Konnongorring Rail Upgrade Project
Native Vegetation Clearing Permit Application
Supporting Document

CBH Group

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DOCUMENT TRACKING

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Template 2.8.1

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Abbreviations

Abbreviation	Description
BAM Act	*Biosecurity and Agriculture Management Act 2007*
BC Act	*Biodiversity Conservation Act 2016*
BoM	Bureau of Meteorology
CBH	Cooperative Bulk Handling Group
DBCA	Department of Biodiversity Conservation and Attraction
DBH	Diameter at Breast Height
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DPIRD	Department of Primary Industries and Regional Development
DWER	Department of Water and Environmental Regulation
ELA	Eco Logical Australia
EMP	Environmental Management Plan
EP Act	*Environmental Protection Act 1986*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
ESA	Environmentally Sensitive Area
ha	hectare
IBRA	Interim Biogeographic Regionalisation for Australia
kg	Kilo
km	Kilometres
M	Million
mm	Millimetre
NVCP	Native Vegetation Clearing Permit
ORB	Over Rail Bin
PEC	Priority Ecological Community
PTA	Public Transport Authority
SEWPac	Department of Sustainability, Environment, Water, Population and Communities
t	Tonnes
TEC	Threatened Ecological Community
TPH	Tonnes per hour
WA	Western Australia
WAOL	Western Australian Organism List
WoNS	Weed of National Significance

1. Introduction

1.1. Background

The Cooperative Bulk Handling Group (CBH) proposes to expand its existing Konnongorring Rail Out-loading Infrastructure (the Proposal), located approximately 18 km south of Wongan Hills (Figure 1-1) in the Wheatbelt region of Western Australia (WA).

The record 2021-22 harvest of over 21.3 Mt delivered to the CBH system highlighted the need to improve the network to ensure grain can be moved efficiently to ports to meet market demand and maximise the economic output for the State and CBH grower members. CBH has made improving the out-loading capabilities of WA's grain supply chain a major focus. The Proposal will enable an additional of 600 kt monthly shipping capacity during the January to June window by 2030.

1.1.1. Clearing overview

The Proposal will result in clearing up to 0.16 ha of native vegetation (the Clearing Area; Figure 1-1).

The Proposal has been designed to avoid and mitigate impacts to areas of native vegetation and fauna habitat as far as practicable. Biological surveys undertaken within the 77.70 ha AECOM Survey Area (flora and vegetation) and the 23.44 ha Eco Logical Australia (ELA) Survey Area (fauna), identified 6.77 ha and 6.01 ha of extant native vegetation respectively (further discussed in Section 3). Following the analysis of design options during the pre-feasibility stage, the final design reduced the extent of the Clearing Area significantly, resulting in the retention of over 97% of the native vegetation located within the AECOM and ELA survey areas.

1.1.2. Purpose

This document has been prepared to support the granting of a Native Vegetation Clearing Permit (NVCP) for the Proposal under Part V Division 2 of the *Environmental Protection Act 1986* (EP Act).

This NVCP application supporting report includes the following information:

- The justification for the Proposal
- An overview of the existing environmental conditions of the site
- An evaluation of potential impacts of the vegetation clearing
- Environmental mitigation and management actions
- An evaluation of compliance of the proposed clearing against the ten clearing principles listed under Schedule 5 of the EP Act
- Stakeholder consultation.

1.1.3. Other approvals

The Clearing Area contains 0.15 ha of low/negligible to low quality foraging habitat for Carnaby's Cockatoo (*Zanda latirostris*). This species is listed as Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), and thus is considered a Matter of National Environmental Significance. The proposed clearing of 0.15 ha of foraging habitat is not expected to significantly affect the foraging, roosting, or breeding habitats of Carnaby's Cockatoo. As a result, the clearing does not meet the referral thresholds specified in the *Referral guideline for 3 WA threatened*

black cockatoo species (DCCEEW 2022) and referral to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) under the EPBC Act is not considered by CBH to be necessary.

An Application for Development Approval was submitted to the Shire of Goomalling on 22 June 2023.

1.2. Location, ownership and zoning

The Clearing Area is located on Lot 10 on Deposited Plan 25798 (land ID 3006395) and within the railway reserve (land ID 409028 and 3123951) adjacent to the existing Konnongorring Rail Out-loading Facility (Figure 1-2). This land is owned by the Public Transport Authority (PTA) and will be leased by CBH.

Under the Shire of Goomalling Local Planning Scheme No. 3 (District Scheme), the Clearing Area is zoned 'General Farming' and reserved for 'Railway Purposes'.

The Certificate of Title for Lot 10 on Deposited Plan 25798is attached in Appendix A. A Letter of Authority to Authority to access the land and to clear native vegetation is attached in Appendix B.

1.3. Project description

CBH is seeking to improve the existing Konnongorring rail infrastructure (Figure 1-1), which requires clearing of approximately 0.16 ha of native vegetation.

The Proposal will enable the development of an Over Rail Bin (ORB) Out-loading Facility and a 1,040 m rail siding adjacent to the mainline to store and load 46 train wagons (Figure 1-3). Other supporting infrastructure includes fencing, access road, drainage and power-related elements. Specifically, following the deconstruction of the existing 'E-type' storage facility, rail out-loading garner bin and associated support facilities, the following will be constructed:

- ORB Out-loading Facility:
    - Two V-bottom proprietary bolted silos
    - One 750 tonnes per hour (tph) bucket elevator
    - One road hopper 750 tph (CBH standard design)
    - A series of 750 tph belt conveyors for silo loading
    - Conveyor weightometer
    - Silo weighing system
    - Wagon weighing
    - Wagon position detection system
    - Wagon Radio Frequency Identification (RFID) systems (for Grain Track and Control System)
    - Pneumatically and electrically controlled valves
    - Remote Control room with CCTV of the wagon loading areas
    - Fire detection system
    - Communication equipment to the existing weighbridge.
- Rail Infrastructure:
    - Approximately 1,040 m of rail
    - Two 1:12 60 kg/m turnouts
    - One new catchpoint
    - One buffer stop

    - One spill pad under the loadout location
    - A single self-restoring point
    - Level crossing signage upgraded to STOP signs
- Fencing along the length of the facility/access road as required
- The access road from the existing site to the ORB Facility (including kerbs)
- Drainage including basins
- Upgrade of the Western Power Supply and existing site main switchboard.

1.4. Proposal benefits

CBH is Australia's largest co-operative. It is a WA-based grain storage and handling organisation, with operations extending along the value chain from fertiliser to grain storage, handling, transport, marketing and processing. Owned and controlled by approximately 3,700 WA grain growing businesses, the core purpose of CBH is to sustainably create and return value to growers. Its storage and handling system currently receive and exports around 90% of the WA grain harvest.

Due to inefficiencies associated with existing rail out-loading infrastructure, 80% of the grain tonnage from Konnongorring is either transported by road directly to port or hubbed via road to rail at the CBH Avon facilities in Northam or the Metro Grain Centre in Forrestfield. Using existing infrastructure, total site dwell time for loading activities is in the order of 15 hours for a 52-wagon train. This is driven by the requirement for 'shunting' operations to manage rail and road traffic interfaces, limited above-rail storage (20 t) as well as a slow average out-loading rate of approximately 250 tph. This does not represent the most efficient method of transport (lowest cost pathway) from Konnongorring to port. Konnongorring has been identified as a priority site in the CBH Kwinana zone for increased rail loading capability to address this shortfall. This included enabling the loading of a (maximum) 80-wagon train that facilitates a port-to-port cycle time of less than 12 hours.

This Proposal will enhance transport export capability to achieve future targets of an additional approximately 600 kt monthly shipping capacity during the post-harvest January to June window by 2030.

Figure 1-1: Location of the Proposal

Clearing Area

N

0 37.5 75 150

Metres

Datum/Projection:
GDA 1994 MGA Zone 50

22PER4650-ED Date: 30/05/2023

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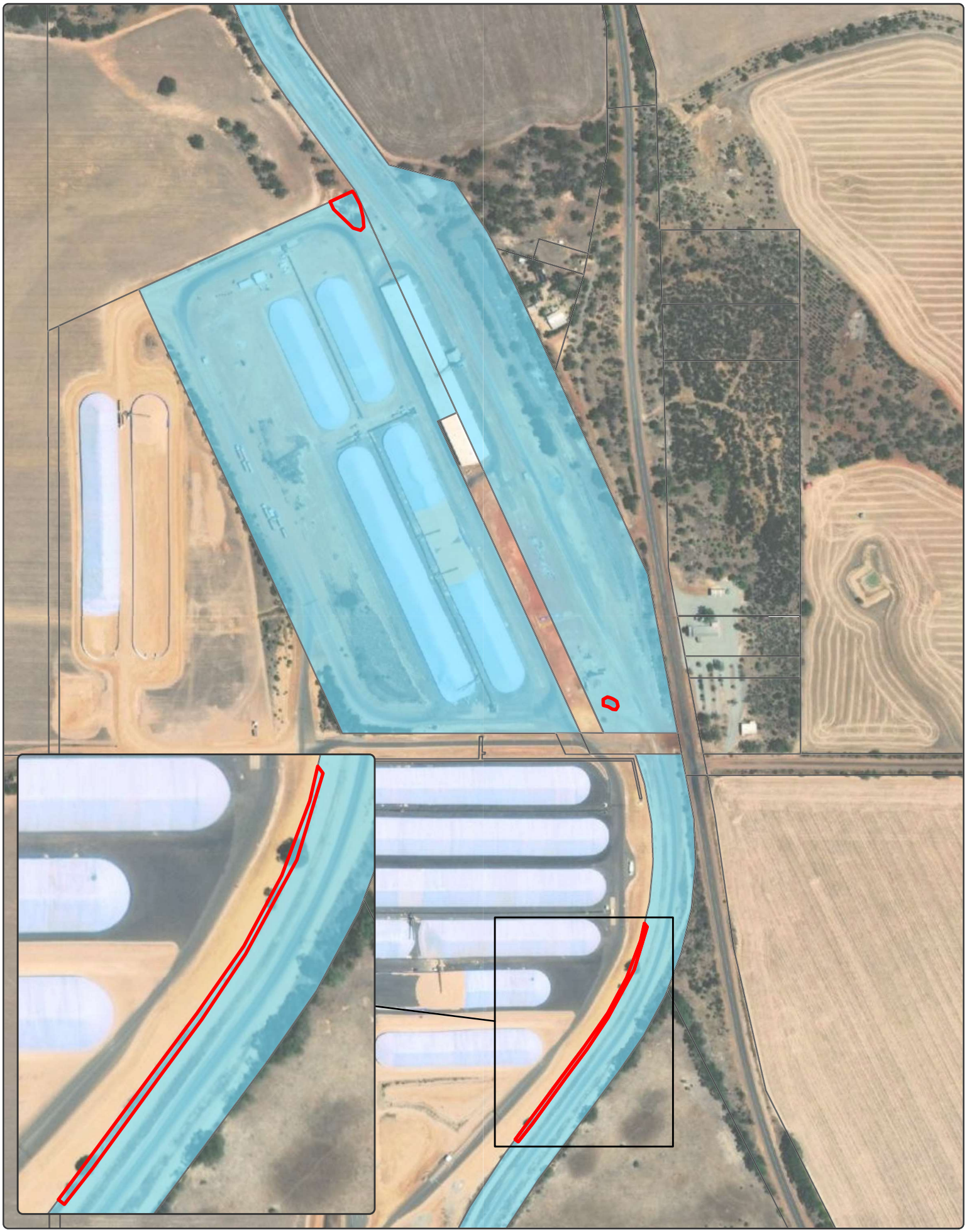

