



Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 11227/1
Permit type:	Purpose permit
Applicant name:	Electricity Networks Corporation (Western Power)
Application received:	13 August 2025
Application area:	Two (2) hectares of native vegetation
Purpose of clearing:	Construction of a new double circuit 132kV transmission line (12km) connecting the Eneabba Zone Substation to the Eneabba Terminal
Method of clearing:	Mechanical clearing - Excavator Underground drilling – Drill (Eneabba substation end)
Property:	Beros Road Reserve (PIN 1288448), Coorow Lot 11214 on Deposited Plan P182243, Coorow Lot 10834 on Deposited Plan P210788, Coorow Lot 502 on Deposited Plan P400357, Coorow Lot 501 on Deposited Plan P400357, Carnamah and Coorow Lot 11315 on Deposited Plan P240117, Carnamah and Coorow Lot 10831 on Deposited Plan P210805, Carnamah and Coorow Lot 12479 on Deposited Plan P026727, Carnamah Lot 10847 on Deposited Plan P210798, Carnamah Lot 30 on Deposited Plan P065745, Carnamah Lot 31 on Deposited Plan P065745, Carnamah Rose Thomson Road (PIN 12529648), Coorow Lot 11314 On Deposited Plan 240117, Crown Reserve R 35499, Carnamah
Location (LGA area/s):	Shire of Carnamah and Shire of Coorow
Localities (suburb/s):	Warradarge and Eneabba

1.2. Description of clearing activities

The application is to clear two (2) hectares of native vegetation for the proposed transmission line between Eneabba Zone Substation to the Eneabba Terminal. The area proposed to be cleared is a 4-meter wide track for light vehicle access. Clearing activities will predominantly impact on five distinct vegetation patches that run parallel to the existing 330kV transmission line.

This project is to support the transmission of energy for the Clean Energy Link (CEL) North program which transmits energy produced in wind and solar farms in the Mid-West/Gascoyne region.

1.3. Decision on application

Decision:	Granted
Decision date:	10 March 2026
Decision area:	Two (2) hectares of native vegetation, as depicted in Section 1.5, below.

1.4. Reasons for decision

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

In making this decision, the Delegated Officer had regard for:

- the site characteristics (see Appendix A)
- relevant datasets (see Appendix F.1)
- the applicant's mitigation actions, including co-locating the new transmission line along the existing 330kV transmission line to avoid and minimise native vegetation clearing (see Section 3.1)
- the findings of a flora, fauna survey and targeted surveys for Carnaby's cockatoo (AECOM, 2024) (see Appendix E)
- the findings of the DWER's environmental impact assessment of the proposed clearing (see Section 3.2)
- advice from the Department of Biodiversity, Conservation and Attractions (DBCA) on impacts of the proposed clearing on biodiversity values and adequate mitigation measures (DBCA, 2025)
- the clearing principles set out in Schedule 5 of the EP Act (see Appendix B)
- relevant planning instruments and any other matters relevant to the assessment (see Section 2); and
- the environmental offset developed by the applicant to counterbalance the significant residual impacts (SRIs) of the proposed clearing (See Appendix D).

The Delegated Officer also took into consideration that the objective of the proposal is to support an increase in the supply of renewable energy in Western Australia and is aligned with the State's objective to develop a cleaner, more diverse, and affordable electricity network.

The assessment identified that the proposed clearing will result in:

- the loss of two ha of significant foraging habitat for Carnaby's cockatoo (*Zanda latirostris*)
- impacts on priority flora;
- the potential impact in the South Eneabba Nature Reserve; and
- the potential spread of weed and dieback into adjacent native vegetation.

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

However, the Delegated Officer determined that the proposed clearing will impact on two ha of significant Carnaby's cockatoo foraging habitat being situated within a six-kilometre radius of a roosting site which is considered a SRI.

To address the above SRI and applying the State Offset Metric, the following offset is required:

- acquisition and conservation in perpetuity of 8.86 hectares of remanent vegetation containing high quality Carnaby's cockatoo foraging habitat at Lot 2 on Plan 65522, Eganu. The property has been banked for Western Power projects that affect environmental values similar to those found on the site, and it is managed by DBCA for conservation purposes. The offset reduces the extent of banked offset from 503 ha to 494.14 ha.

Having considered the environmental impacts outlined above, the applicant's implementation of the mitigation hierarchy and planning and other matters, the Delegated Officer determined that it was appropriate to grant the clearing permit subject to an adequate environmental offset being provided by the proponent, consistent with the WA *Environmental Offsets Policy (2011)* and the WA *Environmental Offsets Guidelines (2014)*, to counterbalance the SRI of the proposed clearing on Carnaby's cockatoo (see Section 4).

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

- minimise to reduce the impacts and extent of clearing
- take hygiene steps to minimise the risk of the introduction and spread of weeds
- flora management, including reporting on measures taken to minimise direct and indirect impacts on priority flora
- directional clearing
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity; and
- conserve and protect in perpetuity 8.86 ha of significant remnant vegetation which provides high-quality foraging habitat for Carnaby's cockatoo.

1.5. Site map

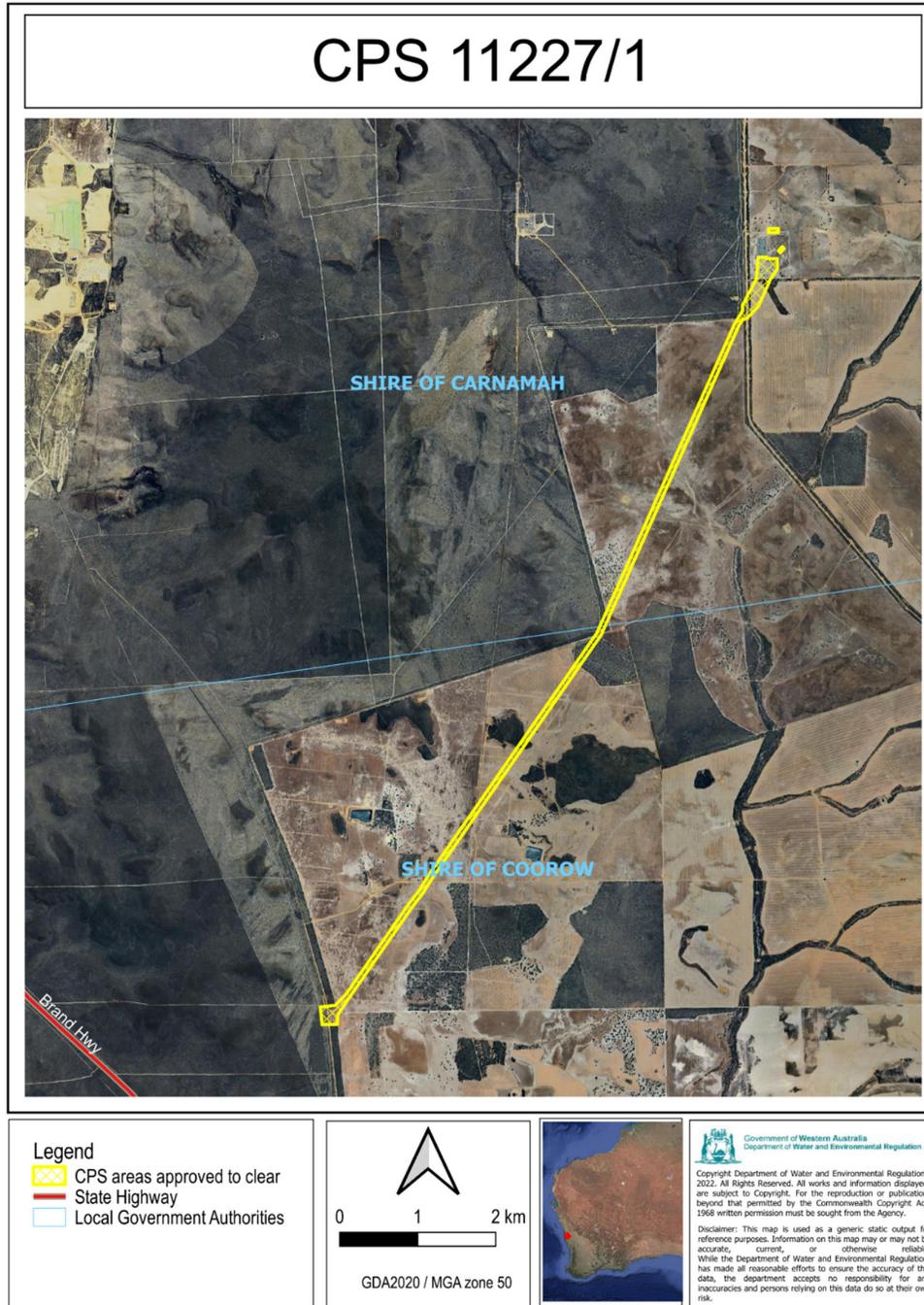


Figure 1: Map of the application area. The area crosshatched yellow indicate the area authorised to be cleared under the granted clearing permit.

2 Legislative context

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

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

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

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Rights in Water and Irrigation Act 1914* (RIWI Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Soil and Land Conservation Act 1945* (WA)
- *Aboriginal Heritage Act 1972*
- *Environmental Offsets Policy* (2011)

The key guidance documents which inform this assessment are:

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

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

Evidence was submitted by the applicant, demonstrating mitigation measures to avoid and minimise potential impacts of the proposed clearing on environmental values. These measures include:

- Directional drilling of underground cables instead of open trenching where possible
- Co-locating the new transmission line with the existing 330kV transmission line, thereby utilising existing Western Power easements, access tracks and infrastructure where possible
- Making use of existing farm tracks and previously established access routes to the existing Zone Substation, Terminal and transmission corridor wherever feasible
- Revising the initial design near the Eneabba Zone substation to eliminate the need for clearing within and nearby the adjacent South Eneabba nature reserve
- Avoiding mapped black cockatoo habitat trees within the Development Envelope wherever possible
- Avoiding Priority flora species wherever possible
- No clearing for most of the construction corridor as much of the area is cleared paddocks
- A Dieback survey has recently been completed. An associated Hygiene Management Plan will be prepared with conditions adhered to throughout the construction activities, in order to prevent the spread of *Phytophthora cinnamomi* and weeds within the development envelope and surrounding areas
- Utilising previously cleared areas where possible – but the applicant is not specific in which areas this will be applied; and
- Placing assets outside of sensitive areas and aerial stringing conductors over vegetation where feasible, reducing the need for ground-based machinery and clearing of four metre wide light vehicle tracks.

3.2. Assessment of impacts on environmental values

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

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

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

3.2.1. Biological values – Biodiversity, and flora - Clearing Principles (a) and (c)

Assessment

Clearing

The clearing of two hectares is proposed to occur within an 83.6 ha development envelope which represents a 60-meter-wide corridor. The larger corridor has been developed to provide flexibility during the construction and predominantly consists of farmland and previously disturbed agricultural land. The applicant will implement aerial stringing where possible to avoid the need for clearing. Where stringing is not possible, a four-metre-wide track will be cleared for light vehicle access.

