

Table 64 Total area (ha) of suitable habitat for significant fauna species known or likely to occur within the survey area.

Species	Cons. Status <sup>1</sup>	Area of Suitable Habitat (ha)							Total (ha)
		Eucalyptus Woodland	Melaleuca Woodland	Adenanthos /Plantation	Pine Plantation	Banksia Woodland	Trees Over Cleared	Mixed Shrubland	
Carnaby's Cockatoo ( <i>Zanda latirostris</i> )	E	4.67		48.08	2.97	15.14	11.66		82.51
Forest Red-tailed Black Cockatoo ( <i>Calyptorhynchus banksii naso</i> )	V	4.67				15.14	11.66		31.46
Quenda ( <i>Isodon fusciventer</i> )	P4	4.67	1.08	48.08	2.97	15.14		8.58	80.51
Black-striped Snake ( <i>Neelaps calonotos</i> )	P3	4.67				15.14			19.80
Swan Coastal Plain Shield-backed Trapdoor Spider ( <i>Idiosoma sigillatum</i> )	P3			48.08		15.14			63.22
Native Bee ( <i>Hylaeus globuliferus</i> )	P3			48.08		15.14			63.22
A short-tongued Bee ( <i>Leioproctus contrarius</i> )	P3					15.14			15.14
Graceful Sun Moth ( <i>Synemon gratiosa</i> )	P4					15.14			15.14

1. E Endangered, V Vulnerable, P Priority



Plate 23 Quenda foraging evidence

## 8.3 Targeted Black Cockatoo Survey

### 8.3.1 Foraging

The survey area has been assessed as a score of 10 'High-quality foraging habitat' for both the Carnaby's Cockatoo and Forest Red-tailed Black Cockatoo in accordance with the Commonwealth Black Cockatoo Referral Guidelines foraging tool (DAWE, 2022) (Table 32). No subtractions were made for these two species. The survey area has been assessed as a score of 8 for Baudin's Cockatoo, due to an absence of foraging evidence during the survey.

The survey area contains mature Banksia Woodlands and Eucalyptus Woodlands, with suitable foraging species including Proteaceous species, Marri *Corymbia calophylla* and Tuart *Eucalyptus gomphocephala* trees.

**Table 65 Black Cockatoo Foraging Habitat Assessment (DAWE, 2022)**

Starting score		Baudin's Cockatoo ( <i>Zanda baudinii</i> )	Carnaby's Cockatoo ( <i>Zanda latirostris</i> )	Forest Red-Tailed Black Cockatoo ( <i>Calyptorhynchus banksii naso</i> )	
10		<b>Start at a score of 10</b> if your site is native eucalypt woodlands and forest, and proteaceous woodland and heath, particularly Marri, within the range of the species, including along roadsides and parkland cleared areas. Can include planted vegetation. <b>This tool only applies to sites equal to or larger than 1 hectare in size.</b>	<b>Start at a score of 10</b> if your site is native shrubland, kwongan heathland or woodland, dominated by proteaceous plant species such as <i>Banksia</i> spp. (including <i>Dryandra</i> spp.), <i>Hakea</i> spp. and <i>Grevillea</i> spp., as well as native eucalypt woodland and forest that contains foraging species, within the range of the species, including along roadsides and parkland cleared areas. Also includes planted native vegetation. <b>This tool only applies to sites equal to or larger than 1 hectare in size.</b>	<b>Start at a score of 10</b> if your site is Jarrah or Marri woodland and/or forest, or if it is on the edge of Karri Forest, or if Wandoo and Blackbutt occur on the site, within the range of the subspecies, including along roadsides and parkland cleared areas. <b>This tool only applies to sites equal to or larger than 1 hectare in size.</b>	
Attribute	Sub-tractions	Context adjustor (attributes reducing functionality of foraging habitat).			
Foraging potential	-2	<b>Subtract 2</b> from your score if there is no evidence of feeding debris on your site. <input checked="" type="checkbox"/>	<b>Subtract 2</b> from your score if there is no evidence of feeding debris on your site. <input type="checkbox"/>	<b>Subtract 2</b> from your score if there is no evidence of feeding debris on your site. <input type="checkbox"/>	
Connectivity	-2	<b>Subtract 2</b> from your score if you have evidence to conclude that there is no other foraging habitat within 12 km of your site. <input type="checkbox"/>	<b>Subtract 2</b> from your score if you have evidence to conclude that there is no other foraging habitat within 12 km of your site. <input type="checkbox"/>	<b>Subtract 2</b> from your score if you have evidence to conclude that there is no other foraging habitat within 12 km of your site. <input type="checkbox"/>	
Proximity to breeding	-2	<b>Subtract 2</b> if you have evidence to conclude that your site is more than 12 km from breeding habitat. <input type="checkbox"/>	<b>Subtract 2</b> if you have evidence to conclude that your site is more than 12 km from breeding habitat. <input type="checkbox"/>	<b>Subtract 2</b> if you have evidence to conclude that your site is more than 12 km from breeding habitat. <input type="checkbox"/>	

Starting score		Baudin's Cockatoo ( <i>Zanda baudinii</i> )		Carnaby's Cockatoo ( <i>Zanda latirostris</i> )		Forest Red-Tailed Black Cockatoo ( <i>Calyptorhynchus banksii naso</i> )	
Proximity to roosting	-1	Subtract 1 if you have evidence to conclude that your site is more than 20 km from a known night roosting habitat.	<input type="checkbox"/>	Subtract 1 if you have evidence to conclude that your site is more than 20 km from a known night roosting habitat.	<input type="checkbox"/>	Subtract 1 if you have evidence to conclude that your site is more than 20 km from a known night roosting habitat.	<input type="checkbox"/>
Impact from significant plant disease	-1	Subtract 1 if your site has disease present (e.g. <i>Phytophthora</i> spp. or Marri canker) and the disease is affecting more than 50% of the preferred food plants present.	<input type="checkbox"/>	Subtract 1 if your site has disease present (e.g. <i>Phytophthora</i> spp. or Marri canker) and the disease is affecting more than 50% of the preferred food plants present.	<input type="checkbox"/>	Subtract 1 if your site has disease present (e.g. <i>Phytophthora</i> spp. or Marri canker) and the disease is affecting more than 50% of the preferred food plants present.	<input type="checkbox"/>
Total score		8		10		10	

The refined foraging habitat value considered known breeding and roosting sites, and the characteristics associated with each fauna habitat type. The following factors influenced the results:

- There are three confirmed white-tailed and Forest Red-tailed Black Cockatoo roosting sites less than 3 km from the survey area (DBCA, 2023c).
- The survey area is approximately 5 km from the buffer zone of a confirmed Black Cockatoo breeding area (DBCA, 2023c).
- Vegetation in the survey area represents 0.26% of native vegetation within 15 km where local breeding is known/likely. Site context score is therefore 1.

Carnaby's Cockatoo foraging habitat ranged from 'Moderate to High' (score of 7) down to 'None' (score of 0). The presence of favourable foraging species affected the site condition, with Banksia Woodland and Pine Plantation scoring 5, while other habitats scored according to the presence of Eucalypt trees. Foraging evidence was recorded therefore 1 context point was added.

Forest Red-tailed Black Cockatoo foraging habitat ranged from 'Moderate' (score of 6) to 'None' (score of 0). The Eucalyptus Woodland supported suitable foraging species with a site condition score of 4. One context score and one stocking rate score was added to result in the 'Moderate' quality. All other habitats had a site condition score of 2 or less.

Foraging habitat quality for Baudin's Cockatoo was similar to the Forest Red-tailed Black Cockatoo. The Eucalyptus Woodland was rated as 4 for site condition and 1 for context. No stocking rate score was added. This fauna habitat is therefore considered 'Moderate' quality. This reduction is due to a lack of foraging evidence and direct observations within the survey area.

The foraging habitat type, its corresponding Bamford (2020) rating and the habitat's extent, (ha) is presented for each Black Cockatoo species in Table 66. The foraging habitat quality and extent is presented in Table 67 and mapped in Figure 10.

**Table 66 Neerabup and East Wanneroo Terminal refined foraging score calculation (Bamford, 2020)**

Habitat Type	Carnaby's Cockatoo	Baudin's Cockatoo	Forest Red-tailed Black Cockatoo	Extent (ha)
Adenanthos/Plantation	6	2	2	48.08
Banksia Woodlands	7	2	1	15.13
Eucalyptus Woodland	5	5	6	4.67
Melaleuca Woodland	2	2	2	1.07
Mixed Shrubland	1	1	1	8.58
Pine Plantation	7	1	1	2.97
Trees over Cleared	1	1	1	11.66
Cleared	0	0	0	109.51

**Table 67 Neerabup and East Wanneroo BCE foraging habitat extent**

Foraging Habitat Quality	Carnaby's Cockatoo (ha)	Baudin's Cockatoo (ha)	Forest Red-tailed Black Cockatoo (ha)
1: Negligible	20.03	23.08	2.08
2: Low	1.08	64.21	64.21
4-6: Moderate	52.84	4.67	4.67
7: Moderate to High	18.2		
<b>Total</b>	<b>91.96</b>	<b>91.96</b>	<b>91.96</b>



**Plate 24 Carnaby's Cockatoos foraging within the survey area.**



**Plate 25 Forest Red-tailed Black Cockatoos foraging within the survey area**

### 8.3.2 Breeding

A total of 118 potential nesting trees with a suitable DBH (>500 mm) were recorded within and directly adjacent to the survey area (Table 68, Figure 10). The majority consisted of Introduced (planted) species and those identified as 'Other', which are trees where species are not confidently able to be determined in the field and are often also introduced. Potential nesting trees are defined by DAWE (2022) as "trees that have a suitable DBH to develop a nest hollow, but do not currently have hollows. Trees suitable to develop a nest hollow in the future are 300-500 mm DBH".

One suitable nesting tree was identified, a stag with a large hollow. No active Black Cockatoo breeding activity or nesting was observed during the field survey. This assessment is limited to observations made from the ground.

**Table 68 Potential nesting trees from Neerabup Terminal and East Wanneroo**

Tree Species	Total Trees Per Survey Area				Grand Total
	NBT MUL 1 via Lenore Rd	NBT MUL 2 - via Badgerup Rd	NBT-WGA 81	Neerabup Terminal	
Coastal Blackbutt ( <i>Eucalyptus todtiana</i> )			8		8
Introduced	6		20		26
Jarrah ( <i>E. marginata</i> )	3		24		27
Marri ( <i>Corymbia calophylla</i> )			14		14
Other		12	19		31
Stag		2 (1 suitable hollow)	2		4
Tuart ( <i>E. gomphocephala</i> )			5	3	8
<b>Grand Total</b>	<b>9</b>	<b>14</b>	<b>92</b>	<b>3</b>	<b>118</b>

### 8.3.3 Roosting

No roosting sites were observed within the survey area. The Eucalyptus Woodland fauna habitat represents suitable roosting habitat. One hundred and fifteen confirmed white-tailed Black Cockatoo and Forest Red-tailed Black Cockatoo roosting sites are known to occur within 15 km of the survey area from Birdlife Data provided by DBCA. Three of these sites occur within 3 km of the survey area (DBCA, 2023c).



Plate 26 Hollow recorded on potentially suitable nesting tree ID 593 - Stag

Table 69 Potentially suitable nesting tree hollow details

ID	Species	Hollow Entrance (Depth x Width)	Height Above Ground (m)	Hollow Angle	Facing	Hollow Type	Evidence of Use
291	Stag	25 x 25 cm	4	Vertical	East	Trunk	Chew Marks

## 8.4 Discussion

### 8.4.1 Flora and Vegetation

The survey area intersects with five Bush Forever Sites, one State Forest and one Nature Reserve. The survey area represents several linear corridors that travel in a largely north south direction and follows existing infrastructure corridors including roads, tracks, and powerline corridors. The eastern most corridor traverses the Gngangara State Forest, while the central and western lines capture more urbanised areas with heavily fragmented patches of vegetation that were generally degraded. Within the Gngangara State Forest, large areas represented natural regeneration following a history of Pine plantations. Natural succession is in early stages and weed invasion including scattered Pine trees have led to degradation. These areas were largely mapped as Degraded.

Ten vegetation communities were defined and mapped. The large number of vegetation communities reflect the length of the linear corridor as well as the impact of historical disturbance and isolation. The vegetation communities include five Banksia Woodlands, two Eucalypt Woodlands, three Melaleuca Woodlands, and two disturbed communities.

The five Banksia Woodlands are typical of the northern Swan Coastal Plain, occurring on gently undulating terrain on deep white-grey sandy soils. All areas mapped as Banksia Woodlands represent the Banksia Woodlands TEC listed as Endangered under the EPBC Act. The Woodlands generally represented edges of larger patches that extended beyond the survey area. Many of these were protected in Bush Forever and/or Nature Reserve. The Banksia Woodlands varied in condition depending on how severe weed invasion had affected native species diversity. In general, patches that represented larger areas of intact native vegetation were in better condition than the smaller fragmented patches that had low connectivity to other patches.

The majority of the Banksia Woodlands TEC represents the Priority 3 Banksia Dominated Woodlands of the Swan Coastal Plain, except one Patch. Patch 4 represents FCT 21c Low-lying *Banksia attenuata* Woodlands or Shrublands. This PEC was identified in the desktop study and was mapped adjacent to Jandabup Lake. The community provides important ecological functions that support Lake Jandabup including erosion control, sedimentation, and provides an important refuge for fauna species that use the Lake.

Two Patches of Tuart Woodlands TEC were confirmed to occur, restricted to the northern end of the survey area adjacent to Neerabup Terminal. Both patches represent stands of mature trees that are largely disconnected from one another by clearing and were planted as part of rehabilitation efforts. Condition varied and affected the density of native species. Weed invasion and historical disturbance has reduced the condition of both patches with only a small pocket of Excellent vegetation remaining.

Three wetland communities were mapped, all representing Melaleuca Woodlands ranging from Good condition to Excellent condition. Wetlands often are subject to rapid weed invasion as surface water encourages weed seed deposition. The drying climate and historical droughts are also likely to have an impact although this is difficult to measure. All wetland communities provide important refuge in a highly fragmented landscape. These wetlands represent 1.08 ha.

Flora diversity was considered moderate, with 178 species recorded, including 144 native and 34 weed species. This is comparable to the SCAR 4 Project survey (AECOM, 2022a) where 145 native species were recorded. The length of the corridors and diversity of vegetation communities encountered contributed to the high diversity despite representing largely Degraded vegetation.

One Priority 4 species, *Jacksonia sericea*, was collected and formal identification confirmed at the WA Herbarium. It was recorded at two locations including one outside the survey area near Lake Wangara, and once along the road south of the Lake within the survey area. There are seven WA Herbarium locations within 5 km and 15 records within 10 km of the survey area. Majority of records describe the species as locally common.

A sample of *Calectasia* sp. was collected for identification but was unable to be confirmed to species level as photographs of the root system are required. It is likely to represent the common species *C. narragarra*, but the Priority 2 species *C. elegans* cannot be excluded without the roots being identified. Ten DBCA records were found in proximity to the survey area, with the closest identified 1.04 km away. Suitable habitat is present for the species, with the habitat described as unburnt *Banksia menziesii* and *B. attenuata* woodland (Barrett, R and Barret, M, 2015).

There is a 'known' record of *Styphelia filifolia* in the survey area. It is evident following a review of its location that it is unlikely to be present. The record is dated 2007, with habitat described as 'Banksia woodland' and is situated in what now represents a cleared area, surrounded on either side by pine plantation and a road. Twenty-two significant flora species were considered to have a 'known', 'high' or 'moderate' likelihood of occurring prior to the survey (Table 70). Of these, 20 species were downgraded to 'low' following the completion of the field survey. These species would have been detectable at the time of the survey, yet they were not recorded. All areas of intact native vegetation were traversed on foot to conduct targeted searches. Further, the degradation observed across large areas meant habitat was unlikely to be suitable for many species.

*Poranthera moorokatta* (P2) was considered to have a 'High' likelihood to occur prior to the survey. The species was described in 2012 at which time it was known from two locations: Kings Park and Ellenbrook. In Kings Park it was recorded on white silica sand in open spaces between shrubs, not in shaded areas or in areas of high leaf litter cover (Barret, 2012). In Ellenbrook it was recorded in a shallow dampland on mixed grey-white sand with scattered leaf litter (Barret, 2012). There are five records located along or near the Tonkin Highway between Reid Highway and Neaves Road including one record from 2018. Detection periods were September and October months.

The survey was undertaken in November 2024. This may have been too late for detecting this 4 cm tall annual herb. Furthermore, rainfall likely affects germination and population size. At this time, it cannot be confidently reduced to 'Low' and remains to have a 'Moderate' likelihood of occurring. Suitable habitat would be the Banksia Woodlands BaAhDf near Lake Gngangara and BmEpLi associated with Bush Forever 326.

**Table 70 Summary of Neerabup Terminal and NBT Group likelihood of occurrence pre-survey and post-survey**

Likelihood	Number of Species Identified					Total
	Known	High Likelihood	Moderate Likelihood	Low Likelihood	Negligible Likelihood	
Pre-survey	1	10	11	6	26	55
Post-survey	1	0	1	20	33	55

#### 8.4.2 Fauna

Thirty-seven vertebrate fauna species were recorded during the field survey. This included 28 birds, four mammals and five reptile species. Three conservation significant fauna species were recorded during the survey:

- Quenda (*Isoodon fusciventer*) listed as Priority 4 by DBCA.
- Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksia naso*) listed as Vulnerable under the EPBC Act and BC Act.
- Carnaby's Cockatoo (*Zanda latirostris*) listed as Endangered under the EPBC Act and BC Act.

The local area supports both urban, agriculture and conservation land use. It is situated on the edge of a significant north-south corridor of native vegetation which includes Gngangara Moore River State Forest.

Seven native fauna habitats were defined and mapped within the survey area including Banksia Woodland, Adenanthos/Plantation, Pine Plantation, Eucalyptus Woodland, Melaleuca Woodland, Trees Over Cleared and Mixed Shrubland.

The Banksia Woodlands fauna habitat covers 7.8% (15.94 ha) of the survey area. It has the potential to support eight significant fauna species that could benefit from the combination of native woodlands and a diverse native understorey on sandy soil. Black Cockatoos can find food and nesting sites in the Banksia, Jarrah and Marri trees.

Eucalyptus Woodlands (4.86 ha, 2.4%) represents suitable habitat for Black Cockatoos, Black-striped Snake, and Quenda. The Eucalyptus Woodlands were open in nature with a sparse tree canopy, with

dominant species consisting of *Eucalyptus marginata* and *Corymbia calophylla*. The open vegetation is ideal for hunting and the presence of Jarrah and Marri could be utilised by the species for temporary roosting.

Mixed Shrubland provides suitable habitat for small marsupials and species that can utilise low-lying and dense shrubs for shelter. Quenda and Black-striped Snakes are known to inhabit low shrubland habitats, particularly those that are unburnt and dense. This habitat allows for high levels of nesting and foraging for small marsupial and reptile species (Haby et al., 2013).

Melaleuca Woodlands represent ephemeral Paperbark (*Melaleuca preissiana*) wetlands, with *Kunzea glabrescens* dominated shrub and mixed heath patches. Wetland migratory birds may utilise this habitat when inundated, however likelihood remains low due to the small size of these areas within the survey area. Quenda may also utilise the edges of this habitat type, as well as typically inundated areas that become seasonally dry.

Trees over Cleared represents scattered native species in paddocks. Tree species may include *Eucalyptus*, *Banksia* and *Acacia*. This habitat presents foraging and roosting habitat for avian species including listed species such as Black Cockatoos.

Following the survey, a post-survey likelihood desktop assessment was completed. Details of all the conservation significant species considered to have a high or known post-survey likelihood and their associated habitats is presented in Table 71. Those which have been downgraded from a high likelihood due to the post-survey assessment are also discussed. To verify the presence of the invertebrate species a targeted Short-range Endemic survey would be required, which was not completed at this time.

Table 71 Fauna species and associated fauna habitat within the Neerabup Terminal and East Wanneroo survey area

Species	Conservation code (EPBC/State WA)	Habitat	Number of DBCA Records and Distance	Pre survey likelihood of occurrence	Post survey likelihood of occurrence	Discussion
Carnaby's Cockatoo ( <i>Zanda latirostris</i> )	E (EPBC Act) EN (BC Act)	Uncleared or remnant native Eucalypt woodlands containing Salmon gum and Wandoo, and in shrubland or Kwongan heathland dominated by Hakea, dryandra, Banksia, and Grevillea species. It also occurs in remnant patches of native vegetation on land otherwise cleared for agriculture. Forages seasonally in Pine plantations (DCCEEW, 2023)	There are 3009 records on the DBCA database, the closest record is 0.01 km away from the survey area. The most recent record is in 2020.	Known	Known	This species is likely to use Eucalyptus Woodland, Pine plantations, Trees over Cleared and Banksia Woodland habitats within the survey area. These habitats are also found outside and directly adjacent to the survey area.
Forest Red-tailed Black Cockatoo ( <i>Calyptorhynchus banksii naso</i> )	V (EPBC Act) VU (BC Act)	Inhabits dense <i>Eucalyptus marginata</i> (Jarrah), <i>E. diversicolor</i> (Karri) and <i>Corymbia calophylla</i> (Marri) forests (TSSC, 2009).	There are 71 records on the DBCA database, the closest record is 0.20 km away from the survey area. The most recent record is in 2020.	High	Known	This species is likely to use Eucalyptus Woodland, Pine Plantations, Trees over Cleared and Banksia Woodland habitats within the survey area. Some of these habitats are also found outside, directly adjacent to the survey area.
Quenda ( <i>Isodon fusciventer</i> )	P4	Forest, woodland, heath and shrub communities, with sandy soils and dense heathy vegetation (Van Dyck & Strahan, 2008). The presence of accumulated coarse leaf litter is suitable foraging habitat for the Quenda. Quenda foraging activity was observed throughout these habitat types.	There are 629 records on the DBCA database, the closest record is 0.01 km away from the survey area. The most recent record is in 2020.	Known	Known	This species is likely to use Eucalyptus Woodland, Pine Plantations, Melaleuca Woodland, Mixed Shrubland and Banksia Woodland habitats within the survey area. Some of these habitats are also found outside, directly adjacent to the survey area.
Black-striped Snake ( <i>Neelaps calonotos</i> ) listed as Priority 3 by DBCA	P3	Restricted to sandy coastal strip near Perth, WA between Mandurah and Cataby, with isolated populations north, near Eneabba and Dongara. Dunes and vegetated sand plains with heaths and Eucalyptus/Banksia woodlands are preferred habitats (Wilson and Swan 2023).	There are 67 records on the DBCA database, the closest record is 0.08 km away from the survey area. The most recent record is in 2017.	High	Moderate	Dense leaf litter which is known to occur in Banksia Woodlands of the survey area is the preferred habitat type of this species (Bush et al., 2010). It may also utilise the Eucalyptus Woodland and Mixed Shrubland habitats.

Species	Conservation code (EPBC/State WA)	Habitat	Number of DBCA Records and Distance	Pre survey likelihood of occurrence	Post survey likelihood of occurrence	Discussion
						<p>This species may utilise areas where native understorey density was higher, generally associated with vegetation condition of 'Good' or better.</p> <p>These habitats are also found outside of and adjacent to the survey area.</p>
Swan Coastal Plain Shield-backed Trapdoor Spider ( <i>Idiosoma sigillatum</i> )	P3	Remnant habitats in Banksia woodland and heathland on sandy soils (Rix et al., 2018).	There are 70 records on the DBCA database, the closest record is 0.16 km away from the survey area. The most recent record is in 2019.	High	Moderate	<p>This species may utilise areas where native understorey density in Banksia Woodlands was higher, generally associated with vegetation condition of 'Good' or better.</p> <p>Banksia woodland habitat is also found just outside of the survey area.</p>
Native Bee ( <i>Hylaeus globuliferus</i> )	P3	Habitats containing flowers from <i>Adenanthos cygnorum</i> and also <i>Banksia attenuata</i> (Western Wildlife, 2009).	There are ten records in the vicinity of Neerabup, with the closest 2.71 km away and the most recent in 1996.	High	Moderate	<p>The <i>Adenanthos</i>/Plantation fauna habitat represents a mixed habitat of Woollybush (<i>Adenanthos cygnorum</i> var. <i>cygnorum</i>) regrowth and <i>Pinus pinaster</i>* trees. This habitat dominated the survey area, occupying 56.61 ha or 27.6% of the land. This habitat type may be utilised by the Woollybush Bee (<i>Hylaeus globuliferus</i>), which feeds on the nectar of Woollybush flowers (Houston, 2018).</p> <p>Woollybush (<i>Adenanthos cygnorum</i> var. <i>cygnorum</i>) was also observed within the Banksia</p>

Species	Conservation code (EPBC/State WA)	Habitat	Number of DBCA Records and Distance	Pre survey likelihood of occurrence	Post survey likelihood of occurrence	Discussion
						Woodlands, as a result the Woollybush Bee would also likely reside within the habitat type (Western Wildlife, 2009).
A short-tongued bee ( <i>Leioproctus contrarius</i> )	P3	Western Australia, associated with <i>Goodenia</i> sp. and <i>Lechenaultia</i> sp. (South Metro Connect, 2011).	There are 3 records in the vicinity of Neerabup, with the closest 0.06 km away and the most recent in 1982.	High	Moderate	The Banksia Woodland fauna habitat includes <i>Lechenaultia floribunda</i> , which is associated heavily with the short-tongued bee species <i>Leioproctus contrarius</i> (South Metro Connect, 2011). The species is therefore considered moderately likely to utilise the Banksia Woodland habitat type.
Graceful Sun Moth ( <i>Synemon gratiosa</i> )	P4	1. Coastal heathland on Quindalup dunes where it is restricted to secondary sand dunes due to the abundance of the host plant <i>Lomandra maritima</i> , the preferred habitat (denser population). 2. Banksia woodland on Spearwood and Bassendean dunes, where the second known host plant <i>L. hermaphrodita</i> is widespread. Throughout the Swan Coastal Plain, extending into the Geraldton Sandplains (DEC, 2011).	There are 397 records in the vicinity of Neerabup, with the closest 0.17 km away and the most recent in 2019.	High	Moderate	Multiple sterile <i>Lomandra</i> sp. individuals were recorded within the Banksia Woodlands. As these individuals were unable to be identified to species level, the species <i>Lomandra hermaphrodita</i> may be present within the survey area. The Graceful Sun moth ( <i>Synemon gratiosa</i> ) is associated with Banksia woodland where the known host plant <i>L. hermaphrodita</i> is widespread (DEC, 2011). The Graceful Sun moth may therefore utilise the Banksia Woodland habitat within the survey area.

### 8.4.3 Targeted Black Cockatoo

The survey area is within the known range for the three Threatened Black Cockatoo species. The Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksia naso*) and Carnaby's Cockatoo (*Zanda latirostris*) were observed foraging and resting within the survey area. There were 118 potential nesting trees identified with the survey area. Only one suitable nesting tree was identified, representing a stag (unidentifiable dead tree) with a hollow that could accommodate Black Cockatoo breeding. The hollow was vertical, with an entrance over 25 cm in diameter and located on the roadside verge in Badgerup Road.

The survey area scored a foraging habitat score of 10 for both the Carnaby's Cockatoo and Forest Red-tailed Black Cockatoo in accordance with the DAWE 2022 guidelines. The survey area has been assessed as a score of 8 for Baudin's Cockatoo in the absence of foraging evidence recorded during the survey acting as a detractor.

At a fauna habitat level, the BCE score varied from 1 'Negligible' to 8 'High'. The value was largely influenced by the abundance of desirable foraging species present and the fragmentation that has occurred in the local area. Native vegetation in the survey area represents approximately 1-5% of available foraging habitat, particularly for Forest Red-tailed Black Cockatoo and Baudin's Cockatoo who do not feed on Pine trees.

The Moderate to High foraging qualities for all three Black Cockatoo species are associated with the Banksia Woodland and Eucalyptus Woodland habitat types. These fauna habitats include suitable foraging species such as *Banksia attenuata*, *Banksia menziesii*, *Corymbia calophylla*, *Eucalyptus marginata* and *Eucalyptus todtiana*. The known occurrence of a roosting site within 3 km of the survey area, permanent water source presence nearby, confirmed sighting during the survey, and extent of suitable foraging habitat in the vicinity all contributed to the foraging score.

## 9.0 NT-NOR to HBK 132kV Results and Discussion

The NT-NOR to HBK 132kV survey area is along Drumpellier Drive and includes the west side (Whiteman Park) and a small corridor on the east side of this major road. Large parts of the survey area are currently inaccessible due to the development of the Morley-Ellenbrook railway corridor.

Numerous surveys have been undertaken within this corridor including:

- RPS, 2020. Detailed flora and vegetation assessment – METRONET Morley-Ellenbrook Line. This survey represented a two-season vegetation survey where permanent quadrats were scored twice, and multiple targeted searches were undertaken to maximise detection of significant flora species. The report supported the Morley-Ellenbrook Project submission to EPA under Part IV of the *Environment Protection Act 1986*.
- AECOM, 2016. Ellenbrook Bus Rapid Transit Biological Assessment. This report represents a single survey event where vegetation was recorded at defined non-permanent quadrats during Spring 2015.
- Woodman, 2020. Banksia Woodland Community Assessment – Patch 5. Verification of FCT analysis and Banksia Woodland TEC Assessment.

The results present a compilation of existing data that was verified through a site visit in Spring 2024. Areas that were accessible were visited and the existing mapping verified. Where necessary, mapping was updated to reflect current condition and native vegetation extent.

### 9.1 Flora

#### 9.1.1 Vegetation Communities



Four native vegetation communities were defined and mapped including:


- Two Banksia Woodland communities BaBmSiPo and BaBmBiXp
- One *Corymbia* Woodland which dominated the survey area.
- Trees over paddock weeds.

Native vegetation was mapped for 43.58 ha. The remaining 75.42 ha is mapped as cleared and is devoid of vegetation.

Vegetation community descriptions are presented in Table 72 and mapped on Figure 8.

Table 72 NT-NOR to HBK 132kV vegetation community descriptions and photographs

Description	Additional Details	Photograph
<p><b>BaBmSiPo</b> <i>Banksia attenuata</i> Woodland</p> <p><i>Banksia attenuata</i> and <i>B. menziesii</i> low woodland over a mixed low shrubland including <i>Scholtzia involucreta</i>, <i>Eremaea pauciflora</i> var. <i>pauciflora</i>, <i>Hibbertia hypericoides</i> and <i>Calytrix angulata</i> over <i>Patersonia occidentalis</i> var. <i>occidentalis</i> sparse forbland.</p> <p>Represents the Banksia Woodlands TEC. Situated on a dune crest with grey sandy soils.</p>	<p>RPS survey effort: METQ08, METQ09</p> <p>Extent: 0.20 ha</p> <p>Condition: Very Good</p>	
<p><b>BaBmBiXp</b> <i>Banksia attenuata</i> Woodland</p> <p><i>Banksia attenuata</i>, <i>B. menziesii</i> and <i>B. ilicifolia</i> low woodland over <i>Xanthorrhoea preissii</i> mid open shrubland over <i>Scholtzia involucreta</i> low sparse shrubland over an open to closed rushland/forbland.</p> <p>Situated on white-grey sandy soil on low flat terrain.</p>	<p>RPS survey effort: PTAR02, PTAR04</p> <p>Extent: 1.34 ha</p> <p>Condition: Completely Degraded to Degraded</p>	

Description	Additional Details	Photograph
<p><b>CcMpXp</b>  <i>Corymbia calophylla</i> Woodland</p> <p><i>Corymbia calophylla</i> mid open forest to mid closed forest over <i>Melaleuca preissiana</i> low isolated trees to low Woodland over <i>Xanthorrhoea preissii</i> isolated shrubs to mid open shrubland over <i>Dielsia stenostachya</i> rushland with a mixed exotic open grassland.</p> <p>Located on grey sandy soil on low flats and slopes.</p>	<p>RPS survey effort: METQ01, METQ11, METQ06, METQ17, PTAQ21, PTAQ15</p> <p>Extent: 37.23 ha</p> <p>Condition: Completely Degraded to Good</p>	
<p><b>Trees</b></p> <p>Isolated native trees and shrubs over weeds.</p>	<p>Survey effort: observation points</p> <p>Extent: 4.80 ha</p> <p>Condition: Completely Degraded</p>	<p>No photo available.</p>

## 9.1.2 Conservation Significant Vegetation

### 9.1.2.1 Banksia Woodlands TEC Assessment

One patch of Banksia Woodlands TEC was assessed by RPS and considered representative of the federally protected ecological community. The Banksia Woodlands TEC is mapped for 0.20 ha in the survey area as the community BaBmSiPo. FCT 23a was inferred for this Patch (Woodman, 2020) therefore this TEC is represented by the synonymous Priority 3 PEC at the State level.

