

P1011A Konnongorring Grain Receival Facility and Rail Expansion Revegetation Plan

Co-operative Bulk Handling Limited

P1011A-01-Rev 2

April 2023

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1 INTRODUCTION AND BACKGROUND

In October 2022 Tranen Revegetation Systems was commissioned by Co-operative Bulk Handling Limited (CBH) to prepare a Revegetation Plan associated with upgrades to the Konnongorring Grain Receival Facility at Konnongorring, WA. The final designs for the upgrades have not yet been produced, however, the preliminary designs provided by CBH indicate that revegetation is to be undertaken to compensate for the loss of a small area of native vegetation up to 0.37 hectare in area, none of which includes priority flora species, mapped TEC or Carnaby's Black Cockatoo habitat.

1.1 Background

CBH is expanding the grain receival and handling facility at their Konnongorring site. The proposed works include an additional rail siding and over-rail loading bins. This will involve the clearing of some remnant native vegetation. Further, future works may require additional clearing.

CBH appointed Tranen to prepare this revegetation plan to compensate for the loss of up to 0.37 hectare of native vegetation, which includes an area mapped by Eco Logical Australia (ALA) as Wandoo Woodland in a Degraded condition. This area was identified as having 'Low' Carnaby's Black Cockatoo (CBC) foraging habitat quality. One potential CBC breeding tree is within this 0.37 hectare area, though it is unclear whether this tree (Eucalyptus wandoo) will be impacted by the proposed works.

This revegetation plan covers a 0.84 ha area to the north of the CBH facilities.

1.2 Documentation Provided

This report is based on the following information provided by CBH:

- Konnongorring Rail Loading Site Flora and Fauna Survey. Prepared for CBH by Eco Logical Australia (ELA) in August 2022.
- CBH Engineering Drawing 358-ENG-CI-DCO-0025 Rev A
- A drone image of the project area.

1.3 Site Visit

Damian Grose and Matthew Newman of Tranen visited the site on 8 December 2022.

1.4 Objectives

The objectives of this revegetation plan are to protect an identified scar tree by re-establishing a natural buffer around the tree using overstorey and midstorey Wandoo Woodland vegetation, and to provide conditions suitable for the expansion of the remnant understorey species across the site.

2 SITE DESCRIPTION

2.1 Site Location and Size

The designated revegetation area forms a 0.84 hectare portion of the larger CBH Konnongorring site, which is on the western side of the rail line at the locality of Konnongorring in the Shire of Goomalling. Konnongorring is approximately 20 kilometres south of the town of Wongan Hills (Figure 1).