Flora

A biodiversity surveys (AECOM, 2024) conducted over a larger area encompassing the application area did not identify any Threatened species under the BC Act or EPBC Act but identified 11 Priority flora species. Of this, a total of 10 species were identified within the application area.

- 1) *Cristonia biloba* subsp. *pubescens* has been identified in six separate populations. The northernmost occurrence is situated 12 km north-west of the application area, while the southernmost record is located 76 km to the south-east (WA Herbarium, 1998-). The westernmost record is 20 km west of the application area, with the nearest population recorded at a distance of 0.5 km. A review of the DWER's [Index of Biodiversity Surveys for Assessments](#) identified further 16 populations of *C. biloba* with a total number of 215 individuals in the close proximity of the application area. AECOM (2024) identified three individuals of this species within the application area which may be impacted by the proposed clearing.
- 2) *Hemiandra* sp. *Eneabba* (H. Demarz 3687) - is known from 35 populations with the know northernmost record is 67 km north-west of the application area. The westernmost record is 62 km north-west of the application area. The easternmost record 42 km north-east. The southernmost record is 7 km south and the closest record is 0.5 km from the application area, and there are six records within 10 km radius of the application. DBCA (2025) advised that this species has previously been recorded multiple times in the vegetation adjacent to the application. AECOM (2024) identified four individuals of *H. sp. Eneabba* within the application area. According to Western Power (2026a), it is expected that the planned mitigation measures will prevent impact on every individual identified.
- 3) *Grevillea uniformis* - is known from 26 populations with the know northernmost record 26 km north-west of the application area. The westernmost and southernmost record is 53 km south-west of the application area. The easternmost record is 33 km north-east. The closest record is 0.02 km from the application area, and there are two records within 10 km radius of the application. AECOM (2024) identified a total 34 *G. uniformis* individuals within the application area. The planned mitigation measures are expected to avoid impact on every individual identified (Western Power, 2026a).
- 4) *Banksia chamaephyton* has been documented in 59 distinct populations. The northernmost occurrence is located 23 km northeast of the application area, while the southernmost record is found 150 km southwest. The westernmost population lies 25 km southwest of the application area, and the easternmost is situated 91 km from the application area. The nearest known population is two km away, and eight records are within a 10 km radius of the application area. AECOM (2024) identified a total of 10 individuals of *B. chamaephyton* individuals within the application area. The planned mitigation measures are expected to avoid impact on every individual identified (Western Power, 2026a).
- 5) *Allocasuarina ramosissima* is known from the total of 40 populations with the known northernmost record eight km northeast, the southernmost 150 km southwest, the westernmost five km northwest, and the easternmost 75 km from the application area. The closest population of *A. ramosissima* occurs 0.2 km west of the application area and there are four records of this species within a 10km radius of the application area. AECOM (2024) identified a total of eight *A. ramosissima* individuals within the application area, of which six individuals may be impacted by the clearing (Western Power 2026a).
- 6) *Banksia cypholoba* - is known from 45 populations with the know northernmost record 51 km north-east of the application area. The southernmost record is 47 km south-east. The westernmost record is 44 km south-west of the application area. The easternmost record 12 km east. The closest record is 7.5 km from the application area, and there are two records within 10 km radius of the application area. AECOM (2024) identified a total of 13 individuals of *B. cypholoba* within the application area, of which, the proposed clearing may impact up to two individuals (Western Power 2026a).
- 7) *Banksia fraseri* var. *crebra* has been recorded in 17 locations, with the northernmost occurrence located 79 km northwest of the application area. The southernmost known point is 95 km to the south, while the westernmost record lies 34 km southwest, and the easternmost is 58 km southeast of the application area. The nearest recorded location is 0.03 km to the west, and three separate records fall within a 10 km radius.

According to AECOM (2024), there are 30 *B. fraseri var. crebra* individuals within the application area, and clearing activities could affect up to 17 of them (Western Power 2026a).

- 8) *Lepidobolus quadratus* is known from 47 populations, with the northernmost occurrence located 26 km northwest of the application area. The easternmost record lies 48 km southeast, while the southernmost and westernmost records are 96 km southwest and 36 km southwest, respectively. Additionally, a separate southern record is situated just 7 km south. The nearest known population is only 4 km from the application area, and there are 12 records within a 10 km radius (WA Herbarium, 1998-). According to AECOM (2024), 18 *L. quadratus* individuals were identified, with up to seven potentially affected by the proposed clearing.
- 9) *Stylidium drummondianum* has been documented in 37 distinct populations, with the northernmost occurrence located 175 km northwest of the application area. The southernmost record lies within the application area, while another southern record outside the area is found 11 km northeast. The westernmost record is situated 52 km northwest, and the easternmost occurrence is 15 km east. The closest population, at a distance of 3.5 km, is the only one within a 10 km radius of the application site, consisting of 150 individuals. AECOM (2024) reported 61 individuals of *L. quadratus* within the application area, of which the proposed clearing may affect up to 33 specimens (Western Power 2026a). Given the distribution of this species across the Shires of Carnamah, Irwin, Northampton, and Three Springs, the proposed clearing is not expected to impact *S. drummondianum* at the species level (DBCA, 2025).
- 10) *Hakea longiflora* - is known from 18 populations with the know northernmost record is within the application area and outside the application area is 10 km south-east of the application area. The westernmost record is 84 km south-west of the application area. The easternmost record 24 km south-east. The southernmost record is 89 km south-west. The closest record is 0.04 km from the application area, and there are two records within 10 km radius of the application. AECOM (2024) identified a total of 14 individuals of *H. longiflora* within the application area. To minimise the impacts on the local populations of *H. longiflora* and consistent with DBCA (2025) advice, Western Power advised that only up to 12 individuals may be impacted by the proposed clearing (Western Power 2026a). This will ensure that the local sub-populations will not be lost.

A summary of the impacts on Priority flora together with the proposed mitigation measures is detailed in Table 1.

Table 1: Priority species potentially impacted within the application area and mitigation measures

Area/Location	Species impacted	Mitigation
Eneabba substation	<i>Banksia chamaephyton</i> , <i>Grevillea uniformis</i> , <i>Hemiandra sp. Eneabba</i> (H. Demarz 3687), <i>Lepidobolus quadratus</i> , <i>Phlebocarya pilosissima subsp. pilosissima</i>	Clearing limited to the extent necessary for vehicle access. Underground drilling proposed at Eneabba substation area.
Vegetation patch 2 km northeast of substation	<i>Allocasuarina ramosissima</i> and <i>Cristonia biloba subsp. Pubescens</i>	Aerial installation of new conductors (where feasible). The proposed vehicle access track largely avoids most of the individuals present at this location.
Vegetation patch 4 km northeast of substation	<i>Stylidium drummondianum</i> , <i>Banksia cypholoba</i> , <i>Allocasuarina ramosissima</i> , <i>Cristonia biloba subsp. pubescens</i> and <i>Lepidobolus quadratus</i> .	Aerial installation of new conductors (where feasible). Total size of vegetation patch is 0.80 ha, of which up to 0.05 ha may be cleared for the placement of the vehicle access track.
Vegetation patch 6 km northeast of substation	<i>Banksia cypholoba</i> , <i>Hakea longiflora</i> and <i>Lepidobolus quadratus</i>	Aerial installation of new conductors (where feasible). The proposed vehicle track largely avoids most of the individuals present at this location.
Vegetation patch 500 m southwest of Eneabba Terminal	<i>Banksia fraseri var. crebra</i> and <i>Lepidobolus quadratus</i>	The proposed vehicle track largely avoids most of the individuals present at this location.

Considering the:

- implemented mitigation measures
- distribution of established populations
- scope and linear configuration of the application area
- the presence of South Eneabba Nature Reserve located adjacent to the application area which offers comparable habitat in superior condition and is known to include records of the species mentioned above, often in high numbers; and
- scientific advice from DBCA (2025);

the proposed clearing will unlikely have significant impacts on the above Priority flora that would affect their conservation status.

In addition to the species identified in the application and survey area (AECOM, 2025), DWER noted that the application area may provide habitat also for the following orchid species:

- 1) *Paracaleana dixonii* is known from 21 populations; its closest population is four km from the application area, with 12 records within 10 km (11-25 individuals each). The species' known range extends up to 60 km north, 21 km south-west, 15 km north-east, and 123 km south.
- 2) *Thelymitra stellata* occurs in 19 populations. The nearest record is 2.5 km away, with 4 within a 10 km radius (20-56 individuals each). Its range spans 60 km north, 29 km south-west, and 416 km south-east.
- 3) *Thelymitra apiculata* is found in 18 locations, with the closest 7 km from the application area and 3 records within 10 km (6-10 individuals per record). It ranges 25 km north-east, 30 km south-west, and 135 km south-west.
- 4) *Thelymitra pulcherrima* has 10 populations. The closest is 11 km away, with none within 10 km. Its distribution includes 20 km north-west, 22 km south-west, 49 km south-east, and 79 km south of the application area.

DBCAs (2025) advised that given the linear nature of the proposed clearing, even if these species were found to occur, plants are unlikely to be present in high numbers and impacts are unlikely to be significant to the conservation of the species.

Conclusion

The proposed clearing will impact priority flora. Noting the linear nature of the proposed clearing along the existing transmission line and known distribution of the impacted species, the impacts will unlikely be significant at the species level.

Conditions

The following conditions were imposed on the clearing permit to mitigate the impacts of the proposed clearing:

- Avoid, minimise and reduce impacts and extent of clearing
- Weed and dieback management
- Demarcate all priority flora that will not be cleared within the application area
- To limit the number of individuals of priority flora to be cleared; and
- Report on measures mitigating direct and indirect impacts of the clearing.

3.2.2. Biological values – Fauna - Clearing Principles (b)

The survey (AECOM, 2024) identified 104.78 ha fauna habitat occurring within the survey area as presented in Table 3.

Table 2: Fauna habitats identified within the application area AECOM (2024)

Code	Habitat type	Application area (hectares)
H	Heath	14.96 ha, 13%
MH	Mallee Heathland	1.67 ha, 1%
A	Agriculture	88.15 ha, 76%

Based on the fauna habitat identified, the application area was considered to provide suitable habitat for the fauna species detailed in Table 4 (AECOM, 2024). Targeted survey of the application area did not identify any conservation significant fauna species.