A second patch, recognised as Patch 12 (RPS, 2020) was originally classified as the Banksia Woodlands TEC. The vegetation east of Drumpellier Drive is now separated from the Whiteman Park vegetation by more than 30 m and is therefore not considered part of the federally protected ecological community.

On the west side of Drumpellier Drive there is a stand of Banksia trees mapped as Completely Degraded. Due to degradation and segregation from vegetation in Good or better condition, it is not considered representative of the Banksia Woodlands TEC.

### 9.1.3 Vegetation Condition

Areas of native vegetation were mostly Completely Degraded or Degraded condition. Significant weed invasion was present which is expected on the Swan Coastal Plain, particularly where parcels of vegetation have been dissected by roads and development. Whiteman Park has a history of grazing where large areas along the west side of Drumpellier Drive remain cow paddocks.

Cleared areas represent areas devoid of vegetation and are not included in percentage calculations below.

Vegetation condition is mapped on Figure 8 and extent of each category is presented in Table 73 below.

**Table 73 Vegetation condition extent**

Condition Rating	Extent (ha)	Percent of Total Area
Very Good	0.20	0%
Good	2.06	5%
Degraded	19.65	45%
Completely Degraded	21.67	50%
<b>Total</b>	<b>43.58</b>	<b>100%</b>
Cleared	75.42	

### 9.1.4 Conservation Significant Flora

No significant flora species were recorded in the survey area.

### 9.1.5 Flora Inventory

The vegetation mapping relied on existing information published by RPS (2020) and AECOM (2016). It would be inaccurate to represent floristic diversity from these surveys as boundaries differ.

## 9.2 Fauna

### 9.2.1 Fauna Habitat Assessment

Five fauna habitats representing native vegetation were mapped, including Banksia Woodland, Melaleuca Woodland, Eucalyptus Woodland, Mixed Shrubland and Trees Over Cleared. Fauna habitat types and suitability for significant fauna species is described below and mapped in Figure 9.

### 9.2.1.1 Banksia Woodland

The Banksia Woodland habitat occurs at three locations along Drumpellier Drive and totalling 1.55 ha (1.3% of the survey area). It is characterised by a variable understorey of low shrublands and grasslands, with higher density in the northernmost patch. Overstorey plant species within the community include *Banksia attenuata*, *Banksia menziesii*, and *Eucalyptus todtiana*. Shrubs range from low-lying to tall, with density varying across the landscape. Shrub species included *Scholtzia involucrata*, *Eremaea pauciflora* var. *pauciflora*, *Hibbertia hypericoides*, and *Calytrix angulata* among others.

This habitat type represents edges of larger areas that extend beyond the survey area where condition is potentially better. It has few logs and rocks as microhabitats. Grass is common, with abundant bare ground. The shrubby understorey varies in density, along with coarse leaf litter. Small reptiles and mammals like the Quenda (Priority 4) and Black-striped Snake (Priority 3), which live in Banksia Woodlands, may forage in the coarse litter. This habitat type has large trees like Banksias and Eucalyptus, which are suitable for birds to feed and perch on. Carnaby's Cockatoo (Endangered) and Forest Red-tailed Black Cockatoo (Vulnerable) were seen foraging in the survey area.

### 9.2.1.2 Eucalyptus Woodland

The Eucalyptus Woodland habitat extends for 36.24 ha representing 30.5% of the survey area. Similar to the Banksia Woodland, this habitat extends beyond the survey area boundary. This habitat type is large and offers refuge for wildlife in the urbanised landscape. The overstorey includes Marri *Corymbia calophylla*, Jarrah *Eucalyptus marginata* and Paperbark *Melaleuca preissiana*. The understorey varies in density and species but largely represents paddocks with common weedy grasses and herbs. There is plenty of coarse leaf litter ideal for shelter and foraging for the Quenda *Isodon fusciventer*. Large logs are scarce, but small logs and vines are common. The mature trees are suitable habitat for the Carnaby's Cockatoo, Forest Red-tailed Black Cockatoos and Baudin's Cockatoo.



Plate 27 Eucalyptus Woodland Habitat

### 9.2.1.3 Mixed Shrubland

The Mixed Shrubland habitat includes open native shrubland and planted shrubs mapped for 0.26 ha, representing 0.2% of the survey area. There are small logs which occur sporadically throughout the habitat type. Grasses were abundant, with coarse leaf litter occurring occasionally. The leaf litter and grassy understorey provide suitable foraging habitat and shelter for the Quenda *Isoodon fusciventer*.

### 9.2.1.4 Melaleuca Woodland

The Melaleuca Woodland habitat consists of *Melaleuca preissiana* overstorey in paddocks, mapped for 0.99 ha representing 0.8% of the survey area. It is limited to small pockets representing the edge of larger patches of vegetation that extend beyond the survey area. There are small logs which occur sporadically throughout the habitat type. Grasses were abundant, with coarse leaf litter occurring occasionally.

### 9.2.1.5 Trees Over Cleared

The Trees Over Cleared habitat type is mapped for 4.54 ha representing 4% of the survey area. It consists of planted street trees and isolated native trees over common weedy grasses and herbs. There is minimal variation and limited microhabitats throughout the habitat type. Leaf litter is infrequent, with minimal logs and fallen branches present. The habitat provides refuge and foraging habitat for invertebrates including native bees, and flighted species such as birds and microbats.

## 9.2.2 Fauna Inventory

A total of 21 vertebrate fauna species were recorded during the field survey. This comprised of 17 bird, three mammal and one reptile species. A complete inventory of fauna species recorded within the survey area is provided in Table 74.

One introduced species was recorded, the European Rabbit *Oryctolagus cuniculus*, which is listed under the BAM Act as a Declared Pest (s22(2)).

**Table 74 Fauna observations in the NT-NOR to HBK 132kV Line survey area**

Class	Scientific Name	Common Name	Method
Mammal	<i>Isoodon fusciventer</i>	Quenda	Seen. Foraging evidence
Mammal	<i>Macropus fuliginosus melanops</i>	Western Grey Kangaroo	Scats
Mammal	<i>Oryctolagus cuniculus</i>	European Rabbit	Tracks
Bird	<i>Barnardius zonarius</i>	Australian Ringneck	Seen and heard
Bird	<i>Spilopelia senegalensis</i>	Laughing Dove	Seen
Bird	<i>Cacatua pastinator</i>	Western Corella	Seen and heard
Bird	<i>Gymnorhina tibicen</i>	Australian Magpie	Seen and heard
Bird	<i>Anthochaera carunculata</i>	Red Wattlebird	Seen and heard
Bird	<i>Rhipidura leucophrys</i>	Willie Wagtail	Seen and heard
Bird	<i>Pachycephala rufiventris</i>	Rufous Whistler	Seen and heard
Bird	<i>Cracticus torquatus</i>	Grey Butcherbird	Seen
Bird	<i>Smicromnis brevirostris</i>	Weebil	Seen
Bird	<i>Zosterops lateralis</i>	Silveryeye	Seen
Bird	<i>Purpureicephalus spurius</i>	Red capped parrot	Seen and heard
Bird	<i>Eolophus roseicapilla</i>	Galah	Seen and heard
Bird	<i>Hirundo neoxena</i>	Welcome Swallow	Seen
Bird	<i>Falco cenchroides</i>	Nankeen Kestrel	Seen
Bird	<i>Merops ornatus</i>	Rainbow Bee eater	Seen and heard

Class	Scientific Name	Common Name	Method
Bird	<i>Calyptorhynchus banksia naso</i>	Forest Red-tailed Black Cockatoo	Seen. Foraging evidence
Bird	<i>Zanda latirostris</i>	Carnaby's Black Cockatoo	Seen and heard. Foraging evidence
Reptile	<i>Varanus tristis</i>	Black-headed Monitor	Seen

### 9.2.3 Conservation Significant Fauna

Three conservation significant fauna species were recorded during the survey:

- Carnaby's Cockatoo (*Zanda latirostris*) listed as Endangered under the EPBC Act and BC Act
- Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) listed as Vulnerable under the EPBC Act and BC Act
- Quenda (*Isoodon fusciventer*) listed as Priority 4 by DBCA.

Carnaby's Cockatoos and Forest Red-tailed Black Cockatoo were seen and heard during the survey. Foraging evidence was recorded for Quenda and the Forest Red-tailed Black Cockatoo. Evidence of conservation significant species is mapped in Figure 9.

Four additional significant fauna species are likely to utilise the fauna habitats within the survey area. The total area (ha) of suitable habitat for these species which occurs within the survey area is included in Table 75 below.

**Table 75 Total area (ha) of suitable habitat for significant fauna species within the survey area**

Species	Area of Suitable Habitat (ha)					Total (ha)
	Eucalyptus Woodland	Banksia Woodland	Melaleuca Woodland	Trees Over Cleared	Mixed Shrubland	
Carnaby's Cockatoo ( <i>Zanda latirostris</i> )	36.24	1.55	-	4.54	-	42.32
Baudin's Cockatoo ( <i>Zanda baudinii</i> )	36.24	1.55	-	4.54	-	42.32
Forest Red-tailed Black Cockatoo ( <i>Calyptorhynchus banksii naso</i> )	36.24	1.55	-	4.54	-	42.32
Quenda ( <i>Isoodon fusciventer</i> )	36.24	1.55	0.99	-	0.26	39.04

## 9.3 Targeted Black Cockatoo Survey

### 9.3.1 Foraging

The survey area has been assessed as a score of 10 'High-quality foraging habitat' for both the Carnaby's Cockatoo and Forest Red-tailed Black Cockatoo in accordance with the Commonwealth Black Cockatoo Referral Guidelines foraging tool (DAWE, 2022) (Table 76). No subtractions were made for these two species. The survey area has been assessed as a score of 8 for Baudin's Cockatoo due to an absence of foraging evidence during the survey.

The survey area contains mature Banksia Woodlands and Eucalyptus Woodlands with suitable foraging species including multiple Proteaceous species, Marri *Corymbia calophylla* and Jarrah *Eucalyptus marginata* trees.

**Table 76 Black Cockatoo Foraging Habitat Assessment (DAWE, 2022)**

Starting score		Baudin's Cockatoo ( <i>Zanda baudinii</i> )	Carnaby's Cockatoo ( <i>Zanda latirostris</i> )	Forest Red-Tailed Black Cockatoo ( <i>Calyptorhynchus banksii naso</i> )
		<b>Start at a score of 10</b> if your site is native eucalypt woodlands and forest, and proteaceous woodland and heath, particularly Marri, within the range of the species, including along roadsides and parkland cleared areas. Can include planted vegetation. <b>This tool only applies to sites equal to or larger than 1 hectare in size.</b>	<b>Start at a score of 10</b> if your site is native shrubland, kwongan heathland or woodland, dominated by proteaceous plant species such as <i>Banksia</i> spp. (including <i>Dryandra</i> spp.), <i>Hakea</i> spp. and <i>Grevillea</i> spp., as well as native eucalypt woodland and forest that contains foraging species, within the range of the species, including along roadsides and parkland cleared areas. Also includes planted native vegetation. <b>This tool only applies to sites equal to or larger than 1 hectare in size.</b>	<b>Start at a score of 10</b> if your site is Jarrah or Marri woodland and/or forest, or if it is on the edge of Karri Forest, or if Wandoo and Blackbutt occur on the site, within the range of the subspecies, including along roadsides and parkland cleared areas. <b>This tool only applies to sites equal to or larger than 1 hectare in size.</b>
Attribute	Sub-tractions	Context adjustor (attributes reducing functionality of foraging habitat).		
Foraging potential	-2	<b>Subtract 2</b> from your score if there is no evidence of feeding debris on your site. <input checked="" type="checkbox"/>	<b>Subtract 2</b> from your score if there is no evidence of feeding debris on your site. <input type="checkbox"/>	<b>Subtract 2</b> from your score if there is no evidence of feeding debris on your site. <input type="checkbox"/>
Connectivity	-2	<b>Subtract 2</b> from your score if you have evidence to conclude that there is no other foraging habitat within 12 km of your site. <input type="checkbox"/>	<b>Subtract 2</b> from your score if you have evidence to conclude that there is no other foraging habitat within 12 km of your site. <input type="checkbox"/>	<b>Subtract 2</b> from your score if you have evidence to conclude that there is no other foraging habitat within 12 km of your site. <input type="checkbox"/>
Proximity to breeding	-2	<b>Subtract 2</b> if you have evidence to conclude that your site is more than 12 km from breeding habitat. <input type="checkbox"/>	<b>Subtract 2</b> if you have evidence to conclude that your site is more than 12 km from breeding habitat. <input type="checkbox"/>	<b>Subtract 2</b> if you have evidence to conclude that your site is more than 12 km from breeding habitat. <input type="checkbox"/>

Starting score		Baudin's Cockatoo ( <i>Zanda baudinii</i> )		Carnaby's Cockatoo ( <i>Zanda latirostris</i> )		Forest Red-Tailed Black Cockatoo ( <i>Calyptorhynchus banksii naso</i> )	
Proximity to roosting	-1	Subtract 1 if you have evidence to conclude that your site is more than 20 km from a known night roosting habitat.	<input type="checkbox"/>	Subtract 1 if you have evidence to conclude that your site is more than 20 km from a known night roosting habitat.	<input type="checkbox"/>	Subtract 1 if you have evidence to conclude that your site is more than 20 km from a known night roosting habitat.	<input type="checkbox"/>
Impact from significant plant disease	-1	Subtract 1 if your site has disease present (e.g. <i>Phytophthora</i> spp. or Marri canker) and the disease is affecting more than 50% of the preferred food plants present.	<input type="checkbox"/>	Subtract 1 if your site has disease present (e.g. <i>Phytophthora</i> spp. or Marri canker) and the disease is affecting more than 50% of the preferred food plants present.	<input type="checkbox"/>	Subtract 1 if your site has disease present (e.g. <i>Phytophthora</i> spp. or Marri canker) and the disease is affecting more than 50% of the preferred food plants present.	<input type="checkbox"/>
		8		10		10	

The BCE foraging habitat value considered known breeding and roosting sites, and the characteristics associated with each fauna habitat type. The following factors influenced the results:

- There are five confirmed white-tailed and Forest Red-tailed Black Cockatoo roosting sites less than 2.5 km from the survey area (DBCA, 2023c).
- The survey area is approximately 20 km from the buffer zone of two confirmed Black Cockatoo breeding areas (DBCA, 2023c).
- There is suitable foraging habitat adjacent to the survey area. The survey area represents 0.26% of available foraging habitat where breeding is likely and within 15 km therefore site context scores 1 where relevant.

Carnaby's Cockatoos were observed resting and foraging in Marri *Corymbia calophylla* within the survey area. Forest Red-tailed Black Cockatoos were observed flying over as well as foraging evidence (Plate 28).

The Banksia Woodland fauna habitat was considered 'Moderate to High' and 'Moderate' based on the density of suitable Banksia foraging species.

Areas that were Degraded had a lower site condition score (3 or 4) with a site context score and stocking rate of 1.

This same habitat was 'Low' for Baudin's and Forest Red-tailed Black Cockatoo in the absence of suitable foraging species.

The Eucalyptus Woodland fauna habitat was predominantly *Corymbia calophylla* and *Melaleuca preissiana* trees. Site context and stocking rate added two points for Carnaby's and Forest Red-tailed Black Cockatoos.

This habitat type varied depending on condition for Carnaby's, from 'Low' to 'Moderate'.

It was rated as 'Moderate' for Baudin's, and 'Moderate to High' for Forest Red-tailed Black Cockatoos.

The Trees over Cleared and Mixed Shrubland habitat was mapped as Completely Degraded and considered 'Low' for Carnaby's,

and 'Moderate' for Forest Red-tailed Black Cockatoos and Baudin's Cockatoo. The score was largely influenced by site condition in the absence of dense favourable foraging species.

The Melaleuca Woodland represents 'Negligible' quality habitat for all three species in the absence of suitable foraging species.

Foraging habitat for each habitat type is shown in Table 78 and it is mapped in Figure 10.

**Table 77 NT-NOR TO HBK 132KV Terminal refined foraging score calculation (Bamford, 2020)**

Habitat Type	Carnaby's Cockatoo	Baudin's Cockatoo	Forest Red-tailed Black Cockatoo	Extent (ha)
Banksia Woodlands	5	2	2	1.55
Eucalyptus Woodland	5	4	7	36.24
Melaleuca Woodland	1	1	1	0.99
Mixed Shrubland	2	2	2	0.26
Trees over Cleared	2	4	4	4.54
Cleared	0	0	0	75.42

**Table 78 NT-NOR TO HBK 132KV Terminal foraging habitat extent**

Foraging Habitat Quality	Carnaby's Cockatoo (ha)	Baudin's Cockatoo (ha)	Forest Red-tailed Black Cockatoo (ha)
1: Negligible.	0.99	0.99	0.99
2: Low	4.80	1.55	1.81
4-6: Moderate		40.78	4.54
7: Moderate to High	37.78		36.23
<b>Total</b>	<b>43.58</b>	<b>43.58</b>	<b>43.58</b>

**Plate 28 Carnaby's Cockatoo foraging within the survey area**

### 9.3.2 Breeding

A total of 351 potential nesting trees were recorded within the survey area (Table 79, Figure 10). The majority consisted of Marri (*Corymbia calophylla*) trees.

Two suitable nesting trees were recorded (Table 80 and Plate 29) with suitable hollows that could facilitate Black Cockatoo breeding. This included a Jarrah tree with a spout hollow, and a stag also with a spout hollow. The stag hollow was occupied by a beehive. This assessment is limited to observations made from the ground only.

**Table 79 Potential nesting trees within the survey area**

Tree Species	Total Trees with DBH >500 mm
Tuart ( <i>Eucalyptus gomphocephala</i> )	1
Marri ( <i>Corymbia calophylla</i> )	302
Jarrah ( <i>Eucalyptus marginata</i> )	8
Coastal Blackbutt ( <i>Eucalyptus todtiana</i> )	2
Stag	36
Introduced	2
<b>Grand Total</b>	<b>351</b>

**Table 80 Potentially suitable nesting tree hollow details**

ID	Species	Hollow Entrance (Depth x Width)	Height Above Ground (m)	Hollow Angle	Facing	Hollow Type	Evidence of Use
291	Stag	30 x 30 cm	12	Horizontal	West	Spout	None, occupied by bees.
507	Jarrah ( <i>Eucalyptus marginata</i> )	20 x 20 cm	12	Horizontal	North	Spout	None



**Plate 29** Left: Hollow recorded on potentially suitable nesting tree ID 291 - Stag  
 Right: Hollow recorded on potentially suitable nesting tree ID 507 - Jarrah (*Eucalyptus marginata*)

### 9.3.3 Roosting

No roosting sites were observed within the survey area. Sixty-seven confirmed white-tailed Black Cockatoo and Forest Red-tailed Black Cockatoo roosting sites are known to occur within 15 km of the survey area from Birdlife Data provided by DBCA. Twelve of these occur within 5 km and five within 2.5 km of the survey area (DBCA, 2023c). The Trees over Cleared and Eucalyptus Woodland would provide suitable roosting habitat.

## 9.4 Discussion

### 9.4.1 Flora and Vegetation

The survey area represents a wide linear corridor that follows Drumpellier Drive in a north-south trajectory. It includes the east side of Drumpellier Drive which adjoins urban development and has been disconnected from the vegetation on the west side. The west side represents Whiteman Park and Bush Forever Site 304. This area, although representing a Reserve, is currently used for cattle grazing and encompasses the Morley-Ellenbrook Rail Corridor which is currently under construction.

Access to the area was restricted due to ongoing Rail works. The current survey verified the RPS (2020) flora and vegetation assessment undertaken to support the Morley-Ellenbrook Public Environment Review documentation submitted to EPA. This mapping was refined and updated to reflect current conditions excluding the clearing footprint and refining trees in paddocks.

All areas of native vegetation have been historically disturbed from grazing, urban development, and altered hydrology. Large parts of the area are low-lying and winter-wet and therefore represent ideal grazing country where grasses grow prolifically. Weeds have displaced most native understorey species, leading to the majority of the area being mapped as Completely Degraded and Degraded. Historically the wetlands in Whiteman Park suffer from significant weed invasion including the Declared pest *Zantedeschia aethiopica* (Arum Lily) (RPS, 2020).

Native vegetation represents five vegetation communities, mapped for 57.98 ha. The remaining 59.74 ha is cleared. Vegetation is largely reduced to a native overstorey over hardy native shrubs and common pasture weeds.

**Table 81 Summary of NT-NOR TO HBK 132KV likelihood of occurrence pre-survey and post-survey**

Likelihood	Number of Species Identified					Total
	Known	High Likelihood	Moderate Likelihood	Low Likelihood	Negligible Likelihood	
Pre-survey	0	3	31	47	23	104
Post-survey	0	0	0	34	70	104

#### 9.4.2 Fauna

Twenty-one vertebrate fauna species were recorded during the field survey. This included 17 birds, three mammals and one reptile species. Three conservation significant fauna species were recorded during the survey:

- Quenda (*Isoodon fusciventer*) listed as Priority 4 by DBCA.
- Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksia naso*) listed as Vulnerable under the EPBC Act and BC Act.
- Carnaby's Cockatoo (*Zanda latirostris*) listed as Endangered under the EPBC Act and BC Act.

Five native fauna habitats were defined and mapped for the survey area based on the results of the field assessment. These habitats include Banksia Woodland, Eucalyptus Woodland, Melaleuca Woodland, Trees Over Cleared and Mixed Shrubland. All fauna habitats were reduced to a native overstorey with a predominantly weedy understorey.

Following the survey, a post-survey likelihood desktop assessment was completed. Details of all the conservation significant species considered to have a high or known post-survey likelihood and their associated habitats is presented in Table 82.

The Banksia Woodlands and Eucalyptus Woodland habitats are considered the most suitable habitat for Quenda (*Isoodon fusciventer*), Carnaby's Cockatoos (*Zanda latirostris*), Baudin's Cockatoo (*Zanda baudinii*), and Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksia naso*). Large parts of the survey area are disconnected from remnant native vegetation and have been disturbed.

These significant fauna species may utilise areas where native understorey density was higher, generally associated with vegetation condition of 'Good' or better.

Table 82 Fauna species and associated fauna habitat within the NT-NOR to HBK 132kV survey area

Species	Conservation code (EPBC/State WA)	Habitat	Number of DBCA Records and Distance	Pre survey likelihood of occurrence	Post survey likelihood of occurrence	Discussion
Carnaby's Cockatoo ( <i>Zanda latirostris</i> )	E (EPBC Act) EN (BC Act)	Uncleared or remnant native Eucalypt woodlands containing Salmon gum and Wandoo, and in shrubland or Kwongan heathland dominated by Hakea, Dryandra, <i>Banksia</i> and <i>Grevillea</i> species. It also occurs in remnant patches of native vegetation on land otherwise cleared for agriculture. Forages seasonally in Pine plantations (DCCEEW, 2023)	There are 9264 records on the DBCA database, the closest record is 0.29 km away from the survey area. The most recent record is in 2020.	High	Known	This species is likely to use Eucalyptus Woodland, Trees Over Cleared, and Banksia Woodland habitats within the survey area. These habitats are also found outside, directly adjacent to the survey area.
Baudin's Cockatoo ( <i>Zanda baudinii</i> )	E (EPBC Act) EN (BC Act)	Temperate forest and woodland dominated by <i>Eucalyptus marginata</i> (Jarrah), <i>Corymbia calophylla</i> (Marri) and <i>E. diversicolor</i> (Karri) (TSSC, 2018).	There are 136 records on the DBCA database, the closest record is 0.70 km away from the survey area. The most recent record is in 2015.	High	High	This species is likely to use Eucalyptus Woodland, Trees Over Cleared, and Banksia Woodland habitats within the survey area. These habitats are also found outside, directly adjacent to the survey area.
Forest Red-tailed Black Cockatoo ( <i>Calyptorhynchus banksii naso</i> )	V (EPBC Act) VU (BC Act)	Inhabits dense <i>Eucalyptus marginata</i> (Jarrah), <i>E. diversicolor</i> (Karri) and <i>Corymbia calophylla</i> (Marri) forests (TSSC, 2009).	There are 363 records on the DBCA database, the closest record is 2.00 km away from the survey area. The most recent record is in 2020.	High	Known	This species is likely to use Eucalyptus Woodland, Trees Over Cleared, and Banksia Woodland habitats within the survey area. These habitats are also found outside, directly adjacent to the survey area.
Quenda ( <i>Isoodon fusciventer</i> )	P4	Forest, woodland, heath, and shrub communities, with sandy soils and dense heathy vegetation (Van Dyck & Strahan, 2008).	There are over 1588 records within 10 km of the survey area, with the closest record occurring at 0.06 km. The most recent of these was recorded in 2021.	High	Known	This species is likely to use Eucalyptus Woodland, Melaleuca Woodland, Mixed Shrubland and Banksia Woodland habitats within the survey area. The presence of accumulated coarse leaf litter is suitable foraging habitat for the Quenda. Quenda foraging activity was observed throughout these habitat types. These habitats are also found outside, directly adjacent to the survey area.

### 9.4.3 Targeted Black Cockatoo

The survey area is within the known range for the three threatened Black Cockatoo species. Both the Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksia naso*) and Carnaby's Cockatoo (*Zanda latirostris*) were observed foraging and resting within the survey area. There were 118 potential nesting trees recorded, including two suitable nesting trees. The suitable nesting trees include a stag and a Jarrah tree, both with spout hollows. There was no evidence of current use, but they could be utilised for nesting in the future.

The survey area scored a foraging habitat score of 10 for both the Carnaby's Cockatoo and Forest Red-tailed Black Cockatoo in accordance with the DAWE 2022 guidelines. The survey area has been assessed as a score of 8 for Baudin's Cockatoo due to an absence of foraging evidence during the survey.

Foraging scores were largely attributed to the variable site condition score, influenced by the *Banksia Corymbia calophylla* and *Eucalyptus marginata* overstorey. This includes potential breeding trees and two trees with suitable hollows. For Carnaby's the Banksia Woodlands would be the preferred habitat, rated as 'Moderate to High'. For Forest Red-tailed Black Cockatoos, the Trees over Cleared and Eucalyptus Woodlands would be the preferred habitat, also scoring 'Moderate to High'.

Foraging quality for Baudin's Cockatoo was largely Moderate. The species prefer to forage on Marri (*Corymbia calophylla*), which is present in the survey area. Due to a lack of sightings and foraging evidence the score meant no stocking rate score was included and breeding is unlikely with breeding likely to occur on the southern Swan Coastal Plain (DAWE, 2022).

There are large areas of remnant native vegetation in Good or better condition protected within Whiteman Park and Gnangara State Forest which would provide similar foraging habitat as what was captured in the survey area.

## 10.0 Northern Terminal Results and Discussion

### 10.1 Flora

#### 10.1.1 Vegetation Communities

Two intact and one modified native vegetation community was defined and mapped including:

- Eucalypt Woodland CcXpEc
- Low-lying Eucalypt Woodland ErAcCc which represents a winter-wet area
- Trees representing a modified community.

The native vegetation communities were mapped for 12.21 ha, representing 47% of the survey area. The remaining 13.57 ha was mapped as Cleared and was devoid of native vegetation. Vegetation community descriptions are presented in Table 83 and mapped on Figure 8.

#### 10.1.2 Conservation Significant Vegetation



No TECs or PECs were identified in the survey area.

FCT analysis results were ambiguous with no strong similarity for Quadrats CHQ01 and CHQ02. This outcome reflects the isolated nature and degradation of vegetation within the survey area. Numerous key species were missing, and no strong similarity was noted for any one particular FCT.

Quadrat CHQ03 had a weak affiliation with FCT 4 *Melaleuca preissiana* Damplands. This is inferred with low confidence with 29% as the highest similarity and then only for the Gibson data.

Results for the FCT analysis are presented in Table 84) including similarity percentages and cluster dendrogram results.

Table 83 Northern Terminal vegetation community descriptions and photographs

Description	Additional Details	Photograph
<p><b>CcXpEc</b>  <i>Corymbia calophylla</i> Woodland</p> <p><i>Corymbia calophylla</i> and <i>Nuytsia floribunda</i> tall open woodland over <i>Xanthorrhoea preissii</i>, <i>Conostephium pendulum</i> and <i>Petrophile linearis</i> low sparse shrubland over *<i>Ehrharta calycina</i> and *<i>Pentameris airoides</i> open grassland.</p> <p>Situated on grey- white sandy soil on flat terrain.</p>	<p>Survey effort: CHQ02</p> <p>Native species richness: 10</p> <p>Weed species richness: 3</p> <p>Condition: Completely Degraded to Very Good</p> <p>Extent: 1.52 ha</p>	
<p><b>ErAcCc</b>  <i>Eucalyptus rudis</i> Woodland</p> <p><i>Eucalyptus rudis</i>, <i>Melaleuca preissiana</i> and <i>Callitris pyramidalis</i> tall open woodland over <i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>, <i>Jacksonia furcellata</i>, <i>Taxandria linearifolia</i> low closed shrubland over <i>Conostylis candicans</i> subsp. <i>candicans</i>, <i>Phlebocarya ciliata</i> and <i>Tricoryne tenella</i> sparse forbland.</p> <p>Situated on grey sandy soil on low flat terrain. Represents low-lying terrain which may be winter-wet.</p>	<p>Survey effort: CHQ01, CHQ03, CHR01, NSR01, NSR02, NSR03, NSR04</p> <p>Native species richness: 38</p> <p>Weed species richness: 23</p> <p>Condition: Completely Degraded to Excellent</p> <p>Extent: 9.82 ha</p>	


Description	Additional Details	Photograph
<p><b>Trees</b></p> <p>Isolated native trees and shrubs over weeds.</p> <p>Situated on grey- white sandy soil on flat terrain.</p>	<p>Survey effort: Observation points</p> <p>Condition: Completely Degraded</p> <p>Extent: 0.87 ha</p>	

Table 84 Floristic community type analysis results for Northern

Quadrat	Gibson (1994)				Keighery (2012)			Final Determination	
	% Similar	FCT	Site	Dendrogram	% Similar	FCT	Site	Dendrogram	
CHQ01	27	28	NEER-6	Broadly clustering with FCT 20b and 6.	30	21c	FL-6	Clustering with FCT 6.	Indeterminate. FCT21c low lying <i>B. attenuata</i> woodlands or shrublands is not a good fit. It is dominated by a mix of <i>Melaleuca preissiana</i> , <i>B. attenuata</i> , <i>B. menziesii</i> according to the Gibson et al. (1994) description. The mapped community lacks the key <i>Banksia</i> species and is therefore not considered to represent this FCT. The low similarity to multiple FCTs likely relates to the high level of disturbance.
	27	21c	DEJONG-c		29	24	bold13		
	25	21c	FL-6		28	21c	DEJONG02		
CHQ02	22	21a	PLINE-3	Broadly clustering with FCTs 15 and 10b. Outlier of a large group.	25	21c	ELE29	Outlier of a large group, clustering with FCTs s10, s08.	Indeterminate. FCT21a central <i>B. attenuata-Eucalyptus marginata</i> woodlands is not a good fit. It is dominated by a mix of <i>E. marginata</i> and <i>B. attenuata</i> according to the Gibson et al. (1994) description. The mapped community lacks the key <i>Banksia</i> and <i>Eucalyptus</i> species and is therefore not considered to represent this FCT. The low similarity to multiple FCTs likely relates to the high level of disturbance.
	21	21a	MILT-6		24	21c	ELE27		
	20	24	THOM-2		24	22	MR11		
CHQ03	29	4	PLINE-4	Broadly clustering with FCTs 22 and 14.	35	s02	ELE06	Outlier of a group including FCTs 6, s20, and s01	FCT 4, low similarity, unable to infer FCT with confidence. Vegetation present was a mix of wetland and woodland. FCT4 vegetation description is suitable. Low similarity may be influenced by quadrat location (ecotone potentially), historical disturbance, or survey effort (single scoring event, time of year, time spent searching).
	24	4	MELA-1		31	21a	Cavs02		
	23	21c	FL-5		31	4	perth10		

### 10.1.3 Vegetation Condition

The survey area included 13.37 ha of native vegetation which was largely Degraded (4.91 ha, 19%) and Completely Degraded (2.34 ha, 9%). Degradation was a result of fragmentation, clearing for the existing substations, numerous tracks, and the exacerbated edge effects. The native vegetation is completely isolated from other areas of remnant vegetation, thereby exacerbating lower diversity. This power station was historically cleared (1960s) for construction of the substation infrastructure.

