



12 NOVEMBER 2021

Via email: allan@allanvanplanning.com.au

ECOLOGICAL PLANNING RESPONSE TO FURTHER ISSUES LETTER PERTAINING TO THE PROPOSED DEVELOPMENT OF LOT 3 RP136964 (320 RITCHIE ROAD, PALLARA QLD)

Dear Allan

New Ground Environmental Pty Ltd ('New Ground') was engaged by A4 Community Care Services Inc. ('the client') to prepare a response to the ecological planning-related items of the Brisbane City Council Further Issues Letter (Council ref: A005008062, dated 7 February 2021) pertaining to the proposed development of a place of worship (and ancillary structures) on Lot 3 RP136964 ('the site') ('FIL'). Specifically, this briefing report addresses items 1 and 2 of the FIL, which are addressed below under the respective sub-headings.

FIL Item 1 Ecology

The subject site is located within the Environment Management and Conservation zones of City Plan 2014. Overall Outcome 2(k) of the Environmental management zone code stipulates that development for a place of worship is not accommodated as their size, bulk and visual impact detract significantly from the landscape character and environmental values of the land.

To support such a land use on the subject site, the application will need to demonstrate the development responds to land constraints and mitigates any adverse impacts on environmental values (Overall outcome 2(m) of the Environmental management zone code).

The existing storage area and the proposed location of the car park and manoeuvring area are located in the middle of the wildlife movement corridor through the site, which runs along the northern boundary. This will lead to impacts upon wildlife movement through the site, from direct development intrusion and edge effects.

Item 8 and 9 of Council's Information Request, raised concerns with regards to the subject site being located wholly within the High ecological significance sub-category of the Biodiversity areas overlay code. The Applicant's response to these items does not adequately address the City Plan 2014 requirements.

To demonstrate compliance with Overall outcome 2(l) & 2(m) of the Environmental management zone, AO4.1, AO4.2, AO4.3 and AO4.4 of the Biodiversity areas overlaycode and AO24.1, AO24.2, AO24.3 and AO24.4 of the Lower Oxley Creek south neighbourhood plan, the following amendments are required:

a) The proposed development footprint plan and parking area must be consolidated further towards the eastern portion of the site, to demonstrate that impacts on ecological values are avoided.

Note: The reconfiguration of a lot approval (A003978574) was not carried out within the relevant period, therefore a revised development footprint area needs to be established taking into consideration the Biodiversity areas overlay code requirements and zoning of the land.

New Ground undertook an ecological assessment report ('EAR') on the subject site to review ecological impacts associated with the proposed development (**ATTACHMENT 1**). As a result, the proposed development layout has been designed to avoid the need to clear any trees with a diameter at breast height (DBH) of >150mm and has been refined to avoid encroachment into the HES-designated portion of the site (**ATTACHMENT 2**). As shown in **ATTACHMENT 2**, a ten (10) metre buffer has been provided between development and the HES polygon.

In consideration of the objects of the Environmental management zone code, the proposed development has been concentrated around existing structures/clearings at the site's east. The EAR found that the now-proposed development does not offer a significant impact upon the status quo functionality of the east-west corridor designated by Council (City Wide



Ecological Corridor) over the site; noting that the site's north-east hosts built structures/hardstand areas. It is noted that the designated Ecological corridor traverses a series of developed (and fenced allotments to the site's east in particular); suggesting that the mapped linework is indicative owing to map scale (**ATTACHMENT 3**). While the site does contribute to fauna movement resources, it is expected that the vegetated property to the site's north (understood to be controlled by Council) forms the 'core' of the ecological corridor.

Notwithstanding, opportunities were identified in the EAR for improvement of fauna connectivity via rehabilitation of the HES polygon at the site's north (within mapped Ecological corridor) and replacement/refitting of the Council cyclone wire and barbed wire fence along the northern boundary with fauna friendly fencing/crossing installations.

b) Submit additional information to demonstrate that the areas located outside of the development footprint will be rehabilitated in accordance with the restoration plan to demonstrate compliance with AO24.5 of the Lower Oxley Creek south neighbourhood plan.