Figure 1-2: Land tenure within the Clearing Area

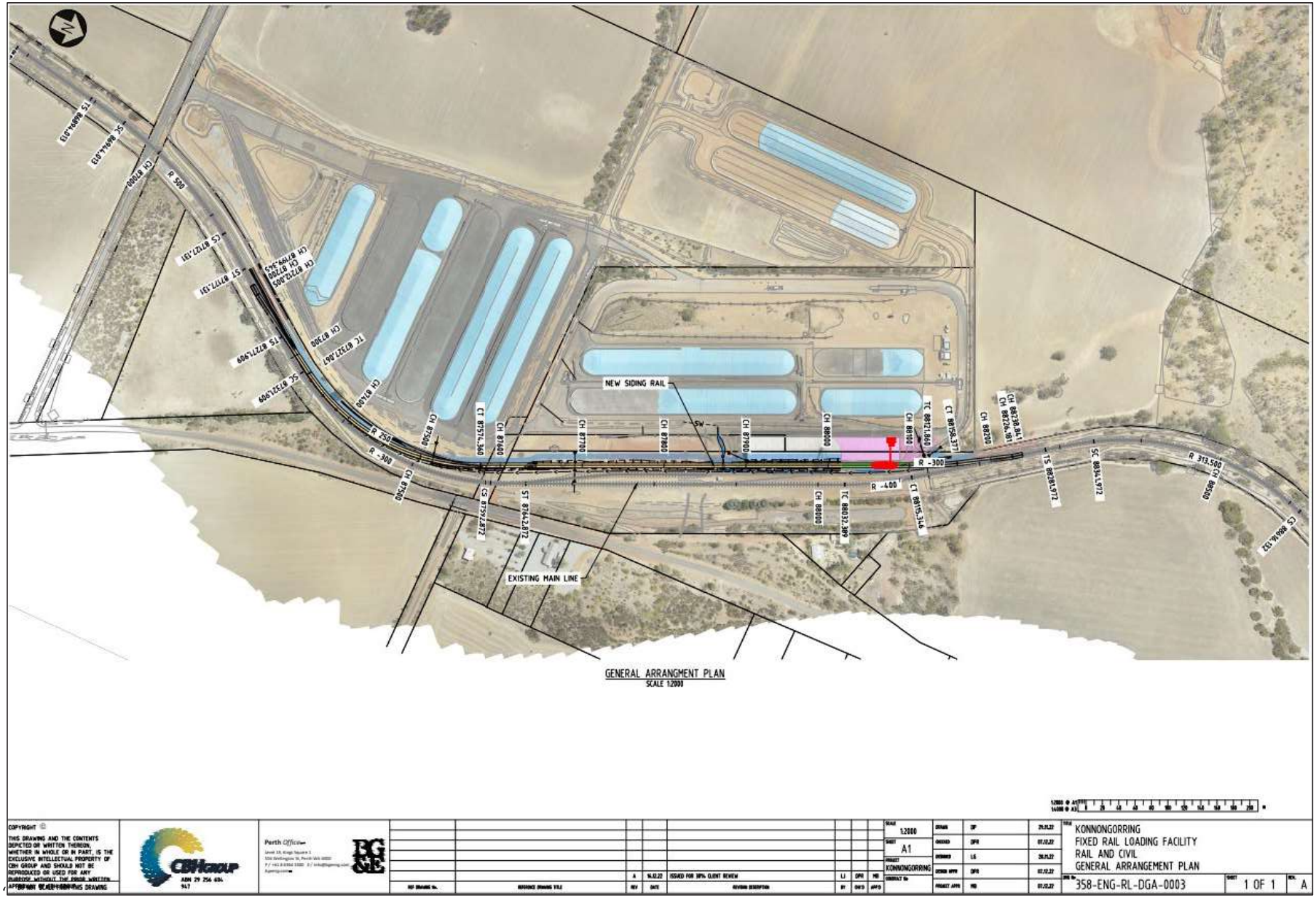

Figure 1-3: Proposed site development plan (exact location of elements is subject to change)

2. Physical Environment

2.1. Biogeographic and regional setting

Under the Interim Biogeographic Regionalisation for Australia (IBRA), the Clearing Area is situated within the Avon Wheatbelt IBRA bioregion and AVW02- Katanning subregion (DAWE 2021). The Avon Wheatbelt bioregion is described as a dissected plateau of Tertiary laterite in the Yilgarn Craton with a semi-arid (dry) warm Mediterranean climate (Beecham 2001). The AVW02 or Re-juvenated Drainage subregion is further described as comprised of gently undulating rises to low hills with abrupt breakaways; its drainage is rejuvenated and comprises continuous stream channels that flow in most years. Residual lateritic uplands and derived sandplains are covered by areas of proteaceous scrub-heaths (which are rich in endemic species) and quaternary surfaces of erosional slopes and valley floors support woodlands of Wandoo (*Eucalyptus wandoo*), York gum (*Eucalyptus loxophleba*), Jam (*Acacia acuminata*) and Casuarina (Beecham 2001).

2.2. Climate

The region is described as having a semi-arid (dry) and warm Mediterranean climate (Beecham 2001). Based on the Bureau of Meteorology (BoM) Konnongorring weather station (station number 10076, climate data 1913-present), the area receives a mean annual rainfall of 352.8 mm, with most occurring during June and July (63.0 mm and 63.4 mm respectively; BoM 2022).

2.3. Geology, landform and soils

The Clearing Area is situated on the Morbinning soil landscape system, described as "*Undulating sandplain remnants, breakaways and slopes, in the northern Zone of Rejuvenated Drainage, with grey deep sandy duplex (often alkaline), pale deep sand and yellow sandy earth. Wandoo-jam-salmon gum woodland and heath*" (DPIRD 2022).

As part of a geotechnical survey (Golder 2022; Appendix C), a test pit was installed within the Clearing Area. The local soil conditions were described as sandy clay/clayey sand, with low to medium plasticity, brown, fine to coarse grained sand, approximately 30-40% fines (possibly fill).

2.4. Hydrology

The Clearing Area is located within Avon River Basin and Catchment and falls within the Morlock North Branch. The closest rivers are the ephemeral Gabby Quoi Quoi Creek, 2 km north of the Clearing Area, and a minor ephemeral watercourse (unnamed) approximately 0.6 km to the southwest. There are no wetlands within or adjacent to the Clearing Area; the closest wetland is Lake Ninan, approximately 16 km to the northwest.

The Konnongorring Rail Out-loading Facility sits at a relatively high point in the landscape across the siding and mainline at several locations. There is an approximate 2.5% average gradient across the site, falling from north to south.

2.5. Broad-scale vegetation

Vegetation type and extent have been mapped at a regional scale by Beard (1975) who categorised vegetation into broad vegetation associations. Based on this 1:1,000,000 scale mapping, the Department of Primary Industries and Regional Development (DPIRD) has compiled a list of vegetation associations and their extent across WA (Shepherd et al. 2002; DPIRD 2019a).

The Clearing Area occurs within one pre-European vegetation association – GAUNGAN_1024. A small (<12%) proportion of this the pre-European extent of this vegetation remains extant within the AVW02 IBRA subregion (GovWA 2019; Table 2-1; Figure 2-1).

Table 2-1: Beard's (1975) vegetation associations of the Clearing Area (GovWA 2019)

Vegetation Association	Description	Pre-European extent within AVW02 subregion (ha)	Current extent within AVW02 subregion (ha; %)	Area within the Clearing Area (ha; %)
GUANGAN_1024	Wattle, casuarina and teatree. *Acacia – Allocasuarina – Melaleuca alliance*	60,109.23	6901.52 (11.48)	0.16 (0.002)

2.6. Areas of Conservation Significance

2.6.1. Environmentally Sensitive Areas

Environmentally Sensitive Areas (ESAs) are defined in the *Environmental Protection (Environmentally Sensitive Areas) Notice 2005* under s 51B of the EP Act. ESAs include areas declared as World Heritage, included on the Register of the National Estate, defined wetlands, and vegetation containing rare (Threatened) flora and Threatened Ecological Communities (TECs) listed under the EP Act.

The Commonwealth EPBC Act and the State BC Act provide for the statutory listing of TECs, either by the Australian Government's Environmental Minister or the Environment Minister of WA. Priority Ecological Communities (PECs) are biological flora or fauna communities that are recognised by the WA Minister for Environment to be of significance, but which do not meet the criteria for a TEC. There are five categories of PECs, none of which are currently protected under State or Federal legislation.

The *Eucalyptus Woodlands of the Western Australian Wheatbelt* (Wheatbelt Woodlands) TEC, listed as Critically Endangered under the Commonwealth EPBC Act and Priority 3 by Department of Biodiversity Conservation and Attraction (DBCA), occurs throughout the Avon-Wheatbelt region in south-western Western Australia, where the Proposal is located. Wheatbelt Woodlands TEC was not recorded within the AECOM Survey Area (AECOM 2023), thus the vegetation within the Clearing Area is not considered to represent the TEC (further discussed in Section 3.2).

2.6.2. Nature reserves and conservation estate

There are no nature reserves or conservation estates within or close to the Clearing Area. The closest conservation estate is the Walyormouring Nature Reserve, approximately 13 km to the southeast.