Cleared areas represent areas devoid of vegetation and are not included in percentage calculations below. Vegetation condition is mapped on Figure 8 and extent of each category is presented in Table 85 below.

**Table 85** Vegetation condition extent

Condition Rating	Extent (ha)	Percent of Total Area
Completely Degraded	2.34	19
Degraded	4.91	40
Good	3.02	25
Very Good	0.85	7
Excellent	1.09	9
<b>Total</b>	<b>12.21</b>	<b>100</b>
Cleared	13.57	

### 10.1.4 Conservation Significant Flora

No significant flora species were recorded in the Northern Terminal survey area.

### 10.1.5 Flora Inventory

A total of 70 flora species from 31 families were recorded. The total includes 46 (65.7%) locally native species and 24 (34.3%) introduced or naturalised weed species. No weed species listed as Weeds of National Significance (WONS) or listed as Declared Pests under the BAM Act were recorded.

Families with the highest representation are Myrtaceae (29 native taxa), Poaceae (17 native taxa), and Fabaceae (12 native taxa).

The comprehensive list of vascular flora species recorded, organised by family and the community they occur in is presented in Appendix D. Quantitative data recorded from individual samples sites is presented in Appendix E.

## 10.2 Fauna

### 10.2.1 Fauna Habitat Assessment

#### 10.2.1.1 Eucalyptus Woodland

The Eucalyptus Woodland habitat extends for 11.33 ha within the survey area. This habitat type is the largest within the survey area and acts as a refuge for wildlife from the surrounding urbanised landscape. The main trees are Marri *Corymbia calophylla*, Flooded Gum *Eucalyptus rudis* and *Melaleuca preissiana*, some of which contain small hollows. Historical disturbance has impacted the abundance of a shrubby understorey, which varies in density throughout. Coarse leaf litter, sedges and grasses are abundant which are ideal for shelter and foraging for animals like the Quenda *Isoodon fusciventer*. Vines and small logs are abundant, whilst large logs are infrequent. The mature trees are suitable habitat for the three threatened species: Carnaby's Cockatoo, Forest Red-tailed Black Cockatoos and Baudin's Cockatoo.



Plate 30 Eucalyptus Woodland Habitat

### 10.2.1.2 Mixed Shrubland

The Mixed Shrubland habitat includes isolated planted shrubs, as well as remnant native shrubland vegetation. It is in a degraded condition and extends for 0.73 ha, limited to small pockets throughout the survey area.

There are small logs which occur sporadically throughout the habitat type. Grasses were abundant, with coarse leaf litter occurring occasionally.



Plate 31 Mixed Shrubland Habitat

### 10.2.1.3 Trees Over Cleared

The Trees Over Cleared habitat type is the second-most abundant habitat type, other than Cleared. It extends for 0.14 ha and consists of isolated native trees over grasses and weeds. Habitat quality is poor, as there is minimal variation and limited microhabitats throughout the habitat type. Leaf litter is infrequent, with minimal logs and fallen branches present. The habitat is primarily likely to be used by invertebrates and flighted species, such as birds and microbats. The mature trees may provide shelter, breeding and foraging for many species.



Plate 32 Trees Over Cleared Habitat

### 10.2.2 Fauna Inventory

A total of 16 vertebrate fauna species were recorded during the field survey. This comprised of nine bird, six mammal and one reptile species. A complete inventory of fauna species recorded within the survey area is provided in Table 86.

Two introduced species were recorded, both of which are listed under the BAM Act:

- Feral Cat *Felis catus* (Declared Pest - s22(2))
- European Rabbit *Oryctolagus cuniculus* (Declared Pest - s22(2)).

**Table 86 Fauna observations within the Northern survey area**

Class	Scientific Name	Common Name	Method
Mammal	<i>Felis catus</i>	Feral Cat	Seen and heard
Mammal	<i>Isodon fusciventer</i>	Quenda	Foraging evidence
Mammal	<i>Macropus fuliginosus melanops</i>	Western Grey Kangaroo	Bones
Mammal	<i>Oryctolagus cuniculus</i>	European Rabbit	Seen. Foraging evidence
Mammal	<i>Tachyglossus aculeatus</i>	Short-beaked Echidna	Scats
Mammal	<i>Vulpes vulpes</i>	Red Fox	Seen
Bird	<i>Phylidonyris niger</i>	White-cheeked Honeyeater	Seen and heard
Bird	<i>Lichmera indistincta</i>	Brown Honeyeater	Seen and heard
Bird	<i>Merops ornatus</i>	Rainbow Bee-eater	Seen
Bird	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike	Seen
Bird	<i>Spilopelia chinensis</i>	Spotted Dove	Seen
Bird	<i>Pachycephala rufiventris</i>	Rufous Whistler	Seen
Bird	<i>Rhipidura albiscapa</i>	Grey Fantail	Seen
Bird	<i>Gavicalis virescens</i>	Singing Honeyeater	Seen and heard
Bird	<i>Calyptorhynchus banksii naso</i>	Forest Red-tailed Black Cockatoo	Foraging evidence
Reptile	<i>Pseudonaja affinis</i>	Dugite	Seen

### 10.2.3 Conservation Significant Fauna

Distinct foraging evidence was recorded for two significant fauna species, Quenda (*Isoodon fusciventer*) listed as Priority 4 by DBCA, and Forest Red-tailed Black Cockatoos (*Calyptorhynchus banksia naso*) listed as Vulnerable under the EPBC Act and BC Act (Plate 33, Plate 34). Evidence of conservation significant species is mapped in Figure 9.

The Baudin's Cockatoo and Forest Red-tailed Black Cockatoo are also considered likely to utilise habitat in the survey area. total area (ha) of suitable habitat for these species which occurs within the survey area is included in Table 87.



Plate 33 Typical conical-shaped Quenda digging - foraging evidence

Table 87 Total area (ha) of suitable habitat for significant fauna species within the survey area

Species	Area of Suitable Habitat (ha)			
	Eucalyptus Woodland	Trees Over Cleared	Mixed Shrubland	Total (ha)
Carnaby's Cockatoo ( <i>Zanda latirostris</i> )	11.34	0.14	-	11.48
Baudin's Cockatoo ( <i>Zanda baudinii</i> )	11.34	0.14	-	11.48
Forest Red-tailed Black Cockatoo ( <i>Calyptorhynchus banksii naso</i> )	11.34	0.14	-	11.48
Quenda ( <i>Isoodon fusciventer</i> )	11.34	-	0.73	12.07



Plate 34 Forest Red-tailed Black Cockatoo Foraging Evidence

## 10.3 Targeted Black Cockatoo Survey

### 10.3.1 Foraging

The survey area has been assessed as a score of 10 'High-quality foraging habitat' for the Forest Red-tailed Black Cockatoo in accordance with the Commonwealth Black Cockatoo Referral Guidelines foraging tool (DAWE, 2022) (Table 32). No subtractions were made for this species. The survey area has been assessed as a score of 8 for both the Carnaby's Cockatoo and Baudin's Cockatoo due to an absence of foraging evidence during the survey.

The survey area contains mature Banksia Woodlands and Eucalyptus Woodlands, with suitable foraging species including multiple proteaceous species, Marri *Corymbia calophylla* and Tuart *Eucalyptus gomphocephala* trees.

Table 88 Black Cockatoo Foraging Habitat Assessment (DAWE, 2022)

Starting score		Baudin's Cockatoo ( <i>Zanda baudinii</i> )	Carnaby's Cockatoo ( <i>Zanda latirostris</i> )	Forest Red-Tailed Black Cockatoo ( <i>Calyptorhynchus banksii naso</i> )	
		<b>Start at a score of 10</b> if your site is native eucalypt woodlands and forest, and proteaceous woodland and heath, particularly Marri, within the range of the species, including along roadsides and parkland cleared areas. Can include planted vegetation. <b>This tool only applies to sites equal to or larger than 1 hectare in size.</b>	<b>Start at a score of 10</b> if your site is native shrubland, kwongan heathland or woodland, dominated by proteaceous plant species such as <i>Banksia</i> spp. (including <i>Dryandra</i> spp.), <i>Hakea</i> spp. and <i>Grevillea</i> spp., as well as native eucalypt woodland and forest that contains foraging species, within the range of the species, including along roadsides and parkland cleared areas. Also includes planted native vegetation. <b>This tool only applies to sites equal to or larger than 1 hectare in size.</b>	<b>Start at a score of 10</b> if your site is Jarrah or Marri woodland and/or forest, or if it is on the edge of Karri Forest, or if Wandoo and Blackbutt occur on the site, within the range of the subspecies, including along roadsides and parkland cleared areas. <b>This tool only applies to sites equal to or larger than 1 hectare in size.</b>	
Attribute	Sub-tractions	Context adjustor (attributes reducing functionality of foraging habitat).			
Foraging potential	-2	<b>Subtract 2</b> from your score if there is no evidence of feeding debris on your site. <input checked="" type="checkbox"/>	<b>Subtract 2</b> from your score if there is no evidence of feeding debris on your site. <input checked="" type="checkbox"/>	<b>Subtract 2</b> from your score if there is no evidence of feeding debris on your site. <input type="checkbox"/>	
Connectivity	-2	<b>Subtract 2</b> from your score if you have evidence to conclude that there is no other foraging habitat within 12 km of your site. <input type="checkbox"/>	<b>Subtract 2</b> from your score if you have evidence to conclude that there is no other foraging habitat within 12 km of your site. <input type="checkbox"/>	<b>Subtract 2</b> from your score if you have evidence to conclude that there is no other foraging habitat within 12 km of your site. <input type="checkbox"/>	
Proximity to breeding	-2	<b>Subtract 2</b> if you have evidence to conclude that your site is more than 12 km from breeding habitat. <input type="checkbox"/>	<b>Subtract 2</b> if you have evidence to conclude that your site is more than 12 km from breeding habitat. <input type="checkbox"/>	<b>Subtract 2</b> if you have evidence to conclude that your site is more than 12 km from breeding habitat. <input type="checkbox"/>	

Starting score		Baudin's Cockatoo ( <i>Zanda baudinii</i> )		Carnaby's Cockatoo ( <i>Zanda latirostris</i> )		Forest Red-Tailed Black Cockatoo ( <i>Calyptorhynchus banksii naso</i> )	
Proximity to roosting	-1	Subtract 1 if you have evidence to conclude that your site is more than 20 km from a known night roosting habitat.	<input type="checkbox"/>	Subtract 1 if you have evidence to conclude that your site is more than 20 km from a known night roosting habitat.	<input type="checkbox"/>	Subtract 1 if you have evidence to conclude that your site is more than 20 km from a known night roosting habitat.	<input type="checkbox"/>
	-1	Subtract 1 if your site has disease present (e.g. <i>Phytophthora</i> spp. or Marri canker) and the disease is affecting more than 50% of the preferred food plants present.	<input type="checkbox"/>	Subtract 1 if your site has disease present (e.g. <i>Phytophthora</i> spp. or Marri canker) and the disease is affecting more than 50% of the preferred food plants present.	<input type="checkbox"/>	Subtract 1 if your site has disease present (e.g. <i>Phytophthora</i> spp. or Marri canker) and the disease is affecting more than 50% of the preferred food plants present.	<input type="checkbox"/>
		<b>8</b>		<b>8</b>		<b>10</b>	

The refined foraging habitat value considered known breeding and roosting sites, and the characteristics associated with each fauna habitat type. The following factors influenced the results:

- There are three confirmed white-tailed and Forest Red-tailed Black Cockatoo roosting sites less than 3 km from the survey area (DBCA, 2023c).
- The survey area is outside the mapped distribution of breeding for Baudin's Cockatoo and Carnaby's Cockatoo.
- There are 4,444 records of Carnaby's Cockatoo within 15 km of the survey area. There was foraging evidence for the Forest Red-tailed Black Cockatoo within the survey area. Stocking rate for these two species was scored at 1.
- There is suitable foraging habitat within 15 km of the survey area, however the immediately surrounding area is largely developed and cleared. Native vegetation within the survey area represents 0.1-1% of the available foraging habitat within a 15 km radius.

The Eucalyptus Woodland fauna habitat was split into two components for scoring, relating to the dominant overstorey species. Carnaby's Cockatoo and Forest-Red-tailed Black Cockatoo foraging habitat was rated as 'Moderate' (scoring 4, 5 or 6) for the Eucalyptus Woodland habitat that supported Marri *Corymbia calophylla* tree species.

Areas dominated by Flooded Gum *Eucalyptus rudis* scored a 2, representing 'Low' quality habitat.

Trees Over Cleared was rated as 'Negligible'.

Baudin's Cockatoo foraging habitat was largely 'Low', with small areas mapped as 'Low to Moderate' and 'Moderate' where Marri trees dominated. Similar to the Carnaby's Cockatoo, this reflects the dominant tree overstorey species.

Foraging habitat areas and the Bamford (2020) rating for each habitat quality type is shown in Table 89, Table 90 and Figure 10.

**Table 89 Northern Terminal refined foraging score calculations (Bamford, 2020) and extent.**

Habitat Type	Carnaby's Cockatoo	Baudin's Cockatoo	Forest Red-tailed Black Cockatoo	Extent (ha)
Eucalyptus Woodlands	3	3	3	11.34
Mixed Shrubland	1	1	1	0.73
Trees Over Cleared	1	1	1	0.14
Cleared	0	0	0	13.57

**Table 90 Northern Terminal foraging habitat extent**

Foraging Habitat Quality	Carnaby's Cockatoo (ha)	Baudin's Cockatoo (ha)	Forest Red-tailed Black Cockatoo (ha)
1: Negligible.	0.14	0.14	0.14
2: Low.	9.81	9.81	9.81
3: Low to Moderate.	-	0.67	-
4-6: Moderate.	1.52	1.52	1.52
<b>Total</b>	<b>11.47</b>	<b>12.14</b>	<b>11.47</b>

### 10.3.2 Breeding

A total of 33 potential nesting trees were recorded within the survey area (Table 91, Figure 10). This included Flooded Gum (*Eucalyptus rudis*), Marri (*Corymbia calophylla*) and 'Other' trees.

No suitable nesting trees were identified.

**Table 91 Potential nesting trees within the survey area**

Tree Species	Total Trees with DBH >500 mm
Flooded Gum ( <i>Eucalyptus rudis</i> )	17
Marri ( <i>Corymbia calophylla</i> )	12
Other	4
<b>Grand Total</b>	<b>33</b>

### 10.3.3 Roosting

No roosting sites were observed within the survey area. The Eucalyptus Woodland fauna habitat type could provide suitable roosting habitat.

One hundred and fifteen confirmed white-tailed Black Cockatoo and Forest Red-tailed Black Cockatoo roosting sites are known to occur within 15 km of the survey area from Birdlife Data provided by DBCA. Three of these sites occur within 3 km of the survey area (DBCA, 2023c).

## 10.4 Discussion

### 10.4.1 Flora and Vegetation

The Northern survey area is characterised by fragmented remnant native vegetation in a highly developed landscape. It includes an area that is fenced as part of the power terminal. Vegetation within the fenced area represented regenerated vegetation comprised largely of hardy perennial disturbance opportunist species and weeds. Two native Eucalyptus Woodlands were mapped including CcXpEc for 1.52 ha and ErAcCc for 9.81 ha. No TECs or PECs were anticipated to occur, and none were identified.

Flora diversity was considered high with 70 species recorded, including 46 native and 24 weed species within 12.21 ha. The species diversity is likely a reflection of survey effort (three quadrats and five relevés). This survey effort was implemented to capture the variation in vegetation observed, likely a result of regrowth and fragmentation due to historical clearing.

No significant flora species were known to occur, and none were recorded. Ten flora species had a 'high' likelihood of occurring due to the proximity and date of known records. All of these were downgraded to 'low' following the survey due to the degradation and isolation of habitat. All areas were traversed on foot during the ideal detection period and no significant flora was recorded. Table 92 provides a summary of pre-survey and post-survey likelihood of occurrence for species identified as potentially occurring within the survey area.

**Table 92 Summary of Northern Terminal likelihood of occurrence pre-survey and post-survey**

Likelihood	Number of Species Identified					Total
	Known	High Likelihood	Moderate Likelihood	Low Likelihood	Negligible Likelihood	
Pre-survey	0	10	24	33	32	99
Post-survey	0	0	0	34	65	99

### 10.4.2 Fauna

Sixteen vertebrate fauna species were recorded during the field survey. This included nine birds, six mammals and one reptile species. Two conservation significant fauna species were recorded during the survey:

- Quenda (*Isoodon fusciventer*) listed as Priority 4 by DBCA.
- Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksia naso*) listed as Vulnerable under the EPBC Act and BC Act.

Three native fauna habitats were defined and mapped for the survey area based on the results of the field assessment. These habitats include Eucalyptus Woodland, Trees Over Cleared and Mixed Shrubland.

As a fence is present around two-thirds of the survey area and the surrounding area is heavily developed, the movement of most conservation significant fauna species will be limited. The fauna habitats are fragmented and degraded throughout, with large areas of road base tracks and infrastructure dividing it. The Eucalyptus Woodland fauna habitat is the most intact, with mature trees present as well as a variable native understorey.

The Eucalyptus Woodland habitat is considered the most suitable habitat for Quenda (*Isoodon fusciventer*), Carnaby's Cockatoos (*Zanda latirostris*), Baudin's Cockatoo (*Zanda baudinii*), and Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksia naso*). These significant fauna species may utilise areas where native understorey density was higher, generally associated with vegetation condition of 'Good' or better.

Following the survey, a post-survey likelihood desktop assessment was completed. Details of all the conservation significant species considered to have a high or known post-survey likelihood and their associated habitats is presented in Table 93.

Table 93 Fauna species likely to occur and associated fauna habitat within the Northern Terminal survey area.

Species	Conservation code (EPBC/State WA)	Habitat	Number of DBCA Records and Distance	Pre survey likelihood of occurrence	Post survey likelihood of occurrence	Discussion
Carnaby's Cockatoo ( <i>Zanda latirostris</i> )	E (EPBC Act) EN (BC Act)	Uncleared or remnant native Eucalypt woodlands containing Salmon gum and Wandoo, and in shrubland or Kwongan heathland dominated by Hakea, Dryandra, Banksia and Grevillea species. It also occurs in remnant patches of native vegetation on land otherwise cleared for agriculture. Forages seasonally in Pine plantations (DCCEEW, 2023).	There are 9264 records on the DBCA database, the closest record is 0.65 km away from the survey area (2020).	High	High	All three species are likely to use the Eucalyptus Woodland and Trees Over Cleared habitats within the survey area. The Eucalyptus Woodland habitat does not occur directly adjacent to the survey area. The closest large patch of remnant bushland is approximately 1 km to the west. Isolated trees along a waterway are also located approximately 500m to the east.
Baudin's Cockatoo ( <i>Zanda baudinii</i> )	E (EPBC Act) EN (BC Act)	Temperate forest and woodland dominated by <i>Eucalyptus marginata</i> (Jarrah), <i>Corymbia calophylla</i> (Marri) and <i>E. diversicolor</i> (Karri) (TSSC, 2018).	There are 136 records on the DBCA database, the closest record is 0.64 km away from the survey area (2015).	High	High	
Forest Red-tailed Black Cockatoo ( <i>Calyptorhynchus banksii naso</i> )	V (EPBC Act) VU (BC Act)	Inhabits dense <i>Eucalyptus marginata</i> (Jarrah), <i>E. diversicolor</i> (Karri) and <i>Corymbia calophylla</i> (Marri) forests (TSSC, 2009).	There are 363 records on the DBCA database, the closest record is 2.26 km away from the survey area (2.26).	High	Known	
Quenda ( <i>Isoodon fusciventer</i> )	P4	Forest, woodland, heath, and shrub communities, with sandy soils and dense heathy vegetation (Van Dyck & Strahan, 2008).	There are over 1589 records within 10 km of the survey area, with the closest record occurring at 0.06 km. The most recent of these was recorded in 2021.	Moderate	Known	This species is likely to use Eucalyptus Woodland, and Mixed Shrubland habitats within the survey area. The presence of accumulated coarse leaf litter is suitable foraging habitat for the Quenda.

Species	Conservation code (EPBC/State WA)	Habitat	Number of DBCA Records and Distance	Pre survey likelihood of occurrence	Post survey likelihood of occurrence	Discussion
						Quenda foraging activity was observed throughout these habitat types. These habitats are also found outside the survey area, but not directly adjacent to it due to development.

### 10.4.3 Targeted Black Cockatoo

The survey area is within the known range for the three threatened Black Cockatoo species. Foraging evidence was recorded for the Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksia naso*) within the survey area. There were 33 potential nesting trees with a suitable DBH (>500 mm) identified with the survey area. No potentially suitable nesting trees were identified.

The survey area scored a foraging habitat score of 10 for the Forest Red-tailed Black Cockatoo in accordance with the DAWE 2022 guidelines. The survey area has been assessed as a score of 8 for Baudin's Cockatoo and Carnaby's Cockatoo, due to an absence of foraging evidence during the survey. The BCE (2020) scoring method defined the area as supporting Negligible to Moderate foraging quality. The Moderate foraging quality is associated with the Eucalyptus Woodland habitat type, which includes suitable foraging species such as *Corymbia calophylla*, *Eucalyptus marginata* and *Eucalyptus todtiana*. The known occurrence of three roosting sites within 3 km of the survey area, permanent water source presence nearby, confirmed foraging evidence during the survey, and extent of suitable foraging habitat in the vicinity all contributed to the foraging score.

## 11.0 Conclusion

AECOM Australia Pty Ltd (AECOM) was engaged by Western Power to undertake a spring flora, vegetation, fauna and black cockatoo assessment for defined linear corridors within the Perth Metropolitan Region on the Swan Coastal Plain (SCP). This Project is referred to as the Clean Energy Link (CEL). The five sites include: Padbury - Wangara, Pinjar Terminal, Neerabup Terminal and East Wanneroo, NT-NOR to HBK 132kV Line and Northern Terminal.

### A summary of the Padbury-Wangara results is presented below:

- One patch of -Tuart (*Eucalyptus gomphocephala*) Woodlands and Forests of the Swan Coastal Plain Threatened Ecological Community (Tuart Woodlands TEC) listed as Critically Endangered under the EPBC Act and as Priority 3 by DBCA. The patch extends for 0.54 ha.
- No significant flora listed under the EPBC Act or the BC Act or by DBCA were recorded during the survey.
- Three conservation significant fauna species were recorded during the survey, including two bird species and one mammal species:
  - Carnaby's Cockatoo (*Zanda latirostris*) listed as Endangered under the EPBC Act and the BC Act
  - Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) listed as Vulnerable under the EPBC Act and BC Act
  - Quenda (*Isodon fusciventer*) listed as Priority 4 by DBCA.

### A summary of the Pinjar Terminal results is presented below:

- No significant flora listed under the EPBC Act, BC Act or by DBCA were recorded during the survey.
- Banksia Woodlands of the Swan Coastal Plain (Banksia Woodlands TEC) listed as Endangered under the EPBC Act and as Priority 3 by DBCA, mapped for 14.75 ha.
- One conservation significant fauna species was recorded during the survey, Quenda (*Isodon fusciventer*) listed as Priority 4 by DBCA.

### A summary of the Neerabup Terminal and East Wanneroo results are presented below:

- Eight patches of Banksia Woodlands TEC were confirmed and mapped for 15.13 ha. This TEC is synonymous with a Priority 3 Ecological Community (PEC) unless otherwise assessed.
- One patch of Tuart (*Eucalyptus gomphocephala*) Woodlands and Forests of the Swan Coastal Plain TEC was mapped within the survey area for 1.71 ha.
- One Priority 3 PEC listed by the DBCA (2023) was confirmed to occur through FCT analysis, FCT 21c – Low lying Banksia attenuata woodlands or shrublands, mapped for 0.60 ha.
- One Priority 4 species, *Jacksonia sericea*, was collected and formal identification confirmed at the WA Herbarium. 1 individual was recorded within the survey area, with a second individual recorded in a quadrat adjacent to the survey area.
- A sample of *Calectasia* sp. was collected for identification but was unable to be confirmed and could potentially represent the Priority 2 *C. narragarra* species. This individual was recorded outside the survey area.
- Three conservation significant fauna species were recorded during the survey:
  - Quenda (*Isodon fusciventer*) listed as Priority 4 by DBCA.
  - Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) listed as Vulnerable under the EPBC Act and BC Act.
  - Carnaby's Cockatoo (*Zanda latirostris*) listed as Endangered under the EPBC Act and BC Act.

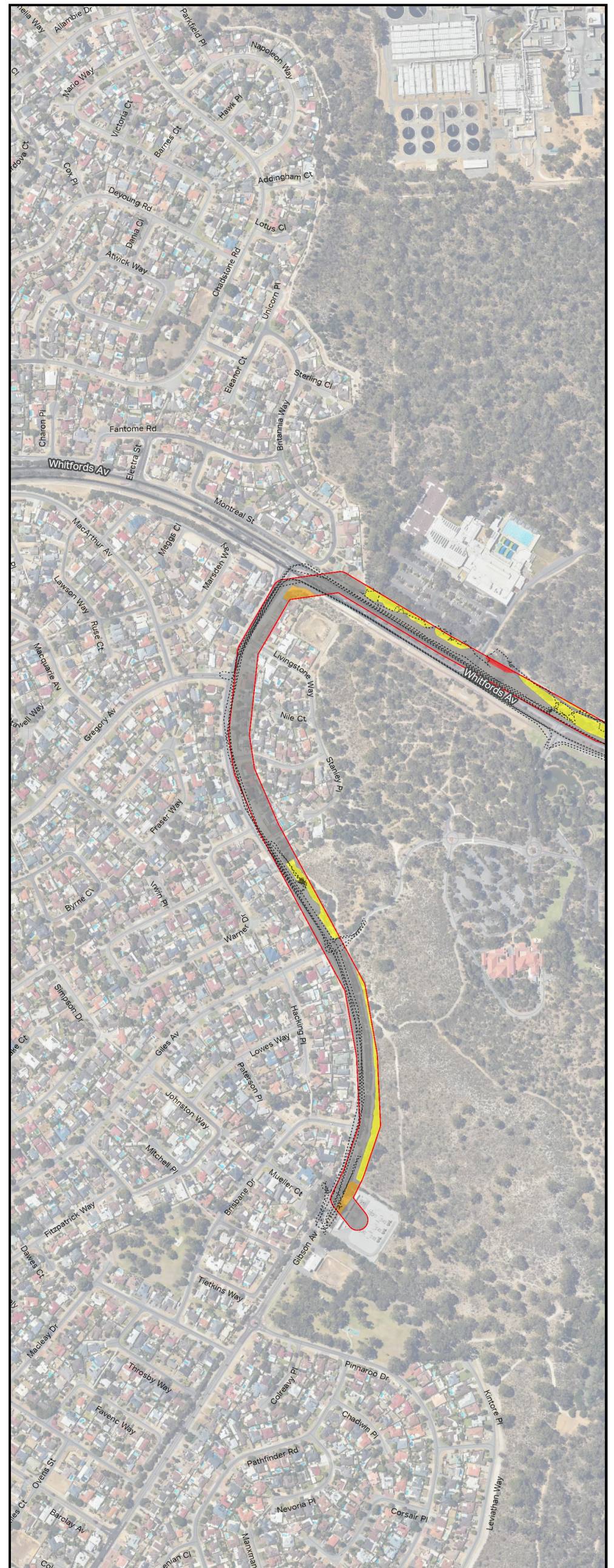
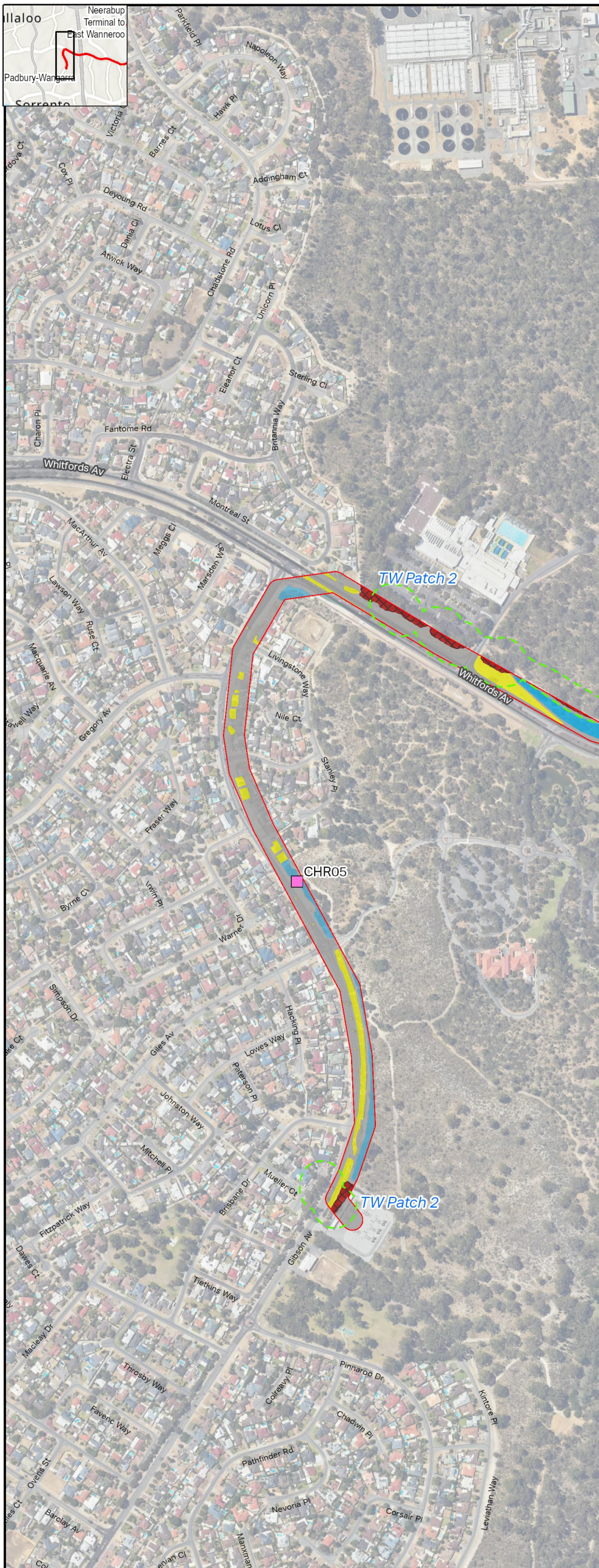
### A summary of the NT-NOR to HBK 132KV results are presented below:

- quadrat and relevé data produced by RPS (2020) and reviewed by Woodman (2020).
- No significant flora listed under the EPBC Act or the BC Act or by DBCA were recorded during the survey.
- Three conservation significant fauna species were recorded during the survey:
  - Quenda (*Isoodon fusciventer*) listed as Priority 4 by DBCA.
  - Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksia naso*) listed as Vulnerable under the EPBC Act and BC Act.
  - Carnaby's Cockatoo (*Zanda latirostris*) listed as Endangered under the EPBC Act and BC Act.