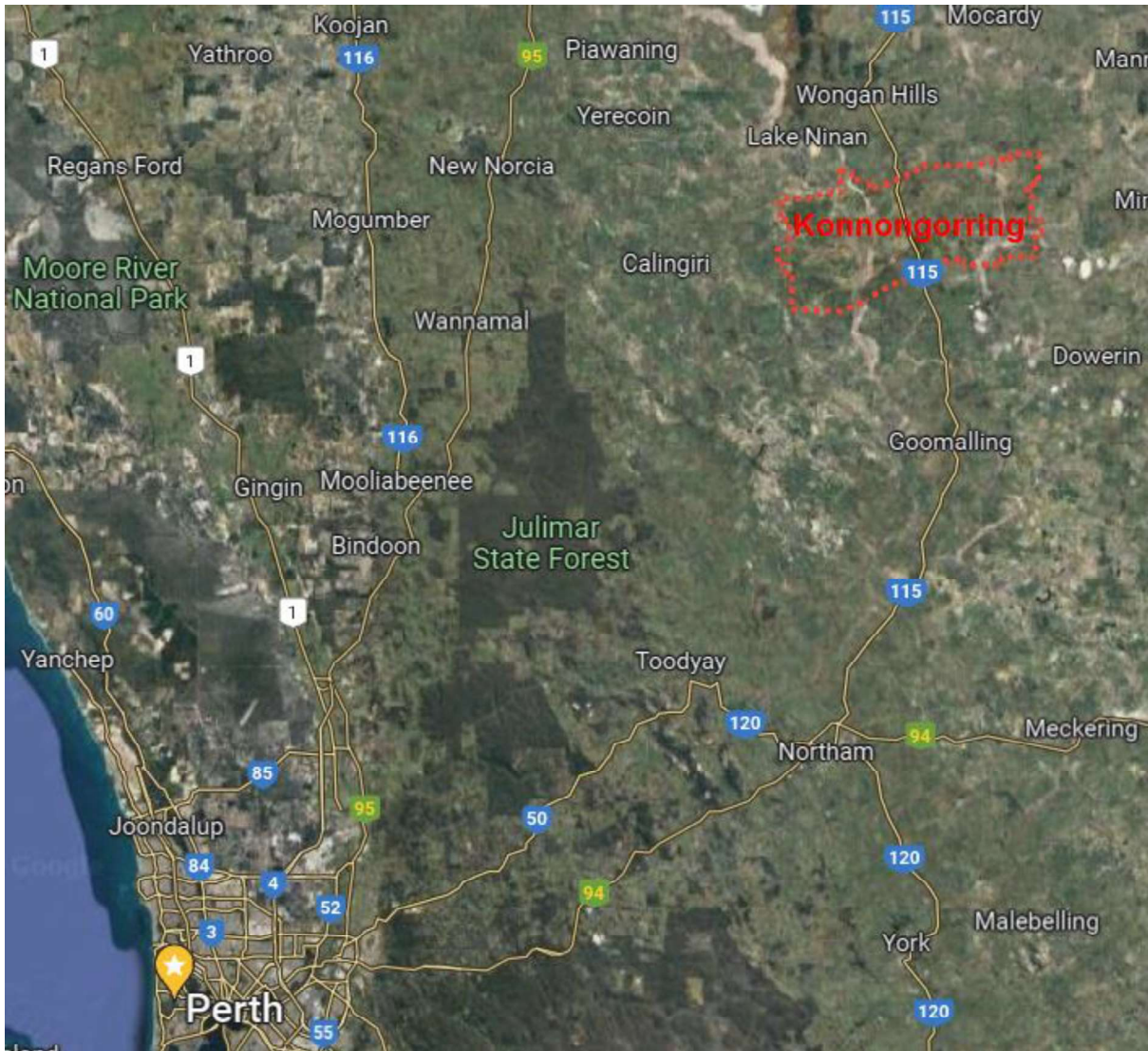


Figure 1 Location of Konnongorring

The site consists of patchy surface outcrops of granite with an overstorey of *Eucalyptus wandoo*. The vegetation is degraded, with annual pasture weeds common throughout but with sufficient diversity and numbers of specimens of understorey species to provide a seed source for repopulation if weed control is undertaken. The midstorey vegetation is naturally sparse in Wandoo woodland. The isolated paddock trees are mature and both have spreading canopies approximately 12 metres in diameter. The desired outcome for this zone is to establish a tree canopy cover of at least 20% within 10 years, connecting the main

remnant and the paddock trees. The midstorey will establish across the zone and include at least three species. The canopy and midstorey will provide conditions for the existing understorey remnants to radiate out.

Typical site photographs are shown in Figure 2.



Figure 2 Typical Site Conditions

2.2 Climate

Located in the Avon Wheatbelt bioregion, the site is within a region described as having a semi-arid (dry) and warm Mediterranean Climate. Data from the Bureau of Meteorology (BoM) Konnongorring weather station (station number 10076) indicates that the area receives an average of 352.8 mm of rainfall each year, with the winter months of June and July having the highest monthly totals of 63 mm and 63.4 mm respectively.

2.3 Landform and Soils

The site is characterised by small outcrops of weathered laterite. The presence of the outcrops is likely responsible for the vegetation not being cleared for grain production. The soil surrounding the outcrops is grey-brown sandy clay loam with a gravelly surface in parts. Immediately away from the remnant vegetation in the cultivated area, the soil changes to a red loam.

The site is at an elevation of approximately 290 m AHD.

2.4 Dieback Status

No information has been collected or made available on the dieback status of the site. The land was previously cleared for agricultural purposes. Only limited vegetation cover remains, none of the species of which are normally subject to dieback infection.