New Ground has prepared a Conceptual Rehabilitation Plan in relation to the HES-designated polygon at the site's north as well as an extension of this area to the HES polygon's west (which is within the above-discussed City wide ecological corridor) (**ATTACHMENT 4**). The proposed rehabilitation works include removal of refuse, weed management and supplementary planting. The proposed works contribute toward the catchment-scale management context of the Lower Oxley Creek south neighbourhood plan.

FIL Item 2 Ecology

Any proposed encroachment into mapped HES is required to be guided and supported by an ecological assessment report and Tree Retention/Removal Plan prepared in accordance with the Biodiversity areas planning scheme policy, and would trigger the following requirements of the Biodiversity areas overlay code:

- i. Offsets and rehabilitation in accordance with PO4, PO6/AO6 and PO9;***
- ii. Wildlife movement solutions in accordance with PO5, PO7 and PO8;***

a) Submit an ecological assessment to include an onsite fauna survey and include an assessment on the proposed impacts of light, hours of operation and noise as a result of the development.

While the proposed development does not seek to encroach into HES, an ecology assessment report ('EAR') (**ATTACHMENT 1**) was prepared in order to review ecological impacts associated with the proposal and for formulation of mitigation measures to address these. Overall, it was found that the proposed development is unlikely to offer significant noise and light impacts on the ecological context of the site given the scale of proposed use, hours of operation and urbanized context in which the site is located.

b) Submit a Tree Retention/Removal Plan to demonstrate compliance with the Biodiversity areas overlay code

While the development does not seek to encroach into HES, a Tree Retention/Removal Plan ('TRP') was prepared to demonstrate how the development proposes to interact with trees with a DBH of >150mm (**ATTACHMENT 5**). As presented by the TRP, the development has been designed to avoid the need to clear any trees with a DBH >150mm. However it is noted that a driveway occurs within the Tree Protection Zone of tree 2051. While the intention is for this tree to be retained, an arborist assessment will be required to determine whether this tree remains viable given the position of the driveway.

We trust that this briefing paper addresses the subject items of the FIL, please don't hesitate to contact the undersigned should further detail be required.