**A summary of the Northern Terminal results are presented below:**

- No significant flora listed under the EPBC Act or the *Biodiversity Conservation Act 2016* (BC Act) or by DBCA were recorded during the survey.
- No significant vegetation communities were recorded in the survey area.
- Two conservation significant fauna species were recorded during the survey:
  - Quenda (*Isoodon fusciventer*) listed as Priority 4 by DBCA.
  - Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksia naso*) listed as Vulnerable under the EPBC Act and BC Act.

The survey was undertaken by experienced personnel, during the ideal detection period for significant flora. Survey effort was considered satisfactory, and no access issues were encountered that affected the outcome of the results.



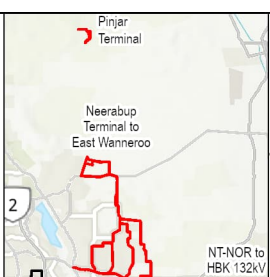
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 GDA2020 MGA ZONE 50

**LEGEND**

- Survey Area
- Sample Sites
- Tracklog
- TEC Tuart Woodlands and Forests of the Swan Coastal Plain Buffer
- TEC
- TEC Tuart Woodlands and Forests of the Swan Coastal Plain
- BaAIte
- CpMsLo
- EgHcPp
- Planted
- Cleared
- Vegetation Condition
- Good
- Degraded
- Completely Degraded
- Cleared

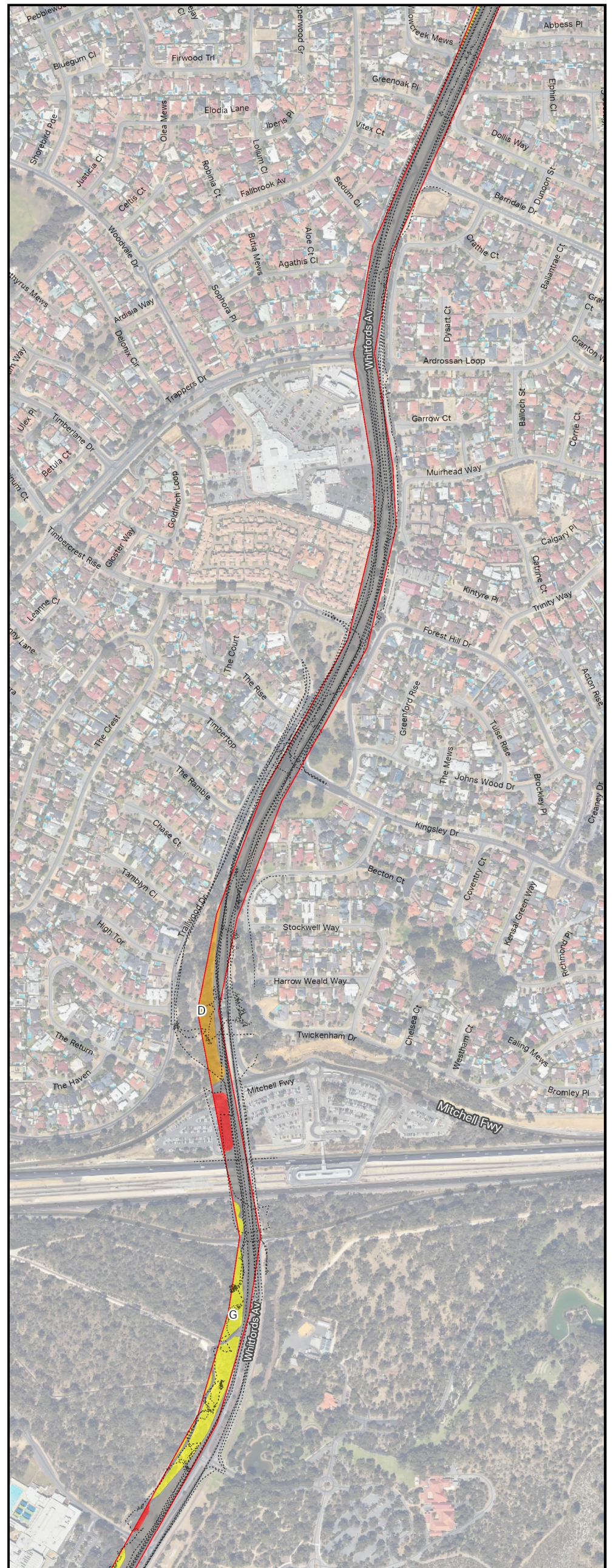
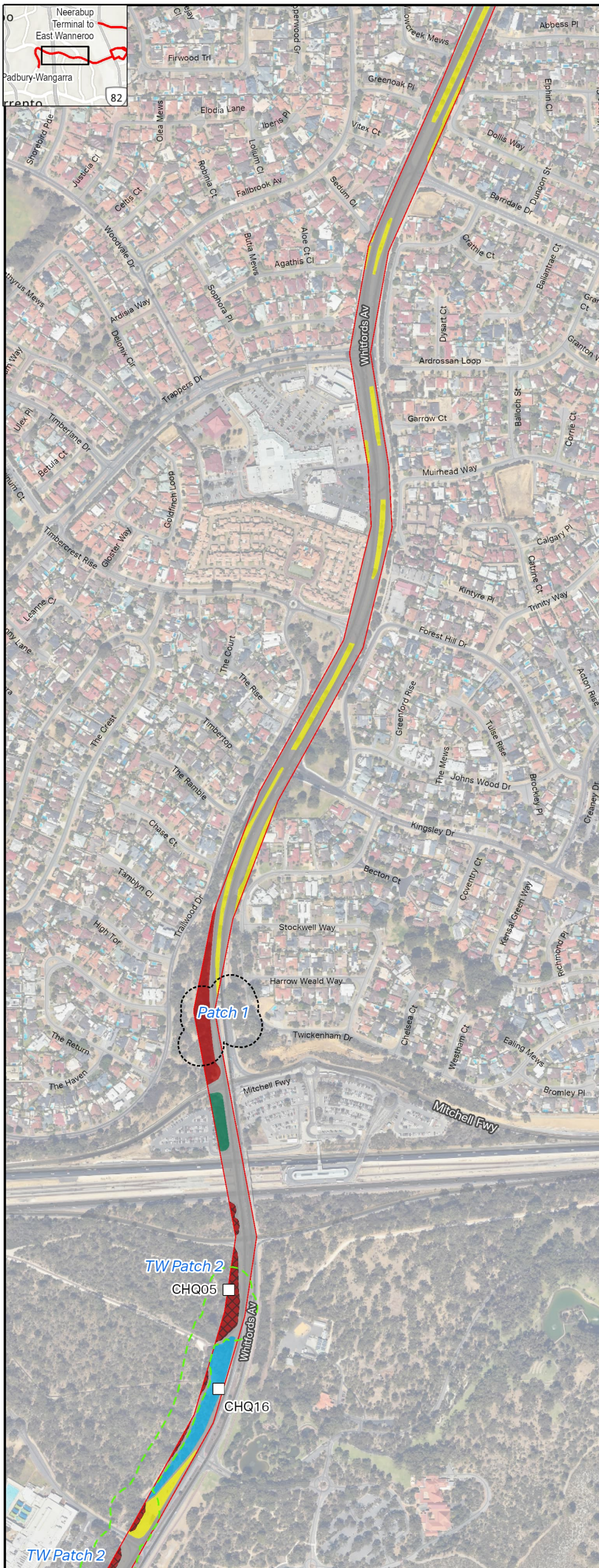


**Vegetation Communities, Condition, Significant Flora and Survey Effort: Padbury-Wangarra**

**WESTERN POWER**

**NREP SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure 8.1



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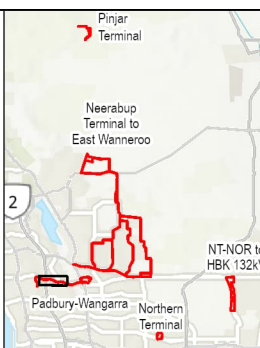
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0 50 100 150 200  
 metres  
 GDA2020 MGA ZONE 50

**LEGEND**

- Survey Area
- Sample Sites
- Quadrat
- Tracklog
- TEC Tuart Woodlands and Forests of the Swan Coastal Plain Buffer
- TEC
- Not a TEC
- TEC Tuart Woodlands and Forests of the Swan Coastal Plain
- BaAbAb
- BaAiTe
- EgHcPp
- Planted
- Trees
- Cleared
- Vegetation Condition
- Good
- Degraded
- Completely Degraded
- Cleared



**Vegetation Communities, Condition, Significant Flora and Survey Effort: Padbury-Wangarra**

**WESTERN POWER**

**NREP SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **8.2**



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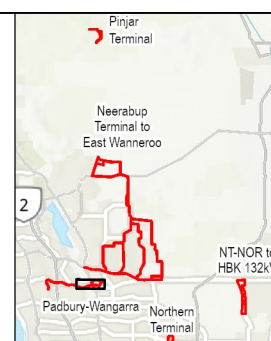
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1:7,500  
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0 50 100 150 200 metres  
 GDA2020 MGA ZONE 50

**LEGEND**

- Survey Area
- Sample Sites
- Relevé
- Tracklog
- Vegetation Community
- BaAbAb
- Planted
- Trees
- Cleared
- Paddock
- Vegetation Condition
- Good
- Completely Degraded
- Cleared

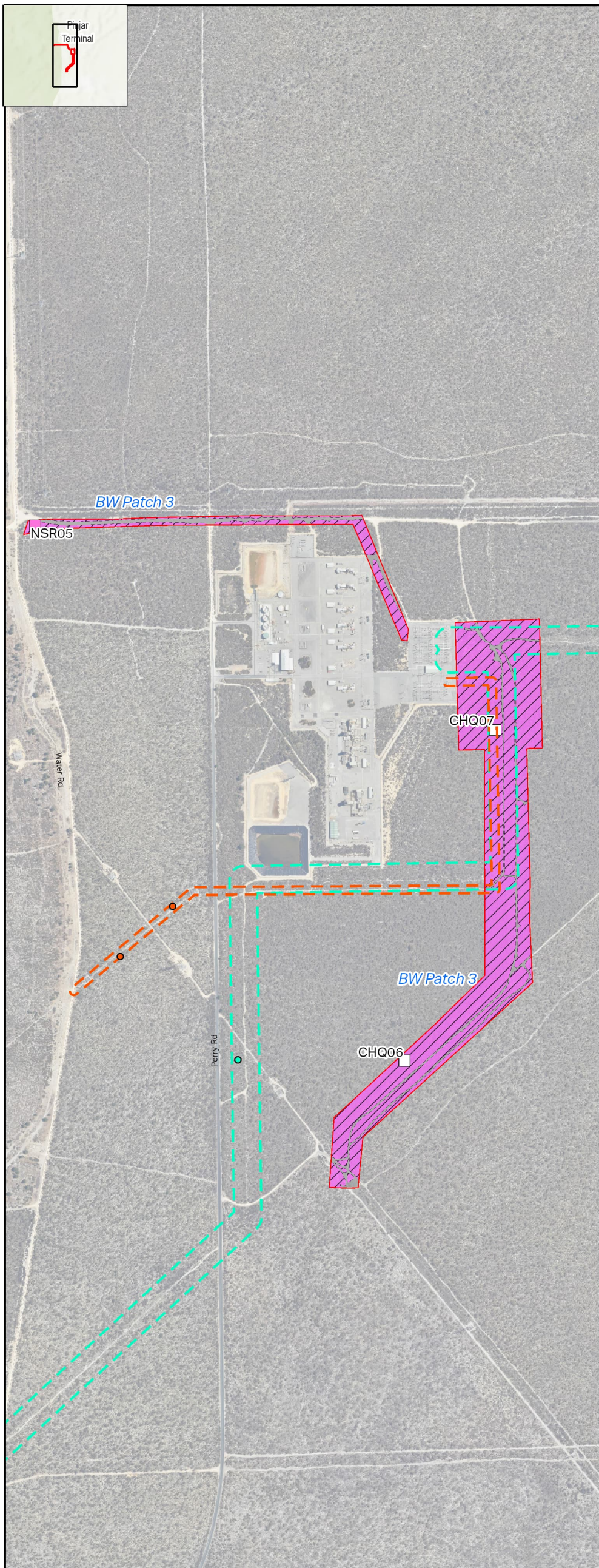


**Vegetation Communities, Condition, Significant Flora and Survey Effort: Padbury-Wangarra**

**WESTERN POWER**

**NREP SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **8.3**



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0 50 100 150 200 metres  
 GDA2020 MGA ZONE 50

DATA SOURCES: Base Data: (c) Based on information provided by and with the permission of the Western Australian Land Information Authority trading as Landgate (2019).  
 Service Layer Credits: World Hillshade: Esri, CGIA/World Topographic Map: Esri, TomTom, Garmin, FourSquare, MET/NASA, USGS/World Topographic Map: Esri, TomTom, Garmin, FourSquare, FAO, MET/NASA, USGS/World Imagery: Navteq/World Hillshade: Esri, Geoscience Australia, NASA, NOAA, USGS/VIIMS

**LEGEND**

- Survey Area
- Sample Sites
- Quadrat
- Relevé
- Tracklog
- WA PEC, EPBC TEC
- Banksia Woodlands of the Swan Coastal Plain

**Vegetation Community**

- BaAcCc
- Cleared

**Vegetation Condition**

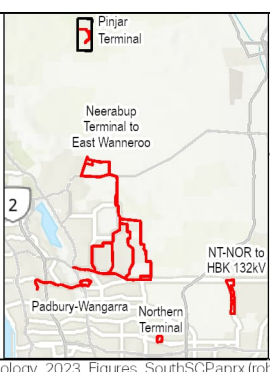
- Excellent
- Very Good
- Cleared

**Sample Sites:**

- AECOM (2002a) Scar 4
- AECOM (2022a) Scar 4

**Survey Area:**

- AECOM (2002a) Scar 4
- AECOM (2022b) NREP

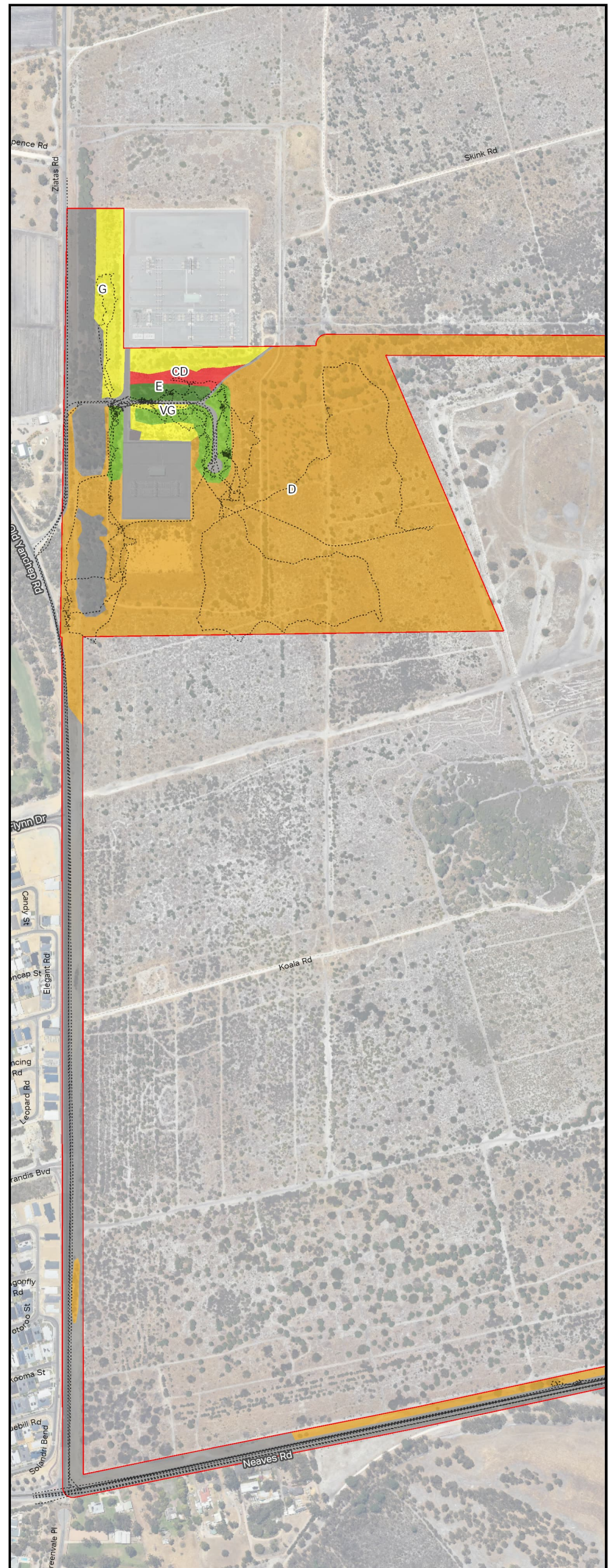
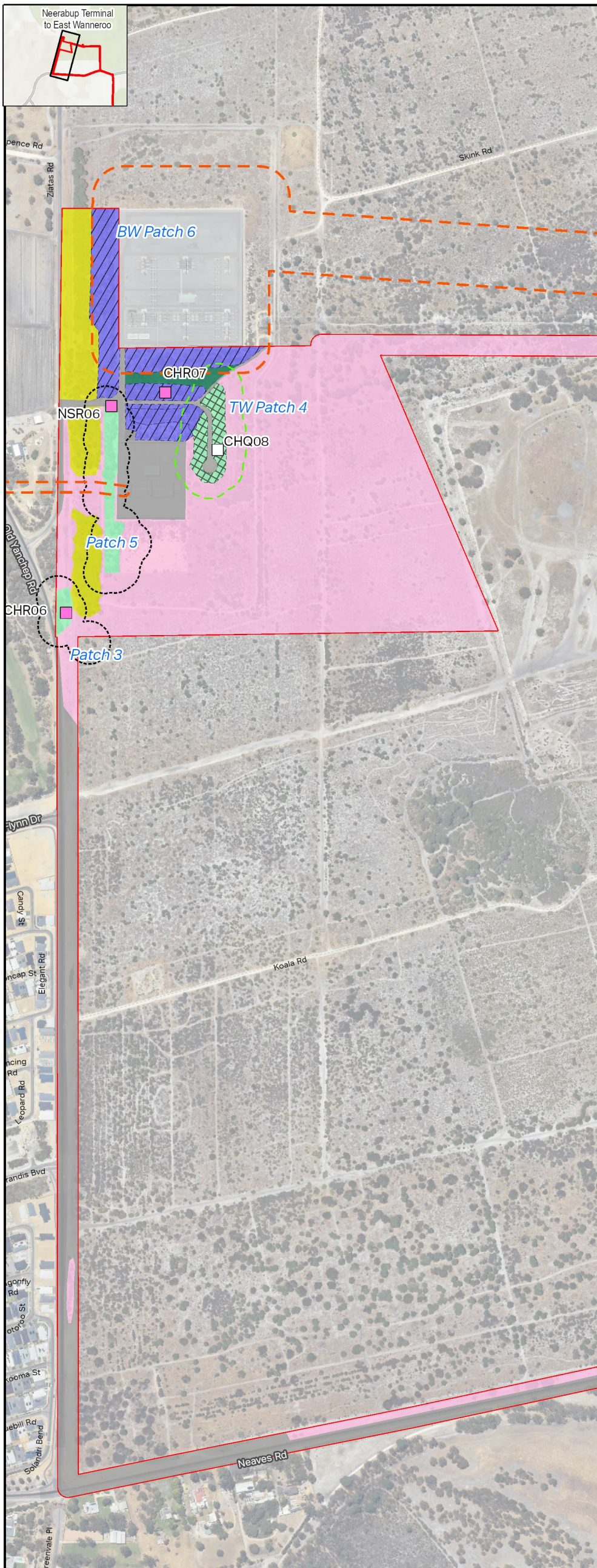


**Vegetation Communities, Condition, Significant Flora and Survey Effort: Pinjar Terminal**

**WESTERN POWER**

**NREP SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure 8.4



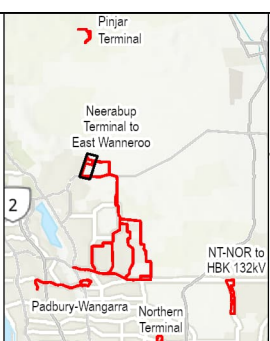
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**LEGEND**

- Survey Area
- Sample Sites
- Quadrat
- Relevé
- Tracklog
- TEC Tuart Woodlands and Forests of the Swan Coastal Plain Buffer
- TEC
- Not a TEC
- TEC Tuart Woodlands and Forests of the Swan Coastal Plain
- WA PEC, EPBC TEC
- Banksia Woodlands of the Swan Coastal Plain
- Vegetation Community
- BaRcGt
- EgGlCe
- PpAcCe
- Planted
- Trees
- Cleared
- Vegetation Condition
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- Degraded
- Cleared
- Survey Area: AECOM (2022b) NREP



**Vegetation Communities, Condition, Significant Flora and Survey Effort: Neerabup Terminal to East Wanneroo**

**WESTERN POWER**

**NREP SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **8.5**



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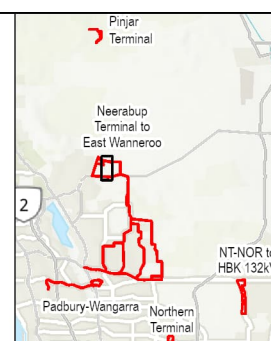
0 50 100 150 200 metres  
 GDA2020 MGA ZONE 50

**LEGEND**

Survey Area  
 Sample Sites  
 Relevé  
 Tracklog  
 Vegetation Community  
 PpAcCe  
 Cleared

Vegetation Condition  
 Degraded  
 Cleared

Sample Sites:  
 AECOM (2022b) NREP  
 Survey Area:  
 AECOM (2022b) NREP



**Vegetation Communities, Condition, Significant Flora and Survey Effort: Neerabup Terminal to East Wanneroo**

**WESTERN POWER**

**NREP SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **8.6**



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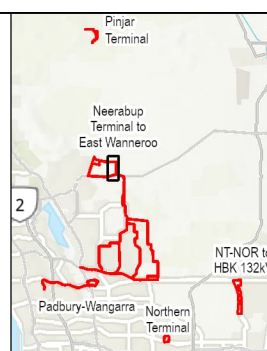
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DATA SOURCES: Base Data: ICI Based on information provided by and with the permission of the Western Australian Land Information Authority trading as Landgate (2010).  
 Service Layer Credits: World Hillshade: Esri, CGIA/World Topographic Map: Esri, TomTom, Garmin, FourSquare, MET/NASA, USGS/World Topographic Map: Esri, TomTom, Garmin, FourSquare, FAO, MET/NASA, USGS/World Imagery: Navteq/World Hillshade: Esri, Geoscience Australia, NASA, NOAA, USGS/VIIMS

**LEGEND**

- Survey Area
- Tracklog
- Vegetation Community
- PpAcCe
- Cleared
- Vegetation Condition
- Degraded
- Cleared
- Survey Area:
- AECOM (2022b)
- NREP

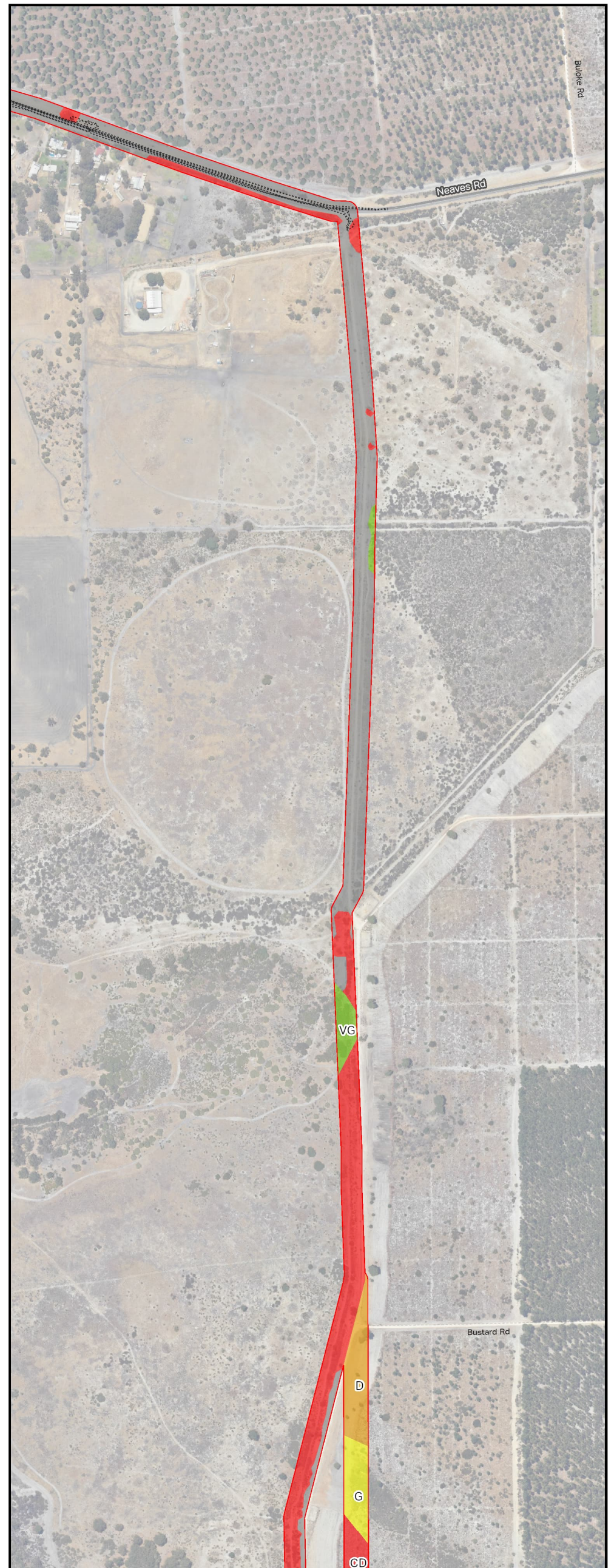
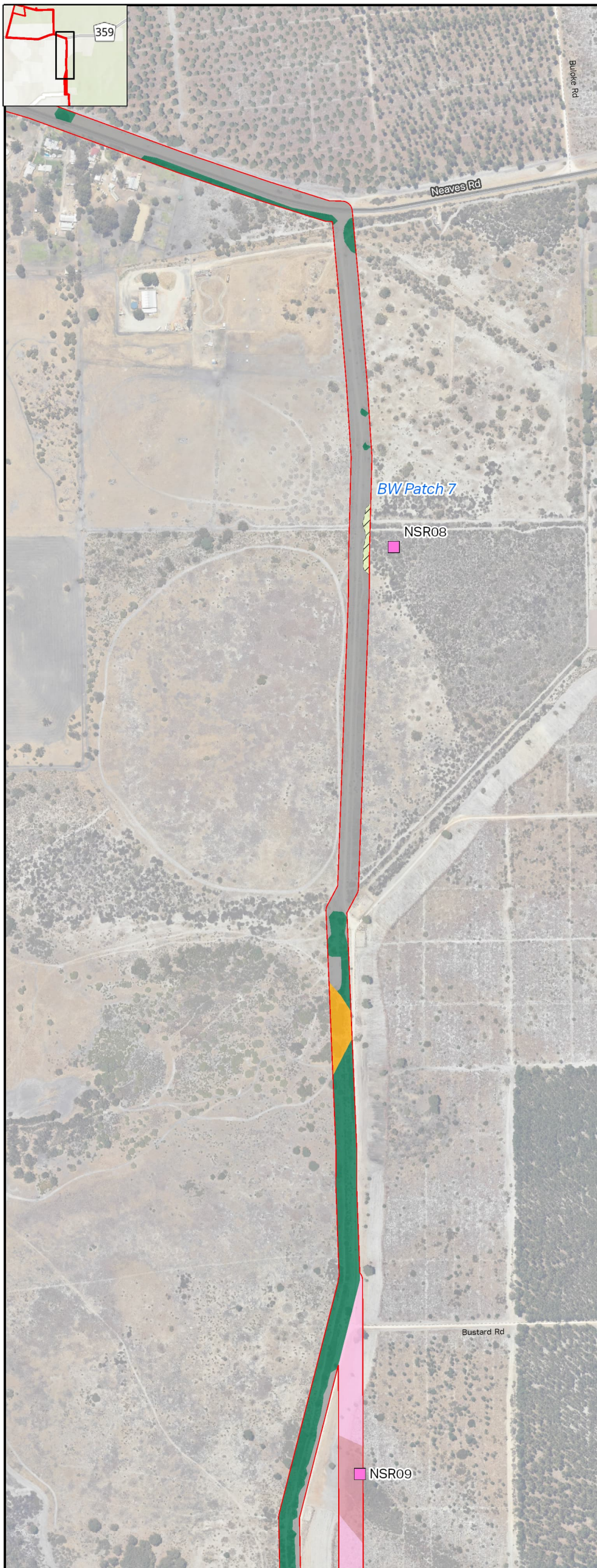


**Vegetation Communities, Condition, Significant Flora and Survey Effort: Neerabup Terminal to East Wanneroo**

**WESTERN POWER**

**NREP SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **8.7**



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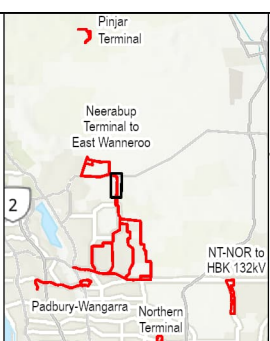
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0 50 100 150 200 metres  
 GDA2020 MGA ZONE 50

**LEGEND**

Survey Area	BmAcPo	Very Good
Sample Sites	CcXpDf	Good
Relevé	MpHaDb	Degraded
Tracklog	PpAcCe	Completely Degraded
WA PEC, EPBC TEC	Trees	Cleared
Banksia Woodlands of the Swan Coastal Plain	Cleared	



**Vegetation Communities, Condition, Significant Flora and Survey Effort: Neerabup Terminal to East Wanneroo**

**WESTERN POWER**

**NREP SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **8.8**



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0 50 100 150 200 metres  
 GDA2020 MGA ZONE 50

**LEGEND**

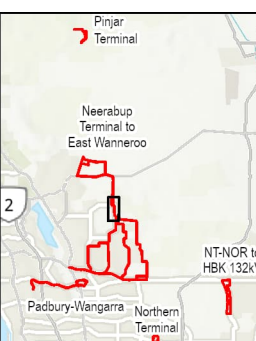
- Survey Area
- Sample Sites
- Tracklog
- WA PEC, EPBC TEC
- Banksia Woodlands of the Swan Coastal Plain