2.5 Vegetation Assessment

The remnant vegetation is described in the ELA 2022 report as Wandoo Woodland which is in a degraded condition. The more detailed description notes:

Eucalyptus wandoo open woodland over *Allocasuarina campestris*, *Acacia assimilis* and *Santalum acuminatum* isolated tall shrubs over *Rhytidosperma caespitosum* and *Lepidosperma tenue* very open grass/sedgeland with weedy annual species *Arctotheca calendula* and assorted introduced grasses becoming dominant part of the year. Other species present include *Austrostipa elegantissima*, *Maireana brevifolia*, *Dianella revoluta var divaricata*, *Lomandra effusa*, *Ptilotus exaltatus* and *Mesembryanthemum nodiflorum*.

A limited suite of understorey species was observed under the canopies of the isolated paddock trees during the Tranen site inspection on December 8, 2022. The surrounding area is entirely dominated by cultivated wheat, with no other weeds noted.

2.6 Fauna

The remnant vegetation has no significant fauna habitat values. ELA noted 22 vertebrate fauna species across the wider CBH Konnongorring study area: 20 birds, one reptile and one mammal. During the Tranen site visit, one Bobtail lizard (*Tiliqua rugosa*) was observed. The remnants were mapped as having low foraging habitat value for Carnaby's Black Cockatoo, with the Wandoo gums noted as potential breeding trees within roosting habitat for the birds. However none of the potential breeding trees contained hollows potentially

suitable for nesting (ELA, 2022). ELA did not observe any evidence of recent foraging during the survey.

2.7 Conservation Value

The surveys by ELA in November 2021 and 01 June 2022 did not identify any Threatened or Priority species listed under the EPBC Act or the BC Act or listed by the DBCA.

2.8 Existing Uses

The remnant exists in a landscape dominated by grain production, a small cluster within a wheat paddock.

3 REVEGETATION STRATEGY

3.1 General

In the absence of definitive revegetation targets or requirements, the revegetation strategy will focus on establishing tree canopy cover and midstorey vegetation. The species to be used in the revegetation works have been selected from those mapped as occurring within the area studied by ELA 2022 within the communities Wandoo Woodland and York Gum – Jam Woodland. Direct seeding and seedling planting are to be employed.

The objectives of the revegetation plan are to re-establish the overstorey and midstorey vegetation structure of Wandoo Woodland and to provide conditions suitable for the expansion of the remnant understorey species across the site.

3.1.1 Protection of Remnant Native Vegetation

All existing native vegetation is to be retained within the designated revegetation area. One of these trees has been identified as an indigenous scar tree with heritage value, and the location was chosen to act as a buffer around this tree.

3.1.2 Fencing and Site Protection

A simple 1.2 m high rural perimeter fence 425 m long is proposed for the site, primarily to prevent unintentional vehicle access damaging the vegetation.

3.2 Management Zones

The site will be managed using two treatment types, weed control only around the remnant trees and direct seeding, planting and weed control in the remainder.

The trees are to be planted at a rate of 250 per hectare. The total area to be revegetated is approximately 0.84 hectares, resulting in a total of 210 trees to be planted. Shrubs are to be planted at 1,000 per hectare, giving a total of 840.

4 IMPLEMENTATION METHODOLOGY

4.1 Weed Management

The weed management strategy is to be initially implemented during planting, and subsequently through limited maintenance herbicide spraying and physical removal each spring and autumn as necessary to ensure weed competition does not inhibit tree and shrub survival and establishment. Direct seeding and tubestock planting is to be done in winter after adequate rainfall. At each planting location, an area slightly larger than a tree guard will be manually cleared of grasses and herbs by an indigenous group, a tree planted and a corflute tree guard fixed in place. A minimal weed control program has been chosen that will be sufficient to allow the planted trees and shrubs to establish whilst minimising losses to the existing native grasses and shrubs.

4.2 Species Selection and Allocations

Refer to detail in Appendix 3. *Eucalyptus wandoo* is the primary tree species being used for planting (making up 80% of the total number) as it is high priority to benefit Carnaby's Black Cockatoos. *Eucalyptus loxophleba* is being used for diversity, though this is typically rated as a low priority species for the birds. Understorey species selected for planting are those that are both locally occurring and commonly available from plant nurseries.

