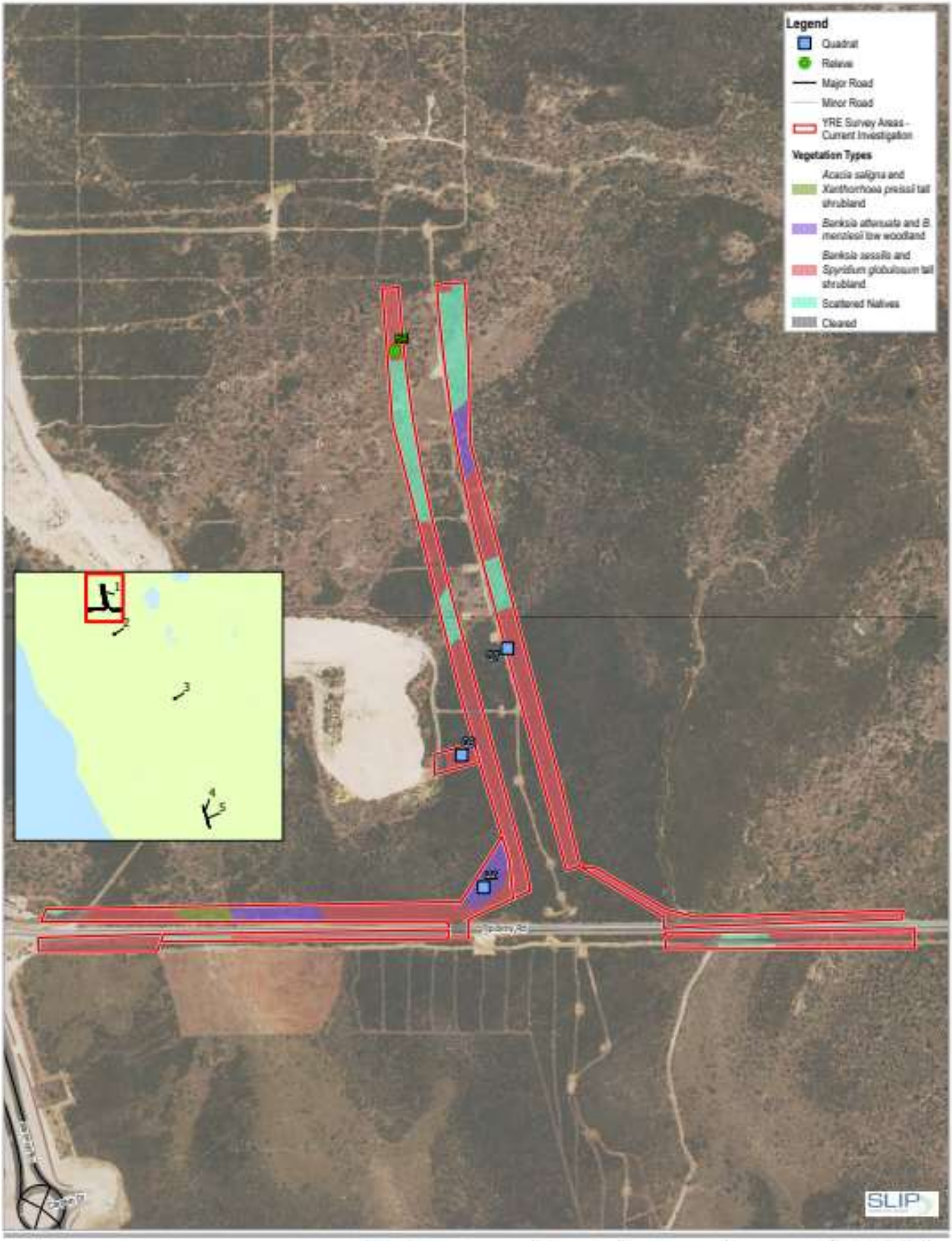
Field Name	Description	Justification for value used
IUCN Criteria	The IUCN criteria for the value being impacted	1.2% - Carnaby's cockatoo has a status of endangered in WA
Area of impact (habitat/community) or Quantum of impact (features/individuals)	The area of habitat/community impacted or number of features/individuals impacted	0.210 hectares - Area forgaing habitat mapped by GHD (September 2020)
Quality of impacted area (habitat/community)	The quality score for area of habitat/community being impacted - a measure of how well a particular site supports a particular threatened species or ecological community and contributes to its ongoing viability	7 - high quality forgaing habitat present within application area
Time over which loss is averted (habitat/community)	This describes the timeframe over which changes in the level of risk to the proposed offset site can be considered and quantified	20 - offset will be required to be secured in perpetuity
Time until ecological benefit (habitat/community) or Time horizon (features/individuals)	This describes the estimated time (in years) that it will take for the main benefit of the quality (habitat/community) or value (features/individuals) improvement of the proposed offset to be realised	1 - it is considered that 1 years is the period within which an approrpate site can be identified and obtained
Start area (habitat/community) or Start value (features/individuals)	The area of habitat/community or number of features/individuals proposed to offset the impacts	1.15 ha
Start quality (habitat/community)	The quality score for the area of habitat/community proposed as an offset - a measure of how well a particular site supports a particular threatened species or ecological community and contributes to its ongoing viability	8 - it is assumed the native vegetation to be acquired is unlikely to be in very good to excellent condition
Future quality without offset (habitat/community) or Future value without offset (features/individuals)	The predicted future quality score (habitat/community) or value (features/individuals) of the proposed offset site without the offset	8 - it is considered that the quality will stay the same over a 1 year period