Table 3: Conservation significant fauna likely to occur within the application area AECOM (2024)

Common name	Scientific name	Status	Primary fauna habitat utilised
Carnaby's Cockatoo	<i>Zanda latirostris</i>	EN	H and MH
Graceful Sun Moth	<i>Synemon gratiosa</i>	P4	H and MH
Woolybush Bee	<i>Hylaeus globuliferus</i>	P3	H and MH
Thorny Bush Katydid	<i>Hemisaga vepreculae</i>	VU	H and MH

Carnaby's Cockatoo

The Black Cockatoo Habitat Assessment conducted by AECOM (2024) did not identify any direct evidence of occupancy by Carnaby's Cockatoo. A total of 33 potential nesting trees with no hollows were identified within the application area. This comprised of 25 *Eucalyptus tottiana* trees and eight introduced Eucalyptus trees (AECOM 2024). Up to five potential nesting trees, *E. tottiana* (2) and other unknown Eucalyptus sp. (3), may be impacted by

the proposed clearing (Western Power, 2026). Given the absence of hollows suitable for breeding, the proposed clearing will not impact Carnaby's cockatoo breeding.

The application area contains two hectares of proteaceous and myrtaceous foraging species for Carnaby's cockatoo with 20-40% cover (AECOM 2024). Based on the available datasets, there is one Carnaby's cockatoo roosting site within six km from the application area and three within 12 km. The proposed clearing will therefore impact Carnaby's cockatoo foraging habitat which is considered significant.

Graceful Sun Moth - The presence of this moth is likely to occur in the application area as their host *Lomandra* sp. was present. This moth species utilises *Lomandra* sp. to lay their eggs, habiting coastal and Banksia woodland (DEC, 2012).

Thorny Bush Katydid - There is limited information regarding the habitat occupancy preference for this species, there are three known locations (within 50 km radius from the application area) for this species including Jurien Bay, Green Head and Northwest of Eneabba.

Woolybush Bee - There is limited information regarding the habitat occupancy preference for this species, but there are several known locations (within 50 km radius from the application area) for this species.

The application area provides suitable habitat for the above species. However, given their high mobility, known extent of distribution and the linear extent of the proposed clearing scattered across a larger footprint, the application area does not provide significant habitat for these species.

Conclusion

The application area provides significant foraging habitat for Carnaby's cockatoo. Noting the known distributions and linear extent of the proposed clearing, the application area does not provide significant habitat for other conservation significant fauna.

Conditions

- Weed and dieback management
- Directional clearing
- Offset to compensate the loss of Carnaby's Cockatoo foraging habitat
- Avoid, minimise, and reduce impacts and extent of clearing

3.2.3. Environmental value: conservation areas – principles (h)

As depicted in Figure 3, the southern boundary of the application area adjoins South Eneabba Nature Reserve and also intersects with C-class Reserve 35499. Consequently, the proposed clearing could affect the ecological values of these reserves by facilitating the potential spread of weeds and dieback, should these risks not be properly mitigated. To address this concern and reduce fragmentation of vegetation within the reserves, the applicant will assess the feasibility of aerial stringing and underground drilling prior to initiating any clearing activities. If these alternatives are not viable, a four-metre-wide track will be created solely for light vehicle access. In accordance with the conditions set out in the clearing permit, the applicant is required to implement stringent weed and dieback management protocols throughout the clearing process. These measures are intended to ensure that the proposed clearing does not result in significant adverse impacts on the environmental values of adjacent or nearby conservation areas.



Figure 2: Application area intersecting conservation areas

As shown in Figure 4, both the southern and northern boundaries of the application area meet roadside conservation zones. Since the clearing is restricted to creating a 4-metre path for light access vehicles, and given these roadside conservation areas border larger patches of vegetation, the proposed clearing is unlikely to reduce fauna movement across the landscape.

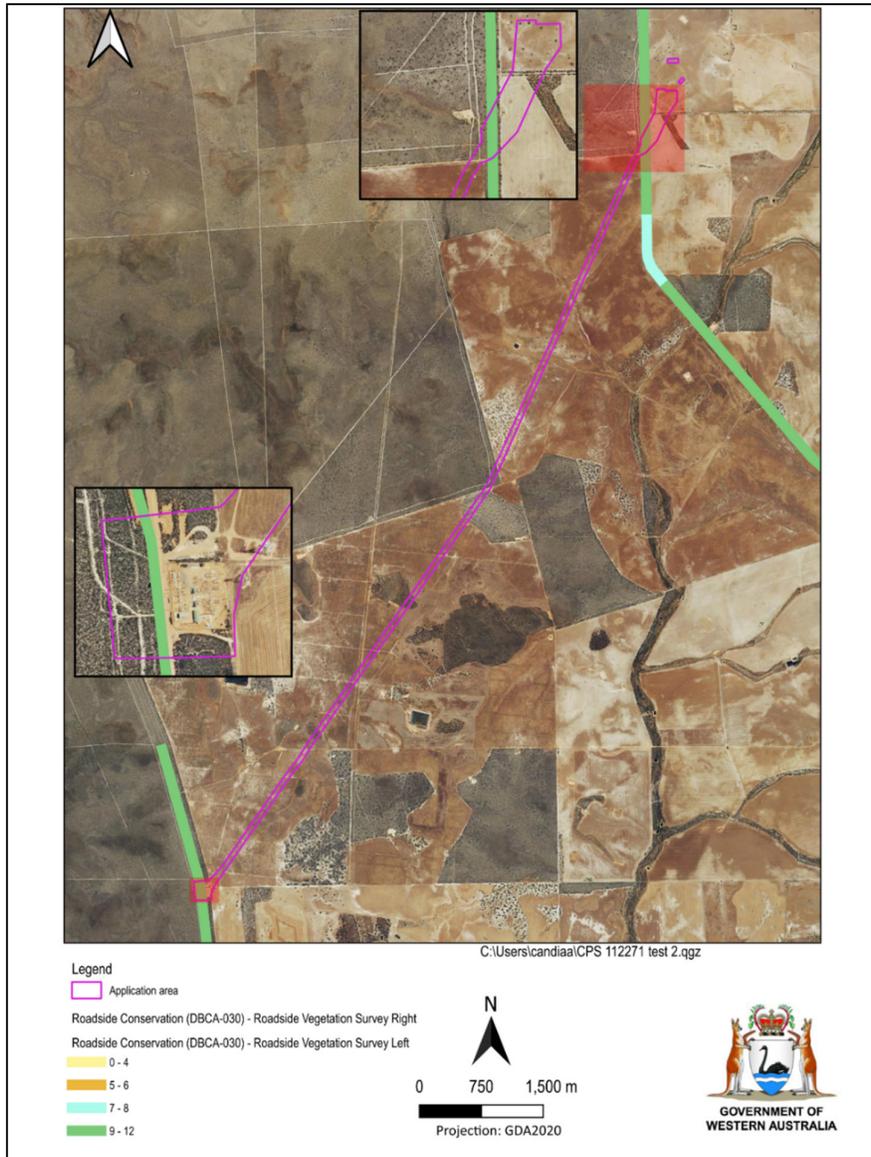


Figure 3: Roadside conservation within the application area

Conclusion

The proposed clearing may affect the values of adjacent conservation areas. However, due to the extent and configuration of the clearing, any potential impacts can be effectively managed through the weed and dieback management conditions included in the clearing permit.

Conditions

- Weed and dieback management

4 Suitability of offsets

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

- loss of two ha of significant foraging habitat for Carnaby's cockatoo.

The environmental offset is to comprise of the conservation of 8.86 ha of remanent vegetation containing high-quality Carnaby's cockatoo foraging habitat, within Lot 2 on Plan 65522, Eganu, which is currently managed by DBCA's Moora District for conservation purposes. The Lot is situated approximately 20 km east of the application area. The area to be conserved contains the following values:

- The entire site (100%) comprises of remnant vegetation
- native vegetation mapped as shrublands, mixed heath and Shrublands; scrub-heath on lateritic sandplain in the central
- 789 ha of Geraldton Sandplain Region (vegetation association 379), of which less than 30 per cent remain in the Geraldton Sandplains IBRA bioregion
- High-quality Carnaby's cockatoo foraging habitat
- Potential presence of Banksia Woodlands

In relation to the regional context:

- The site lies within the known distribution of the Carnaby's Cockatoo species. There are seven Carnaby's Cockatoo records within a 15km radius of the site.
- There are no known roosting sites for Carnaby's Cockatoo within a 15km radius of the site. The nearest Cockatoo roost site is 20km southwest of the site.
- There are no known breeding sites for Carnaby's Cockatoo within a 15km radius of the site. The closest Black Cockatoo breeding site is 21km southwest of the site.
- Within a 10km radius there are 11 Threatened flora three species and 32 Priority flora species.

In assessing whether the proposed offset is adequately proportionate to the significance of the environmental values impacted, DWER undertook a calculation using the Western Australia environmental offset metric. The calculator indicated the above offset strategy will adequately address the SRI of the proposed clearing and is consistent with the WA Environmental Offsets Policy. The justification for the values used in the offset calculation is provided in Appendix E.