Figure 2-1: Pre-European vegetation associations within the Clearing Area

Clearing Area

Pre-European Vegetation

Guangan (1024)

N

0 25 50 100

Metres

Datum/Projection:
GDA 1994 MGA Zone 50

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3. Biological Environment

3.1. Previous ecological surveys

Three biological surveys have been undertaken across two survey areas (Figure 3-1):

- ELA Survey Area (23.44 ha) – Reconnaissance level flora and vegetation, Targeted conservation significant flora, Basic fauna and Targeted Carnaby's Cockatoo assessment surveyed in November 2021 and June 2022 (ELA 2022)
- AECOM Survey Area (77.70 ha) – Detailed flora and vegetation and Targeted conservation significant flora assessment surveyed in November 2022 (AECOM 2023).

The Reconnaissance level flora and vegetation, Targeted flora, Basic fauna and Targeted Carnaby's Cockatoo assessment covering 17.58 ha was undertaken by ELA in November 2021. The same level of survey was undertaken in June 2022 for an additional area of 5.86 ha, totalling 23.44 ha (Figure 3-1). The results of these two surveys were documented in the same report (ELA 2022; Appendix D).

Following this survey, a Detailed flora and vegetation and a Targeted conservation significant flora survey was undertaken in November 2022 (AECOM 2023; Appendix E). As the AECOM survey was more comprehensive (i.e. Detailed as opposed to Reconnaissance level) and it was more recent, this survey supersedes the flora and vegetation component of the surveys conducted by ELA.

Hence, only AECOM (2023) survey data is presented in Section 3.2 (in relation to flora and vegetation), while the ELA (2022) survey data is presented in Section 3.3 (as this relates to terrestrial fauna).

The results of these surveys are summarised below.

3.2. Flora and vegetation

3.2.1. Flora

A total of 46 native and six weed species were recorded. Families with the highest representation of native species were Poaceae (grasses, six species), Myrtaceae (four species) and Fabaceae (four species).

3.2.1.1. Conservation significant flora

At the desktop stage, a total of 118 conservation significant flora species were initially identified as possibly occurring within the Survey Area, including one species known to occur, *Jacksonia debilis* (Priority 1). Three species were considered likely to occur:

- *Acacia cochlocarpa* subsp. *cochlocarpa* (Endangered under EPBC Act and Critically Endangered under BC Act)
- *Daviesia euphorbioides* (Endangered under EPBC Act and Critically Endangered under BC Act)
- *Guichenotia impudica* (Priority 3).

No conservation significant flora species were observed during the field survey (AECOM 2023). Following the field survey the likelihood of occurrence of the above were revised with *Acacia cochlocarpa* subsp. *cochlocarpa* considered unlikely to occur, and *Daviesia euphorbioides* and *Guichenotia impudica* considered to have a low likelihood of occurrence (AECOM 2023).

While *Jacksonia debilis* is known to occur within the Survey Area according to WA Herbarium records, this record is not on the Threatened and Priority Flora List and therefore is not verified by DBCA. The record (representing three records on the database) was from 5 September 1992 described as being "behind church at corner". The Konnongorring Christ Church is located at the junction of Northam-Pithara Road and Dowerin-Konnongorring Road and is outside of the Clearing Area. No individuals were recorded at this location during the current field survey despite a targeted search. This species is a perennial prostrate shrub that should have been detectable during the November survey, even if this was after its flowering period. It was considered possible that the species has not survived at this location since it was recorded 31 years ago (AECOM 2023). It is not expected to occur within the Clearing Area.

3.2.1.2. Introduced flora

Weeds of significance were targeted during the field survey; six weeds were recorded (AECOM 2023):

- *Hypochaeris glabra*
- *Ursinia anthemoides*
- *Avena barbata*
- *Cenchrus setaceus*
- *Ehrharta calycina*
- *Pentameris airoides*.

These species are listed as s11 (permitted) species and none of these species is a listed WoNS or Declared Pest (s22(2)) under the *Biosecurity and Agriculture Management Act 2007* [BAM Act] Western Australian Organism List [WAOL]). The s11 (permitted) species category on the WAOL database indicates that no specific management of these species is required. Additional weed species were present within the AECOM Survey Area, however a complete list of weed species was not compiled (AECOM 2023).

3.2.2. Vegetation

Two native shrubland communities were defined and mapped within the AECOM Survey Area (AECOM 2023):

- AcAe - Tall Open Shrubland (1.81 ha), recorded near the church in the south
- GpAb - Tall Open Shrubland (1.69 ha), restricted to roadside vegetation with scattered native shrubs and occasional tree over weeds.

Two altered communities were also mapped:

- Trees (3.27 ha), comprising stands of native trees over pasture weeds
- Planted (1.24 ha), consisting of planted tree and shrub species.

It is not known if the Planted vegetation represent native vegetation as defined under r 4(1) of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004. This area has; therefore, been excluded from avoidance calculations in this application (e.g. Section 4.2).

The remaining 69.69 ha was mapped as 'cleared' (Table 3-1 and Figure 3-2; AECOM 2023). The Clearing Area contained 0.16 ha of Trees vegetation community (Plate 1).

The canopy from a tree (likely Wandoo) overhangs the Clearing Area in an area to the east of the railway line approximately 50 m from the northern section of the Clearing Area. This small area has been excluded from the Clearing Area as the tree canopy will not be impacted by the Proposal.

Table 3-1: Vegetation communities within the AECOM Survey Area and Clearing Area (AECOM 2023)

Vegetation community	Extent within AECOM Survey Area (ha)	Extent within AECOM Survey Area (%)	Extent within Clearing Area (ha)
AcAe	1.81	2.33	0.00
GpAb	1.69	2.18	0.00
Trees	3.27	4.21	0.16
Total native vegetation	**6.77**	**8.72**	**0.16**
Planted	1.24	1.59	0.00
Cleared	69.69	89.69	0.00
Grand Total	**77.70**	**100.00**	**0.16**

Plate 1: Representative "Trees' vegetation within the Clearing Area.

3.2.2.1. Conservation significant ecological communities

The federally listed Wheatbelt Woodlands TEC was considered to possibly occur prior to the field survey based on the DBCA significant communities mapping. However, no vegetation communities within the AECOM Survey Area were considered to represent the TEC following the fieldwork (AECOM 2023). This was due to the species composition and/or the condition of the vegetation.

3.2.2.2. Vegetation condition

Most of the AECOM Survey Area is classed as Cleared (69.69 ha; 90%), with all condition categories presented in Table 3-2 and Figure 3-3 (AECOM 2023).

The two intact native vegetation communities ranged from Degraded to Very Good, with edge effects from weed invasion evident. Areas mapped as Completely Degraded represent paddocks, planted vegetation and patches devoid of native understorey species (AECOM 2023).

Within the Clearing Area, the entire 0.16 ha of native vegetation was classified as Completely Degraded.

Table 3-2: Vegetation condition within the AECOM Survey Area (AECOM 2023)

Vegetation condition	Area (ha)	Area (%)
Very Good	1.16	1.00
Degraded	2.34	3.00
Completely Degraded	4.51	6.00
Cleared	69.69	90.00
Grand Total	**77.70**	**100.00**