Seed availability for both direct seeding and seedling propagation depends on a number of factors, including weather. For example, Westgrow Tree Nursery which specialises in wheatbelt species was unable to source seed of one of the species on the list, *Rhagodia preissii* in 2023.

4.3 Direct Seeding

Seed will be sourced from as close to the site as is practical. The nominal rate for direct seeding would normally be around 3 kg/ha. However, as the seeds of many of the species listed here are very light, and seed of all species may not be readily available this rate should be adjusted on the basis of the availability of the various seeds at the time of project implementation.

Seed will be pre-treated by Tranen as appropriate to break dormancy and promote germination and bulked up with clean dry sand or vermiculite to facilitate even distribution in hand spreading by an indigenous group, trained by Tranen if necessary. No fertiliser will be spread, as it may also promote weed growth.

The site surface will be scarified by a local contractor prior to fence installation to break up any hard crust and facilitate root penetration of germinants.

Seeding is to be done in autumn 2024 after the first significant seasonal rainfall.

4.4 Fencing

The 1.2 m high fencing will consist of black star pickets with plastic caps at 4 m centres and three strands of wire, the upper being white horse-sighter. Corner posts will be braced. This could be installed by a local contractor, or Tranen could undertake the works and involve and train local traditional owners.

4.5 Seedling Propagation

Seedlings will be acquired from Westgrow Farm Trees at Meckering, propagated from material sourced as close to the site as available at the time of order.

4.6 Seedling Planting

Planting is to be done in winter 2024.

Seedlings will be watered on the day of planting before delivery to site to reduce the potential for transplant shock. Planting will be undertaken over the naturally wet months of the year and provided the soil is moist no other watering is considered necessary.

Tranen recommends not watering seedlings after planting for the following reasons:

1. It promotes shallow root development, which can impact long term plant survival, and
2. There is no guarantee that watering will ensure long-term seedling survival.

For safety reasons planting tubes will be used, to negate the need for repeated bending. Seedlings will be randomly planted within the designated planting areas.

One 10 g native fertiliser tablet (low in P) will be buried adjacent to each native seedling, as research and experience has shown them to improve survival and growth rates. Tablets are preferred over granules as they provide the nutrients directly to the target seedlings and are less accessible to nearby weeds.

It is expected that planting will be done by a local indigenous group, trained on site by Tranen if necessary.

4.7 Tree Guards

Green triangular corflute tree guards will be installed with one hardwood support stake around all planted seedlings. This is primarily to reduce the potential loss of seedlings from herbivory by fauna, and from unauthorised foot traffic.

5 POST-INSTALLATION MANAGEMENT

The site will be maintained for two years post-installation to ensure that the trees are likely to survive in the longer-term.

5.1 Vegetation Monitoring and Performance Criteria

Two formal monitoring events will be undertaken each year by Tranen during the key growth periods of spring and autumn, for the duration of the two-year management period, i.e. spring 2024, autumn and spring 2025 and autumn 2026. Brief several page reports will be provided, giving a snapshot of the current status of the revegetation program. These reports will provide a results summary, establish trends with respect to previous assessments, including photographs and give recommendations for action.

The results of the monitoring and general observations will determine whether remedial action such as weed control and infill planting are required to meet the performance criteria. Informal monitoring of the site condition may also be undertaken on an occasional basis, with any significant findings or required actions to be reported immediately.

The performance target is for at least 70% of the number of seedlings initially planted to be established by the end of the two-year maintenance period. Should the number of plants drop below this target then infill planting will be undertaken to ensure that losses are replaced. This will be monitored in three 20 m x 20 m quadrates to be established in representative parts of the planting zone. Plants arising from direct seeding and natural recruitment will not be individually monitored, but native plant cover will be estimated, with a nominal target of 40%, or good progress towards this, after two years.

5.2 Site Maintenance

Maintenance of the works will be undertaken for two years post-planting. This will include spraying of weeds where required to minimize competition for the trees and shrubs. This will be done either by a local indigenous group, if such a group with appropriate licensing is available, or else by Tranen. The tree guards will be removed by an indigenous group at the start of summer 2024 and 2025 to avoid them contributing to overheating of the plants. The stakes will be left in place to facilitate monitoring. All guard materials no longer required will be removed from the site and recycled or disposed of appropriately. Any seedlings planted in 2026 will not have tree guards installed.