**Vegetation Community**

- BmEpLi
- MpHaDb
- MpHaEc
- PpAcCe
- Planted
- Trees
- Cleared

**Vegetation Condition**

- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- Cleared

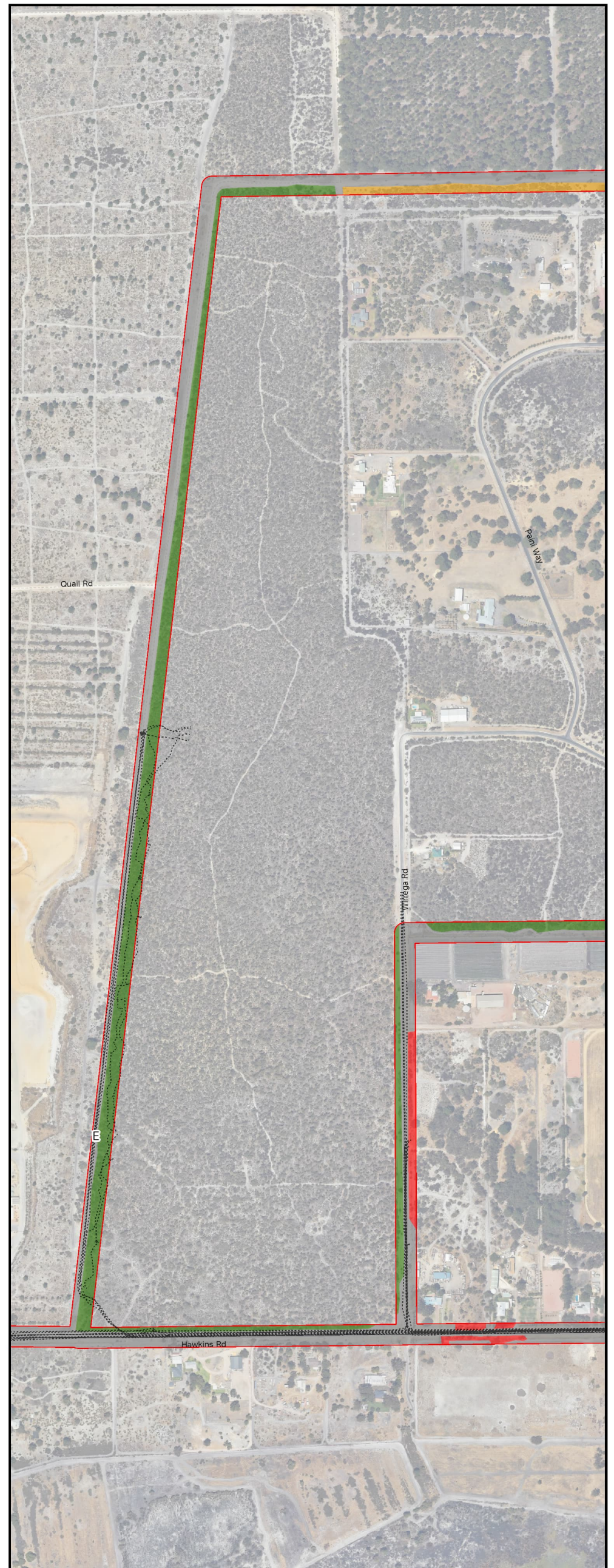
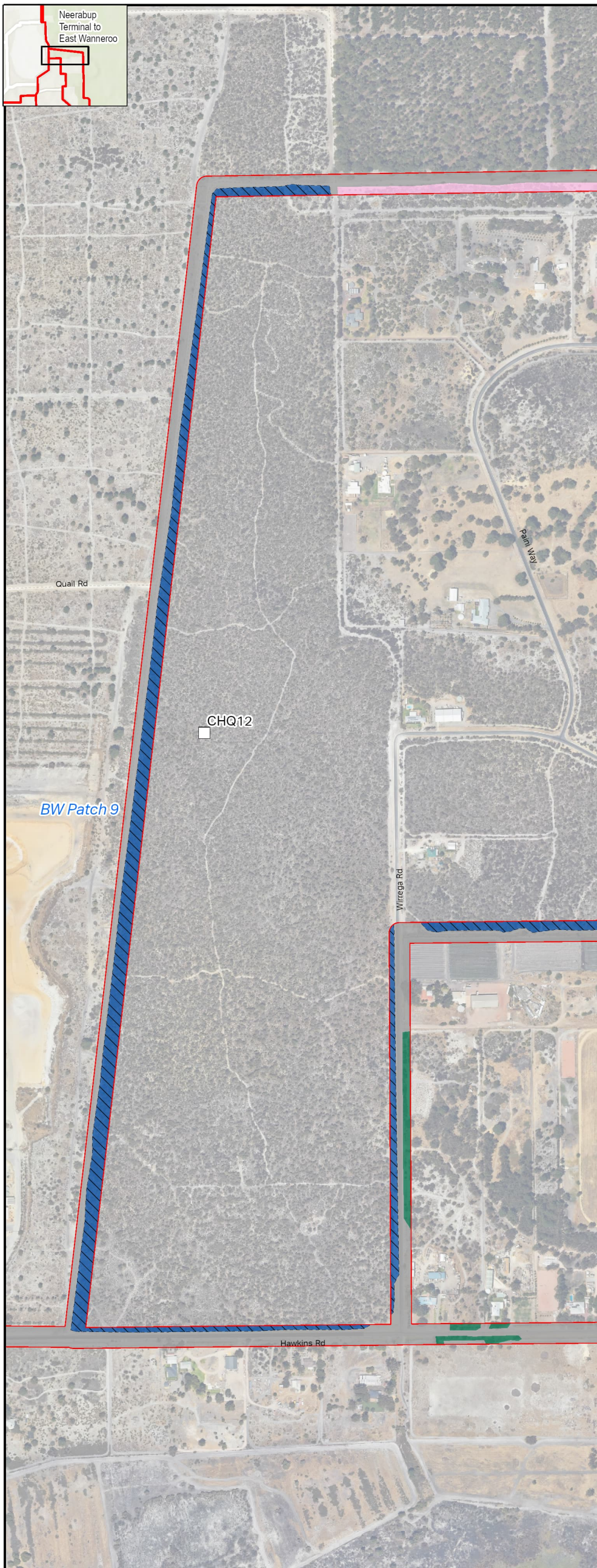


**Vegetation Communities, Condition, Significant Flora and Survey Effort: Neerabup Terminal to East Wanneroo**

**WESTERN POWER**

**NREP SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **8.9**



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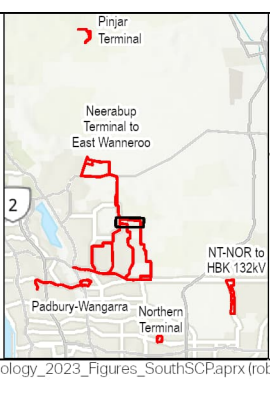
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 GDA2020 MGA ZONE 50

DATA SOURCES: Base Data: ICI Based on information provided by and with the permission of the Western Australian Land Information Authority trading as Landgate (2019).  
 Service Layer Credits: World Hillshade: Esri, CGIA/World Topographic Map: Esri, TomTom, Garmin, FourSquare, MET/NASA, USGS/World Topographic Map: Esri, TomTom, Garmin, FourSquare, FAO, MET/NASA, USGS/World Imagery: Navteq/World Hillshade: Esri, Geoscience Australia, NASA, NOAA, USGS/VIIMS

**LEGEND**

- Survey Area
- Sample Sites
- Quadrat
- Tracklog
- WA PEC, EPBC TEC
- Banksia Woodlands of the Swan Coastal Plain
- Vegetation Community BmEpLi
- PpAcCe
- Planted
- Trees
- Cleared
- Vegetation Condition Excellent
- Degraded
- Completely Degraded
- Cleared



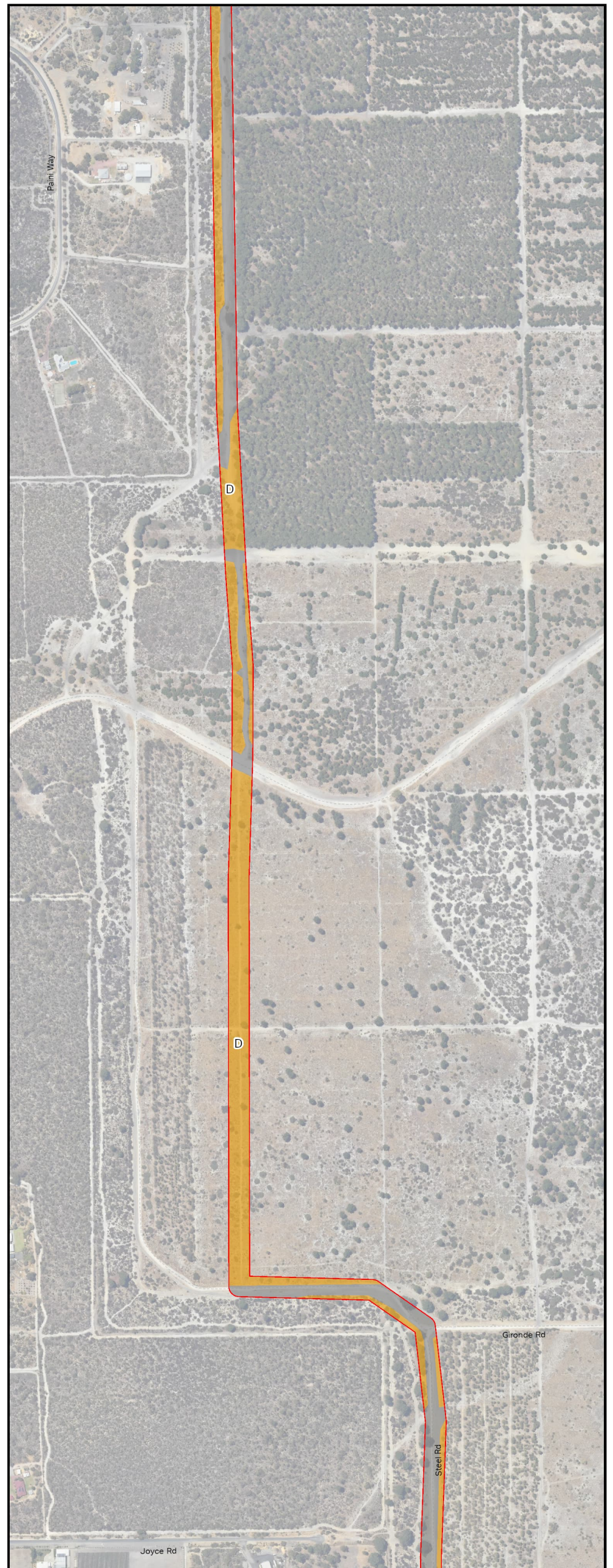
**Vegetation Communities, Condition, Significant Flora and Survey Effort: Neerabup Terminal to East Wanneroo**

**WESTERN POWER**

**NREP SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **8.10**

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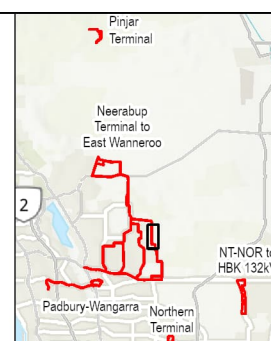
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1:7,500  
 (When printed at A4)

0 50 100 150 200 metres  
 GDA2020 MGA ZONE 50

**LEGEND**

- Survey Area
- Vegetation Community
- PpAcCe
- Cleared
- Vegetation Condition
- Degraded
- Cleared

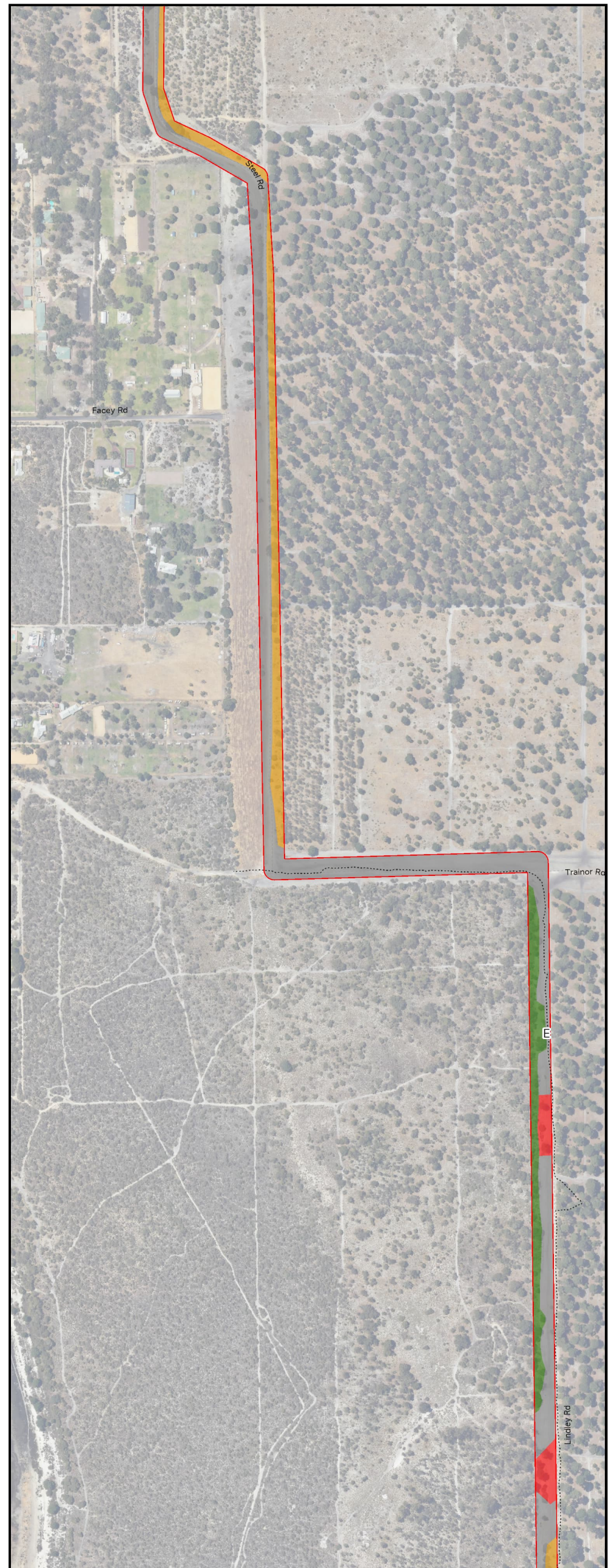


**Vegetation Communities, Condition, Significant Flora and Survey Effort: Neerabup Terminal to East Wanneroo**

**WESTERN POWER**

**NREP SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **8.11**



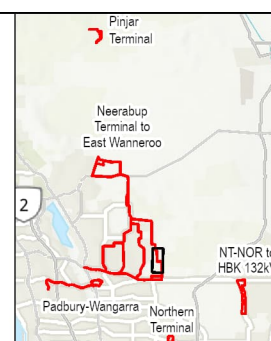
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**LEGEND**

- Survey Area
- Significant Flora
- Sample Sites
- Vegetation Community
- PpAcCe
- Cleared
- Vegetation Condition
- Excellent
- Degraded
- Completely Degraded
- Cleared
- Calectasia sp. (potential P2)
- Quadrat
- Tracklog
- CcXpDf

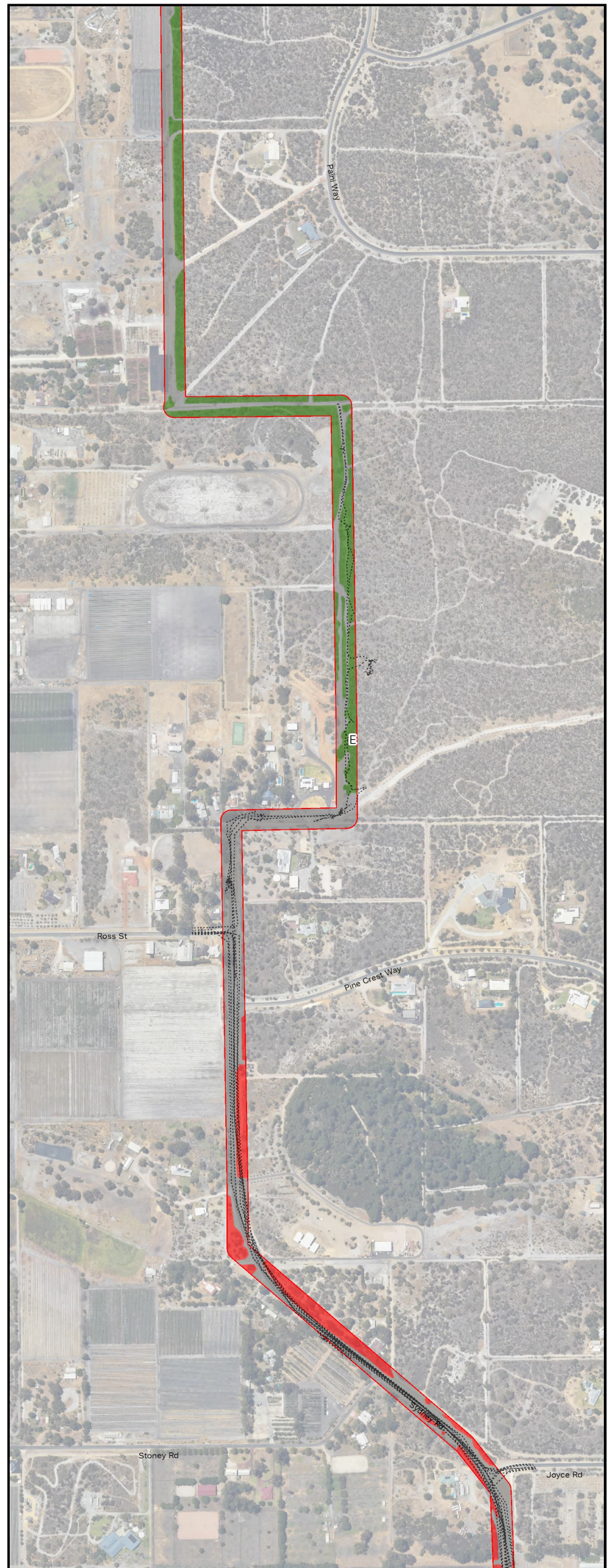
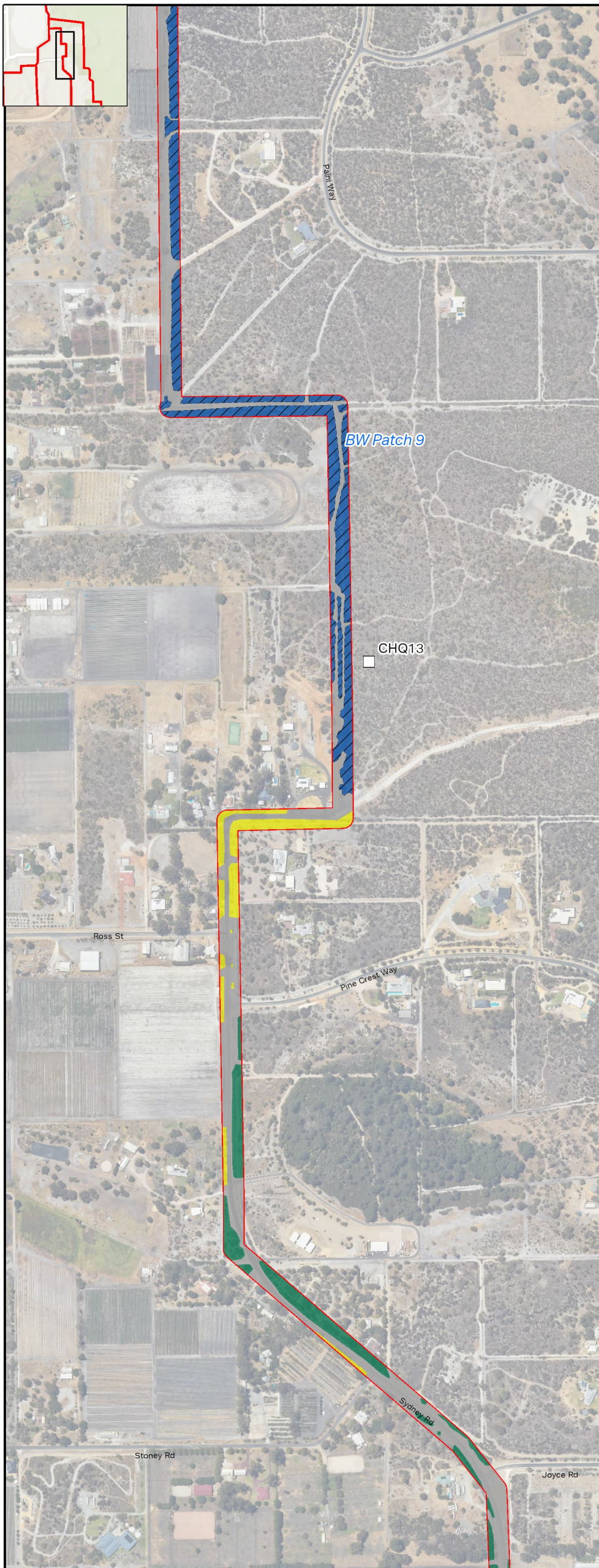


**Vegetation Communities, Condition, Significant Flora and Survey Effort: Neerabup Terminal to East Wanneroo**

**WESTERN POWER**

**NREP SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **8.12**



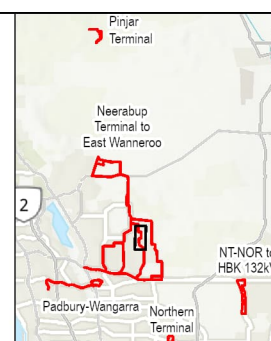
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Scale: 1:7,500 (when printed at A4)  
 GDA2020 MGA ZONE 50

**LEGEND**

- Survey Area
- Sample Sites
- Quadrat
- Tracklog
- WA PEC, EPBC TEC
- Banksia Woodlands of the Swan Coastal Plain
- Vegetation Community
- BmEpLi
- Planted
- Trees
- Cleared
- Vegetation Condition
- Excellent
- Completely Degraded
- Cleared



**Vegetation Communities, Condition, Significant Flora and Survey Effort: Neerabup Terminal to East Wanneroo**

**WESTERN POWER**

**NREP SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **8.13**



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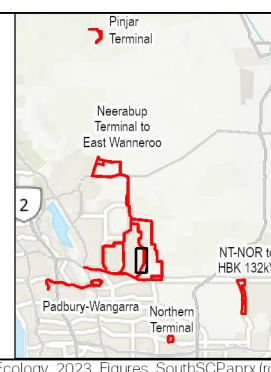
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 DATE MODIFIED 13 JUN 2024 APPROVED BY C. HOUSE

Scale: 1:7,500 (When printed at A4)  
 GDA2020 MGA ZONE 50

DATA SOURCES: Base Data: ICI Based on information provided by and with the permission of the Western Australian Land Information Authority trading as Landgate (2010)  
 Service Layer Credits: World Hillshade: Esri, CGIA/World Topographic Map: Esri, TomTom, Garmin, FourSquare, MET/NASA, USGS World Topographic Map: Esri, TomTom, Garmin, FourSquare, FAO, MET/NASA, USGS World Imagery: Navteq/World Hillshade: Esri, Geoscience Australia, NASA, VIC, USGS/USMS

**LEGEND**

- Survey Area
- Tracklog
- Vegetation Community
  - Planted
  - Trees
  - Cleared
- Vegetation Condition
  - Completely Degraded
  - Degraded
  - Cleared



**Vegetation Communities, Condition, Significant Flora and Survey Effort: Neerabup Terminal to East Wanneroo**

**WESTERN POWER**

**NREP SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **8.14**



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1:7,500  
 (When printed at A4)

0 50 100 150 200 metres  
 GDA2020 MGA ZONE 50

**LEGEND**

- Survey Area
- Significant Flora: *Jacksonia sericea* (P4)
- Sample Sites: Quadrat, Relevé
- Tracklog
- WA PEC, EPBC TEC
- Banksia Woodlands of the Swan Coastal Plain

**Vegetation Community**

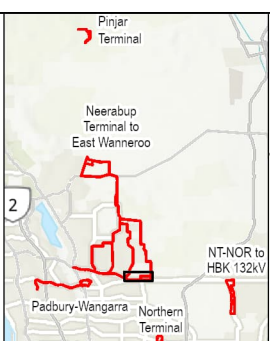
- BaAhDf
- CcXpDf
- MpXpDb
- PpAcCe
- Planted
- Trees
- Cleared

**Vegetation Condition**

- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- Cleared

**Sample Sites:**

- AECOM (2016)
- Survey Area: AECOM (2016)

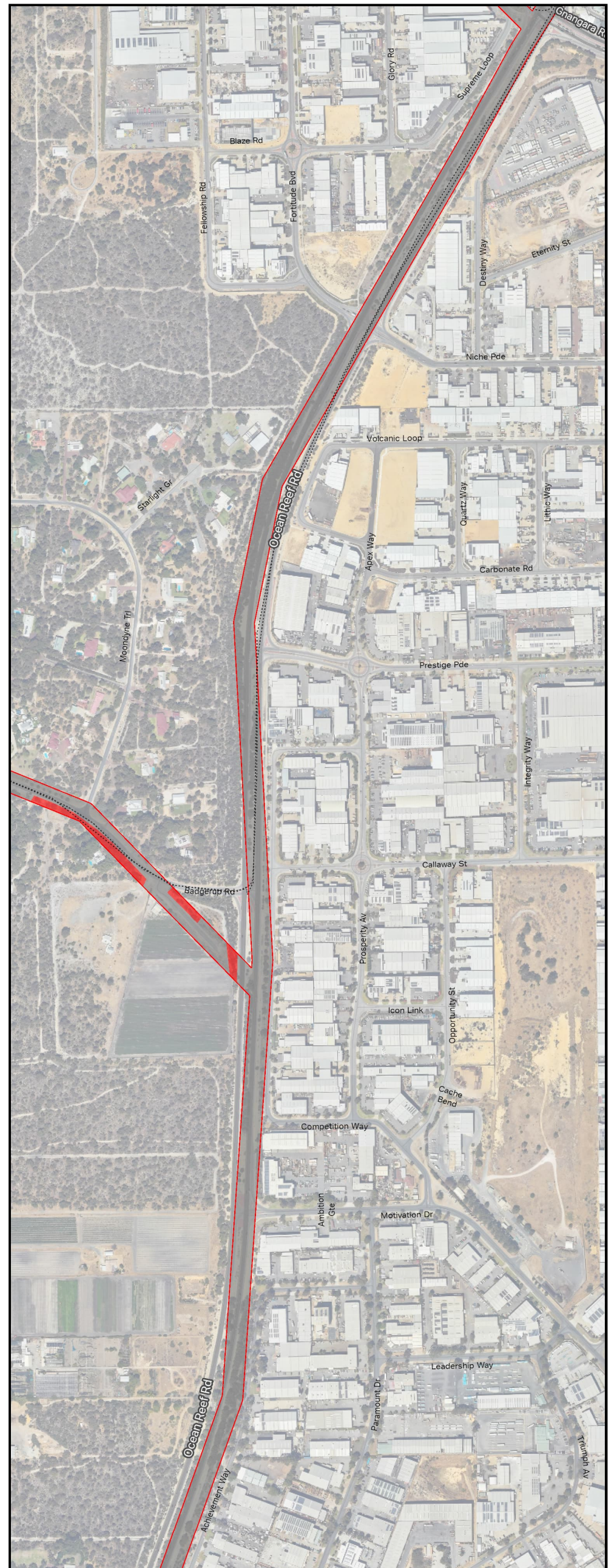
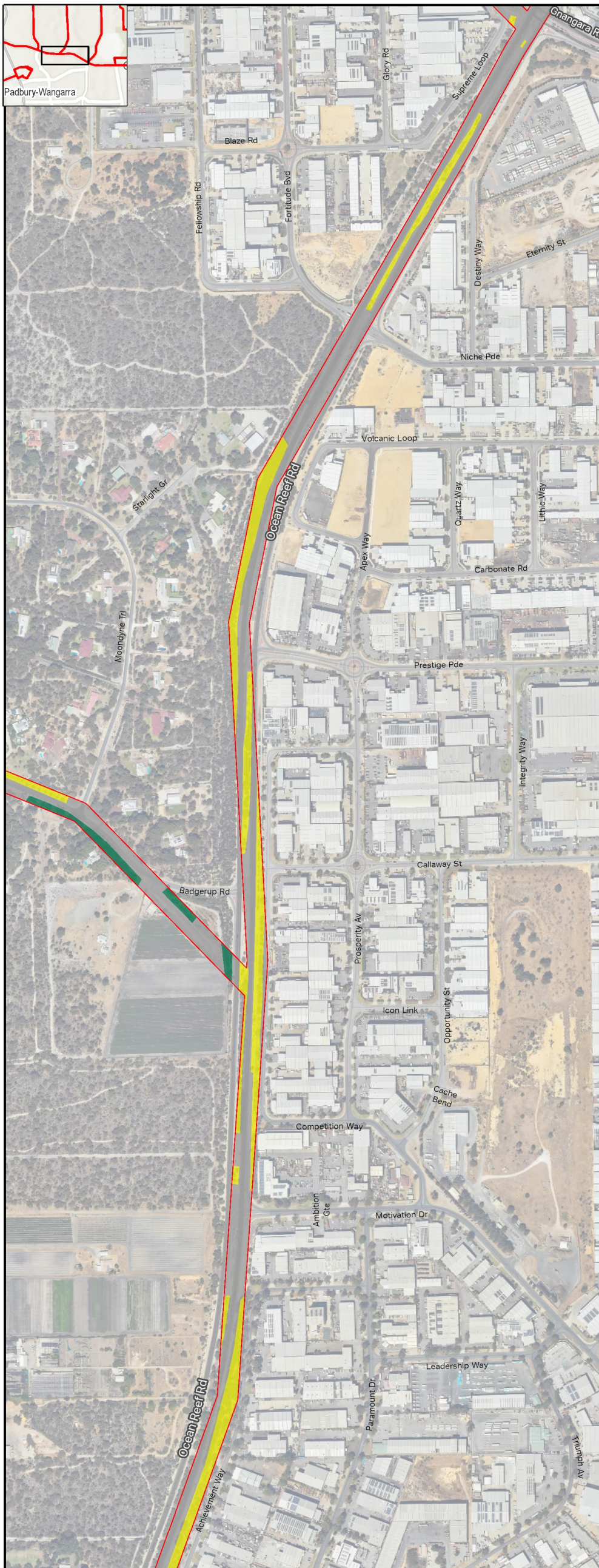


**Vegetation Communities, Condition, Significant Flora and Survey Effort: Neerabup Terminal to East Wanneroo**

**WESTERN POWER**

**NREP SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **8.15**



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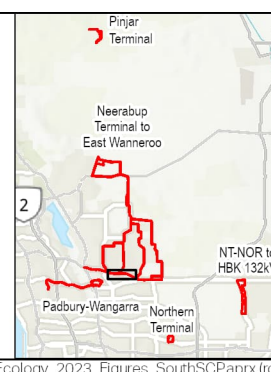
1:7,500  
 (When printed at A4)

0 50 100 150 200 metres  
 GDA2020 MGA ZONE 50

DATA SOURCES: Base Data: ICI Based on information provided by and with the permission of the Western Australian Land Information Authority, trading as Landgate (2010).  
 Service Layer Credits: World Hillshade: Esri, CGIA/World Topographic Map: Esri, TomTom, Garmin, FourSquare, MET/NASA, USGS/World Topographic Map: Esri, TomTom, Garmin, FourSquare, FAO, MET/NASA, USGS/World Imagery: Maxar/World Imagery: Esri, Geoscience Australia, NASA, NOAA, USGS/VIIMS

**LEGEND**

- Survey Area
- Tracklog
- Vegetation Community**
- Planted
- Trees
- Cleared
- Vegetation Condition**
- Completely Degraded
- Cleared

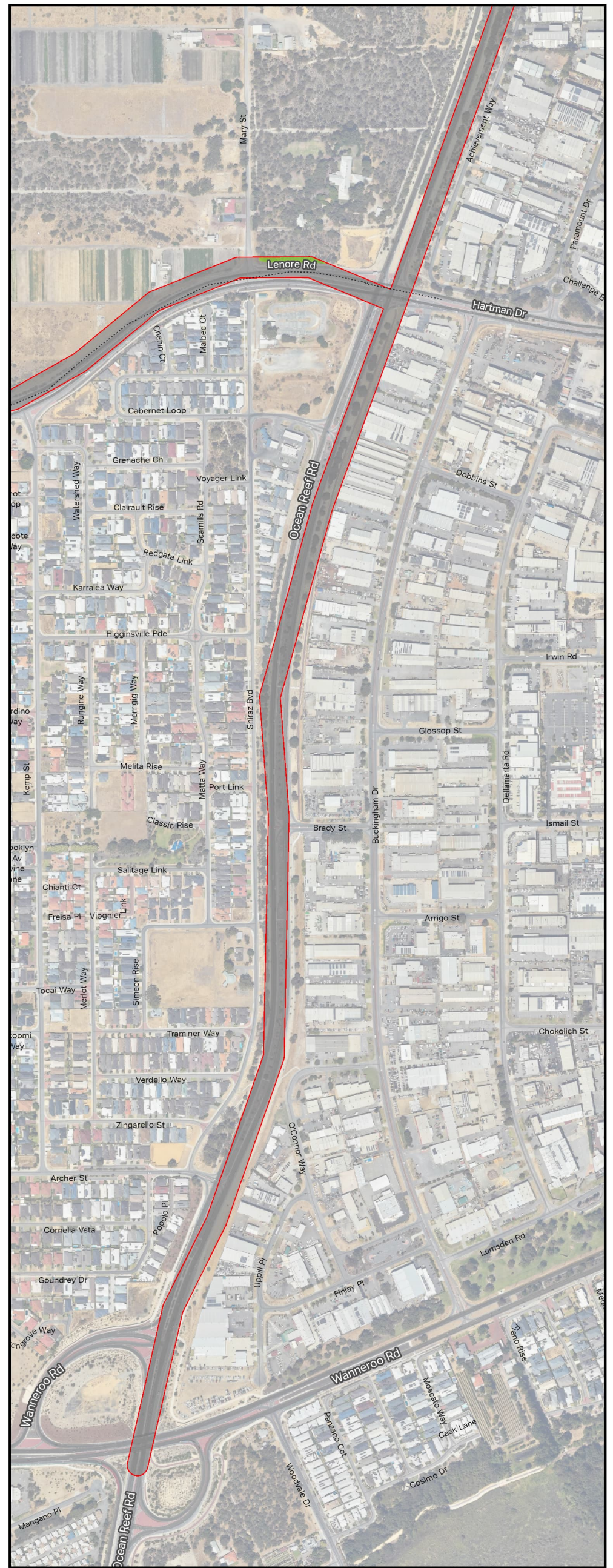


**Vegetation Communities, Condition, Significant Flora and Survey Effort: Neerabup Terminal to East Wanneroo**

**WESTERN POWER**

**NREP SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **8.16**



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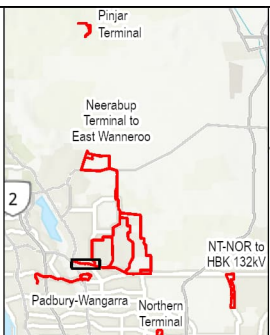
PROJECT ID 60713462 CREATED BY ROB.MCGREGOR  
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1:7,500  
 (When printed at A4)