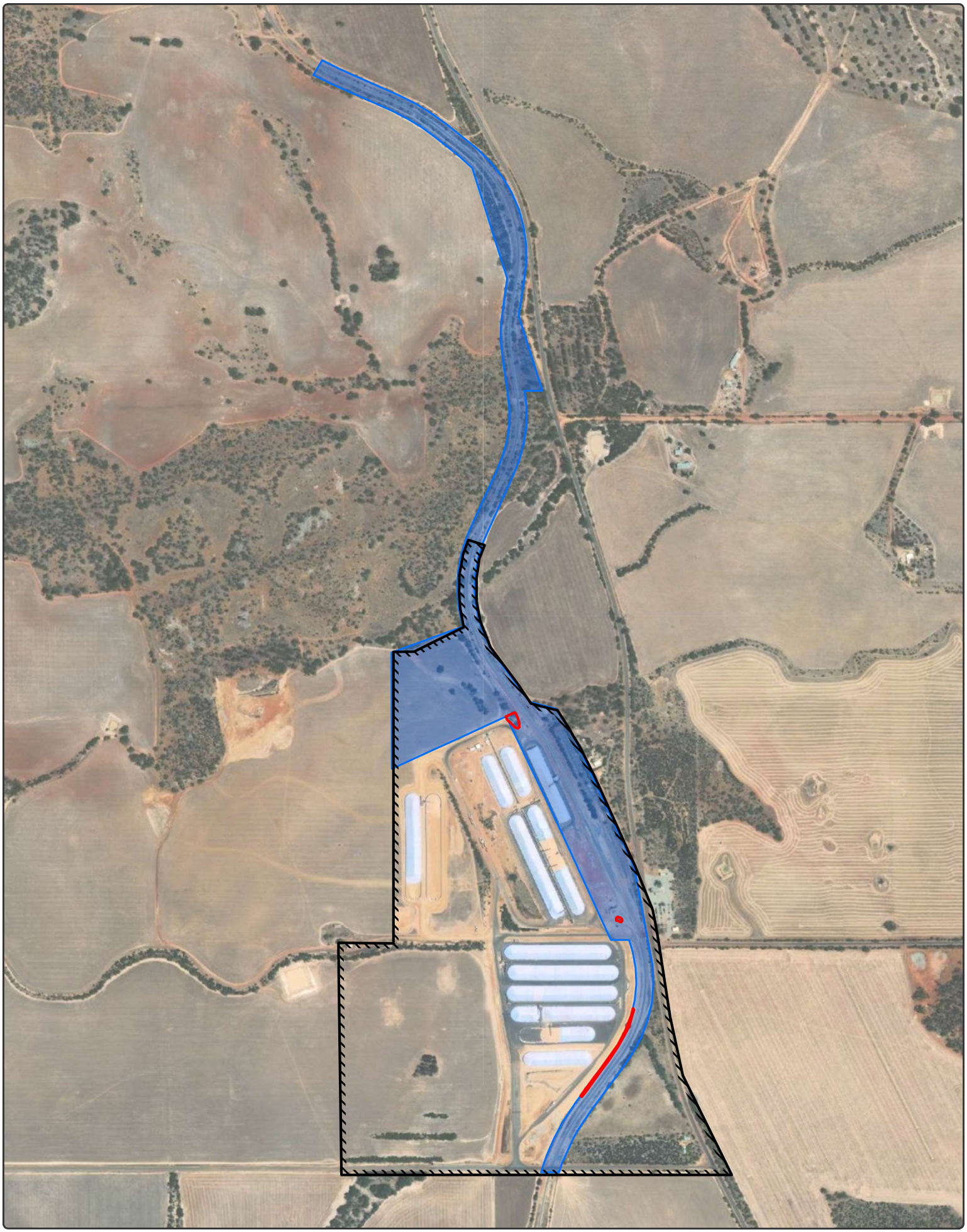

Figure 3-1: Survey Areas

Clearing Area
ELA Survey Area
AECOM Survey Area

N

0 100 200 400
Metres

Datum/Projection:
GDA 1994 MGA Zone 50

22PER4650-ED Date: 31/05/2023

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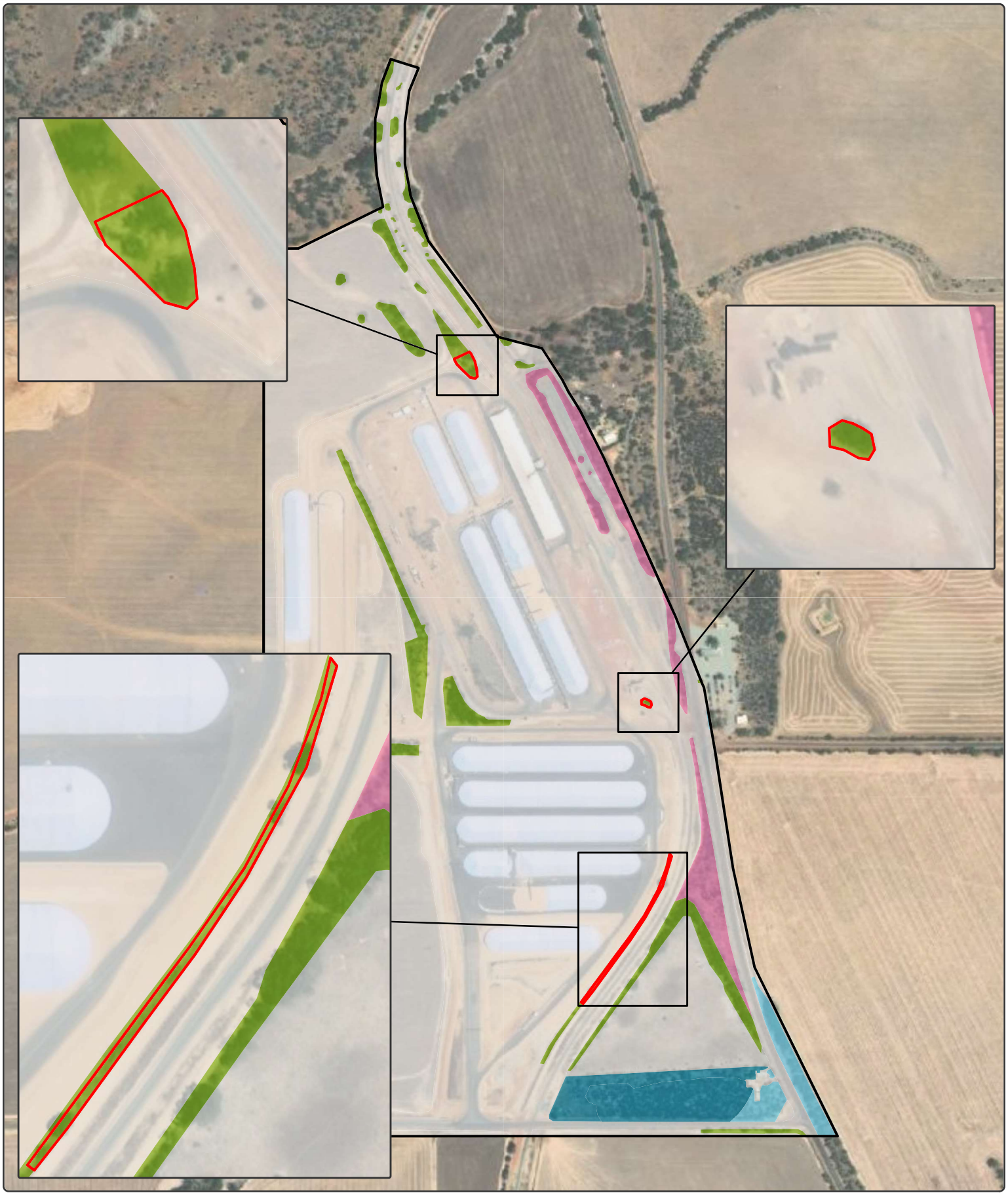

Figure 3-2: Vegetation communities recorded within the AECOM Survey Area and Clearing Area

Clearing Area
AECOM Survey Area
Cleared

Vegetation Community (AECOM 2023)
AcAe
GpAb
Planted
Trees

0 25 50 100
Metres

Datum/Projection:
GDA 1994 MGA Zone 50

22PER4650-ED Date: 31/05/2023

N

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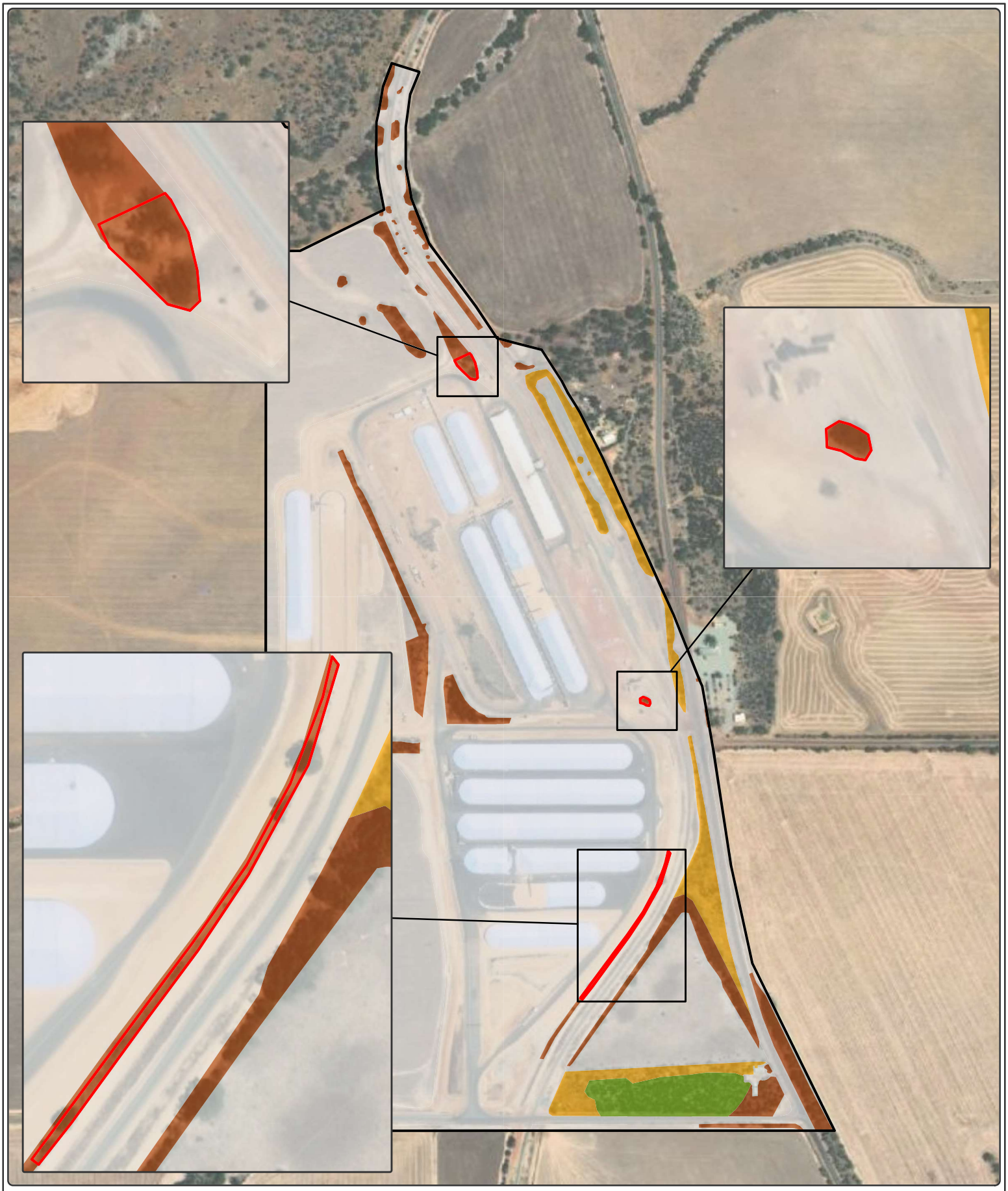

Figure 3-3: Vegetation condition within the AECOM Survey Area and Clearing Area

Clearing Area
AECOM Survey Area
Cleared

Vegetation Condition (AECOM 2023)
Very Good
Degraded
Completely Degraded

0 25 50 100
Metres

Datum/Projection:
GDA 1994 MGA Zone 50

22PER4650-ED Date: 31/05/2023

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3.3. Terrestrial fauna

3.3.1. Terrestrial fauna habitat

Seven fauna habitats were recorded within the ELA Survey Area, covering 6.01 ha (25.64% of the ELA Survey Area) see Table 3-3 and Figure 3-4 (ELA 2022).

The remainder of the ELA Survey Area is cleared (17.43 ha; 74.36%), comprising roads, tracks, existing rail infrastructure and pasture.

One fauna habitat was recorded within the Clearing Area, 0.16 ha of Isolated Trees. To provide consistent vegetation and fauna habitat mapping, the AECOM vegetation mapping was utilised within the Clearing Area (Figure 3-4). A total of 0.09 ha of vegetation within the Clearing Area had not been mapped for fauna habitat (ELA 2022). These areas were classified as Isolated Trees fauna habitat for the purposes of this report.