6 REFERENCES

ELA, 2022. Konnongorring Rail Loading Site Flora and Fauna Survey Final V3. Prepared by Eco Logical Australia, 23 August 2022.

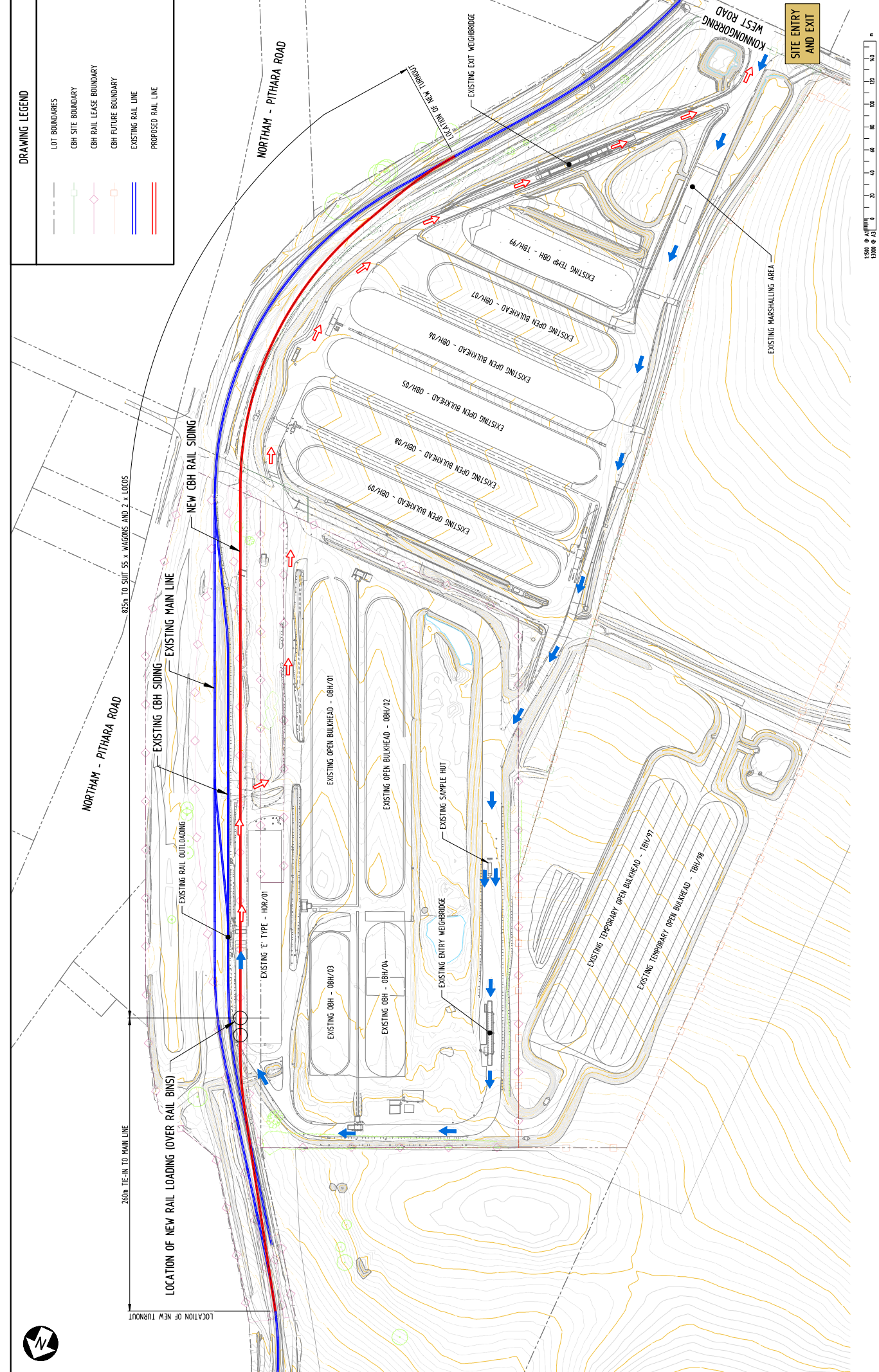
Appendix 1 Site Layout

Note that the north direction on this drawing differs from that on the Revegetation Area drawing.