End

Appendix A. Site characteristics

A.1. Site characteristics

Characteristic	Details
Local context	<p>The application area is part of a three patches of native vegetation in an area of the intensive land use zone of Western Australia. It is located within a Remnant Vegetation Protection Scheme (CC) and crosses landscape dominated by farmland and areas or remanent vegetation.</p> <p>Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 46.1 per cent of the original native vegetation cover.</p>
Ecological linkage	<p>There are mapped ecological linkages within the application area and the combined local area. They are <i>Roadside conservation areas</i> are within the application area, at the beginning (west side) and end of the application area (east area).</p>
Conservation areas	<p>DBCA – Legislated Lands and Waters - South Eneabba Nature Reserve (ref: GIS layer, LGATE 227) is mapped adjacent to the southern end of the application area.</p>
Vegetation description	<p>The flora and vegetation surveys of AECOM (2024) indicates that the vegetation within the proposed clearing area consists of the following vegetation communities:</p> <ul style="list-style-type: none"> • Mallee woodland, consisting of <i>Eucalyptus drummondii</i> and <i>Eucalyptus pleurocarpa</i> mid to low open mallee woodland, over <i>Banksia sphaerocarpa</i>, <i>Banksia tridentata</i>, <i>Hakea auriculata</i> low heathland, over <i>Morelotia octandra</i>, <i>Amphipogon amphipogonoides</i> and <i>Glischrocaryon aureum</i> mid to low mixed sparse forbland. • Two Mixed Kwongan Heaths; one on laterite and one on sand: <ol style="list-style-type: none"> a) LmAn - Mixed Kwongan Heathland: <i>Lambertia multiflora</i>, <i>Calothamnus hirsutus</i> and <i>Hibbertia hypericoides</i> subsp. <i>septentrionalis</i> tall to low closed heathland over <i>Alexgeorgea nitens</i>, <i>Caustis dioica</i> and <i>Mesomelaena pseudostygia</i> tall to low sedgeland. Emergent isolated patches of <i>Banksia attenuata</i>, <i>Eucalyptus tottiana</i> and <i>Nuytsia floribunda</i> trees present. Overstorey dominance varies and can be so sparse that these species were occasionally absent from quadrats. Recorded on sandy soils. b) BsMp - Mixed Kwongan Heathland <i>Banksia shuttleworthiana</i>, <i>Hibbertia hypericoides</i> subsp. <i>septentrionalis</i> and <i>Calothamnus hirsutus</i> low closed heathland over <i>Mesomelaena pseudostygia</i>, <i>Desmocladius virgatus</i> and <i>Amphipogon amphipogonoides</i> tall to low open forbland. Recorded on lateritic soils. Community represents small proportion of survey area (1.75%). • Trees: remnant native trees over paddock weeds • Paddock largely comprised of common pasture weeds. • Planted vegetation including introduced Eucalyptus trees and agricultural trees. <p>Representative photos and maps are available in Appendix E.</p> <p>This is consistent / inconsistent with the mapped vegetation type(s):</p> <ul style="list-style-type: none"> • Beard 2018, which is described as: <ul style="list-style-type: none"> - Tathra (Shepherd et al, 2001) - Low shrubs of mixed composition, which is consistent with the vegetation types described by AECOM Vegetation survey (2024). <p>The mapped vegetation type/s retain approximately 46.1 per cent of the original extent (Government of Western Australia, 2019).</p>
Vegetation condition	<p>AECOM Vegetation survey (2024) indicates the vegetation within the proposed clearing area is in degraded to excellent condition (Keighery, 1994) condition, described as:</p> <ul style="list-style-type: none"> • Mallee woodland (EdBsMo) (1.7 ha) in degraded to excellent condition. • Mixed Kwongan Heathland on sand (LmAn) (1.9 ha) in degraded to excellent condition. • Mixed Kwongan Heathland on laterite (BsMp) (6.9 ha) in degraded to excellent condition. • Trees: remnant native trees over paddock weeds (0.3 ha) in completely degraded condition. • Paddock (60.25 ha) Largely comprised of common pasture weeds • Planted (27.38 ha) Planted vegetation including introduced Eucalyptus trees and agricultural trees <p>The full Keighery (1994) condition rating scale is provided in Appendix C. Representative photos and mapping are available in Appendix E.</p>
Climate and landform	<p>The annual average temperatures for the application area range from 12° to 26°, with a mean annual temperature of 19 degrees Celsius. The average annual rainfall received over the</p>

Characteristic	Details
	application area is 815.7 millimetres (Weather Station Badgingarra Research Stn ID 009037, BOM, 2024).
Soil description	<p>The soil in the application is mapped as:</p> <ul style="list-style-type: none"> Bassendean System – Occurs across a majority of the survey areas, excluding Eneabba, and is described as sand dunes and sandplains with pale deep sand, semi-wet and wet soils, with Banksia-Paperbark woodlands and mixed heathlands Moore River System – Occurs within the Regans survey area and includes wet soil, semi-wet soil, pale and yellow deep sands with woodlands and heaths. Capitella System – Comprises a very small portion in the north-east of the Regans survey area and is described as subdued stripped lateritic plateau, undulating to gently undulating low rises with gently undulating plain including dunes. Includes pale and yellow deep sands, sandy gravels, some duplex; from sandstones plus alluvial and aeolian deposits. Yerramullah System – Intersects Cataby and Eneabba survey areas and includes subdued dissected lateritic plateau, undulating low hills and rises on lateritised weathered sandstone. Comprises pale deep sand, sandy gravels and yellow deep sand, with Banksia woodlands on lower slopes/depressions and heathlands elsewhere. Boothendarra System – Intersects Eneabba survey area and includes subdued stripped lateritic plateau, undulating and gently undulating rises with sandy duplexes, pale deep sand, sandy and loamy gravels and minor clays.
Land degradation risk	<p>The application area land has a:</p> <p>a) low salinity risk, <3% of map unit has a moderate to high salinity risk or is presently saline;</p> <p>b) high to extreme phosphorus export risk in the west side of the area, 30-50% of map unit has a high to extreme phosphorus export risk;</p> <p>c) high subsurface acidification risk or is presently acid, >70% of map unit has a high subsurface acidification risk or is presently acid.</p> <p>d) low water erosion risk, <3% of map unit has a high to extreme water erosion risk</p> <p>e) high to extreme wind erosion risk, 50-70% of map unit has a high to extreme wind erosion risk.</p>
Waterbodies	<p>The desktop assessment and aerial imagery indicated that:</p> <ul style="list-style-type: none"> the proposed clearing area is within the Hill River and tributaries catchment; there are two non-perennial creeks crossing the proposed area; there are two geomorphic wetlands near to the proposed clearing areas, south (palusplain, 2 km away) and north-east (floodplain, 2,2 km away).
Hydrogeography	<p>The proposed application area intersect:</p> <p>a) Hill River and tributary catchment (RIWI Act surface water areas and Irrigation districts)</p> <p>b) Arrowsmith Groundwater area (RIWI Act groundwater areas)</p>
Flora	There are 109 records of conservation significant flora within 10 km of the application area
Ecological communities	There are no mapped threatened or priority ecological communities within 10 km of the application area
Fauna	There are 4 records of conservation significant fauna within 10 km of the application area, the nearest record being within the proposed application area.

A.2. Vegetation extent

Remanent vegetation area:

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion*					
Geraldton Sandplains	3,136,037.83	1,404,424.32	44.78	568,255.10	18.12

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
Beard vegetation associations					
49: Tathra	39,718.26	14,489.68	36.48	3,191.34	8.03
379: Tathra	546,507.25	129,495.80	23.70	28,003.65	5.12
Local area 10 km radius	57,832	26,667	46.1	NA	NA

*Government of Western Australia (2019a)

A.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix F.1), and biological survey information, impacts to the following conservation significant flora required further consideration.

Threatened Flora:

Species name	Conservation status	Suitable habitat features ? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Paracaleana dixonii</i>	CR	Y	Y	Y	4	21	N
<i>Thelymitra stellata</i>	EN	Y	N	Y	2.5	19	N

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority *Threatened species and distance calculated based on Western Australian Herbarium specimen database and Threatened and Priority Flora internal GIS layers.

Priority Flora:

Species name	Conservation status	Suitable habitat features ? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Allocasuarina ramosissima</i>	3	Y	Y	Y	0.2	40	Y
<i>Banksia chamaephyton</i>	4	Y	N	Y	2	59	Y
<i>Banksia cypholoba</i>	3	Y	Y	Y	7.5	45	Y
<i>Banksia fraseri</i> var. <i>crebra</i>	3	Y	N	Y	0.03	17	Y
<i>Cristonia biloba</i> subsp. <i>pubescens</i>	2	Y	N	Y	0.5**	6	Y
<i>Grevillea uniformis</i>	3	Y	N	Y	0.02	26	Y
<i>Hakea longiflora</i>	3	Y	N	Y	0.04	23	Y
<i>Hemiandra</i> sp. <i>Eneabba</i> (H. Demarz 3687)	3	Y	N	Y	0.5	35	Y
<i>Lepidobolus quadratus</i>	3	Y	N	Y	4	47	Y
<i>Paracaleana dixonii</i>	T	Y	Y	Y	4	21	N
<i>Phlebocarya pilosissima</i> subsp. <i>pilosissima</i>	3	Y	N	Y	0.5	30	Y
<i>Stylidium drummondianum</i>	3	Y	N	Y	3.5**	37	Y
<i>Thelymitra apiculata</i>	4	Y	N	Y	7	29	N
<i>Thryptomene spicata</i>	2	Y	N	Y	10	9	Y

<i>Thelymitra pulcherrima</i>	2	Y	Y	Y	11	10	N
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*P1 – Priority 1: Poorly-known species - known from few locations, none on conservation lands

*P2 – Priority 2: Poorly-known species - known from few locations, some on conservation lands

*P3 – Priority 3: Poorly-known species – known from several locations

*P4 – Priority 4: Rare, Near Threatened and other species in need of monitoring

*Threatened species and distance calculated based on Western Australian Herbarium specimen database and Threatened and Priority Flora internal GIS layers.

** Data from IBSA-2021-0070 (Spectrum Ecology 2020)

**** The priority flora records were considered from 1980 onwards and coastal flora was removed from the list for the unlikelihood to be present in the inland habitats (e.g. aquatic plants, coastal restricted plants).

A.4. Fauna analysis table

Species name	Conservation status	Suitable habitat features ? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of close records (10km)	Are surveys adequate to identify? [Y, N, N/A]
Birds						
<i>Zanda latirostris</i> (Carnaby's cockatoo)	EN	Y	Y	0	50	Y
Reptiles						
<i>Thorny Bush Katydid (Hemisaga vepreculae)</i>	VU	Y	Y	22	NA	Y
Invertebrates						
<i>Hylaeus globuliferus</i> (Woolybush Bee)	P3	Y	Y	18	NA	N
<i>Synemon gratiosa</i> (Graceful Sun Moth)	P4	Y	Y	39	NA	N

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

A.5. Land degradation risk table

Risk categories	Land Unit 1
Wind erosion	M1: 10-30% of the map unit has a high to extreme hazard
Water erosion	L2: 3-10% of the map unit has a very high to extreme hazard
Salinity	L2: 3-10% of the map unit has a moderate or high hazard or is presently saline
Subsurface Acidification	M2: 30-50% of the map unit has a high susceptibility
Flood risk	L1: <3% of the map unit has a moderate to high hazard
Water logging	L2: 3-10% of the map unit has a moderate to very high to risk
Phosphorus export risk	L2: 3-10% of the map unit has a high to extreme hazard

Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p><u>Principle (a):</u> "Native vegetation should not be cleared if it comprises a high level of biodiversity."</p> <p><u>Assessment:</u></p> <p>The application area provides habitat for Priority flora and conservation significant fauna and is therefore considered to comprise a high level of biodiversity.</p>	At variance	Yes Section 3.2.1 above.