Table 3-3: Fauna habitat within the ELA Survey Area and Clearing Area (ELA 2022)

Description	Total area (ha)	Proportion of the ELA Survey Area (%)
Salmon Gum Woodland Woodland comprising Salmon Gum and York Gum, with or without an understorey.	0.73	3.11
York Gum Woodland Open York Gum Woodland with *Acacia*, and a grassy understorey.	1.29	5.50
Wandoo Woodland Woodland comprised of Wandoo over isolated shrubs and a grassy understory.	0.47	2.01
Mixed Shrubland Tall open shrubland with a low to mid shrubland understorey.	1.25	5.33
Scattered Trees and Shrubs Scattered trees or shrubs mostly comprising *Acacia acuminata*, over grasses or with an open low to mid shrub stratum.	1.27	5.42
Isolated Trees Isolated trees such as Salmon Gum, Wandoo or *E. camaldulensis*.	0.26	1.11
Planted Tree Lines Planted lines of Eucalyptus tree species or pines.	0.74	3.16
Total fauna habitats	**6.01**	**25.64**
Cleared areas (roads, tracks, rail, pasture)	17.43	74.36
Total	**23.44**	**100.00**

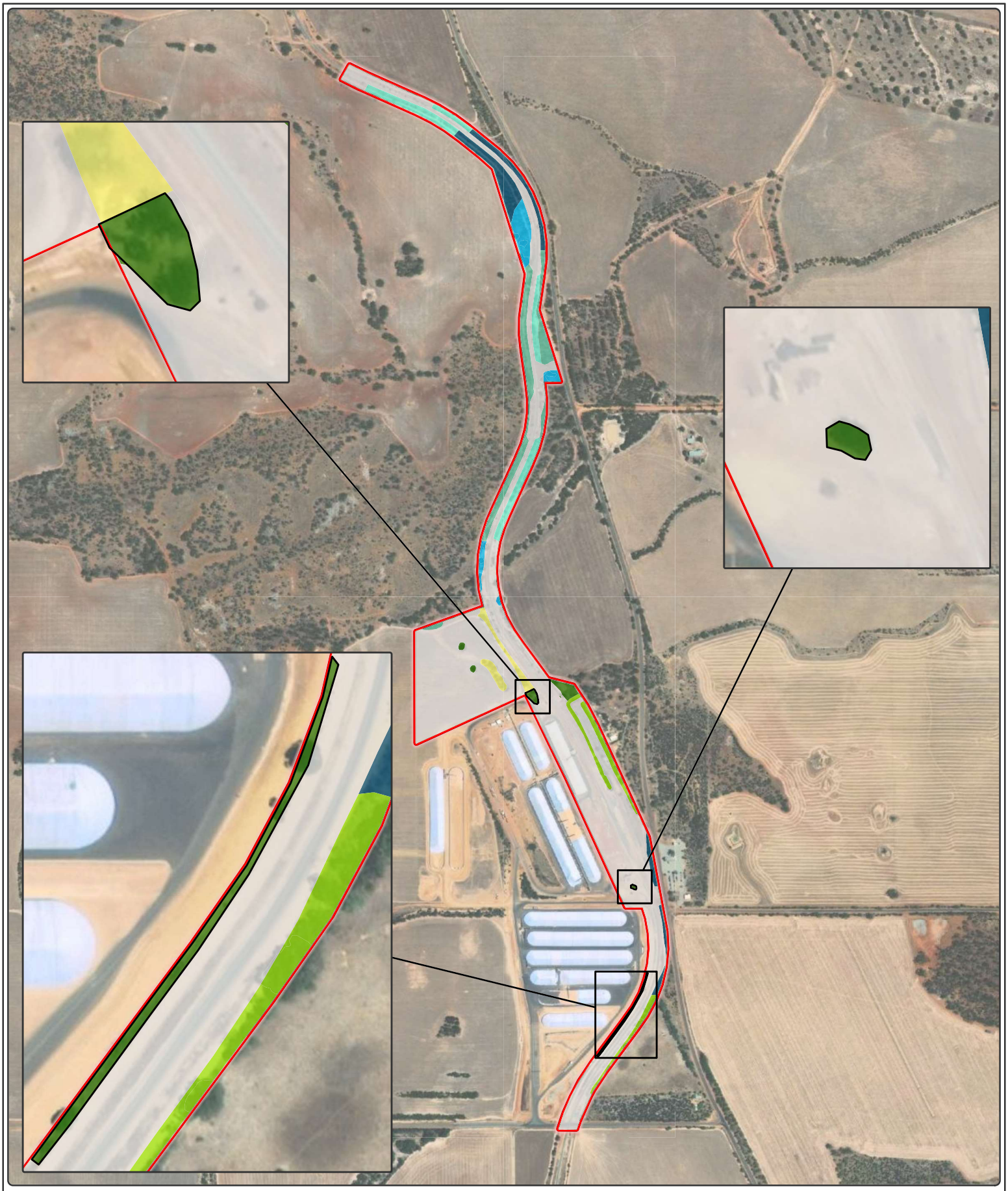

Figure 3-4: Fauna habitat recorded within the ELA Survey Area and Clearing Area

3.3.2. Terrestrial fauna species

A total of 22 vertebrate fauna species were recorded within the ELA Survey Area, comprising 20 birds, one mammal and one reptile (ELA 2022). No evidence of Threatened or Priority fauna species listed under the EPBC Act, BC Act or listed by DBCA were recorded within the ELA Survey Area (ELA 2022).

A total of 31 conservation significant fauna species were identified from a desktop assessment as possibly occurring within the ELA Survey Area (and therefore possibly occurring within the Clearing Area). Post-survey assessment identified only one species to have the potential to occur (ELA 2022): Carnaby's Cockatoo (*Zanda latirostris*), listed as Endangered under the EPBC Act and BC Act.

The remaining 30 species were considered unlikely to occur or do not occur, based on a lack of suitable habitat and lack of nearby records or due to the species being locally extinct (ELA 2022). This included the Western Spiny-tailed Skink (*Egernia stokesii badia*) and Night Parrot (*Pezoporus occidentalis*), both listed as Endangered under the EPBC Act and Vulnerable under the BC Act.

3.3.2.1. Carnaby's Cockatoo

An assessment of Carnaby's Cockatoo habitat was undertaken in accordance with the *EPBC Act referral guidelines for three threatened black cockatoo species* (SEWPaC 2012; ELA 2022). Note the survey was undertaken prior to the recent release of the *Referral Guideline for 3 species of black cockatoo* (DCCEEW 2022); however, the assessment is consistent with the new guideline.

Vegetation present within the ELA Survey Area was assessed for its potential to provide foraging, breeding and roosting habitat for Carnaby's Cockatoo, and the extent of potential suitable habitat within the ELA Survey Area was mapped. Observations were also made of any Carnaby's Cockatoo foraging activity or feeding residue such as chewed cones, *Eucalyptus* seeds or branch clippings, and any individuals within the ELA Survey Area.

Potential breeding habitat for black cockatoos was also mapped as per the 2012 guideline and consisted of recording trees of suitable species with a Diameter at Breast Height (DBH) greater than 500 mm; >300 mm for Salmon Gum (*Eucalyptus salmonophloia*) and Wandoo (*Eucalyptus wandoo*) (SEWPaC 2012). Trees with a DBH greater than 500 mm (or >300 mm for Salmon Gum and Wandoo) are large enough to potentially contain hollows suitable for nesting Carnaby's Cockatoo or have the potential to develop suitable hollows over the next 50 years. Suitable nesting hollows (i.e. near vertical or vertical hollows with an entrance opening greater than 10 cm) were also recorded.

The ELA Survey Area and Clearing Area only occur within the modelled distribution of Carnaby's Cockatoo (SEWPaC 2012), and so this species was the focus of the assessment. The results of the habitat assessment are provided below.

3.3.2.1.1. Foraging habitat

A total of 6.01 ha of suitable foraging habitat for Carnaby's Cockatoo was mapped within the ELA Survey Area (Table 3-4; Figure 3-5). This includes 0.09 ha (0.38%) of low to moderate quality foraging habitat; 1.67 ha (7.12%) of low-quality foraging habitat; and 4.25 ha (18.13%) of negligible to low quality foraging habitat (Table 3-4). The remaining ELA Survey Area contained no suitable foraging habitat for Carnaby's Cockatoo and has been mapped as 'Nil' (Table 3-4 and Figure 3-5).

The Clearing Area contained 0.07 ha of low-quality foraging habitat for Carnaby's Cockatoo, consisting of Wandoo trees at 2-5% Projected Foliage Cover (Table 3-4; Figure 3-5). While Wandoo is a primary foraging species, the majority of Carnaby's Cockatoo diet is made up of proteaceous trees and shrubs such as Banksias and Hakea (Valentine and Stock 2008), which were not present within the Clearing or ELA Survey Area (ELA 2022). A total of 0.09 ha of vegetation within the Clearing Area had not been mapped for Carnaby's Cockatoo habitat by ELA (2022); the Carnaby's foraging habitat was extrapolated for these areas for the purposes of this report. A total of 0.08 ha was classified as negligible to low due to the presence of secondary foraging species (York gum and possibly *Acacia saligna*) at very low foliage cover (<2%). The remaining 0.01 ha was classified as 'nil'. To provide consistent vegetation and fauna habitat mapping, the AECOM vegetation mapping was utilised within the Clearing Area (Figure 3-5).

No evidence of for aging by Carnaby's Cockatoos was observed during the field survey. Multiple Carnaby's Cockatoo records exist within 20 km of the Clearing Area, with the closest record approximately 6.5 km to the north (ELA 2022).

Table 3-4: Definition and extent of black cockatoo foraging habitat within the ELA Survey Area and Clearing Area

Quality	Criteria	Extent within ELA Survey Area (ha; %)	Extent within Clearing Area (ha)
Low to Moderate	Low to Moderate foraging value including: • Primary food sources (i.e. shrubby Banksias, woodlands with Banksias, Marri or Jarrah, Eucalypt Woodland/Mallee of small-fruited species) present at 5-20% projected foliage cover • Secondary food sources (i.e. Woodlands with secondary food items such as Peppermint, Tuart, York Gum, Wattles, being dominant) present at 20-40% projected foliage cover; and • Vegetation may be in Degraded or Good condition.	0.09 (0.38)	0.00
Low	Low foraging value including: • Primary food sources (i.e. shrubby Banksias, Marri or Jarrah trees or open woodland, open Eucalypt Woodland/Mallee of small-fruited species) present at 2-5% • Secondary food sources (i.e. Woodlands with secondary food items such as Peppermint, Tuart, York Gum, Wattles being dominant.) present at 10-20% projected foliage cover; • Vegetation in Degraded condition • Short-term and/or seasonal food sources such as paddocks with melons or other known food-source weeds (e.g. *Erodium* spp.).	1.67 (7.12)	0.07*
Negligible to low	Negligible to low foraging value including: • Primary food sources at < 2% projected foliage cover, or secondary food sources at <10% projected foliage cover. This could include urban areas or cleared paddocks with scattered foraging trees • Vegetation in Degraded or lower condition; • Short-term and/or seasonal food sources such as paddocks partly vegetated with melons or weeds (e.g. *Erodium* spp.).	4.25 (18.13)	0.08*
Total foraging habitat		6.01 (25.64)	0.15
Nil	No foraging value. No Proteaceae, eucalypts or other potential sources of food.	17.43 (74.36)	0.01*
Total		**23.44 (100.00)**	**0.16**

*AECOM (2023) VEGETATION MAPPING UTILISED WITHIN THE CLEARING AREA.