0 50 100 150 200 metres  
 GDA2020 MGA ZONE 50

**LEGEND**

- Survey Area
- Tracklog
- WA PEC, EPBC TEC
- Banksia Woodlands of the Swan Coastal Plain
- Vegetation Community
  - BaAcDf
  - Planted
  - Cleared
- Vegetation Condition
  - Very Good
  - Cleared

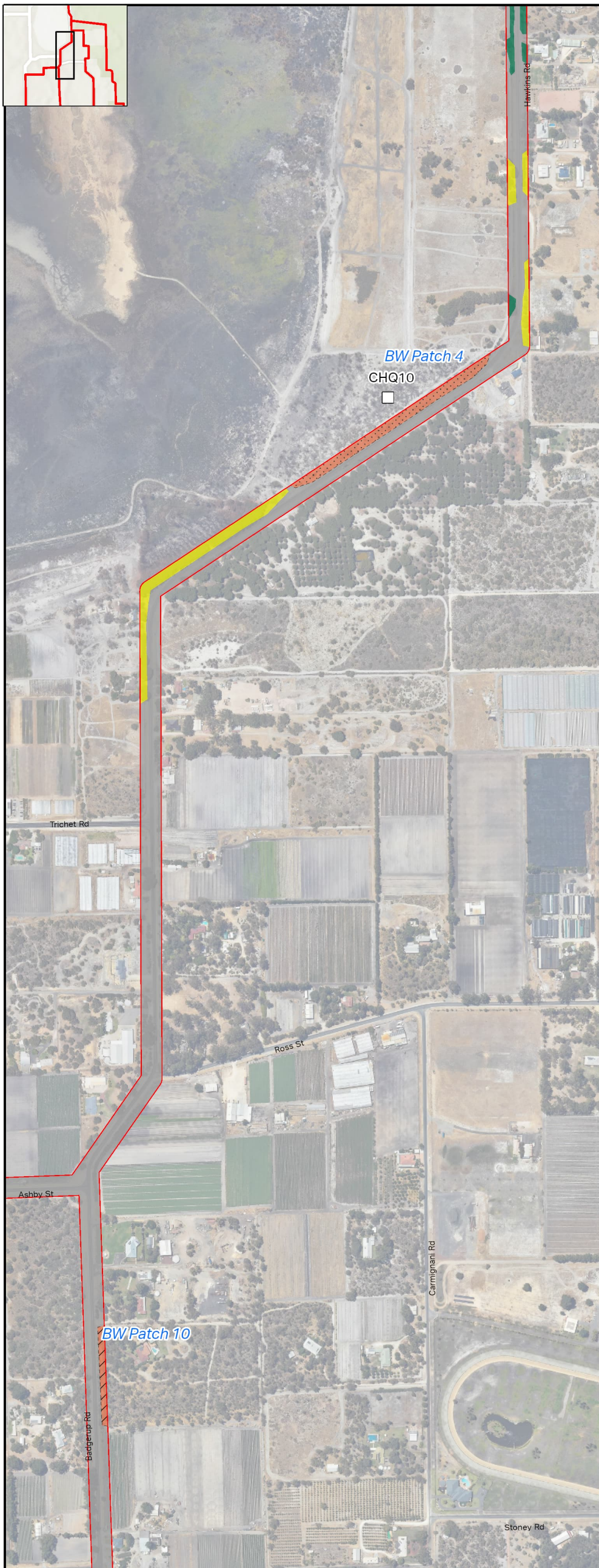


**Vegetation Communities, Condition, Significant Flora and Survey Effort: Neerabup Terminal to East Wanneroo**

**WESTERN POWER**

**NREP SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **8.17**



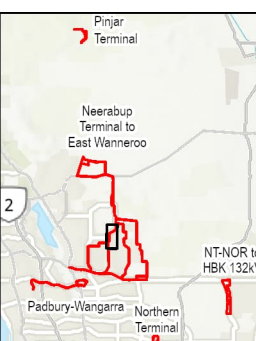
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 GDA2020 MGA ZONE 50

**LEGEND**

- Survey Area
- Sample Sites
- Quadrat
- Tracklog
- WA PEC FCT 21c, EPBC TEC Banksia Woodlands of the Swan Coastal Plain
- WA PEC, EPBC TEC Banksia Woodlands of the Swan Coastal Plain
- Vegetation Community
- BaAcDf
- Planted
- Trees
- Cleared
- Vegetation Condition
- Excellent
- Very Good
- Completely Degraded
- Cleared

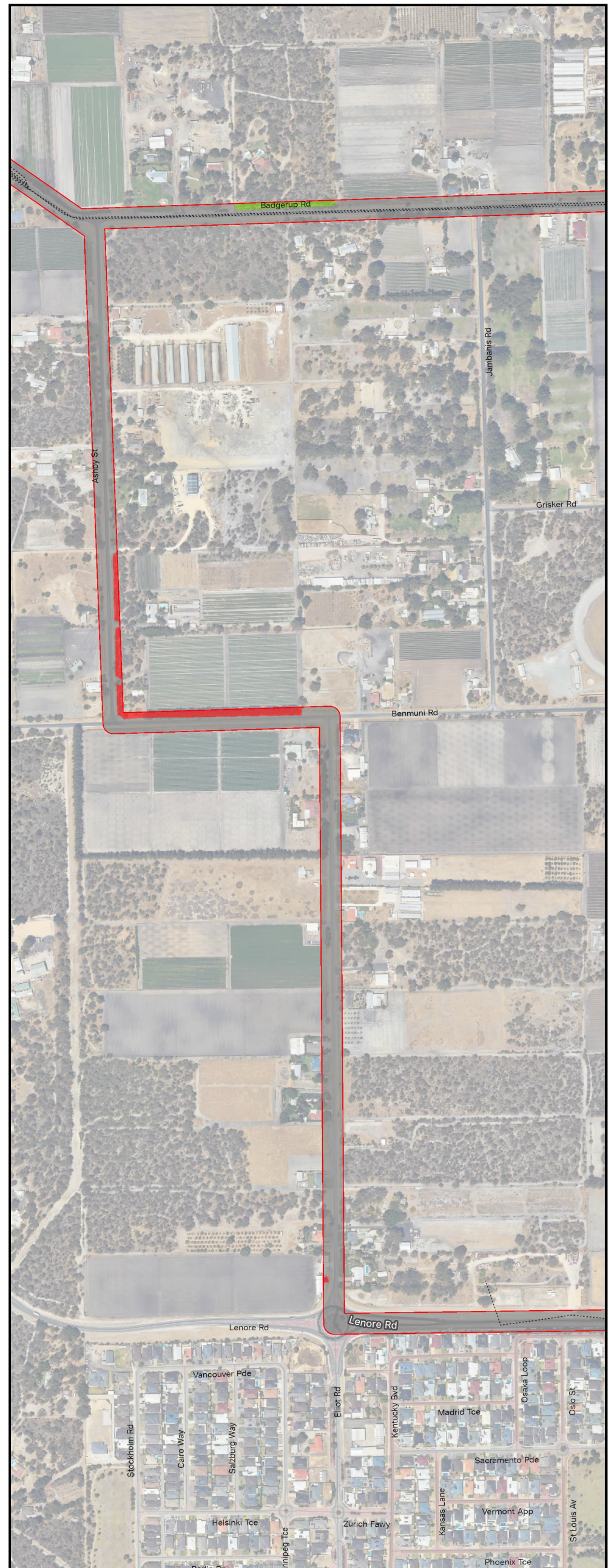
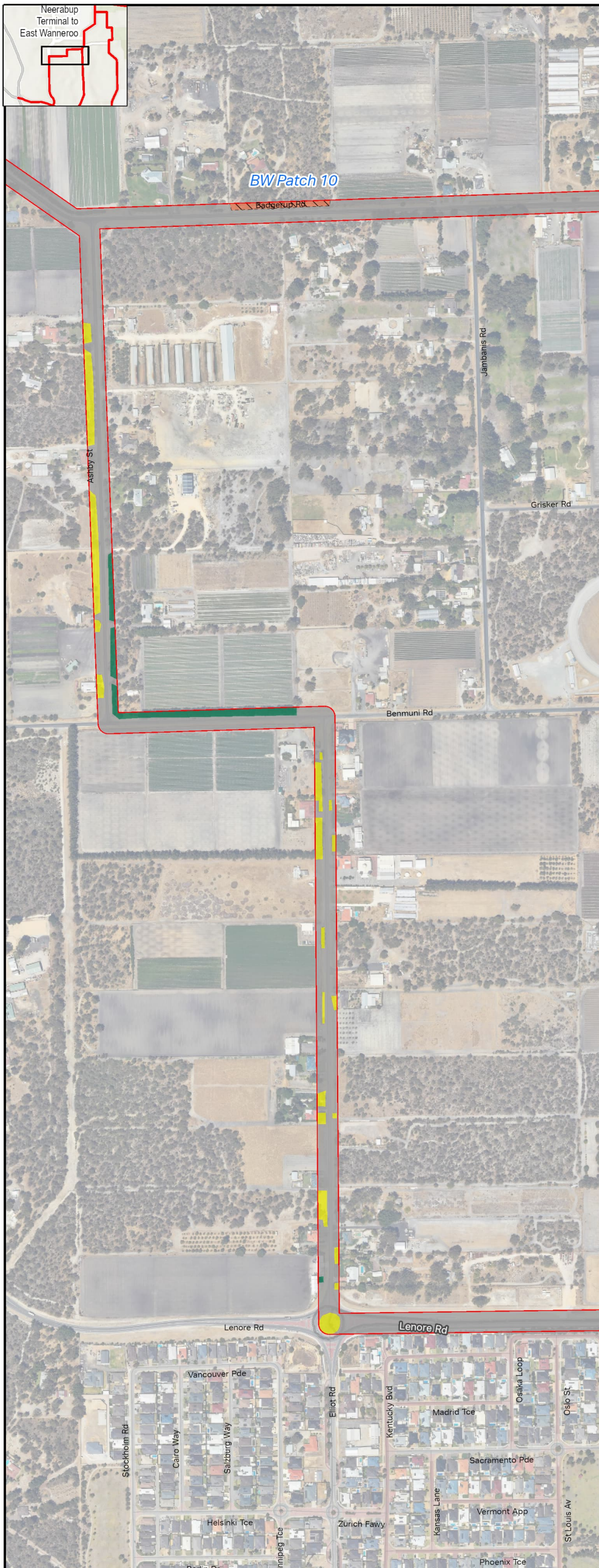


**Vegetation Communities, Condition, Significant Flora and Survey Effort: Neerabup Terminal to East Wanneroo**

**WESTERN POWER**

**NREP SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **8.18**



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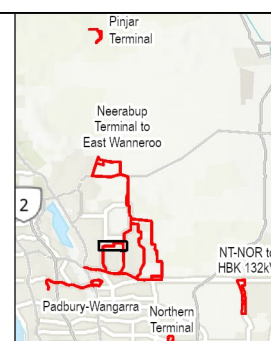
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1:7,500  
 (When printed at A4)

0 50 100 150 200 metres  
 GDA2020 MGA ZONE 50

**LEGEND**

- Survey Area
- Tracklog
- WA PEC, EPBC TEC Banksia Woodlands of the Swan Coastal Plain
- Vegetation Community BaAcDf
- Planted
- Trees
- Cleared
- Vegetation Condition Very Good
- Completely Degraded
- Cleared

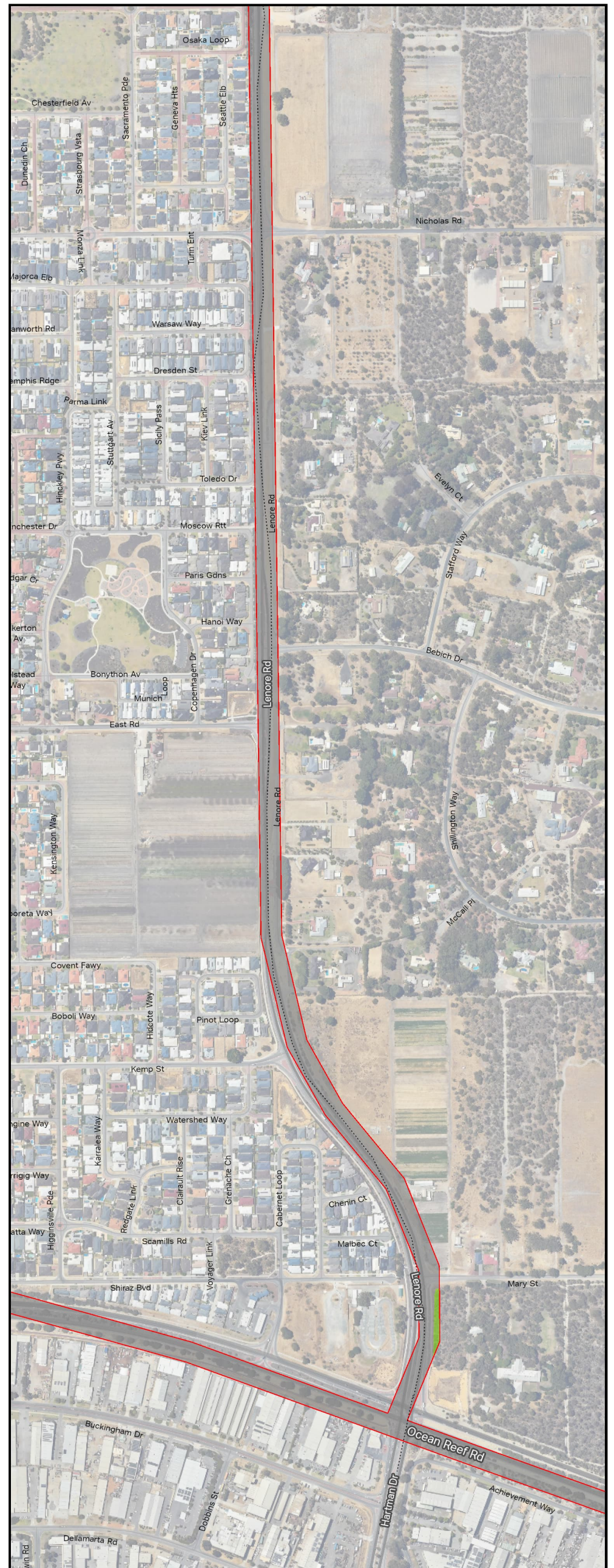
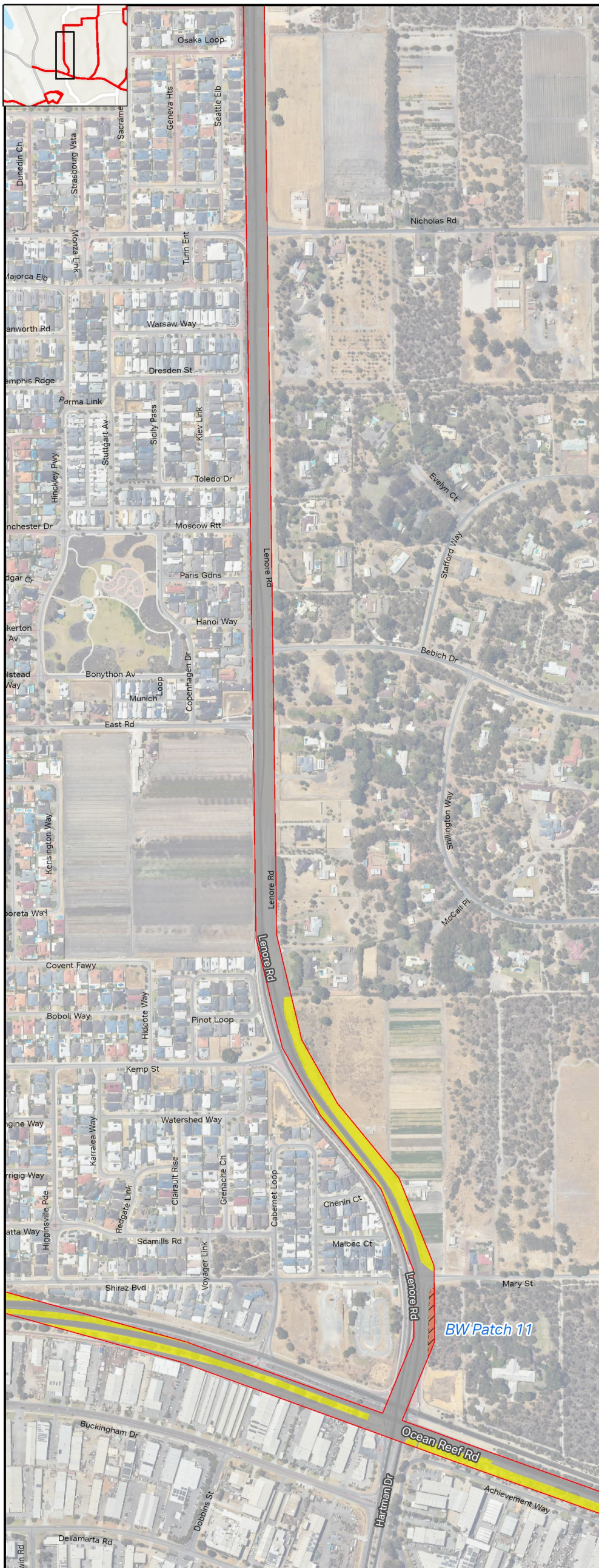


**Vegetation Communities, Condition, Significant Flora and Survey Effort: Neerabup Terminal to East Wanneroo**

**WESTERN POWER**

**NREP SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **8.19**



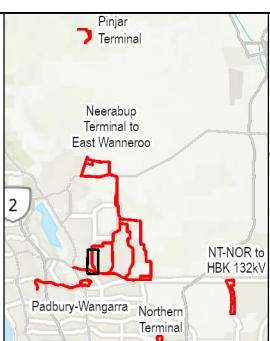
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 GDA2020 MGA ZONE 50

**LEGEND**

- Survey Area
- Tracklog
- WA PEC, EPBC TEC
- Banksia Woodlands of the Swan Coastal Plain
- Vegetation Community
  - BaAcDf
  - Planted
  - Cleared
- Vegetation Condition
  - Very Good
  - Cleared



**Vegetation Communities, Condition, Significant Flora and Survey Effort: Neerabup Terminal to East Wanneroo**

**WESTERN POWER**

**NREP SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **8.20**



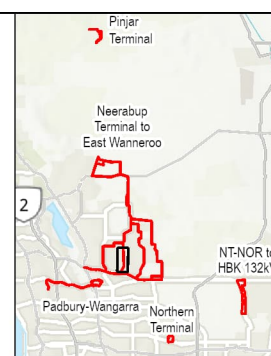
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 DATE MODIFIED 13 JUN 2024 APPROVED BY C. HOUSE

Scale: 1:7,500  
 GDA2020 MGA ZONE 50

DATA SOURCES: Base Data: ICI Based on information provided by and with the permission of the Western Australian Land Information Authority trading as Landgate (2019)  
 Service Layer Credits: World Hillshade: Esri, CGIA/World Topographic Map: Esri, TomTom, Garmin, FourSquare, MET/NASA, USGS/World Topographic Map: Esri, TomTom, Garmin, FourSquare, FAO, MET/NASA, USGS/World Imagery: Maxar/World Imagery: Esri, Geoscience Australia, NASA, NOAA, USGS/VIIMS

- LEGEND**
- Survey Area
  - Tracklog
  - Vegetation Community**
  - Planted
  - Trees
  - Cleared
  - Vegetation Condition**
  - Completely Degraded
  - Cleared

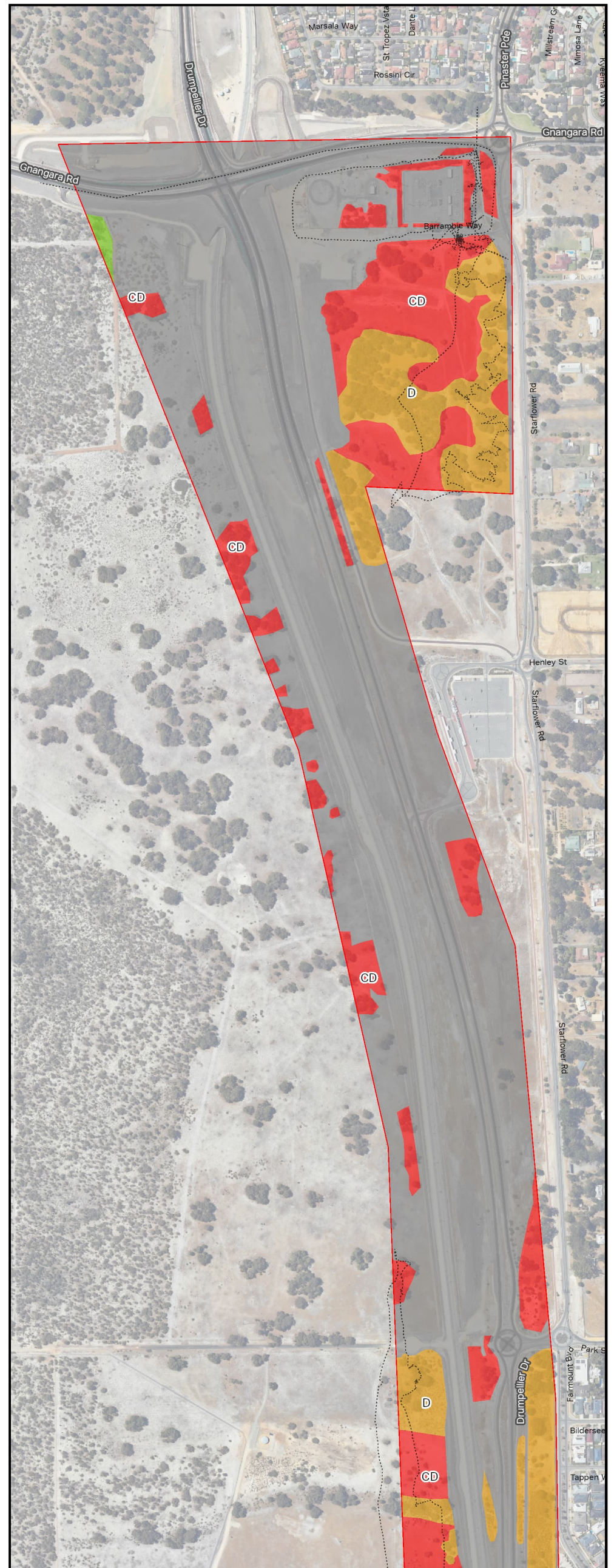
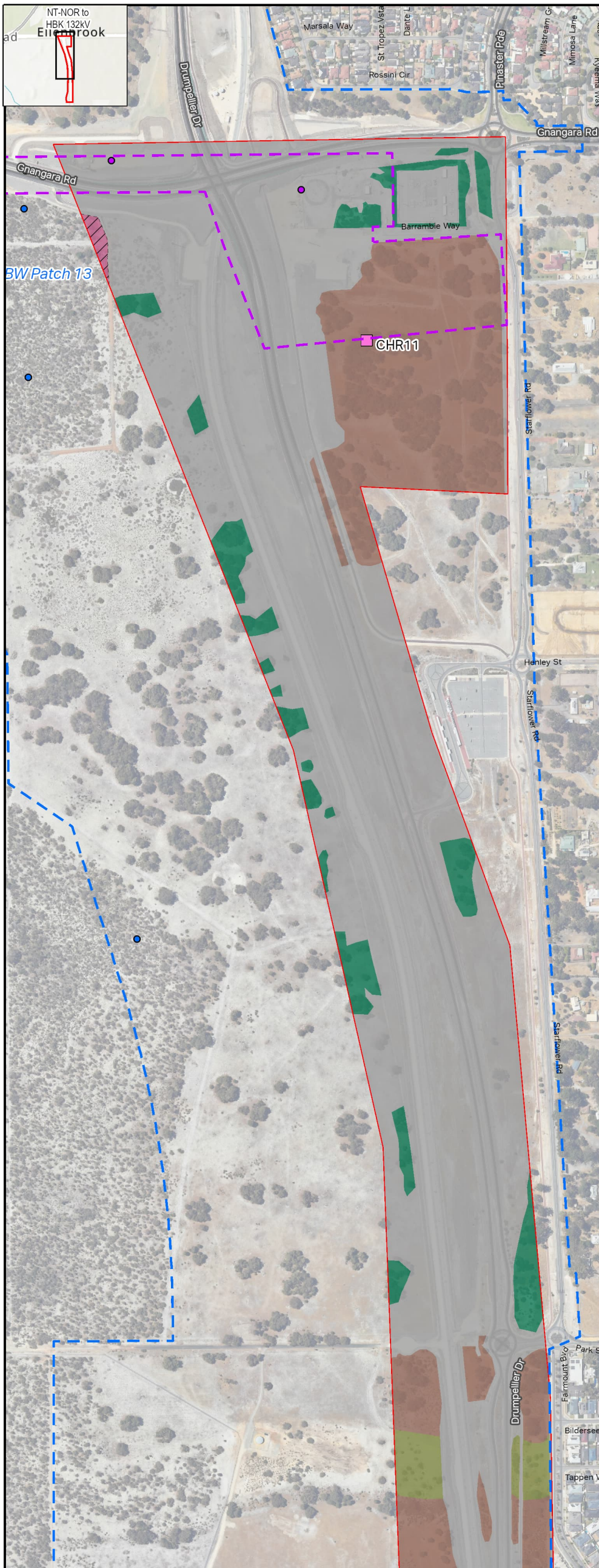


**Vegetation Communities, Condition, Significant Flora and Survey Effort: Neerabup Terminal to East Wanneroo**

**WESTERN POWER**

**NREP SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **8.21**



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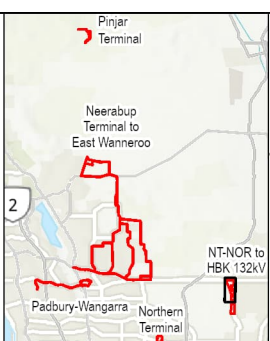
PROJECT ID 60713462 CREATED BY ROB.MCGREGOR  
 DATE MODIFIED 13 JUN 2024 APPROVED BY C. HOUSE

1:7,500  
 (When printed at A4)

0 50 100 150 200 metres  
 GDA2020 MGA ZONE 50

**LEGEND**

Survey Area	BaBmSIpo	Sample Sites: (RPS (2020))
Sample Sites	CcMpXp	Survey Area: (RPS (2020))
Relevé	Trees	Sample Sites: AECOM (2016)
Tracklog	Cleared	Survey Area: AECOM (2016)
WA PEC, EPBC TEC	Vegetation Condition	
Banksia Woodlands of the Swan Coastal Plain	Very Good	
Vegetation Community	Degraded	
BaBmBIXp	Completely Degraded	
	Cleared	

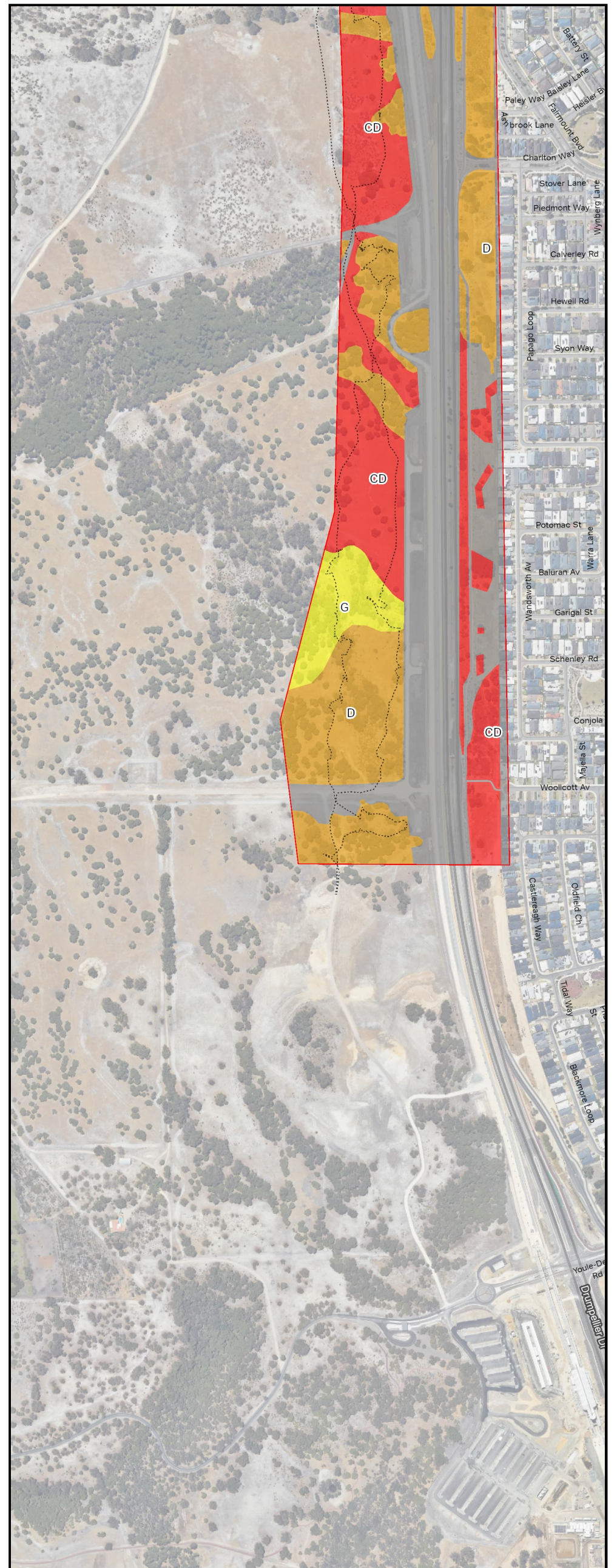
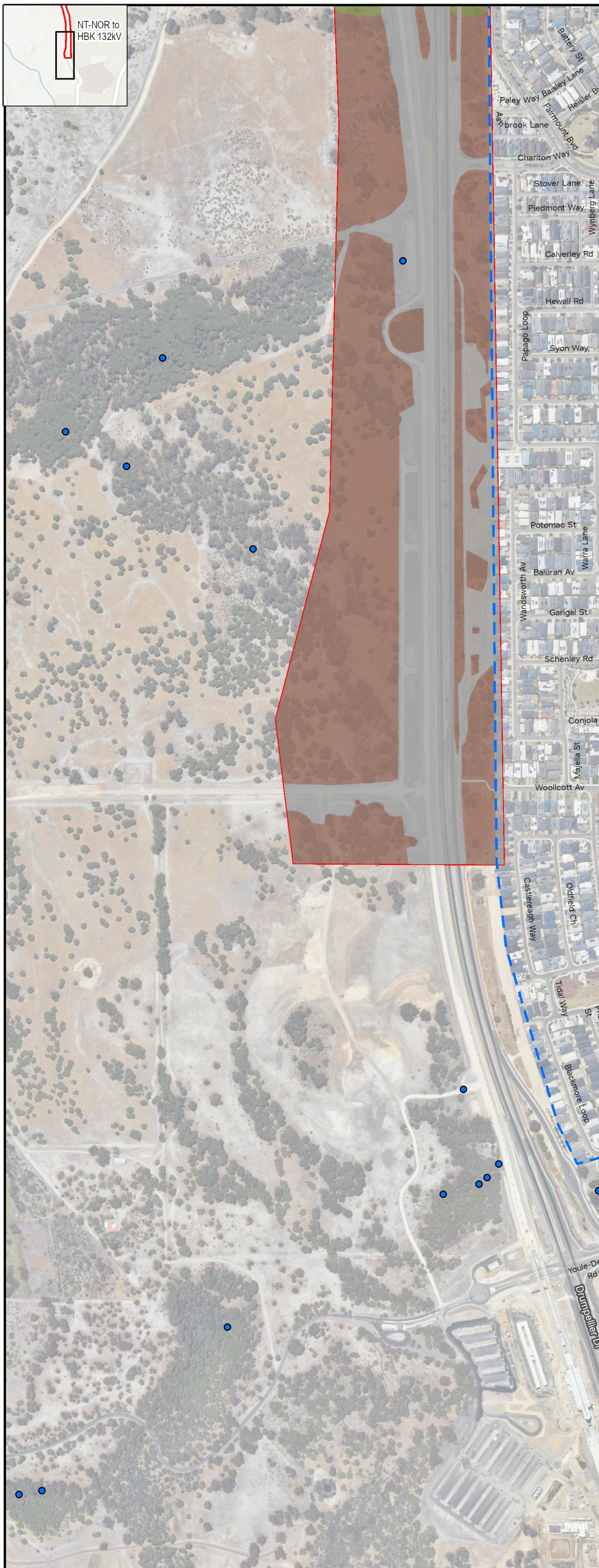