Assessment against the clearing principles	Variance level	Is further consideration required?
<p>Principle (b): <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.”</i></p> <p><u>Assessment:</u> The area proposed to be cleared contains foraging and potential roosting habitat for Carnaby’s cockatoo.</p>	At variance	Yes Section 3.2.2 above.
<p>Principle (c): <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p><u>Assessment:</u> The clearing is unlikely to have significant impacts on flora listed as Threatened under the BC Act.</p>	Not likely to be at variance	Yes Section 3.2.1 above.
<p>Principle (d): <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community.”</i></p> <p><u>Assessment:</u> The proposed application area does not contain species that indicates a State listed TEC.</p>	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
<p>Principle (e): <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u> The extent of native vegetation in the local area is consistent with the national objectives and targets for biodiversity conservation in Australia (>30%).</p>	Not likely to be at variance	No
<p>Principle (h): <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.”</i></p> <p><u>Assessment:</u> The clearing will impact the values of adjacent or nearby conservation areas through the potential spread of weeds and dieback.</p>	At variance	Yes Section 3.2.3 above.
Environmental value: land and water resources		
<p>Principle (f): <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u> Two watercourses are recorded within the application area corresponding to Hill River, the proposed clearing is not likely to impact on- hydrology and water quality, as the area correspond to farmland and there are no vegetation lines on sight.</p>	Not likely to be at variance	No
<p>Principle (g): <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u> Noting the linear shape of the application area spread across a larger distance and the condition of the vegetation, the proposed clearing is unlikely to cause appreciable land degradation.</p>	Not likely to be at variance	No
<p>Principle (i): <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.”</i></p> <p><u>Assessment:</u> Given there are two ephemeral water courses within the application area, but there is no evidence that these courses are currently occurring.</p>	Not likely to be at variance	No
<p>Principle (j): <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment:</u></p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
The mapped soils and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding.		

Appendix C. Vegetation condition rating scale

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

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from:

Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

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

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

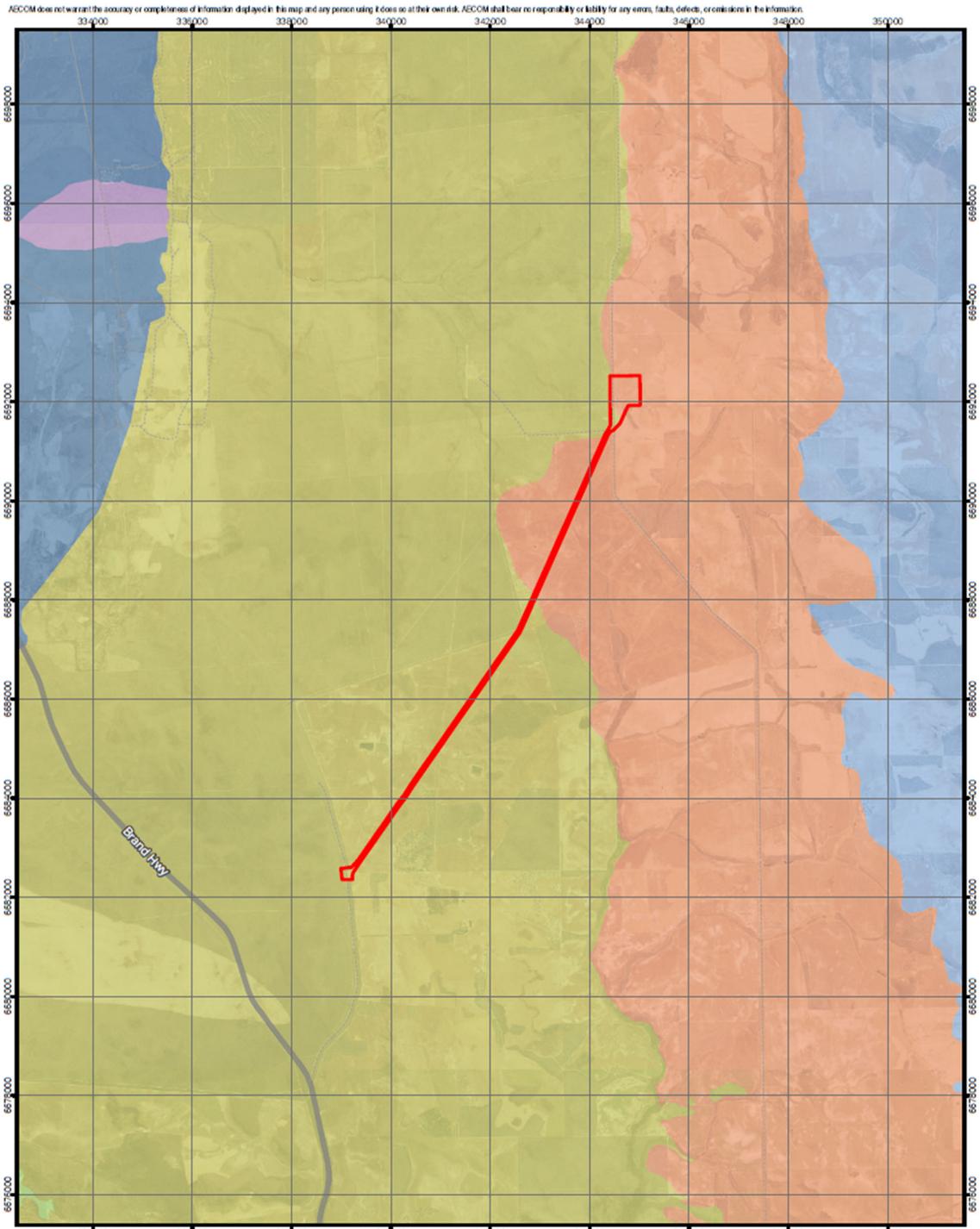
Appendix D. Offset calculator value justification

Offset calculation Area						
Offsets calculation	Description	Proposed offset (area in hectares)	8.86	Duration of offset implementation (maximum 20 years)	20.00	Offset value
		Current quality of offset site (scale)	8.00	Time until offset site secured (years)	1.00	100.0%
		Future quality WITHOUT offset (scale)	8.00	Risk of future loss WITHOUT offset (%)	30.0%	What-if Analysis
		Future quality WITH offset (scale)	8.00	Risk of future loss WITH offset (%)	10.0%	What-if Analysis Reinstate Formula
		Time until ecological benefit (years)	1.00			
		Confidence in offset result (%)	80.0%	OFFSET ADEQUATE?		YES

Environmental value to be offset		
Calculation	Score (Area)	Rationale
Conservation significance		
Description	Carnaby's cockatoo	
Type of environmental value	Species (flora/fauna)	
Conservation significance of environmental value	Rare/threatened species - endangered	
Landscape-level value impacted	yes/no	
Significant impact		
Description	0	
Significant impact (hectares) / Type of feature	2.00	Area of Carnaby's cockatoo within the application area
Quality (scale) / Number	7.00	The application area includes a mixture of primary and secondary foraging species of Carnaby's cockatoo. The closest roosting site is approximately 2.5 kilometres from the application area
Rehabilitation credit		
Description	0	
Proposed rehabilitation (area in hectares)	0.00	
Current quality of rehabilitation site / Start number (of type of feature)	0.00	
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	0.00	
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	0.00	
Time until ecological benefit (years)	0.00	
Confidence in rehabilitation result (%)	0	

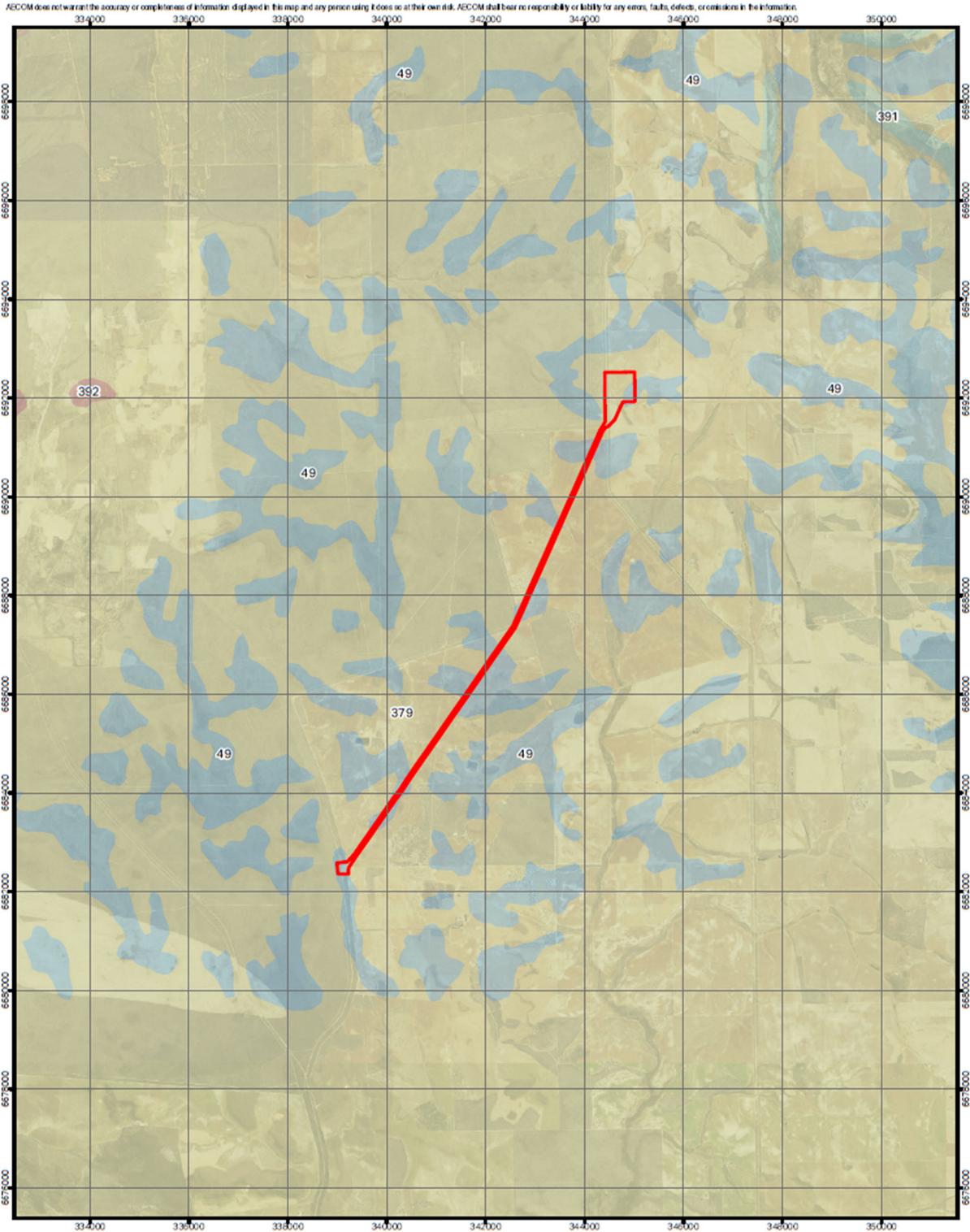
Offset		
Description	0	
Proposed offset (area in hectares)	8.86	Calculated area
Current quality of offset site / Start number (of type of feature)	8.00	Offset calculator input matches what was agreed when the offset site was banked. The site provides high quality Carnaby's cockatoo foraging habitat and is located within 20km of a known roosting and breeding sites for Carnaby's cockatoo
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	8.00	Long standing patch of remnant vegetation that is likely to persist relatively unchanged if left undisturbed.
Future quality WITH offset (scale) / Future number WITH offset	8.00	Active on ground protection and management of the proposed offset site by DBCA is expected to maintain the existing vegetation condition, at a minimum.
Time until ecological benefit (years)	1.00	Minimum value for existing vegetation
Confidence in offset result (%)	0.8	Offset calculator input matches what was agreed when the offset site was banked
Duration of offset implementation (maximum 20 years)	20.00	Offset site is secured in perpetuity. 20 is the maximum input
Time until offset site secured (years)	1.00	Offset site is already secured
Risk of future loss WITHOUT offset (%)	30.0%	Offset calculator input matches what was agreed when the site was banked
Risk of future loss WITH offset (%)	10.0%	Offset calculator input matches what was agreed when the site was banked
Offset ratio (Conservation area only)	N/A	
Landscape level values of offset?	N/A	N/A