3.3.2.1.2. Breeding and roosting habitat

A total of 30 potential Carnaby's Cockatoo breeding trees (0.2 ha) were recorded within the ELA Survey Area (Figure 3-6; ELA 2022). Potential breeding tree species included Salmon Gum (*Eucalyptus salmonophloia*; 12 trees), York Gum (two trees), River Red Gum (*Eucalyptus camaldulensis*; five trees) and Wandoo (11 trees). These trees all have a DBH equal to or greater than 500 mm (or 300 mm for Salmon Gum and Wandoo). However, none of the potential breeding trees contained hollows potentially suitable for nesting (i.e. vertical or near vertical, with a minimum 10 cm diameter opening) (ELA 2022).

The majority of the potential breeding trees recorded also represent potential roosting habitat, as they generally comprised groups of trees over 5 m in height, or emergent trees (SEWPaC 2012; ELA 2022). A total of 1.3 ha of roosting habitat was mapped within the ELA Survey Area, which includes Salmon Gum, River Red Gum, York Gum, Wandoo, and the lines of planted pine trees (Figure 3-6). However, there are no known or suspected roost sites within 20 km of the ELA Survey Area, with the closest known roost site approximately 27 km to the south (ELA 2022).

No potential Carnaby's Cockatoo breeding or roosting trees occur within the Clearing Area (ELA 2022). The Wandoo trees located within the Clearing Area did not meet the criteria for potential Carnaby's Cockatoo breeding or roosting; the closest suitable tree was located approximately 75 m to the north-east.

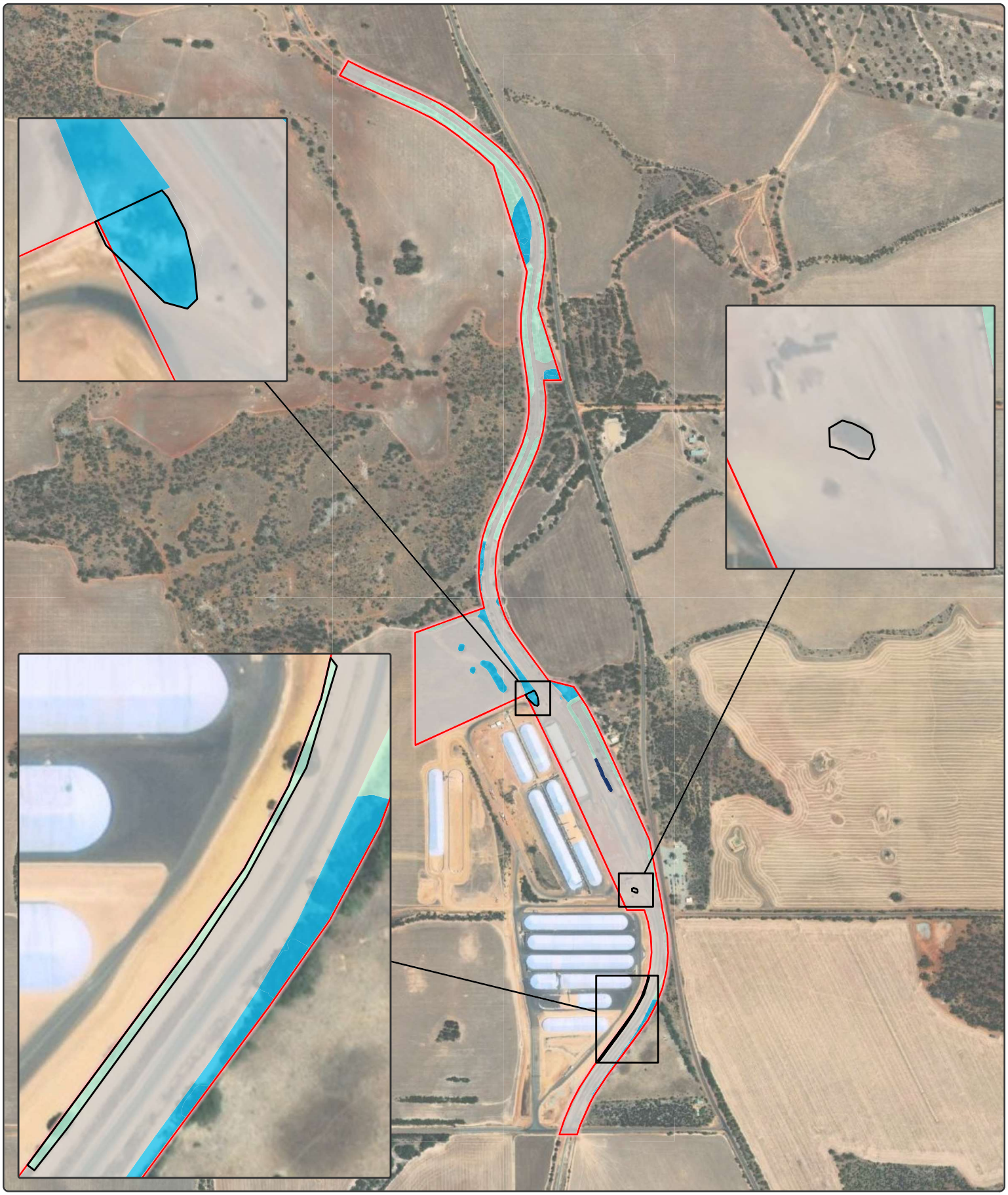

Figure 3-5: Carnaby's Cockatoo foraging habitat within the ELA Survey Area and Clearing Area

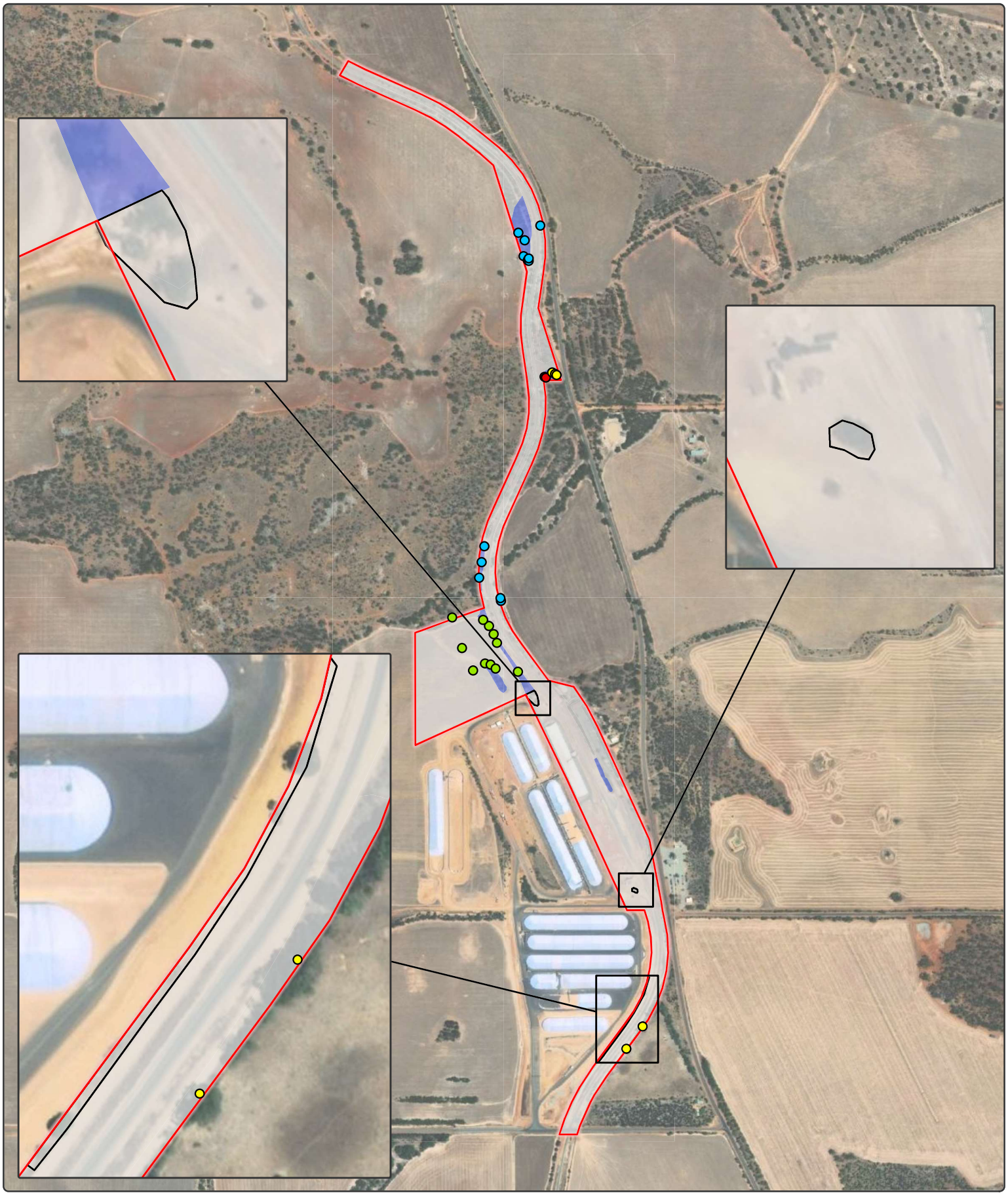

Figure 3-6: Potential Carnaby's Cockatoo roosting and breeding habitat within the ELA Survey Area and Clearing Area

ELA Survey Area
Clearing Area
Roosting habitat
Non-roosting habitat

Potential Breeding Trees

- River red gum (*Eucalyptus camaldulensis*)
- York gum (*Eucalyptus loxophleba*)
- Salmon gum (*Eucalyptus salmonophloia*)
- Wandoo gum (*Eucalyptus wandoo*)

0 100 200 400
Metres

Datum/Projection:
GDA 1994 MGA Zone 50

22PER4650-ED Date: 30/05/2023

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4. Clearing of Native Vegetation

Excluding activities that are exempt under Schedule 6 of the EP Act or s 5 (Prescribed Clearing) of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004, all native vegetation clearing should be done in accordance with an NVCP.