Future quality with offset (habitat/community) or Future value with offset (features/individuals)	The predicted future quality score (habitat/community) or value (features/individuals) of the proposed offset site with the offset	8 - it is considered that land acquisition alone is unlikely to result in an improvement in the quality of habitat on the offset site
Risk of loss (%) without offset (habitat/community)	This describes the chance that the habitat/community on the proposed offset site will be completely lost (i.e. no longer hold any value for the protected matter of concern) over the foreseeable future without an offset	30% - The offset site is likely to be located in a rural area (low risk of loss).
Risk of loss (%) with offset (habitat/community)	This describes the chance that the habitat/community on the proposed offset site will be completely lost (i.e. no longer hold any value for the protected matter of concern) over the foreseeable future with an offset	10%- it is considered that acquisition will substantially reduce the risk of loss of the site.
Confidence in result (%) – risk of loss (habitat/community)	The capacity of measures to mitigate risk of loss of the proposed offset site	90% - it is considered that there is a high level of confidence that the acquisition will reduce the risk of loss from 30-10%
Confidence in result (%) – Change in quality (habitat/community) or Change in value (features/individuals)	The level of certainty about the successful achievement of the proposed change in quality (habitat/community) or value (features/individuals)	90% - it is considered that there is a high level of confidence that the quality of the proposed offset site will not substantially change over a 1 year period with or without the offset.
% of impact offset	% of the significant residual impact that would be offset by the proposed offset (note: the offset calculations combined should equate to 100% for each residual impact)	100%