**Vegetation Communities, Condition, Significant Flora and Survey Effort: NT-NOR to HBK 132kV**

**WESTERN POWER**

**NREP SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure 8.22



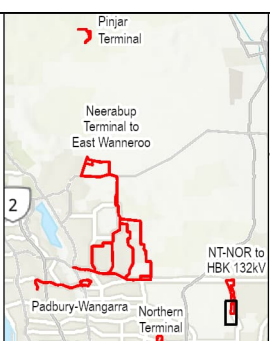
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 DATE MODIFIED 13 JUN 2024 APPROVED BY C. HOUSE

Scale: 1:7,500 (When printed at A4)  
 GDA2020 MGA ZONE 50

**LEGEND**

- Survey Area
- Tracklog
- Vegetation Community
  - BaBmBiXp
  - CcMpXp
  - Cleared
- Vegetation Condition
  - Good
  - Degraded
  - Completely Degraded
  - Cleared
- Sample Sites: (RPS) (2020)
- Survey Area: (RPS) (2020)

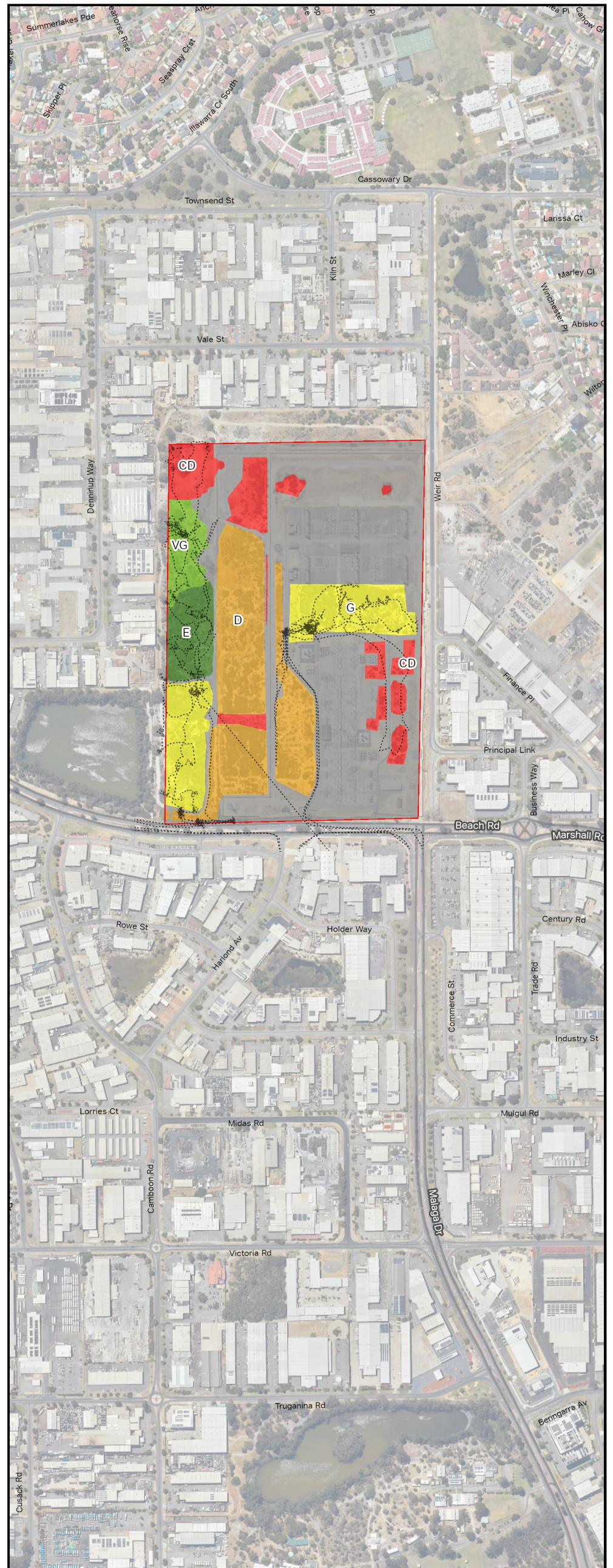
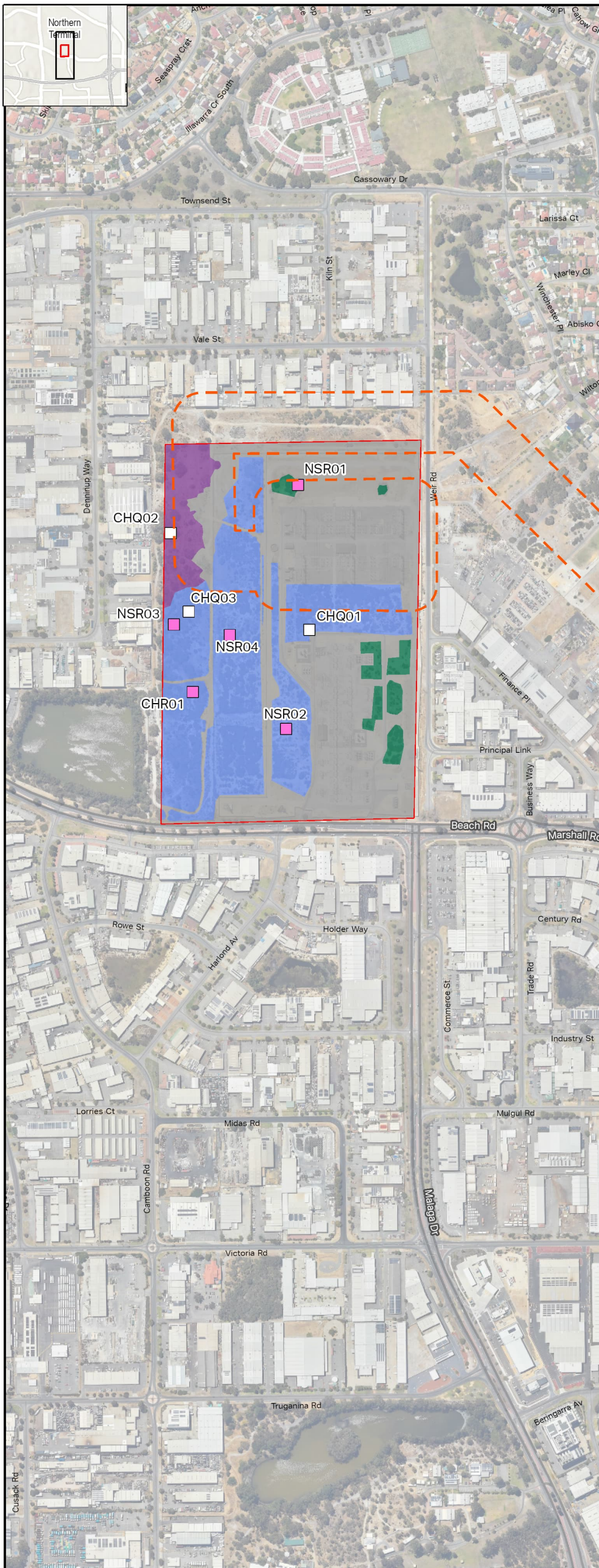


**Vegetation Communities, Condition, Significant Flora and Survey Effort: NT-NOR to HBK 132kV**

**WESTERN POWER**

**NREP SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **8.23**



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1:7,500  
 (When printed at A4)

0 50 100 150 200 metres  
 GDA2020 MGA ZONE 50

DATA SOURCES: Base Data: ICI Based on information provided by and with the permission of the Western Australian Land Information Authority trading as Landgate (2019).  
 Service Layer Credits: World Hillshade: Esri, CGIA/World Topographic Map: Esri, TomTom, Garmin, FourSquare, MET/NASA, USGS/World Topographic Map: Esri, TomTom, Garmin, FourSquare, FAO, MET/NASA, USGS/World Imagery: Maxar/World Imagery: Esri, Geoscience Australia, NASA, NOAA, USGS/VIIMS

**LEGEND**

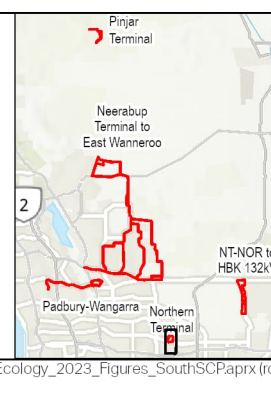
- Survey Area
- Sample Sites
- Quadrat
- Relevé
- Tracklog
- Vegetation Community
- CcXpEc
- ErAcCc
- Trees
- Cleared

**Vegetation Condition**

- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- Cleared

**Survey Area:**

- AECOM (2022b)
- NREP



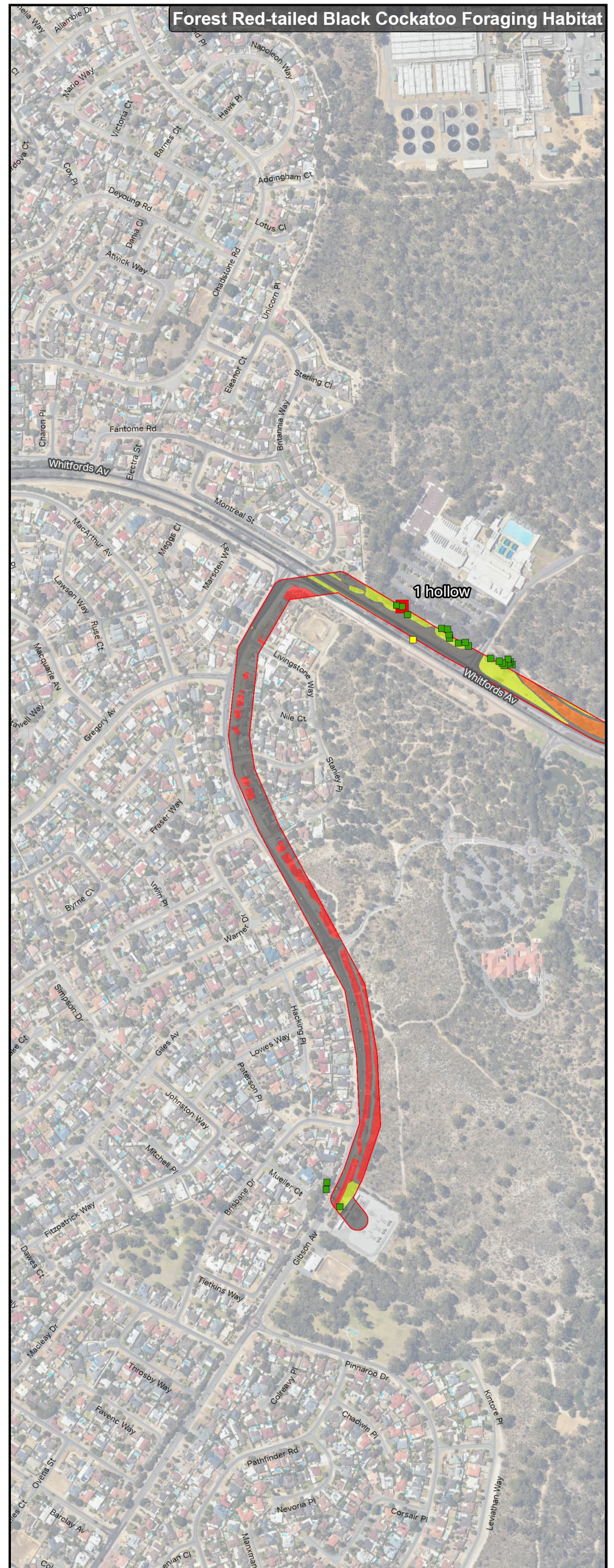
**Vegetation Communities, Condition, Significant Flora and Survey Effort: Northern Terminal**

**WESTERN POWER**

**NREP SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **8.24**

Project: W:\na.aecomnet.com\1stAPAC\Perth-AUPER1\Legacy\Projects\60713462\_NREP\_Ecology\_2023\900\_CAD\_GIS\920\_GIS\_NREP\02\_MXD\_APRX\60713462\_NREP\_Ecology\_2023\_Figures\_South\SCPaprx (rob.mcgregor).  
 Layout: G60713462\_Fig8\_NREP\_South\_VegCommCond\_A3P\_v1, Last exported: 20/05/2024 12:48 PM



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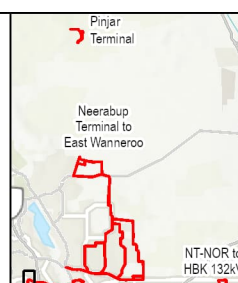
PROJECT ID 60713462 CREATED BY ROB.MCGREGOR  
 DATE MODIFIED 20 JUN 2024 APPROVED BY F. DE WIT

Scale: 1:7,500 (when printed at A4)  
 GDA2020 MGA ZONE 50

**LEGEND**

Survey Area (Red outline)  
 Fauna Habitat:  
 Banksia Woodland (Orange)  
 Eucalyptus Woodland (Green)  
 Mixed Shrubland (Purple)  
 Trees Over Cleared (Blue)  
 Cleared (Grey)  
 Significant Fauna:  
 Carnaby's Cockatoo (Circle)

Forest Red-tailed Black Cockatoo Foraging Habitat Quality (Bamford, 2020):  
 None (Grey)  
 Negligible (Light Orange)  
 Low (Orange)  
 Moderate (Yellow-Green)  
 Black Cockatoo Breeding Habitat:  
 Marri (*Corymbia calophylla*) (Yellow)  
 Tuart (*Eucalyptus gomphocephala*) (Green)  
 Tree with Suitable Hollow (Red)

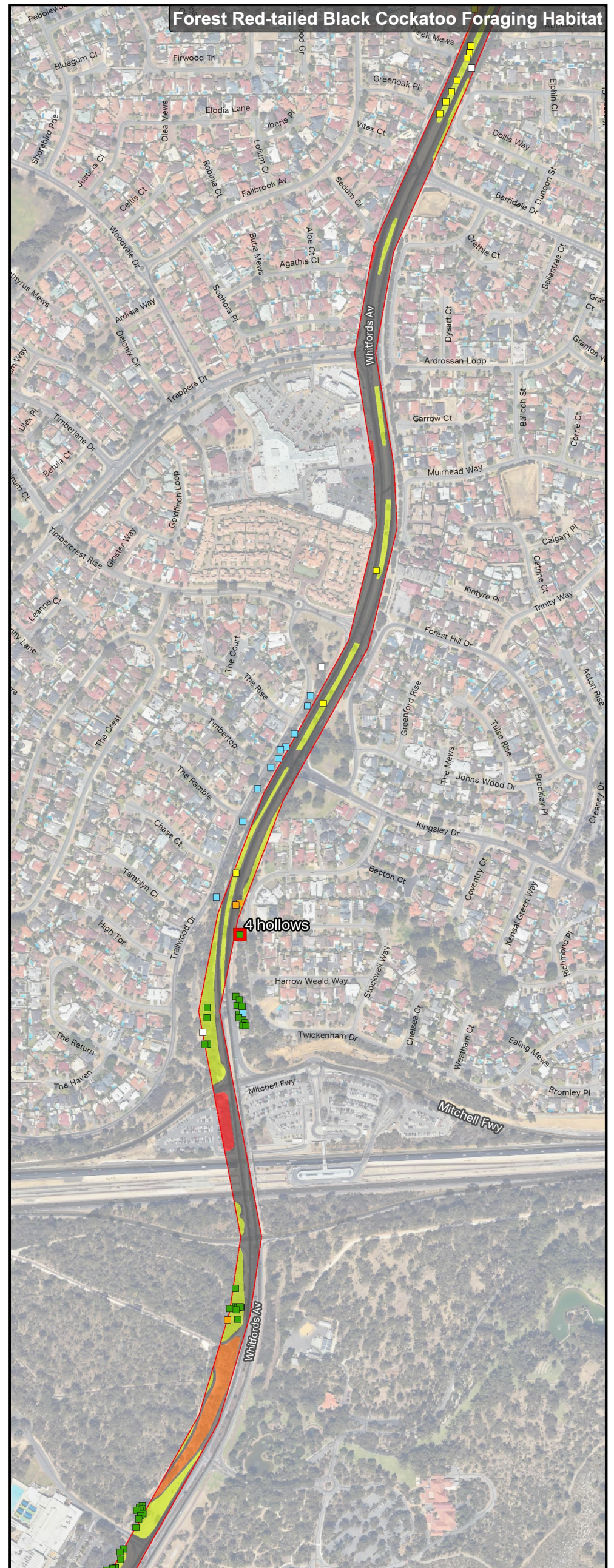


**Significant Fauna and Fauna Habitat, including *Calyptorhynchus* sp. foraging Padbury-Wangarra**

**WESTERN POWER**

**CLEAN ENERGY LINK SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure 9.1



**AECOM** Delivering a better world

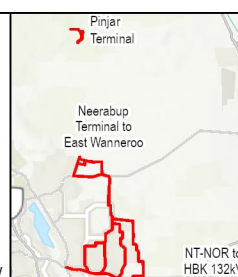
PROJECT ID 60713462 CREATED BY ROB.MCGREGOR  
 DATE MODIFIED 20 JUN 2024 APPROVED BY F. DE WIT

1:7,500  
 (When printed at A4)

0 50 100 150 200 metres  
 GDA2020 MGA ZONE 50

**LEGEND**

- Survey Area
- Fauna Habitat
- Banksia Woodland
- Eucalyptus Woodland
- Mixed Shrubland
- Trees Over Cleared
- Cleared
- Significant Fauna
- Carnaby's Cockatoo
- Forest Red-tailed Black Cockatoo
- Forest Red-tailed Black Cockatoo Foraging Habitat Quality (Bamford, 2020)
- None
- Negligible
- Low
- Moderate
- Black Cockatoo Breeding Habitat
- Marri (*Corymbia calophylla*)
- Jarrah (*Eucalyptus marginata*)
- Tuart (*Eucalyptus gomphocephala*)
- Introduced
- Other
- Tree with Suitable Hollow

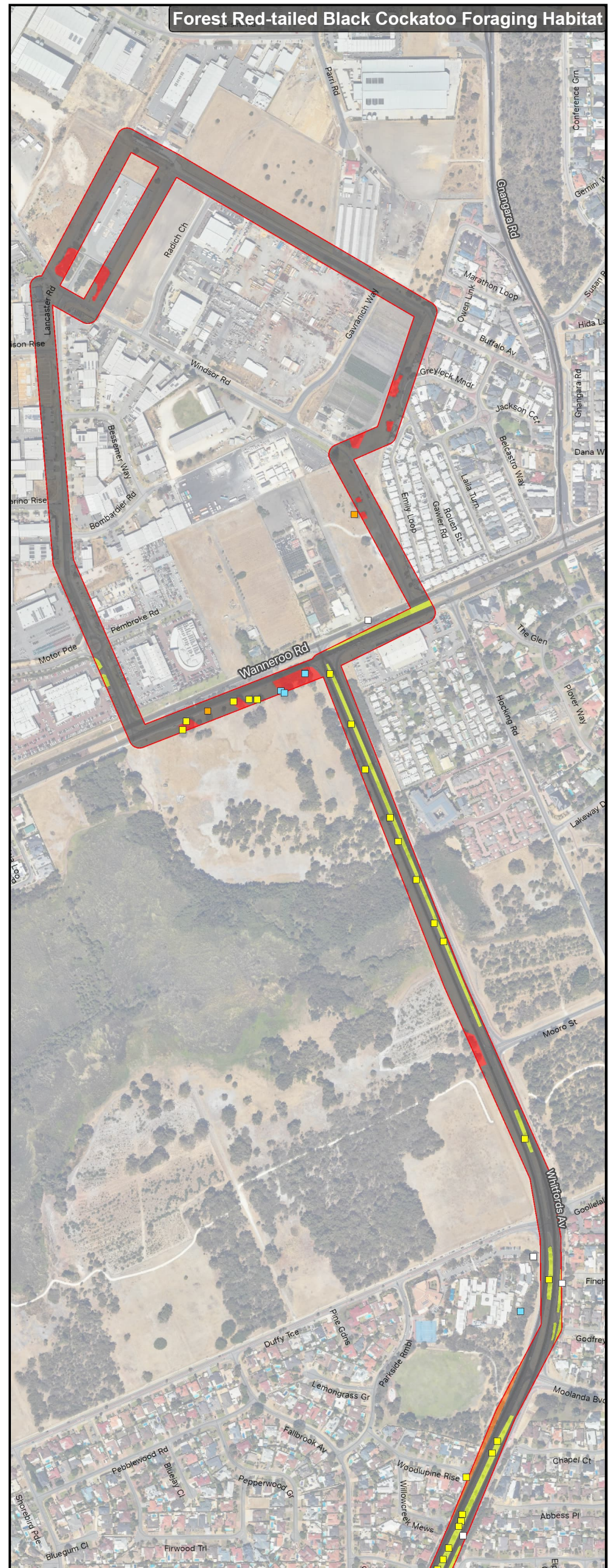


**Significant Fauna and Fauna Habitat, including *Calyptorhynchus* sp. foraging Padbury-Wangarra**

**WESTERN POWER**

**CLEAN ENERGY LINK SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure 9.2



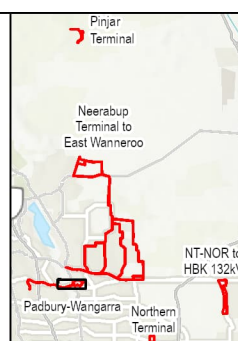
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 DATE MODIFIED 20 JUN 2024 APPROVED BY F. DE WIT

1:7,500  
 (When printed at A4)

0 50 100 150 200 metres  
 GDA2020 MGA ZONE 50

LEGEND	
	Survey Area
	Banksia Woodland
	Mixed Shrubland
	Trees Over Cleared
	Cleared
	Fauna Habitat Sample Sites
	Significant Fauna
	Carnaby's Cockatoo
	Forest Red-tailed Black Cockatoo
	Quenda
	Forest Red-tailed Black Cockatoo Foraging Habitat Quality (Bamford, 2020)
	None
	Negligible
	Low
	Moderate
	Black Cockatoo Breeding Habitat
	Marri ( <i>Corymbia calophylla</i> )
	Jarra ( <i>Eucalyptus marginata</i> )
	Introduced
	Other

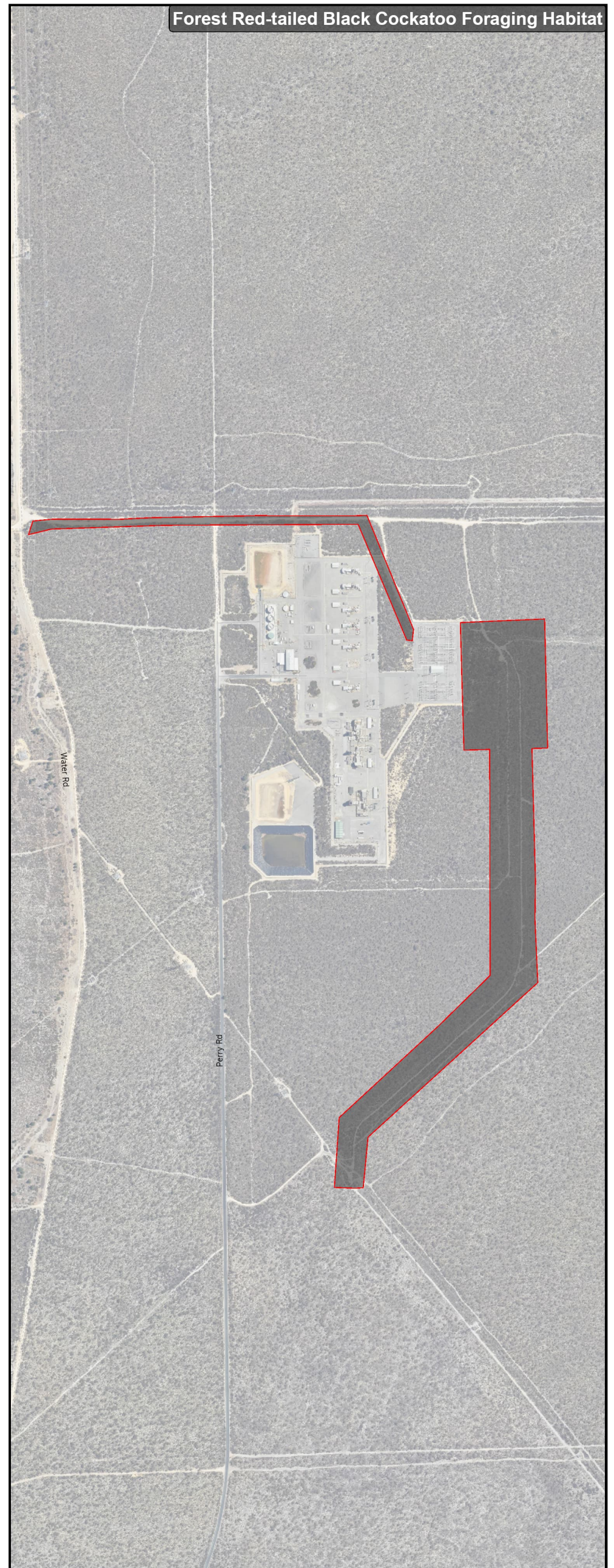


**Significant Fauna and Fauna Habitat, including *Calyptorhynchus* sp. foraging Padbury-Wangarra**

**WESTERN POWER**

**CLEAN ENERGY LINK SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **9.3**



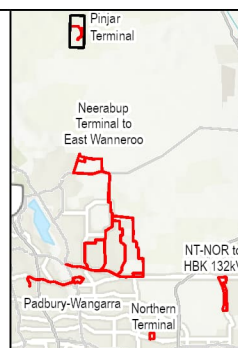
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1:10,000  
GDA2020 MGA ZONE 50

DATA SOURCES: Base Data: ICI Based on information provided by and with the permission of the Western Australian Land Information Authority trading as Landgate (2019).  
Service Layer Credits: World Hillshade: Esri, CGIAR/World Topographic Map: Esri, TomTom, Garmin, FourSquare, MET/NASA, USGS/World Topographic Map: Esri, TomTom, Garmin, FourSquare, FAO, MET/NASA, USGS/World Imagery: Navteq/World Hillshade: Esri, Geoscience Australia, NASA, NOAA, USGS/VIIMS

- LEGEND**
- Survey Area
  - Fauna Habitat
  - Banksia Woodland
  - Cleared
  - Fauna Habitat Sample Sites
  - Significant Fauna
  - Quenda
  - Forest Red-tailed Black Cockatoo Foraging Habitat Quality (Bamford, 2020)
  - None

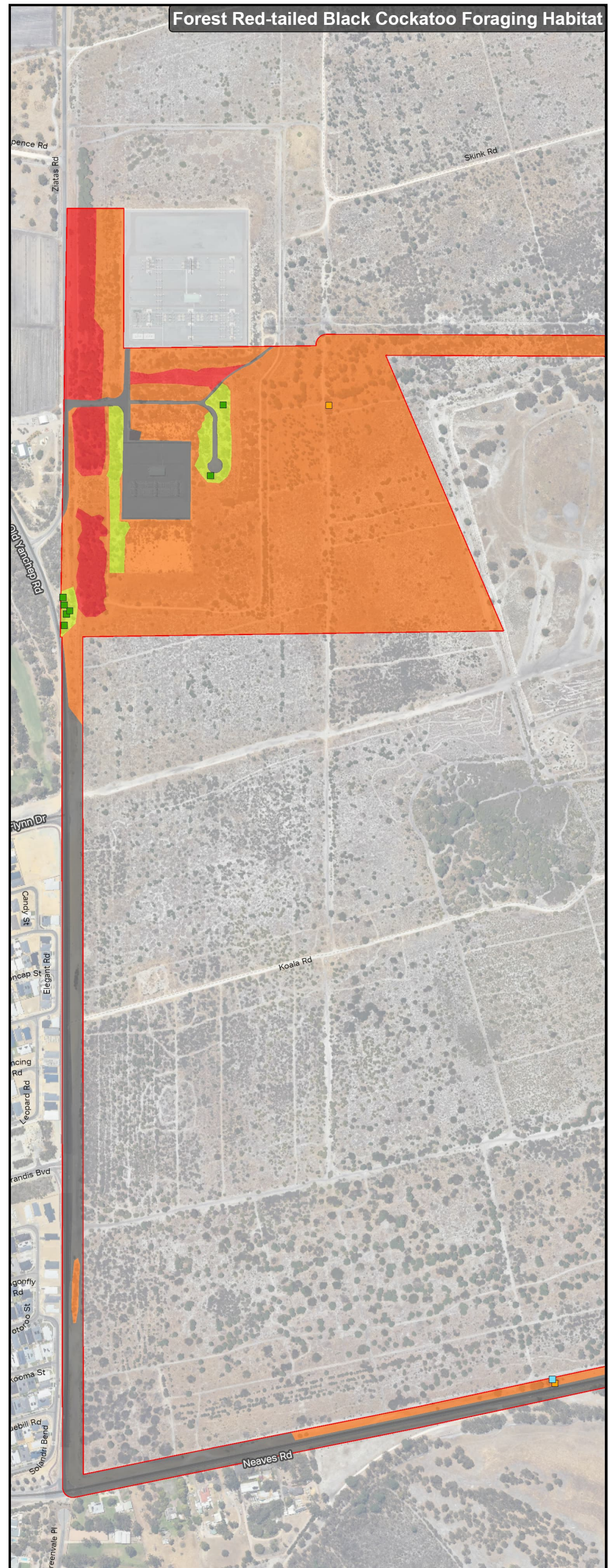
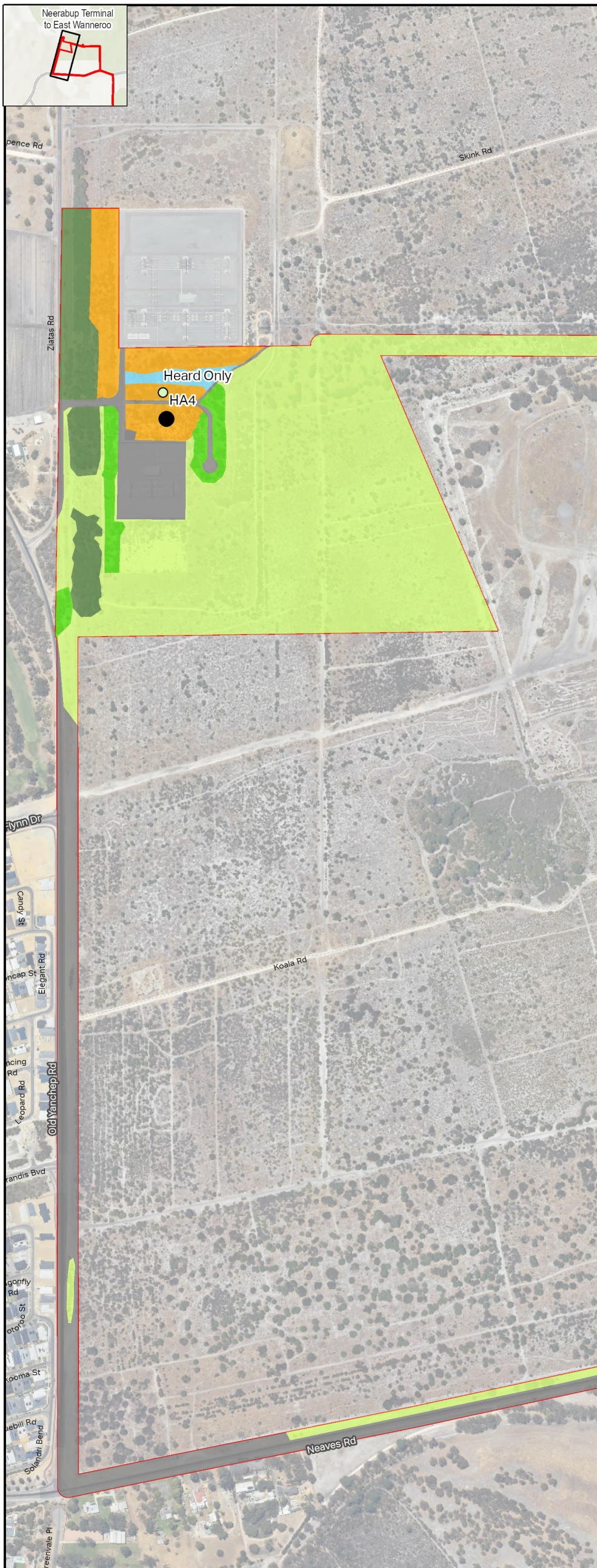