DRAWING LEGEND

	LOT BOUNDARIES
	CBH SITE BOUNDARY
	CBH RAIL LEASE BOUNDARY
	CBH FUTURE BOUNDARY
	EXISTING RAIL LINE
	PROPOSED RAIL LINE



825m TO SUIT 55 x WAGONS AND 2 x LOGOS

260m TE-IN TO MAIN LINE

LOCATION OF NEW RAIL LOADING (OVER RAIL BINS)

LOCATION OF NEW TURNOUT

<p>CBH GROUP LEVEL 6 240 ST GEORGE'S TERRACE PERTH W.A. 6000 PH (08) 9237 9600 FAX (08) 922 3942</p>		<p>CBH GROUP 489 79 256 004 767</p>		<p>THIS DRAWING AND THE CONTENTS SPECIFIED OR WRITTEN THEREON, WHETHER IN WHOLE OR IN PART, IS THE EXCLUSIVE INTELLECTUAL PROPERTY OF CBH GROUP AND IS NOT TO BE REPRODUCED OR USED FOR ANY PURPOSE WITHOUT THE WRITTEN APPROVAL OF CBH GROUP.</p>		<p>DO NOT SCALE FROM THIS DRAWING</p>	
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<p>SCALE</p>	<p>1:500</p>	<p>PROJECT</p>	<p>A1</p>	<p>DATE</p>	<p>02/08/22</p>	<p>PROJECT APPR.</p>	<p>PROJECT APPR.</p>
<p>DATE</p>	<p>02/08/22</p>	<p>ISSUED FOR USE</p>	<p>REVISION DESCRIPTION</p>	<p>BY</p>	<p>DATE</p>	<p>PROJECT APPR.</p>	<p>PROJECT APPR.</p>
<p>TITLE</p>	<p>KONONGORONG PRE-FEASIBILITY STUDY FIXED RAIL LOADING FACILITY - RAIL SIDINGS GENERAL ARRANGEMENT</p>	<p>DATE</p>	<p>02/08/22</p>	<p>PROJECT APPR.</p>	<p>PROJECT APPR.</p>	<p>PROJECT APPR.</p>	<p>PROJECT APPR.</p>
<p>NO.</p>	<p>358-ENG-CI-DCO-0025</p>	<p>SHEET</p>	<p>1 OF 1</p>	<p>REV.</p>	<p>A</p>	<p>REV.</p>	<p>A</p>

Appendix 2 Revegetation Area

Note that the north direction on this drawing differs from that on the Site Layout drawing.