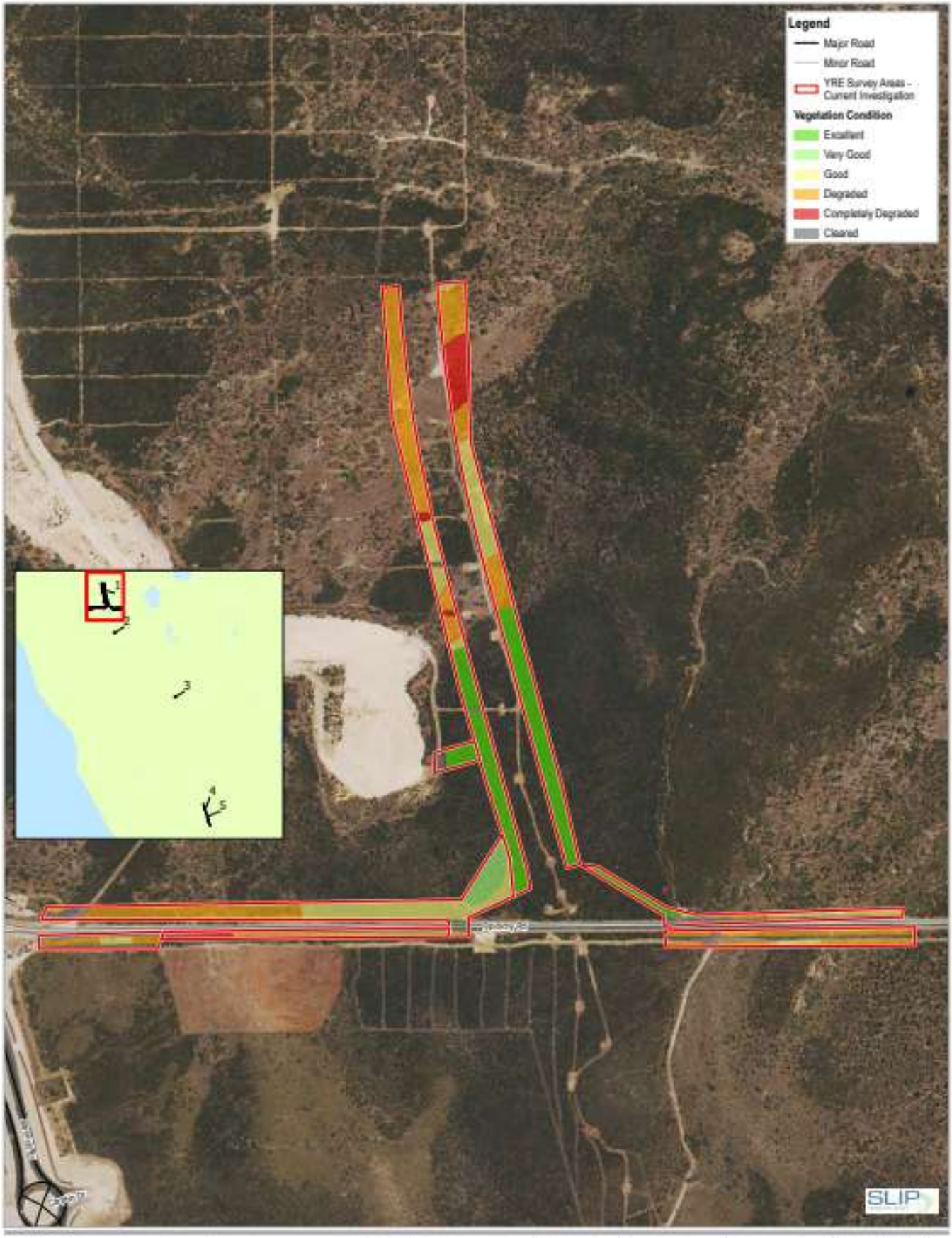
Appendix G. Biological survey information excerpts (GHD, 2020)