**Significant Fauna and Fauna Habitat, including *Calyptorhynchus* sp. foraging Pinjar Terminal**

**WESTERN POWER**

**CLEAN ENERGY LINK SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **9.4**



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0 50 100 150 200 metres  
 GDA2020 MGA ZONE 50

**LEGEND**

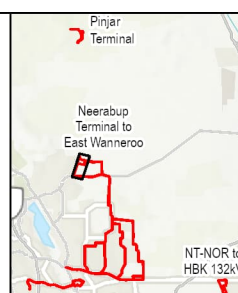
Survey Area (Red outline)  
 Fauna Habitat (Green outline)

Adenanthos/Plantation (Light Green)  
 Banksia Woodland (Yellow)  
 Eucalyptus Woodland (Light Green)  
 Pine Plantation (Dark Green)  
 Trees Over Cleared (Light Blue)  
 Cleared (Grey)

Fauna Habitat Sample Sites (Black dot)

Significant Fauna  
 Black-faced Cuckooshrike (Green circle)  
 Forest Red-tailed Black Cockatoo Foraging Habitat Quality (Bamford, 2020)  
 None (Grey)  
 Negligible (Red)  
 Low (Orange)  
 Moderate (Light Green)

Black Cockatoo Breeding Habitat  
 Jarrah (*Eucalyptus marginata*) (Orange)  
 Tuart (*Eucalyptus gomphocephala*) (Green)  
 Introduced (Blue)



**Significant Fauna and Fauna Habitat, including *Calyptorhynchus* sp. foraging**

**Neerabup Terminal to East Wanneroo**

**WESTERN POWER**

**CLEAN ENERGY LINK SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure 9.5



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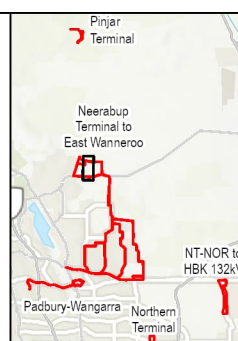
0 50 100 150 200 metres  
 GDA2020 MGA ZONE 50

**LEGEND**

- Survey Area
- Fauna Habitat
- Adenanthos/Plantation
- Cleared
- Significant Fauna
- Quenda

Forest Red-tailed Black Cockatoo Foraging Habitat Quality (Bamford, 2020)

- None
- Low
- Black Cockatoo Breeding Habitat
- Jarrah (*Eucalyptus marginata*)
- Stag (old dead tree, unknown species)



**Significant Fauna and Fauna Habitat, including *Calyptorhynchus* sp. foraging Neerabup Terminal to East Wanneroo**

**WESTERN POWER**

**CLEAN ENERGY LINK SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **9.6**



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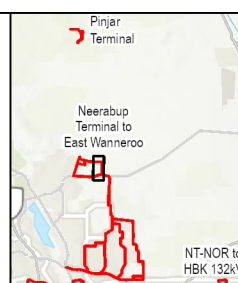
PROJECT ID 60713462 CREATED BY ROB.MCGREGOR  
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1:7,500  
 (When printed at A4)

0 50 100 150 200 metres  
 GDA2020 MGA ZONE 50

**LEGEND**

- Survey Area
- Fauna Habitat
- Adenanthos/Plantation
- Cleared
- Significant Fauna**
- Quenda
- Forest Red-tailed Black Cockatoo Foraging Habitat Quality (Bamford, 2020)
- None
- Low

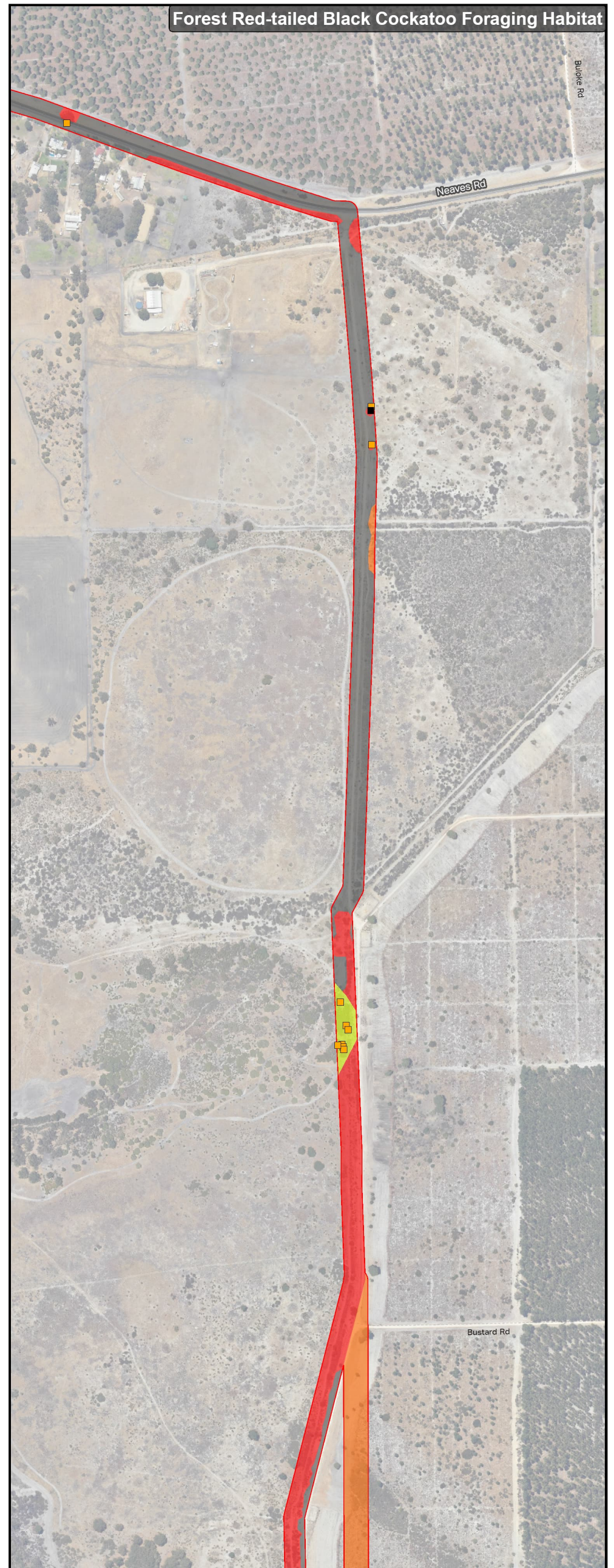


**Significant Fauna and Fauna Habitat, including *Calyptorhynchus* sp. foraging Neerabup Terminal to East Wanneroo**

**WESTERN POWER**

**CLEAN ENERGY LINK SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **9.7**



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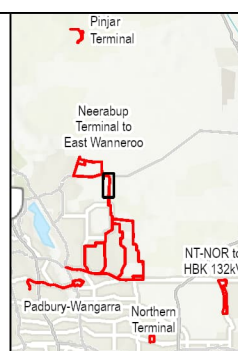
0 50 100 150 200 metres  
 GDA2020 MGA ZONE 50

**LEGEND**

Survey Area  
 Fauna Habitat  
 Adenanthos/Plantation  
 Banksia Woodland  
 Eucalyptus Woodland  
 Melaleuca Woodland  
 Mixed Shrubland  
 Trees Over Cleared  
 Cleared

**Significant Fauna**  
 Carnaby's Cockatoo  
 Forest Red-tailed Black Cockatoo Foraging Habitat Quality (Bamford, 2020)  
 None  
 Negligible  
 Low  
 Moderate

**Black Cockatoo Breeding Habitat**  
 Jarrah (*Eucalyptus marginata*)  
 Stag (old dead tree, unknown species)



**Significant Fauna and Fauna Habitat, including *Calyptorhynchus* sp. foraging Neerabup Terminal to East Wanneroo**

**WESTERN POWER**

**CLEAN ENERGY LINK SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **9.8**



**AECOM** Delivering a better world

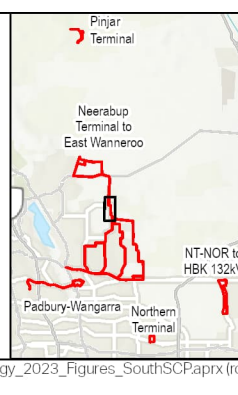
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Scale: 1:7,500 (When printed at A4)  
 GDA2020 MGA ZONE 50

DATA SOURCES: Base Data: ICI Based on information provided by and with the permission of the Western Australian Land Information Authority trading as Landgate (2019)  
 Service Layer Credits: World Hillshade: Esri, CGIA/World Topographic Map: Esri, TomTom, Garmin, FourSquare, MET/NASA, USGS/World Topographic Map: Esri, TomTom, Garmin, FourSquare, FAO, MET/NASA, USGS/World Imagery: Navteq/World Hillshade: Esri, Geoscience Australia, NASA, NOAA, USGS/VIIMS

**LEGEND**

- Survey Area
- Fauna Habitat
  - Adenanthos/Plantation
  - Banksia Woodland
  - Melaleuca Woodland
  - Mixed Shrubland
  - Trees Over Cleared
  - Cleared
- Significant Fauna
  - Forest Red-tailed Black Cockatoo
- Forest Red-tailed Black Cockatoo Foraging Habitat Quality (Bamford, 2020)
  - None
  - Negligible
  - Low
  - Black Cockatoo Breeding Habitat
  - Coastal Blackbutt (*Euc. todtiana*)



**Significant Fauna and Fauna Habitat, including *Calyptorhynchus* sp. foraging**

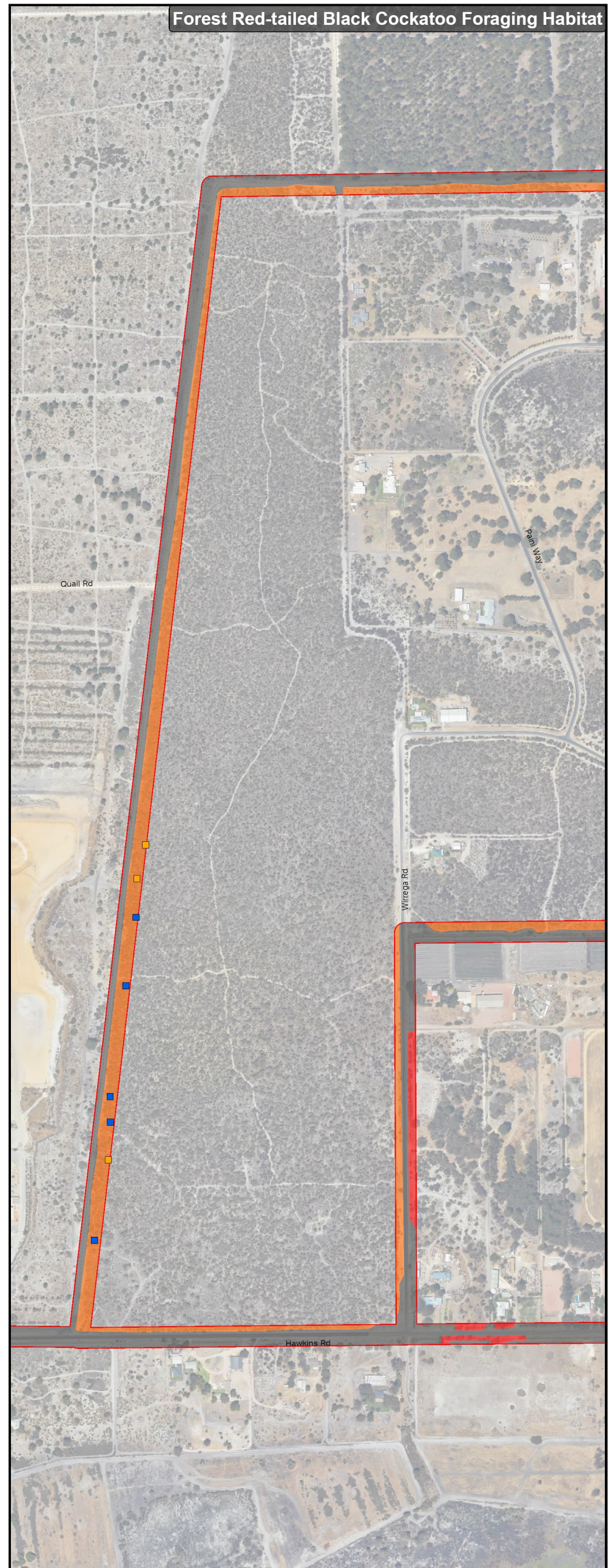
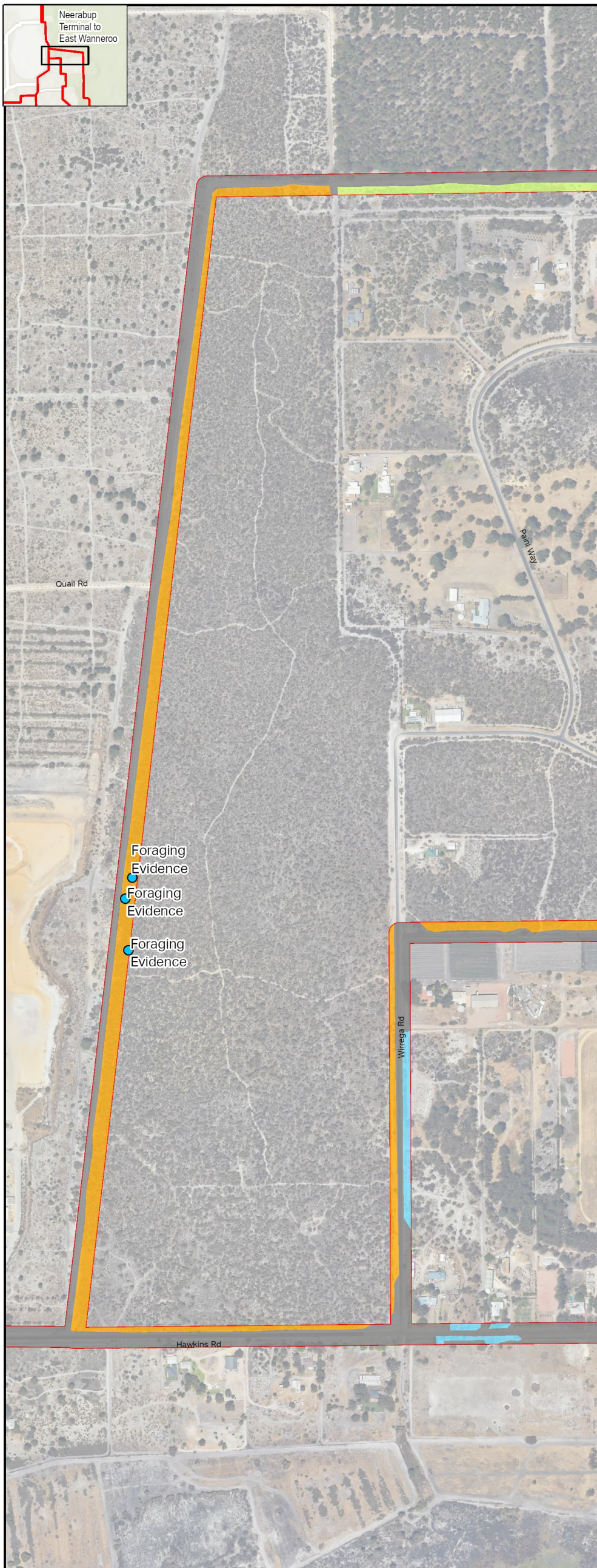
**Neerabup Terminal to East Wanneroo**

**WESTERN POWER**

**CLEAN ENERGY LINK SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **9.9**

A4 size



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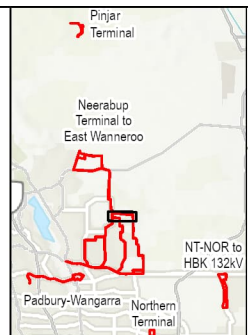
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1:7,500  
 (when printed at A4)

0 50 100 150 200 metres  
 GDA2020 MGA ZONE 50

**LEGEND**

- Survey Area
- Fauna Habitat
  - Adenanthos/Plantation
  - Banksia Woodland
  - Trees Over Cleared
  - Cleared
- Significant Fauna
  - Quenda
- Forest Red-tailed Black Cockatoo Foraging Habitat Quality (Bamford, 2020)
  - None
  - Negligible
  - Low
- Black Cockatoo Breeding Habitat
  - Jarrah (*Eucalyptus marginata*)
  - Coastal Blackbutt (*Euc. todtiana*)



**Significant Fauna and Fauna Habitat, including *Calyptorhynchus* sp. foraging Neerabup Terminal to East Wanneroo**

**WESTERN POWER**

**CLEAN ENERGY LINK SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **9.10**



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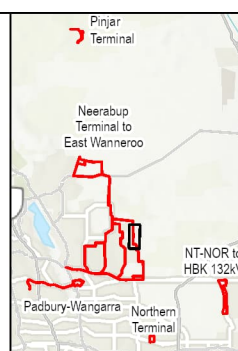
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1:7,500  
 (When printed at A4)

0 50 100 150 200 metres  
 GDA2020 MGA ZONE 50

**LEGEND**

- Survey Area
- Fauna Habitat
- Adenanthos/Plantation
- Cleared
- Forest Red-tailed Black Cockatoo Foraging Habitat Quality (Bamford, 2020)
  - None
  - Low
- Black Cockatoo Breeding Habitat
  - Jarrah (*Eucalyptus marginata*)

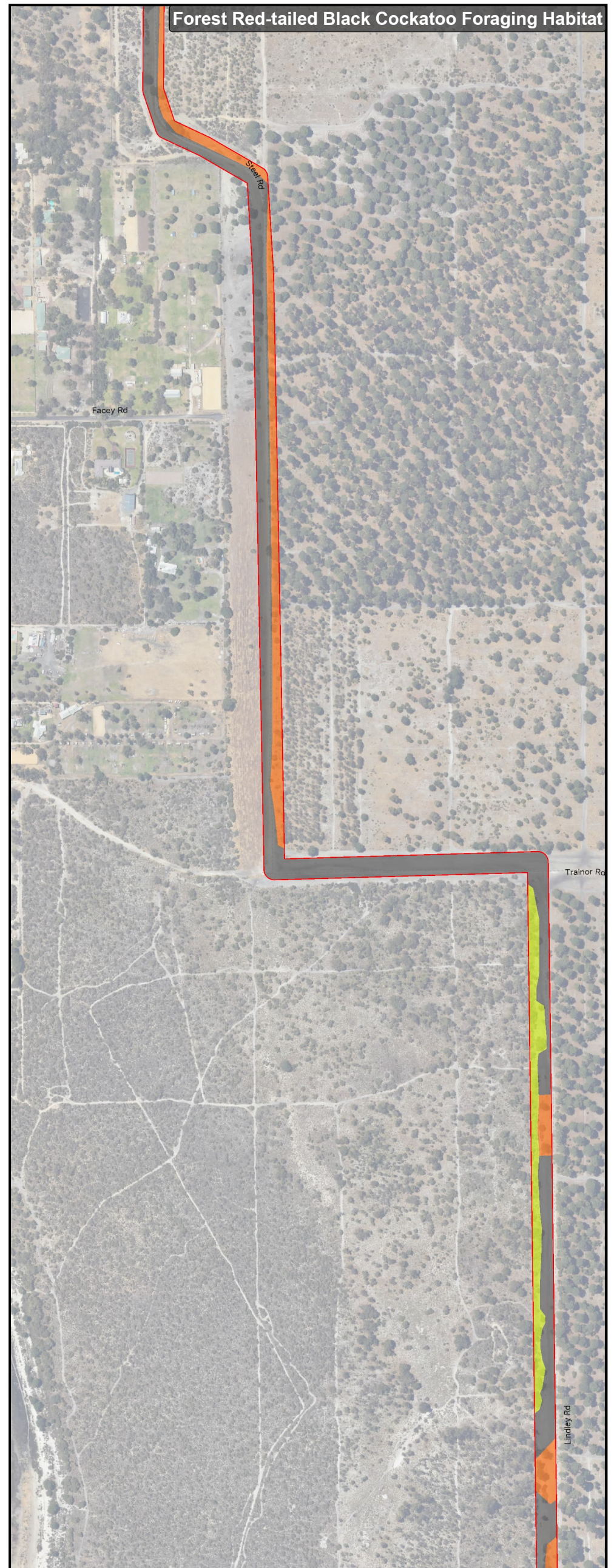


**Significant Fauna and Fauna Habitat, including *Calyptorhynchus* sp. foraging Neerabup Terminal to East Wanneroo**

**WESTERN POWER**

**CLEAN ENERGY LINK SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **9.11**



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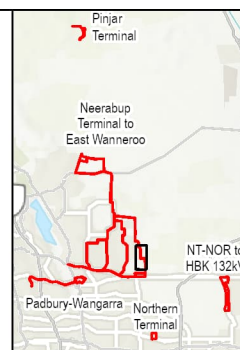
0 50 100 150 200 metres  
 GDA2020 MGA ZONE 50

**LEGEND**

- Survey Area
- Fauna Habitat
- Adenanthos/Plantation
- Eucalyptus Woodland
- Cleared
- Fauna Habitat Sample Sites

Forest Red-tailed Black Cockatoo Foraging Habitat Quality (Bamford, 2020)

- None
- Low
- Moderate

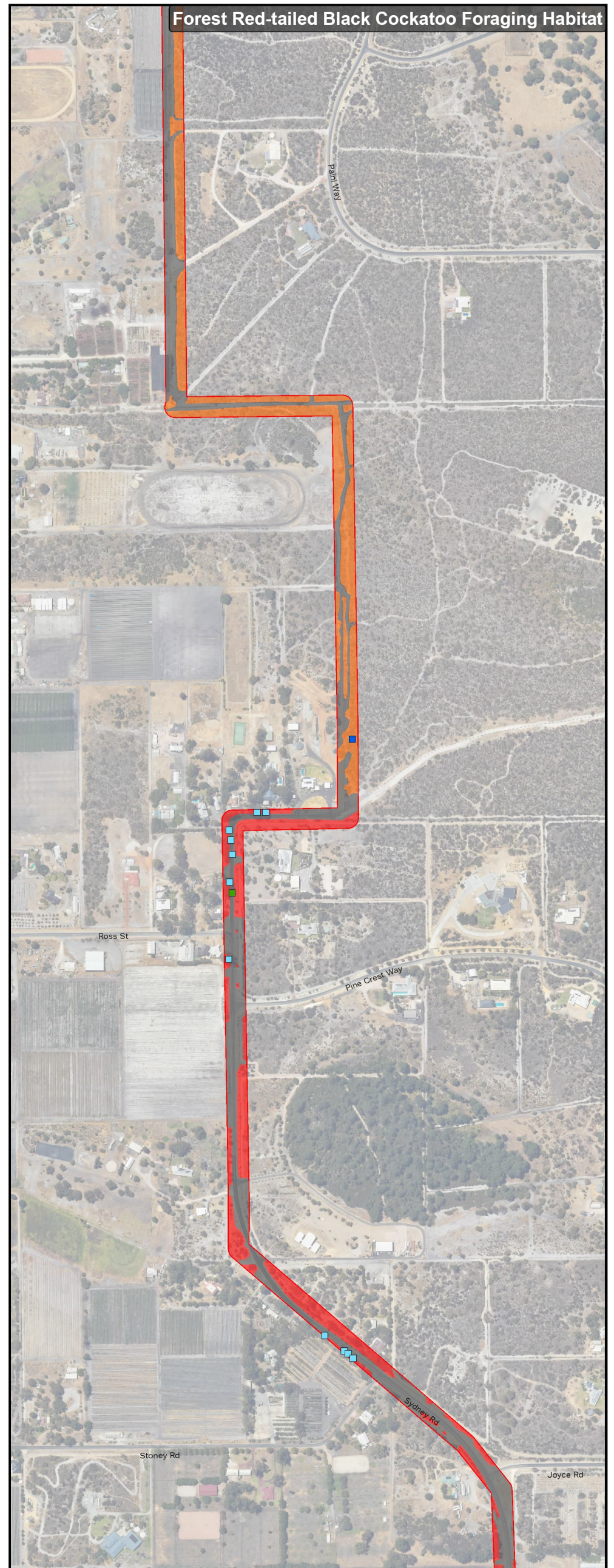
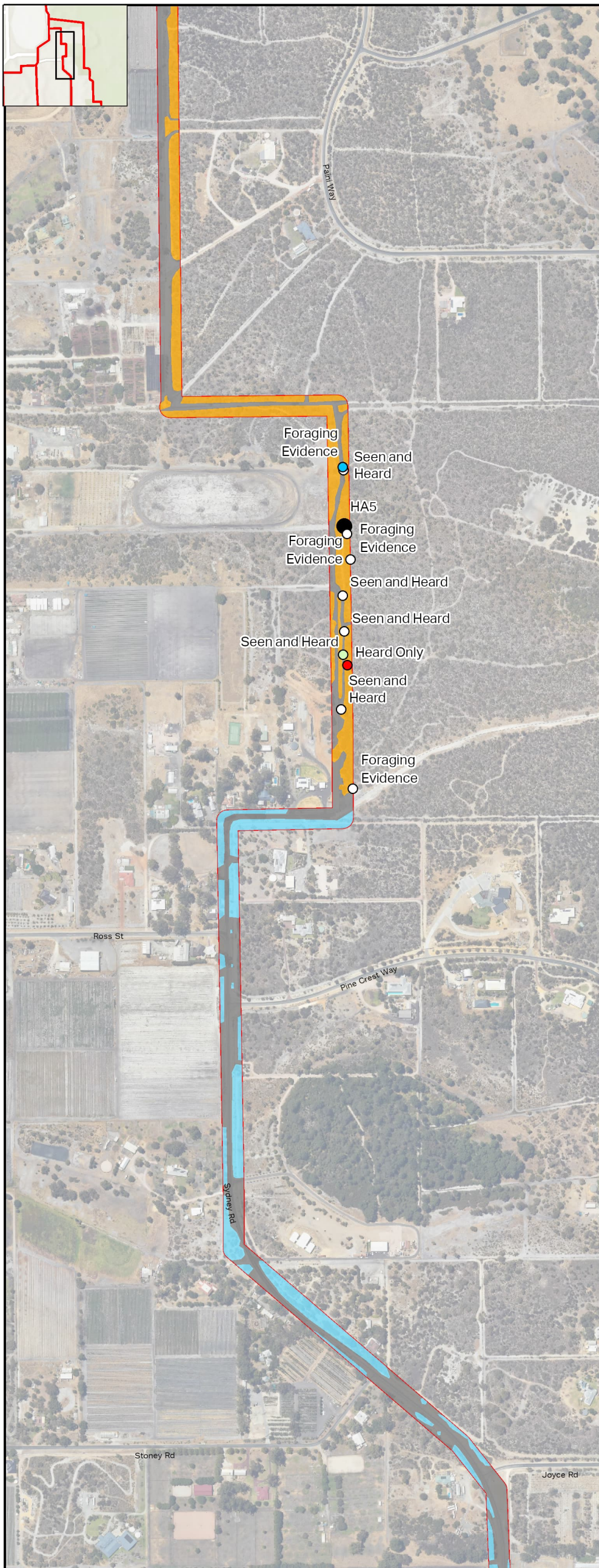


**Significant Fauna and Fauna Habitat, including *Calyptorhynchus* sp. foraging Neerabup Terminal to East Wanneroo**

**WESTERN POWER**

**CLEAN ENERGY LINK SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **9.12**



**AECOM** Delivering a better world

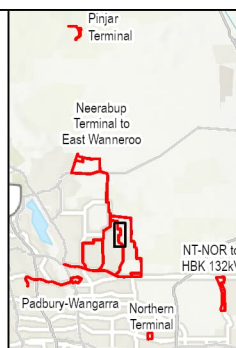
PROJECT ID 60713462 CREATED BY ROB.MCGREGOR  
 DATE MODIFIED 20 JUN 2024 APPROVED BY F. DE WIT

1:7,500  
 (When printed at A4)

0 50 100 150 200 metres  
 GDA2020 MGA ZONE 50

**LEGEND**

- Survey Area
- Fauna Habitat
- Banksia Woodland
- Trees Over Cleared
- Cleared
- Fauna Habitat Sample Sites
- Significant Fauna
- Black-faced Cuckooshrike
- Carnaby's Cockatoo
- Forest Red-tailed Black Cockatoo
- Quenda
- Forest Red-tailed Black Cockatoo Foraging Habitat Quality (Bamford, 2020)
- None
- Negligible
- Low
- Black Cockatoo Breeding Habitat
- Tuart (*Eucalyptus gomphocephala*)
- Coastal Blackbutt (*Euc. totiana*)
- Introduced



**Significant Fauna and Fauna Habitat, including *Calyptorhynchus* sp. foraging**

**Neerabup Terminal to East Wanneroo**

**WESTERN POWER**

**CLEAN ENERGY LINK SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **9.13**



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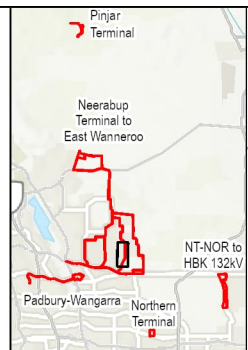
Scale: 1:7,500 (When printed at A4)  
 GDA2020 MGA ZONE 50

**LEGEND**

- Survey Area
- Fauna Habitat
- Mixed Shrubland
- Trees Over Cleared
- Cleared

Forest Red-tailed Black Cockatoo Foraging Habitat Quality (Bamford, 2020)

- None
- Negligible
- Black Cockatoo Breeding Habitat
- Introduced



**Significant Fauna and Fauna Habitat, including *Calyptorhynchus* sp. foraging**

**Neerabup Terminal to East Wanneroo**

**WESTERN POWER**

**CLEAN ENERGY LINK SWAN COASTAL PLAIN FLORA, VEGETATION AND FAUNA ASSESSMENT**

Figure **9.14**