4.1. Proposed clearing

The Proposal will include clearing up to 0.16 ha of native vegetation. Vegetation or habitat values that occur adjacent to the Clearing Area (i.e. within the area avoided by the Proposal), including potential breeding/roosting trees for Carnaby's Cockatoo, will be managed to avoid and minimise indirect impacts (described in Section 4.2 below).

4.2. Measures to avoid and mitigate clearing

The Proponent has undertaken measures to ensure the impacts are as low as reasonably practicable. A number of potential rail siding and facility placement options were identified during the Proposal pre-feasibility stage. Six options were assessed against selection criteria to determine the three highest scoring options to progress for further analysis. The assessment considered the environmental impacts associated with each design, and aimed to reduce vegetation clearing and avoid higher value areas of vegetation (i.e. Wheatbelt TEC) as far as practicable. The final design avoids 98% of extant native vegetation contained within the AECOM Survey Area, reducing the initial potential clearing area from 6.77 ha to 0.16 ha (note this avoidance calculation excludes 'Planted' communities as explained in Section 3.2.2). This includes 1.16 ha of native vegetation in Very Good Condition. The selected design also avoids the following Carnaby's Cockatoo values (as mapped in the ELA Survey Area):

- 5.94 ha of suitable foraging habitat
- 30 potential breeding/roosting trees
- 0.2 ha of potential breeding habitat
- 1.3 ha of potential roosting habitat.

The remaining 0.16 ha of vegetation clearing was considered unavoidable for the Proposal to be viable.

Additional mitigation measures will be implemented to manage potential indirect impacts to the areas of surrounding vegetation or habitat from the Proposal. These include:

- Developing an environmental management plan (EMP) to manage the potential environmental impacts associated with clearing, construction, and operational stages of the Proposal. The EMP will be prepared according to both industry and CBH standards. The impacts include but not limited to:
  - Degradation of surrounding areas of native vegetation and Carnaby's Cockatoo habitat
  - Weeds and/or disease
  - Wastewater or stormwater run-off
  - Excessive dust
  - Contamination from hazardous material
- Developing and implementing a revegetation plan (Tranen 2023; Appendix F) to revegetate 0.84 ha of degraded Wandoo Woodland area located north of the CBH Konnongorring Rail Out-

loading Facility (Figure 4-1). This area includes low quality Carnaby's Cockatoo's foraging habitat and contains one potential breeding tree (ELA 2022). The objectives of the plan are to:

- Protect an identified scar tree (i.e. of cultural heritage value) by re-establishing a natural buffer around the tree using overstorey and midstorey Wandoo Woodland vegetation
- Provide conditions suitable for the expansion of the remnant understorey species across the site.

Figure 4-1: Proposed Revegetation Area

Clearing Area

Proposed Revegetation Area

N

0 25 50 100

Metres

Datum/Projection:
GDA 1994 MGA Zone 50

22PER4650-ED Date: 30/05/2023

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5. Assessment against the Ten Clearing Principles

A detailed assessment of the proposed clearing of up to 0.16 ha of native vegetation against the ten Clearing Principles contained in Schedule 5 of the EP Act is provided in Sections 5.1 to 5.10. Table 5-1 provides a summary of the assessment.

The Proposal is not considered to be at variance with any of the Ten Clearing Principles.

Table 5-1: Summary of assessment against the ten clearing principles

Clearing Principle	Not at variance	Not likely to be at variance	May be at variance	At variance	Seriously at variance
a) Native vegetation should not be cleared if it comprises a high level of biological diversity	☒	☐	☐	☐	☐
b) Native vegetation should not be cleared if it comprises the whole, or part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia	☒	☐	☐	☐	☐
c) Native vegetation should not be cleared if it includes or is necessary for the continued existence of Rare flora	☒	☐	☐	☐	☐
d) Native vegetation should not be cleared if it comprises the whole, or part of, or is necessary for the maintenance of a threatened ecological community (TEC)	☒	☐	☐	☐	☐
e) Native vegetation should not be cleared if it is significant as remnant vegetation in an area that has been extensively cleared	☒	☐	☐	☐	☐
f) Native vegetation should not be cleared if it is growing in or in association with an environment associated with a watercourse or wetland	☒	☐	☐	☐	☐
g) Native vegetation should not be cleared if the clearing of vegetation is likely to cause appreciable land degradation	☒	☐	☐	☐	☐
h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area	☒	☐	☐	☐	☐
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	☒	☐	☐	☐	☐
j) Native vegetation should not be cleared if the clearing of vegetation is likely to cause, or exacerbate, the incidence of flooding	☒	☐	☐	☐	☐

5.1. Comprises a high level of biological diversity

Principle (a): Native vegetation should not be cleared if it comprises a high level of biological diversity.

A total of 46 native and six weed species were recorded. Families with the highest representation of native species were Poaceae (grasses, six species), Myrtaceae (four species) and Fabaceae (four species) (AECOM 2023). None of the weeds recorded were listed as WoNS or Declared Pest.

Two native shrubland communities (AcAe and GpAb) occur within the AECOM Survey Area, an area of 3.50 ha (AECOM 2023). Two altered communities were also mapped; Trees (3.27 ha), comprising of stands of native trees over pasture weeds, and Planted (1.24 ha), consisting of planted tree and shrub species (AECOM 2023). The Planted vegetation may not represent an extant native vegetation community; however this status is uncertain as explained in Section 3.2.2). The majority of the AECOM Survey Area has been historically cleared for infrastructure and farming. Due to this historical clearing, most of the AECOM Survey Area was mapped as Cleared (69.69 ha, 90.00%) or Completely Degraded (4.51 ha, 6.00%). Only a small portion was mapped as Very Good (1.16 ha, 1.00%) representing the intact native vegetation (AECOM 2023). The native vegetation within the Clearing Area, Trees (0.16 ha), is in Completely Degraded condition.

A total of 22 vertebrate fauna species were recorded within the ELA Survey Area, comprising 20 birds, one mammal and one reptile (ELA 2022). No evidence of Threatened or Priority fauna species listed under the EPBC Act, BC act or listed by DBCA were recorded within the ELA Survey Area.

One conservation significant fauna species was considered to potentially occur based on the availability of suitable habitat and proximity of nearby records, Carnaby's Cockatoo, listed as Endangered under the EPBC Act and BC Act (ELA 2022). The Clearing Area contains 0.15 ha of low/negligible to low quality foraging Carnaby's Cockatoo habitat (ELA 2022). No evidence of use by this species was observed within the Clearing Area or the ELA Survey Area. The remaining 30 fauna species identified in the desktop assessment with possibly occurring are considered as unlikely to occur or do not occur within the ELA Survey Area (and therefore Clearing Area) based on lack of suitable habitat for these species and/distance of known records (ELA 2022).

Overall, absence of Threatened and/or Priority listed species within the Clearing Area indicated that the biological diversity is not higher of that in extant native vegetation of the surrounding area. The Clearing Area is small (0.16 ha of native vegetation), in Completely Degraded condition and is located adjacent to an active railway. The Clearing Area is; therefore, highly unlikely to contain a high level of biodiversity or significantly affect the biodiversity of surrounding areas.

5.1.1. Conclusion: Not at variance with this Principle

Given the small area of vegetation proposed for clearing, the biological diversity of areas immediately surrounding the Clearing Area are not expected to be significantly affected. Therefore, the proposed clearing is not considered to be at variance with this Principle.

5.2. Potential impact to any significant habitat for fauna indigenous to Western Australia

Principle (b): Native vegetation should not be cleared if it comprises the whole, or part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

The 0.16 ha of native vegetation within the Clearing Area provides 0.07 ha of low quality and 0.08 ha of negligible to low quality foraging habitat for Carnaby's Cockatoo. However, no evidence of foraging by Carnaby's Cockatoos was observed. In addition, there is no potential roosting or breeding habitat within or directly adjacent to the Clearing Area, with the closest suitable tree approximately 75 m to the north-east.

Although the ELA Survey Area does provide some suitable foraging, potential breeding, and potential roosting habitat for Carnaby's Cockatoo, given the lack of proteaceous trees and shrubs, the overall quality of the habitat present is considered low or negligible to low, with some very small patches of low to moderate quality habitat. Given the low quality of the habitat present, the lack of suitable nesting hollows and that no evidence of the species occurring within the ELA Survey Area was observed during the surveys, it is considered unlikely that Carnaby's Cockatoo is currently utilising the Clearing Area or the ELA Survey Area for any of the above-mentioned activities (ELA 2022).

The fauna habitat within the Clearing Area is described as 'Isolated Trees' (ELA 2022) and does not contain any habitat for any other Threatened or Priority fauna species, and none are considered to possibly occur based on lack of suitable habitat and/distance of known records (ELA 2022).

Vegetation within the Clearing Area occurs in three isolated pockets and does not provide any ecological linkages with surrounding areas.

5.2.1. Conclusion: Not at variance with this Principle

After multiple careful consideration and multiple redesigns, it has been determined that the removal of 0.16 ha of low/negligible to low foraging habitat for Carnaby's Cockatoo is necessary for the successful implementation of the Proposal. The habitat in question has been assessed to be of poor quality and is not considered significant for the survival of any indigenous fauna species, including Carnaby's Cockatoo. There was no evidence of foraging, roosting or breeding by Carnaby's Cockatoo within the ELA Survey Area (and therefore in Clearing Area).

Additionally, the overall quality of the fauna habitat in the Clearing Area is low, with the native vegetation in Completely Degraded condition with little native understorey. The Clearing Area does not provide any ecological linkages to the surrounding areas and is in close proximity to an active railway. Therefore, the Proposal is considered not to be at variance with this Principle.