Vegetation type	Vegetation type description	Landform and Substrate	Extent (ha)	Notes and sample locations	Representative photograph
Banksia sessilis and *Spyridium globulosum* tall shrubland (VT03)	*Banksia sessilis, Spyridium globulosum* tall shrubland over *Calothamnus quadrifidus, Melaleuca systena* low shrubland over open sedgeland *Mesomelaena pseudostygia, Desmocladus flexuosus.*	Dune swales with brown sandy soils	2.59 ha	Quadrats 3 and 7. Likely to represent Northern Spearwood shrublands and woodlands (FCT 24) (PEC)	

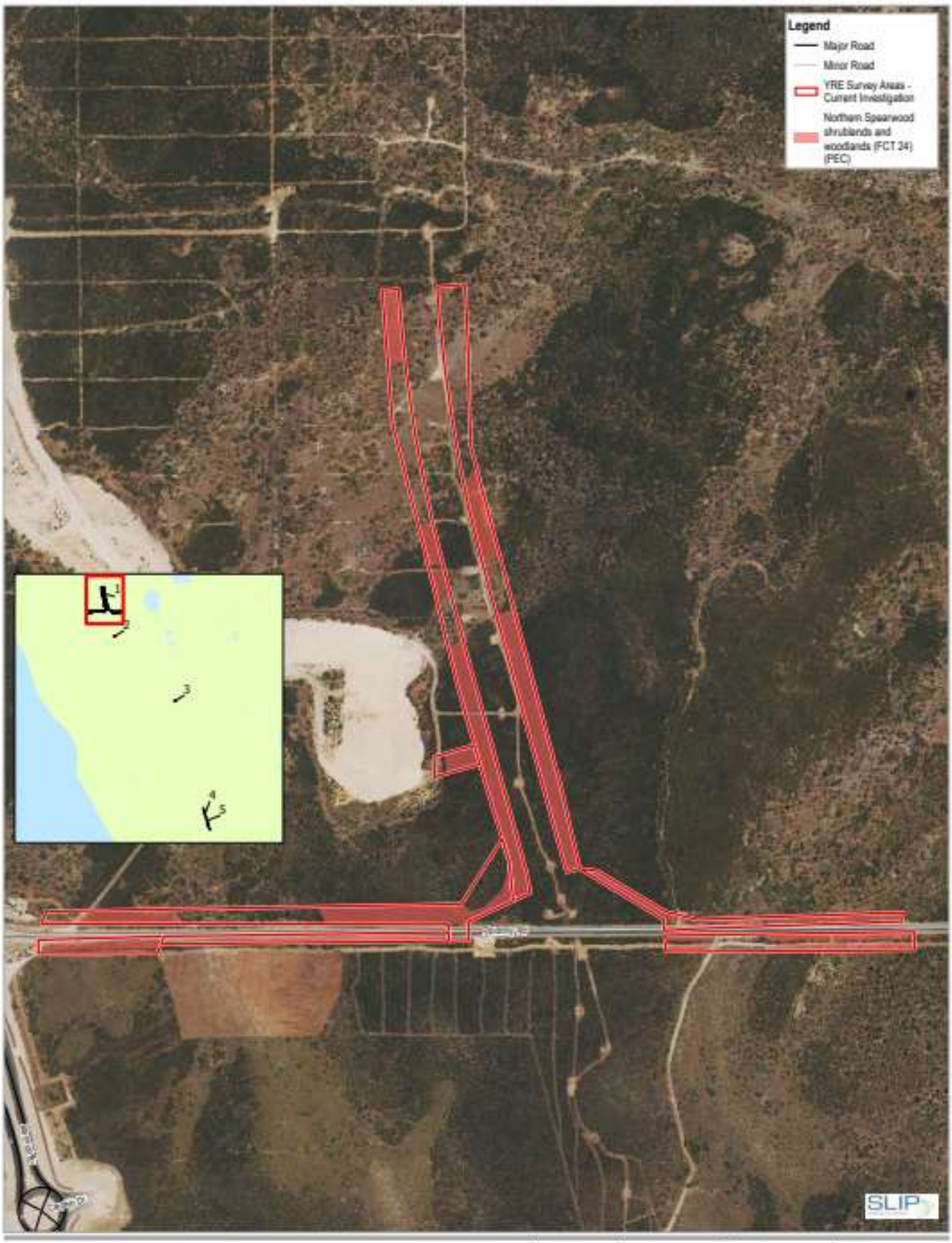
Vegetation type	Vegetation type description	Landform and Substrate	Extent (ha)	Notes and sample locations	Representative photograph
Acacia saligna and *Xanthorrhoea preissii* tall shrubland (VT01)	*Acacia saligna, Xanthorrhoea preissii* tall shrubland over mixed introduced sparse herbland/grassland.	Slopes of dunes with brown sandy soils	0.10 ha	Releve 4	
Banksia attenuata, B. menziesii low woodland (VT04)	*Banksia attenuata, B. menziesii* low woodland over shrubland *Calothamnus quadrifidus, Hakea trifurcata, Hibbertia hypericoides, Xanthorrhoea preissii* over sparse sedgeland *Mesomelaena pseudostygia, Desmocladus flexuosus.*	Undulating plain with brown-yellow sandy soils	0.49 ha	Quadrats 2 Represents Banksia woodlands (TEC) / Banksia dominated woodlands (PEC)	

Vegetation type	Vegetation type description	Landform and Substrate	Extent (ha)	Notes and sample locations	Representative photograph
Scattered Natives (VT13)	Areas with isolated native shrubs, normally *Acacia* spp., over mixed introduced grasses and herbs.	Undulating plain and dune slopes with sandy soils	0.93 ha	-	


Legend
Quadrat
Releve
Major Road
Minor Road
YRE Survey Areas - Current Investigation
Vegetation Types
Acacia saligna and Xanthorrhoea preissii tall shrubland
Banksia attenuata and B. menziesii low woodland
Banksia sessilis and Spyridium globulosum tall shrubland
Scattered Natives
Cleared
SLIP
GHD
PIA
Yanchep Rail Extension Part 1
Vegetation Types and Sample Sites
FIGURE 2-1


Legend
Major Road
Minor Road
YRE Survey Areas - Current Investigation
Vegetation Condition
Excellent
Very Good
Good
Degraded
Completely Degraded
Cleared
SLIP
PDA
Yanchep Rail Extension Part 1
Vegetation Condition
FIGURE 3-1


Legend
Major Road
Minor Road
YRE Survey Areas - Current Investigation
High Value
Low Value
SLIP
GHD
PTA
Yanchep Rail Extension Part 1
Black Cockatoo Habitat
FIGURE 5-1


Legend
Major Road
Minor Road
YRE Survey Areas - Current Investigation
Northern Spearwood shrublands and woodlands (FCT 24) (PEC)
SLIP
PSA
Yanchep Rail Extension Part 1
Conservation Significant Ecological Communities
FIGURE 4-1

Appendix H. Sources of information

H.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)

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