Appendix E. Biological survey information excerpts



Delivering a better world		LEGEND ENB-ENT 132kV Survey Area		Soil Landscape Mapping - Systems (DPRD-064)		Land Systems - ENB-ENT 132kV	
PROJECT ID: 60713462 DATE MODIFIED: 26 MAY 2024 CREATED BY: WYATTK2 APPROVED BY: INITIALS	0 500 1000 1500 2000 METERS 1:100,000 GDA2020 MGA ZONE 50	Boothendara System Coolara System Conroy System Eneabba Plain System Mintjaja Hills System Yeramullah System	WESTERN POWER CEL - NORTH FLORA, VEGETATION AND FAUNA ASSESSMENT		Figure 3.1		
<small>Project: \\va.aec.com\net\com\BIA\HW2\Enb-Ent\ER\Legacy\Project\60713462_NREP_Ecology_2023\000_GAD_030520_03M02_MDU_APR052013462_NREP_Ecology_2023_Figures\enb\enb100 Layout: 60713462_Fig3_NREP_North_LandSystems_A4P_v1_Last.rpt.mxd 2005/2024 12:09 PM</small>							

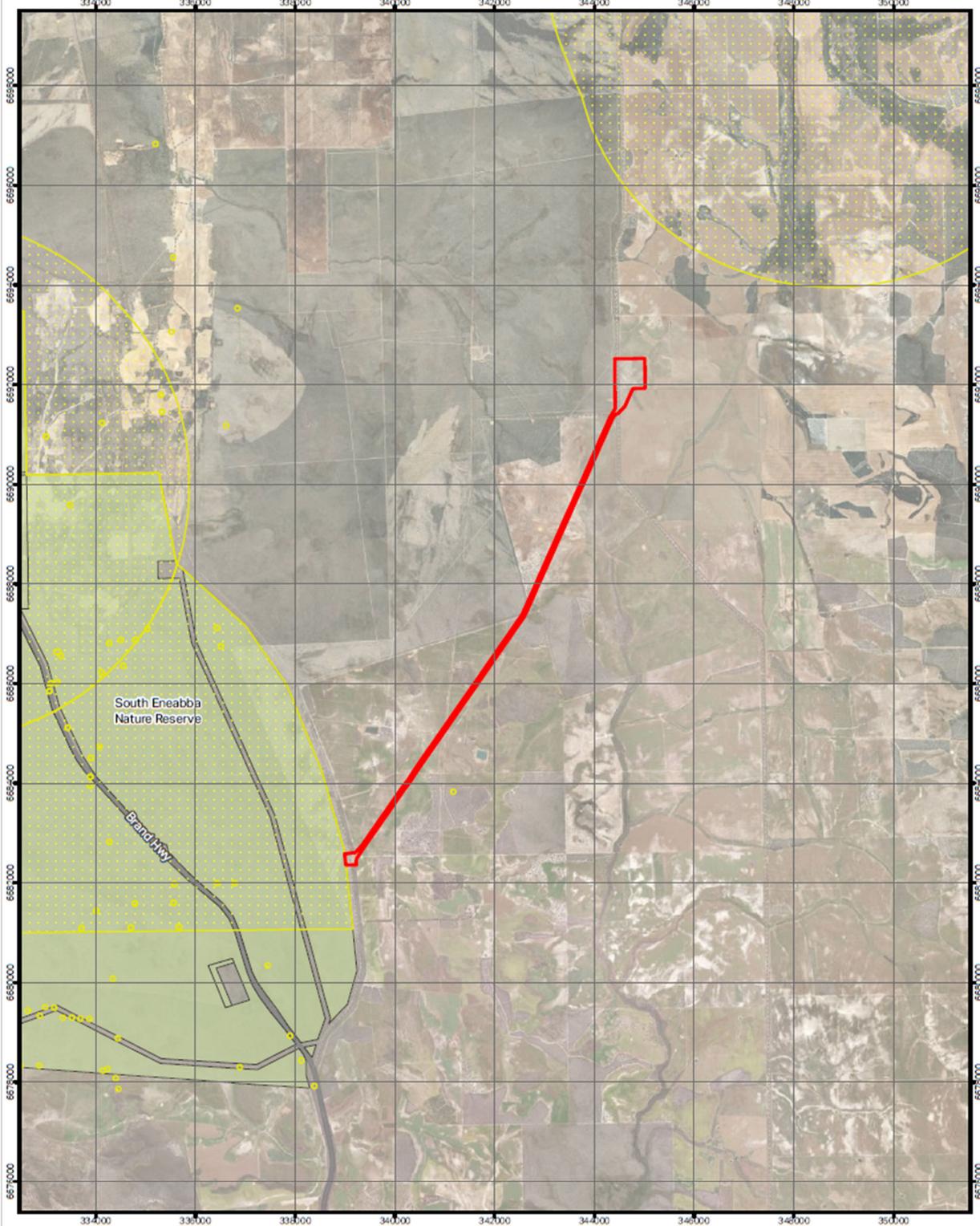
Figure 4: Land Systems



AECOM Delivering a better world PROJECT ID: 60713462 CREATED BY: WYATTK2 DATE MODIFIED: 20 MAY 2024 APPROVED BY: INITIALS		LEGEND ENB-ENT 132kV Survey Area Pre-European Vegetation (DPRD-006) 49 Heath, Low shrubs of mixed composition.		378, Scrub-heath, Mixed heath with scattered tall shrubs Acacia spp., PROTEACEAE and MYRTACEAE. 379, Scrub-heath, Mixed heath with scattered tall shrubs Acacia spp., PROTEACEAE and MYRTACEAE.		391, Thicket, Wattle, casuarina and teatree acacia-allocastrina-melaleuca alliance. 392, Thicket, Wattle, casuarina and teatree acacia-allocastrina-melaleuca alliance.	
PROJECT ID: 60713462 DATE MODIFIED: 20 MAY 2024 1:100,000 0 300 1,000 1,500 2,000 GDA2020 MGA ZONE 50		Pre-European Vegetation - ENB-ENT 132kV WESTERN POWER CEL - NORTH FLORA, VEGETATION AND FAUNA ASSESSMENT		Figure 5.1		A4 si 28	

Figure 5: Pre-European Vegetation

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AECOM Delivering a better world

PROJECT ID: 60713462
DATE MODIFIED: 20 MAY 2024

CREATED BY: WYATTK2
APPROVED BY: INITIALS

Scale: 0 500 1,000 1,500 2,000 meters

1:100,000
GDA2020 MGA ZONE 50

Legend: ENB-ENT 132kV Survey Area (red outline), DBCA - Legislated Lands and Waters (DBCA-011) (grey outline), Nature Reserve (green hatched), Clearing Regulations - Environmentally Sensitive Areas (DWER-046) (yellow hatched)

LEGEND

ENB-ENT 132kV Survey Area

DBCA - Legislated Lands and Waters (DBCA-011)

Nature Reserve

Clearing Regulations - Environmentally Sensitive Areas (DWER-046)

Conservation Reserves and ESAs - ENB-ENT 132kV

WESTERN POWER

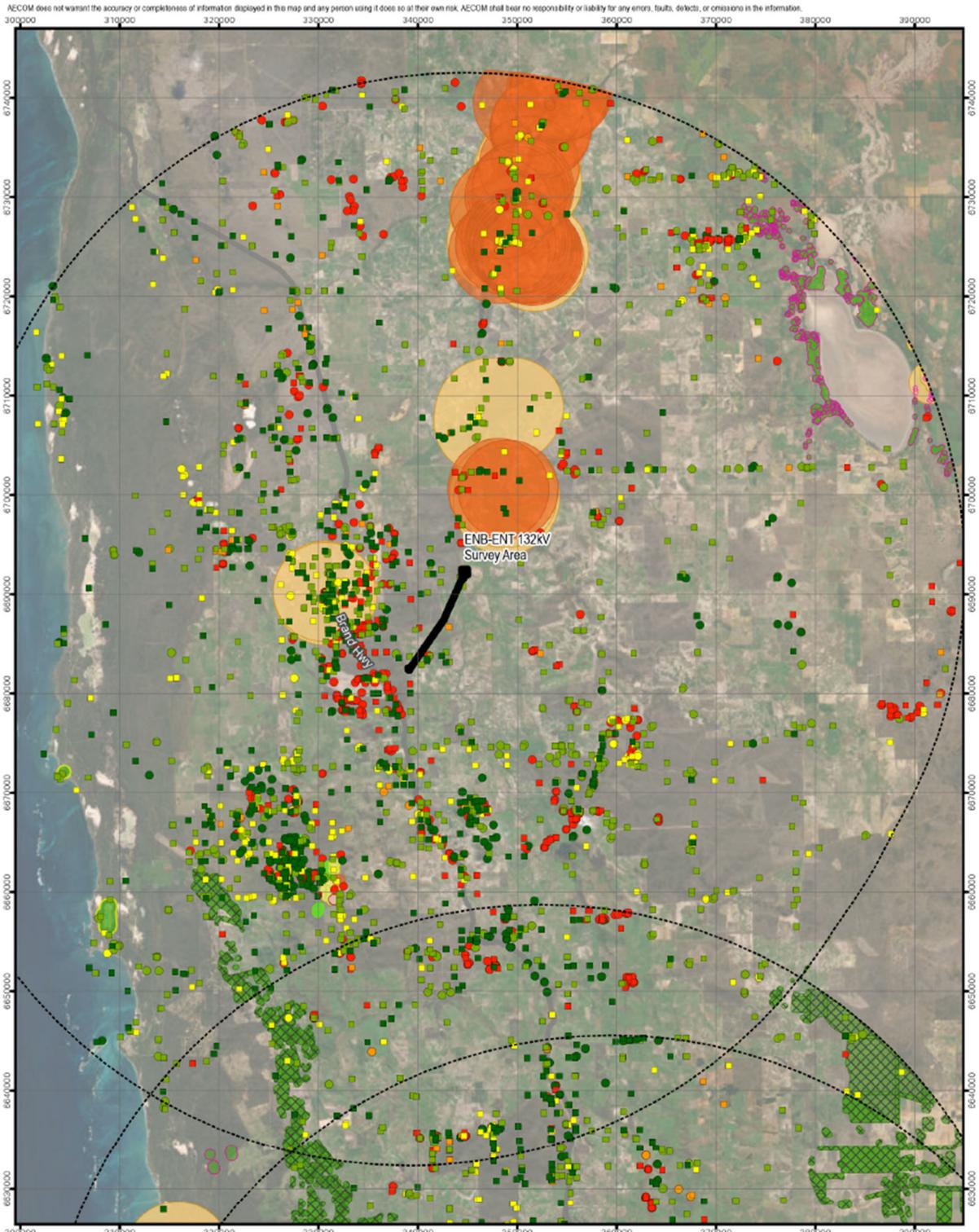
CEL - NORTH
FLORA, VEGETATION AND FAUNA
ASSESSMENT