5.3. Potential impact on any rare flora

Principle (c): Native vegetation should not be cleared if it includes or is necessary for the continued existence of Rare flora

No flora species listed as Threatened under the EPBC Act, BC Act or Priority flora species listed by DBCA were recorded or considered likely to occur within the AECOM Survey Area (therefore, the Clearing Area) following the field surveys. This was due to the lack of suitable habitat present, lack of species detection despite adequate survey effort during flowering season, and/or lack of nearby records (AECOM 2023). *Jacksonia debilis* (Priority 1) had a WA Herbarium record from 1992 contained within the AECOM Survey Area, in proximity to the Konnongorring Christ Church. No individuals of this species were identified in this area during the AECOM (2023) survey, despite appropriate survey effort, and this

species is likely to be no longer present. This location is outside of the Clearing Area and will not be impacted by the Proposal.

5.3.1. Conclusion: Not at variance with this Principle

No rare flora was recorded or are considered likely to occur within the Clearing Area, thus the Proposal is considered not to be at variance with this Principle.

5.4. Potential of any threatened ecological communities

Principle (d): Native vegetation should not be cleared if it comprises the whole, or part of, or is necessary for the maintenance of a threatened ecological community (TEC).

There were no TECs or PECs recorded or considered to possibly occur within the AECOM Survey Area (therefore, the Clearing Area) following the field survey (AECOM 2023).

5.4.1. Conclusion: Not at variance with this Principle

No TECs or PECs was recorded or are considered to possibly occur, thus the Proposal is considered not to be variance with this Principle.

5.5. Significance as a remnant of native vegetation in the area that has been extensively cleared

Principle (e): Native vegetation should not be cleared if it is significant as remnant vegetation in an area that has been extensively cleared.

The Proposal is in Konnongorring within the Shire of Goomalling, which occurs within the Avon Wheatbelt IBRA Bioregion. The Avon Wheatbelt has been extensively cleared for agriculture with more than 80% of native vegetation cleared since European settlement (GovWA 2019).

Mapping of one pre-European vegetation association, Guangan 1024, occurs within the Clearing Area. The Proposal will result in clearing of approximately 0.16 ha of Guangan 1024 in Completely Degraded condition. Approximately 11.5% (6,901.52 ha) of the pre-European extent of Guangan 1024 remains within the AVW02 Katanning IBRA subregion (GovWA 2019). The proposed clearing of 0.16 ha represents 0.002% of the remaining extent of Guangan 1024 within the Avon Wheatbelt region, which is expected to be considered a negligible impact.

While the native vegetation in the Clearing Area may not have significant conservation value, it is still present in a landscape that has undergone extensive clearing. To mitigate the impact of the proposed development, the Proponent has devised a plan (Tranen 2023; Appendix F) to revegetate 0.84 ha of degraded Wandoo Woodland adjacent to the Clearing Area (see Figure 4-1).

5.5.1. Conclusion: Not at variance with this Principle

Although the proposed clearing will impact a vegetation association, Guangan 1024, with only approximately 11.5% of its original extent remaining, the proportion of impact is negligible (0.002% of remaining extent). This remnant of this vegetation association is in Completely Degraded condition and lacks a native understorey. Together with the proposed mitigations measures, including revegetation of an 0.84 ha area, the proposed avoidance and minimisation strategies will ensure the impact of the Proposal is not at variance with this Principle.

5.6. Impact on any watercourses and/or wetlands

Principle (f): Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

The Clearing Area is located in a sub-catchment of the Avon River Catchment, Morlock North Branch (DWER 2018a). There are no wetlands or riparian vegetation located within the Clearing Area or either of the ELA or AECOM survey areas. The closest watercourse is a minor ephemeral creek (unnamed) approximately 0.6 km to the south west.

Water management infrastructure will be installed to manage surface water and groundwater flows within and around the Clearing Area to avoid pooling and ensure adequate drainage to designated drainage basins. Water will be discharged from these basins off site when required, including downstream. No impacts are expected to riparian vegetation, wetlands or watercourses.

5.6.1. Conclusion: Not at variance with this Principle

As there is no riparian vegetation, wetland or watercourse present within the AECOM or ELA Survey Areas and therefore the Clearing Area, the Proposal is considered not to be at variance to this Principle.

5.7. Potential to cause appreciable land degradation

Principle (g): Native vegetation should not be cleared if the clearing of vegetation is likely to cause appreciable land degradation.

DPIRD broadscale salinity risk mapping indicates the Clearing Area is within a soil landscape map unit at a '3% moderate to extreme surface salinity risk' (DPIRD 2023a). Land Monitor remote sensing salinity mapping shows some small patches of potential salt-affected land in the vicinity of the Clearing Area but no significant change between 1998 and 2018, suggesting negligible changes in groundwater levels – that lead to secondary surface salinity – in the area in that time. Some areas are also shown in the Land Monitor mapping as potentially affected by salinity in 2018 (that were not in 1998) occur in areas occupied by built structures, such as the existing grain receival facility, suggesting these patches are errors in interpretation due to the presence of these structures (e.g. hardstand areas). Dryland Salinity and Valley Hazard mapping available from DPIRD (2023b) also shows the nearest area of saline-affected land approximately 0.7 km south of the Clearing Area, with the hazard area (i.e. land potentially vulnerable to future salinisation as a result of rising groundwater) located over southern portions of the existing grain handling facility.

Clearing of 0.16 ha of vegetation in Completely Degraded condition is not expected to have more than a negligible effect on local groundwater levels and therefore potential to increase secondary salinisation in the area.

The Clearing Area also has a Water Erosion Risk mapped as 'L1' (<3% of map unit has a high to extreme water erosion risk; DPIRD 2019b) and Wind Erosion Risk mapped as 'M2' (30-50% of map unit has a high to extreme wind erosion risk; DPIRD 2019c).

The small scale of clearing is such that any wind and water erosion risk is expected to be negligible. Water management infrastructure will be installed and surface and groundwater flows will be managed within and around the Clearing Area to avoid pooling of water and flooding and to ensure adequate

drainage to designated areas. The Clearing Area will be developed into compacted hardstand, which will minimise wind erosion.

The Clearing Area is not at risk of acid sulfate soils (Golder 2023, Appendix C).

5.7.1. Conclusion: Not at variance with this Principle

The Proposal is not expected to increase soil, groundwater or surface water salinity due to the small-scale nature of the Proposal. Management measures such as installation of water management infrastructure and compaction of the ground will minimise the likelihood of severe waterlogging, land degradation, water or wind erosion within the Clearing Area and its immediate surroundings. Therefore, the Proposal is not expected to be at variance to this Principle.

5.8. Potential to impact on the environmental values of adjacent or nearby conservation areas

Principle (h): Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

The Clearing Area is not located within or adjacent to a conservation area. The nearest conservation area is Walyormouring Nature Reserve, approximately 13 km south-east of the Clearing Area.

5.8.1. Conclusion: Not at variance with this Principle

The Proposal is considered not to be at variance with this Principle.

5.9. Potential deterioration in the quality of surface or underground water

Principle (i): Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Groundwater underlying the Clearing Area is expected to have a salinity of between 14,000-35,000 mg/L (DWER 2018b). However, this is based on a Statewide dataset, which, due its scale (1:2,500,000) is 'highly interpretive, and only broadly indicative of the likely groundwater salinity'.

Groundwater table observed at the depth of 6.6 m at the closest borehole to the Clearing Area (BH02, approximately 70 m from the northern section of the Clearing Area). Based on the results of the geotechnical investigation, unless piled foundations are proposed, groundwater is expected to be below the proposed footing level and thus is unlikely to be encountered during construction (Golder 2023).

The Proposal is not located within a Public Drinking Water Source Area (DWER 2022).

The Clearing Area is not at risk of acid sulfate soils (Golder 2023).

There are no surface water features present within the Clearing Area. The closest wetland is Lake Ninan, approximately 16 km northwest of the Clearing Area, while the closest watercourse is Gabby Quoi Quoi Creek, 2 km to the north, and a minor unnamed ephemeral watercourse approximately 0.06 km to the south-west.

Due to the presence of shallow clayey soils, perched water at the site could occur following rainfall. Water management infrastructure will be installed and surface and groundwater flows will be managed

within and around the Clearing Area to avoid pooling of water and to ensure adequate drainage to designated areas. Drainage design will also be finalised as development of the project progresses, to ensure stormwater capacity is sufficient under final constructed conditions.

Management of water quality and hydrocarbon and chemical storage will be in consistent with CBH Environmental Management Standards which outlines minimum requirements for water quality, management of spills, and other mandatory water management measures that must be implemented.

5.9.1. Conclusion: Not at variance with this Principle

The watertable is expected to be below the proposed footing level and thus is unlikely to be encountered during construction. Water management infrastructure will be installed and flows will be managed within and around the Clearing Area to avoid pooling of water and to ensure adequate drainage to designated areas. The Proposal is unlikely to cause deterioration in the quality of surface or groundwater in terms of salinity, acidity or other physico-chemical properties.

Therefore, the Proposal is considered not to be variance with this Principle.

5.10. Potential of clearing to cause, or exacerbate, the incidence of flooding

There are no surface water features or wetlands present within or immediately adjacent to the Clearing Area. However, due to the presence of shallow clayey soils, perched water at the site following wet periods could occur (Golder 2023). To combat this, water management infrastructure will be installed and surface water flows will be managed within and around the Clearing Area to avoid pooling of water and to ensure adequate drainage to designated areas. Drainage design will also be finalised as development of the project progresses, to ensure stormwater capacity is sufficient under final constructed conditions.

5.10.1. Conclusion: Not at variance with this Principle

The Proposal design will manage water flows on site and is not anticipated to cause or exacerbate flooding. The Proposal is therefore not considered to be at variance with this Principle.

6. Stakeholder consultation

The Clearing Area is within the Ballardong People Indigenous Land Use Agreement (W12017/012; Registered 17 October 2018) and is part of the South West Settlement Determination (WCD2021/010; Determined 1 December 2021). The heritage survey was undertaken with representatives of the Ballardong community on 27 September 2022. The Ballardong Traditional Owners present supported the Proposal unanimously and made the following recommendations:

- Mature trees should be protected during the implementation of the Proposal
- Clearing of remnant vegetation should be avoided where possible.

An Activity Notice for the proposed project was issued to Southwest Aboriginal Land and Sea Council in March 2022. The Proponent has been in consultation with environmental officers (Jessica Burton and Ryan Mincham) from DWER on a monthly basis to discuss the Proposal and other CBH projects. The Proponent has also consulted the Shire of Goomalling with the shire showing general support for, and desired to work with the Proponent to finalise the Proposal. The Proponent also has been in consultation with other relevant stakeholders including PTA, Telstra and Western Power.

7. References

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