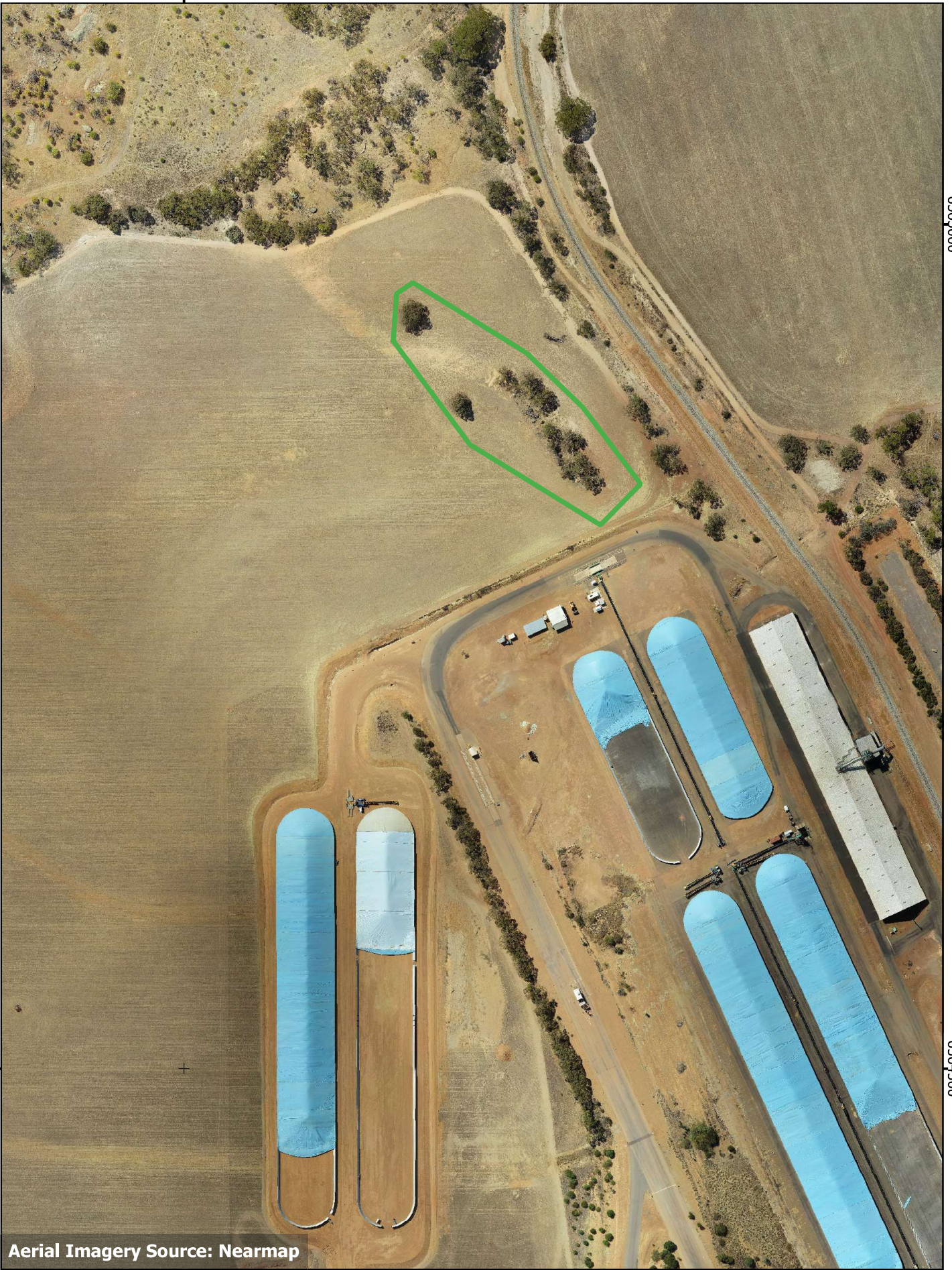
478000

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Aerial Imagery Source: Nearmap

478000



Project: Revegetation Area
 Project Number: P1014A
 Client: CBH

Drawing Number: P1014A-1
 Revision: 0

Date: 03/02/23
 Drawn By: PJG



Appendix 3 Species List

SPECIES (represents EW2: York Gum – Jam Woodland and EW3: Wandoo Woodland)

Species	Form	Height range, m	Plant or seed
<i>Acacia acuminata</i>	Tree	1-7	Plant
<i>Acacia assimilis</i> subsp. <i>assimilis</i>	Shrub	1-3	Seed
<i>Allocasuarina campestris</i>	Shrub	1-3	Seed
<i>Austrostipa elegantissima</i>	Grass	0.35-2	Seed
<i>Dianella revoluta</i>	Shrub	0.3-1.5	Plant
<i>Enchylaena tomentosa</i>	Shrub	0.1-.06	Seed
<i>Eucalyptus loxophleba</i>	Tree	-15 m	Plant
<i>Eucalyptus wandoo</i>	Tree	3-25	Plant
<i>Gastrolobium trilobum</i> (?)	Shrub	-1.8	Seed
<i>Grevillea biternata</i>	Shrub	0.3-1.8	Seed
<i>Maireana brevifolia</i>	Shrub	0.2-1	Plant
<i>Neurachne alopecuroidea</i>	Grass	0.15-0.5	Seed
<i>Ptilotus divaricatus</i>	Shrub	0.3-1.5	Seed
<i>Ptilotus exaltatus</i>	Herb	0.1-1.2	Seed
<i>Ptilotus polystachyus</i>	Herb	0.15-1.5	Seed
<i>Rhagodia preissii</i>	Shrub	0.5-4	Plant
<i>Santalum acuminatum</i>	Tree	1-7	Seed
<i>Solanum hoplopetalum</i>	Herb	0.05-0.3	Seed