Figure
6.1

Project: \\na.aecom.net.com\NA\F\7\erth-ALTER\Legacy\Projects\60713462_JNRP_Ecology_2023\600_GAD_055820_G360_M40_APR060713462_JNRP_Ecology_2023_Figures\aprx\WattK2
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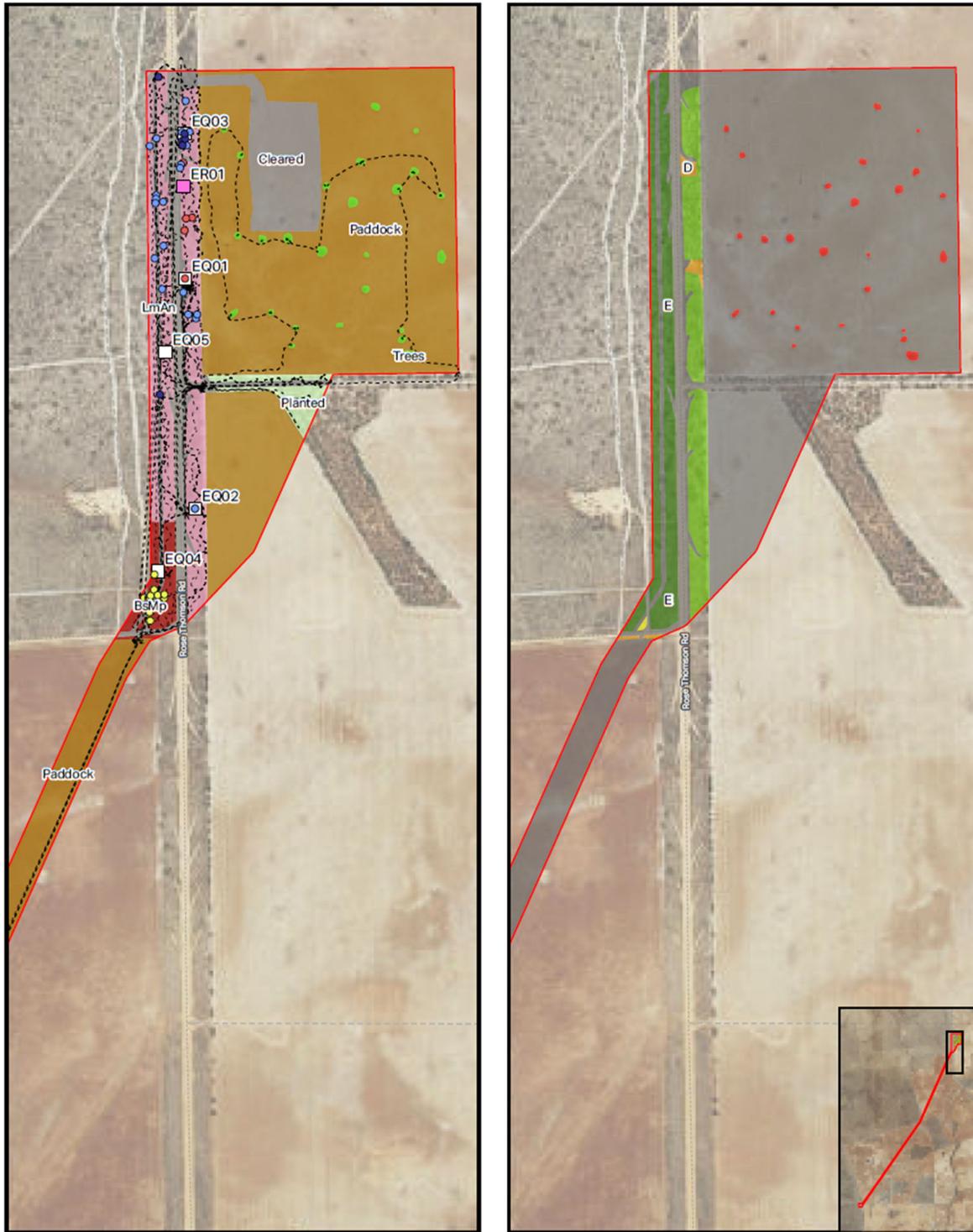
Figure 6: Conservation Reserves and Clearing Regulations -Environmentally Sensitive Areas



AECOM Delivering a better world		LEGEND		Conservation Significant Desktop Flora, Communities and Fauna	
PROJECT ID: 60713462 DATE MODIFIED: 21 MAY 2024 CREATED BY: WYATTK2 APPROVED BY: F. DE WIT	Threatened and Priority Flora database (TPFL)	P3 P4 Threatened P1 P2	P3 P4 Threatened P1 P2	Priority 2 Priority 3 TEC / PEC (State Listed) TEC / PEC (Federally Listed) Critically Endangered Endangered Vulnerable Priority 1	Priority 2 Priority 3 TEC / PEC (Federally Listed) Critically Endangered Endangered Vulnerable
1:500,000 GDA2020 MGA ZONE 50	Survey Area 50km Buffer Survey Areas WIA Herbarium database (WIAHERB)	Threatened P1 P2	Threatened P1 P2	Critically Endangered Endangered Vulnerable Priority 1	Critically Endangered Endangered Vulnerable
WESTERN POWER				Figure 7.1	
CEL - NORTH FLORA, VEGETATION AND FAUNA ASSESSMENT				A4 size	

Figure 7: Conservation Significant desktop Flora, Communities and Fauna

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AECOM Delivering a better world

PROJECT ID: 60713462 CREATED BY: WYATT/K2
 DATE MODIFIED: 21 MAY 2024 APPROVED BY: FDE/WIT

Scale: 1:10,000
 GDA2020 MGA ZONE 50

Scale: 0 50 100 150 200 metres

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LEGEND

ENB-ENT 132kV Survey Area

Sample Sites

- Quadrat
- Ridge
- Traddlogs

Significant Flora (AECOM, 2023)

- Bankia corymbosa*, P3
- Bankia fraseri* var. *crebra*, P3

Vegetation Community

- BsMp
- LmAn
- Paddock
- Planted

Vegetation Condition

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

Vegetation Communities, Condition, Significant Flora and Survey Effort - ENB-ENT 132kV

WESTERN POWER

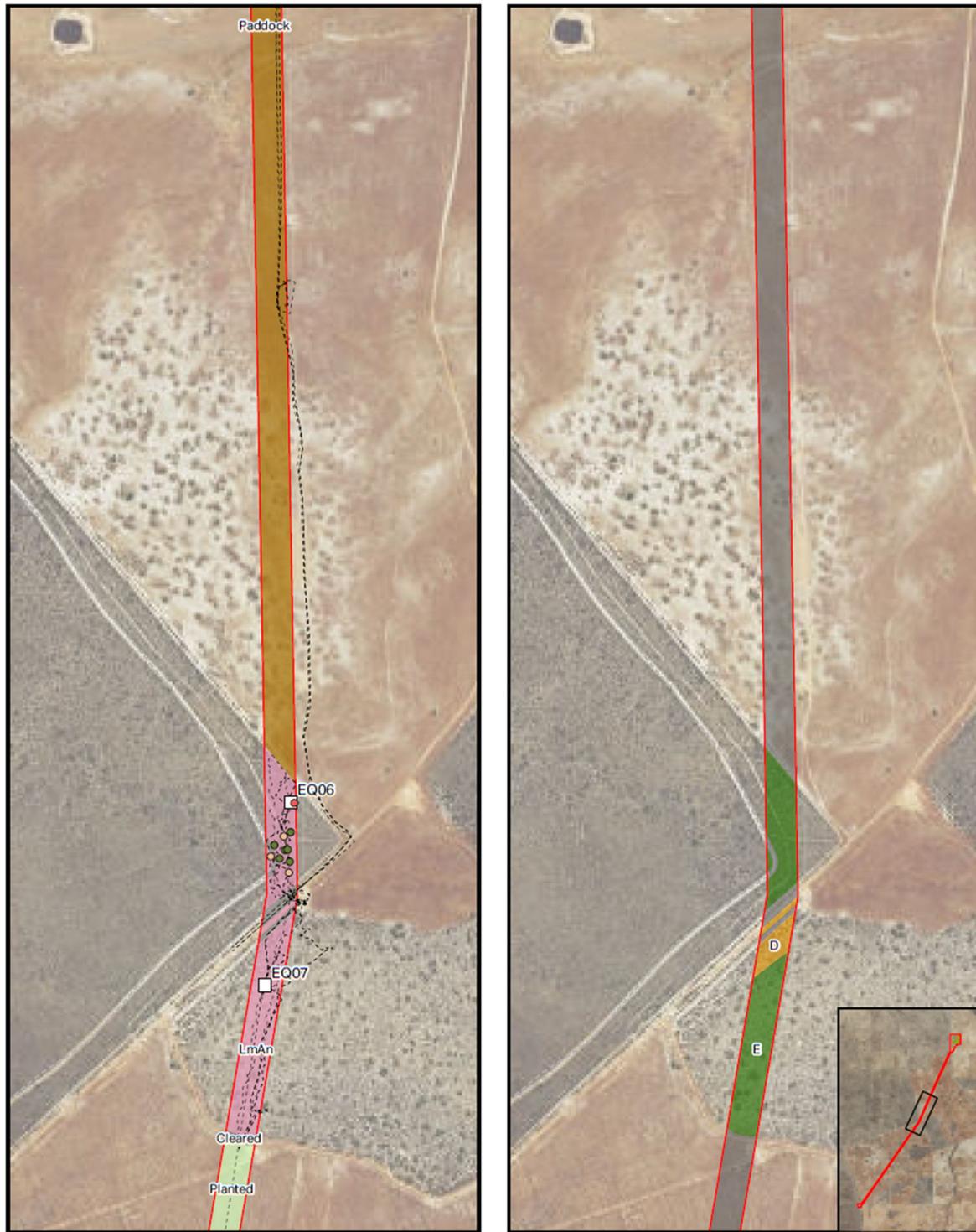
CEL - NORTH FLORA, VEGETATION AND FAUNA ASSESSMENT

Figure 8a.1

A4 size

Figure 8: Vegetation Communities, Condition, Significant Flora and Survey Effort

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<p>AECOM Delivering a better world</p> <p>PROJECT ID: 60713462 CREATED BY: WYATTK2 DATE MODIFIED: 21 MAY 2024 APPROVED BY: F.DEWIT</p> <p>Scale: 1:10,000 GDA2020 MGA ZONE 50</p> <p><small>© 2024 AECOM. All rights reserved. This document is the property of AECOM and is not to be distributed, copied, or used without the prior written permission of AECOM. AECOM and the AECOM logo are trademarks of AECOM.</small></p>	<p>LEGEND</p> <ul style="list-style-type: none"> ENB-ENT 132kV Survey Area Sample Sites Quadrat - - - Tracklogs ● Significant Flora (AECOM, 2023) ● <i>Hakea longiflora</i>.P3 ● <i>Lepidobolus quadratus</i>.P3 ● <i>LmAn</i> ● Paddock ● <i>Banksia cypholoba</i>.P3 Cleared Excellent Degraded Cleared 	
	<p>Vegetation Communities, Condition, Significant Flora and Survey Effort - ENB-ENT 132kV</p> <p>WESTERN POWER</p> <p>CEL - NORTH FLORA, VEGETATION AND FAUNA ASSESSMENT</p>	
		<p>Figure 8a.3</p> <p>A4 size</p>

Figure 9: Vegetation Communities, Condition, Significant Flora and Survey Effort

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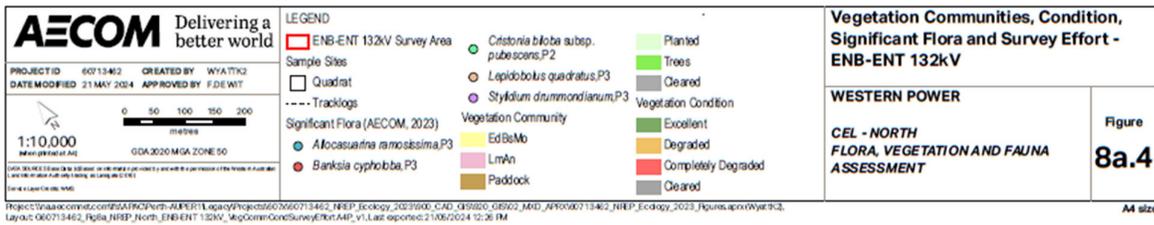
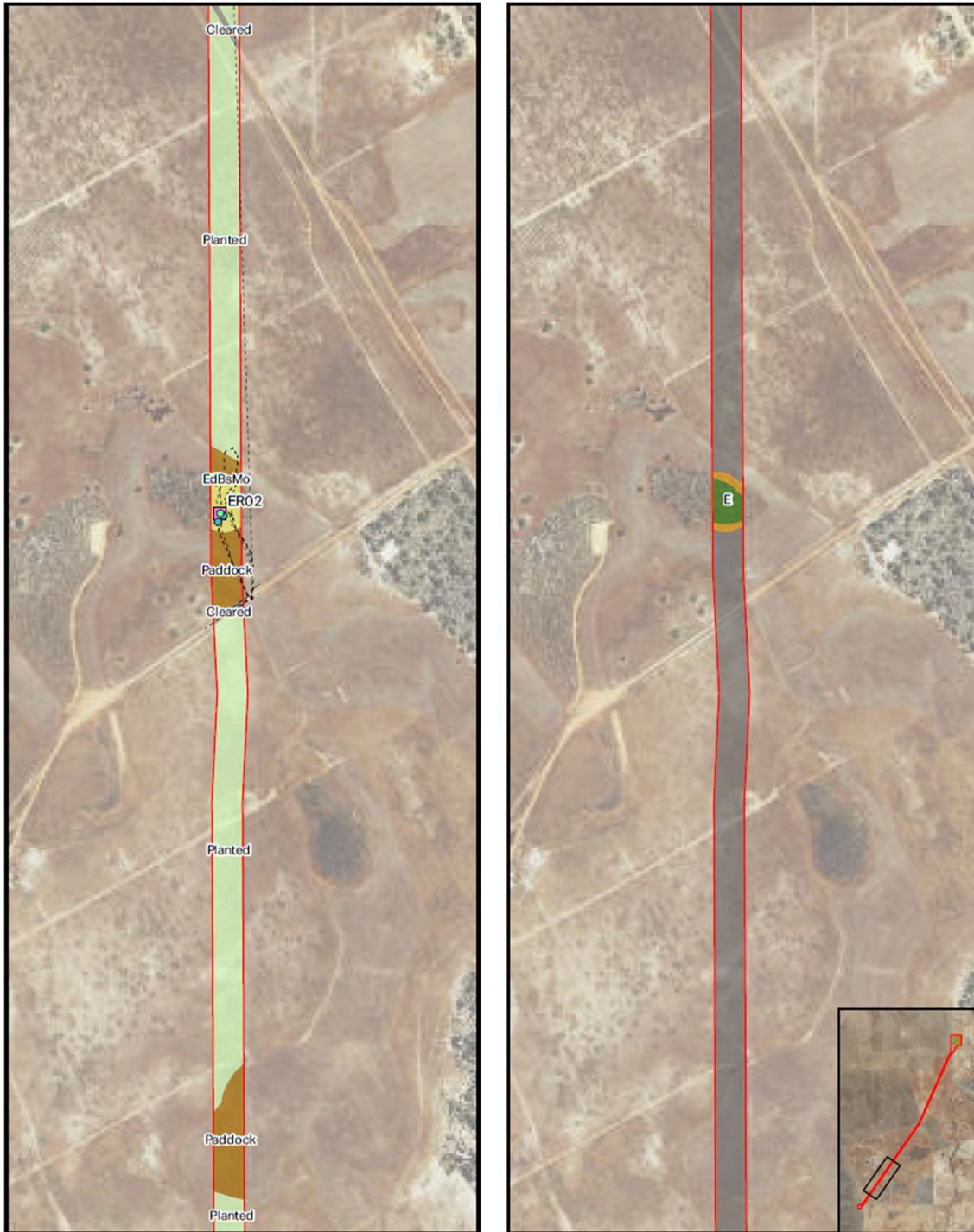


Figure 10: Vegetation Communities, Condition, Significant Flora and Survey Effort

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AECOM Delivering a better world PROJECT ID: 60713462 CREATED BY: WYA/TTKZ DATE MODIFIED: 21 MAY 2024 APPROVED BY: FDE/WIT Scale: 1:10,000 GDA2020 MGA ZONE 50		LEGEND ENB-ENT 132kV Survey Area Sample Sites Relevé Tracklogs Significant Flora (AECOM, 2023) <i>Albicusufina ramosissima</i> P3 <i>Cristaria biloba</i> subsp. <i>pubescens</i> P2 Vegetation Community EdBsMo Paddock Planted	Vegetation Condition Excellent Degraded Cleared	Vegetation Communities, Condition, Significant Flora and Survey Effort - ENB-ENT 132kV WESTERN POWER CEL - NORTH FLORA, VEGETATION AND FAUNA ASSESSMENT Figure 8a.5
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GDA2020 MGA ZONE 50
 Project: 60713462_North_ENT132kV_VegCommCondSurvey/Plan_AAP_v1_Laer exported: 21/05/2024 12:36 PM
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Figure 11: Vegetation Communities, Condition, Significant Flora and Survey Effort

Table 4: Vegetation Types

Description	Additional Details	Photograph
Native Vegetation Communities		
<p>EdBsMo Mallee Woodland</p> <p><i>Eucalyptus drummondii</i> and <i>Eucalyptus pleurocarpa</i> mid to low open mallee woodland, over <i>Banksia sphaerocarpa</i>, <i>Banksia tridentata</i>, <i>Hakea auriculata</i> low heathland, over <i>Morelotia octandra</i>, <i>Amphipogon amphipogonoides</i> and <i>Glischrocaryon aureum</i> mid to low mixed sparse forbland.</p>	<p>Survey effort: ER02, EQ08, EQ09</p> <p>Species richness: 77 species</p> <p>Condition: Degraded to Excellent</p> <p>Extent: 1.67 ha</p>	
<p>LmAn Mixed Kwongan Heathland</p> <p><i>Lambertia multiflora</i>, <i>Calothamnus hirsutus</i> and <i>Hibbertia hypericoides</i> subsp. <i>septentrionalis</i> tall to low closed heathland over <i>Alexgeorgea nitens</i>, <i>Cautis dioica</i> and <i>Mesomelaena pseudostygia</i> tall to low sedgeland.</p> <p>Emergent isolated patches of <i>Banksia attenuata</i>, <i>Eucalyptus tottiana</i> and <i>Nuytsia floribunda</i> trees present.</p> <p>Overstorey dominance varies and can be so sparse that these species were occasionally absent from quadrats. Recorded on sandy soils.</p>	<p>Survey effort: EQ01, EQ02, EQ03, EQ05, EQ06, EQ07, EQ11, ER01</p> <p>Species richness: 150 species</p> <p>Condition: Degraded to Excellent</p> <p>Extent: 14.14 ha</p>	
<p>Description</p> <p>BsMp Mixed Kwongan Heathland</p> <p><i>Banksia shuttleworthiana</i>, <i>Hibbertia hypericoides</i> subsp. <i>septentrionalis</i> and <i>Calothamnus hirsutus</i> low closed heathland over <i>Mesomelaena pseudostygia</i>, <i>Desmocladius virgatus</i> and <i>Amphipogon amphipogonoides</i> tall to low open forbland.</p> <p>Recorded on lateritic soils.</p> <p>Community represents small proportion of survey area (1.75%).</p>	<p>Survey effort: EQ04, EQ10</p> <p>Species richness: 87 species</p> <p>Condition: Degraded to Excellent</p> <p>Extent: 2.02 ha</p>	
<p>Trees Stands of native trees in paddocks.</p>	<p>Condition: Completely Degraded</p> <p>Extent: 0.52 ha</p>	

Description	Additional Details	Photograph
Non-native Vegetation Communities		
Paddock Largely comprised of common pasture weeds.	Extent: 60.25 ha	
Planted Planted vegetation including introduced Eucalyptus trees and agricultural trees.	Extent: 27.38 ha	

Appendix F. Sources of information

F.1. GIS databases

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

- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Hydrography – Inland Waters – Waterlines
- IBRA Vegetation Statistics
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Wheatbelt Wetlands Stage 1 (DBCA-021)
- Ecological linkages – Roadside Conservation – Road Centerline
- Remnant vegetation Protection Schemes
- Black Cockatoo – WTBC Breeding

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities

F.2. References

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