Kind Regards
New Ground

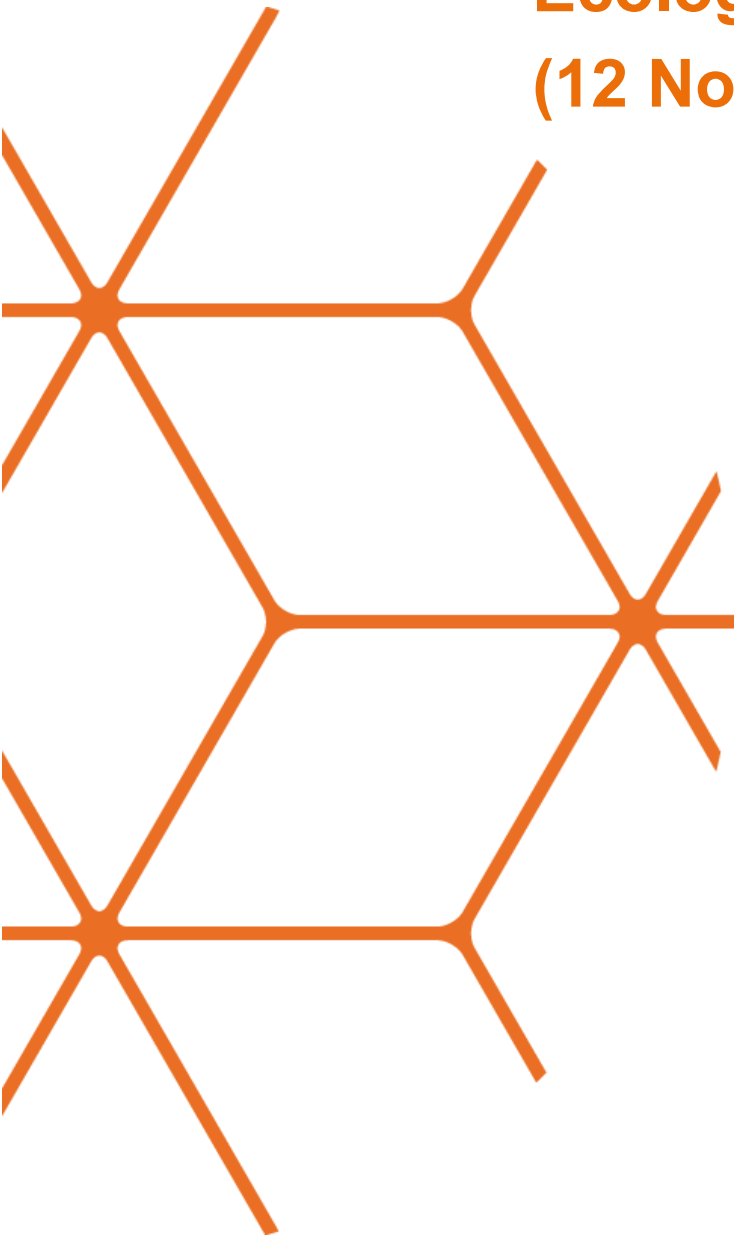
Nelson Wills
Director

No. of Attachments: 5

1. Ecology Assessment Report (12 November 2021)
2. Proposal Concept Plan (11 November 2021)
3. EbiMap2 data layer map extract – Ecological Corridors
4. Conceptual Rehabilitation Plan (11 November 2021)
5. Tree Retention/Removal Plan (11 November 2021)

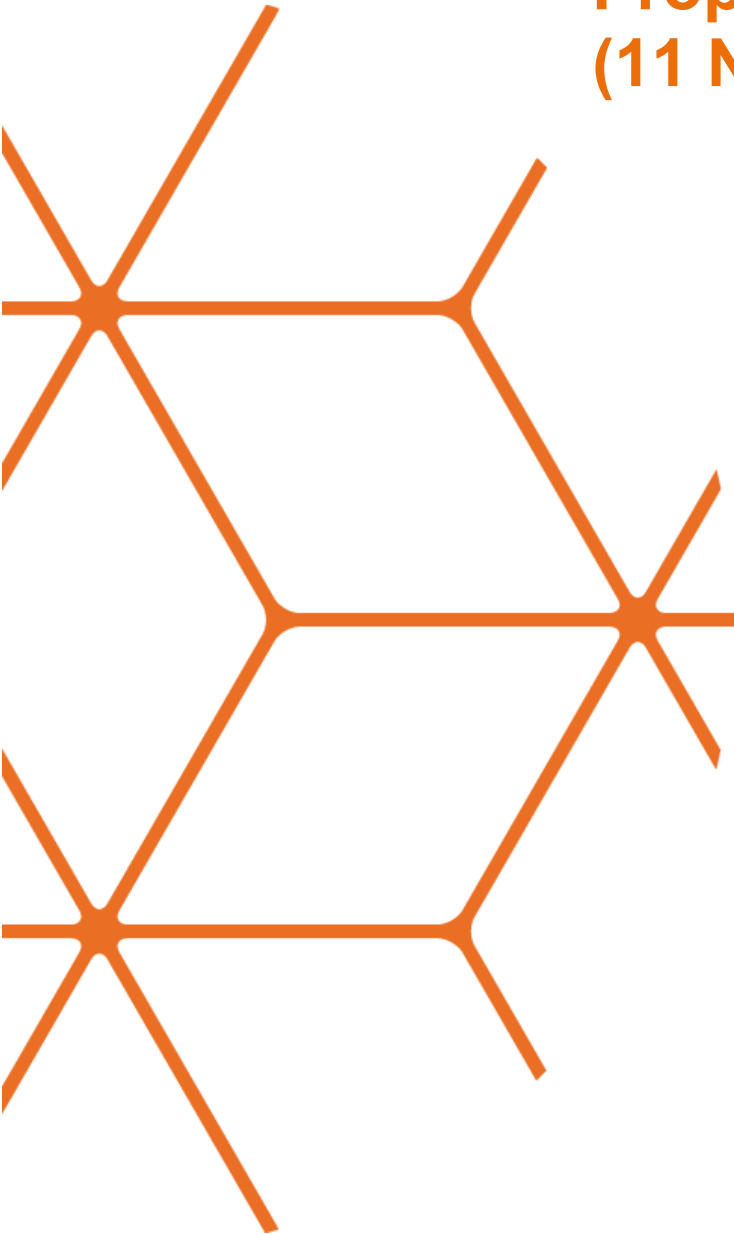
ATTACHMENT 1

Ecology Assessment Report (12 November 2021)



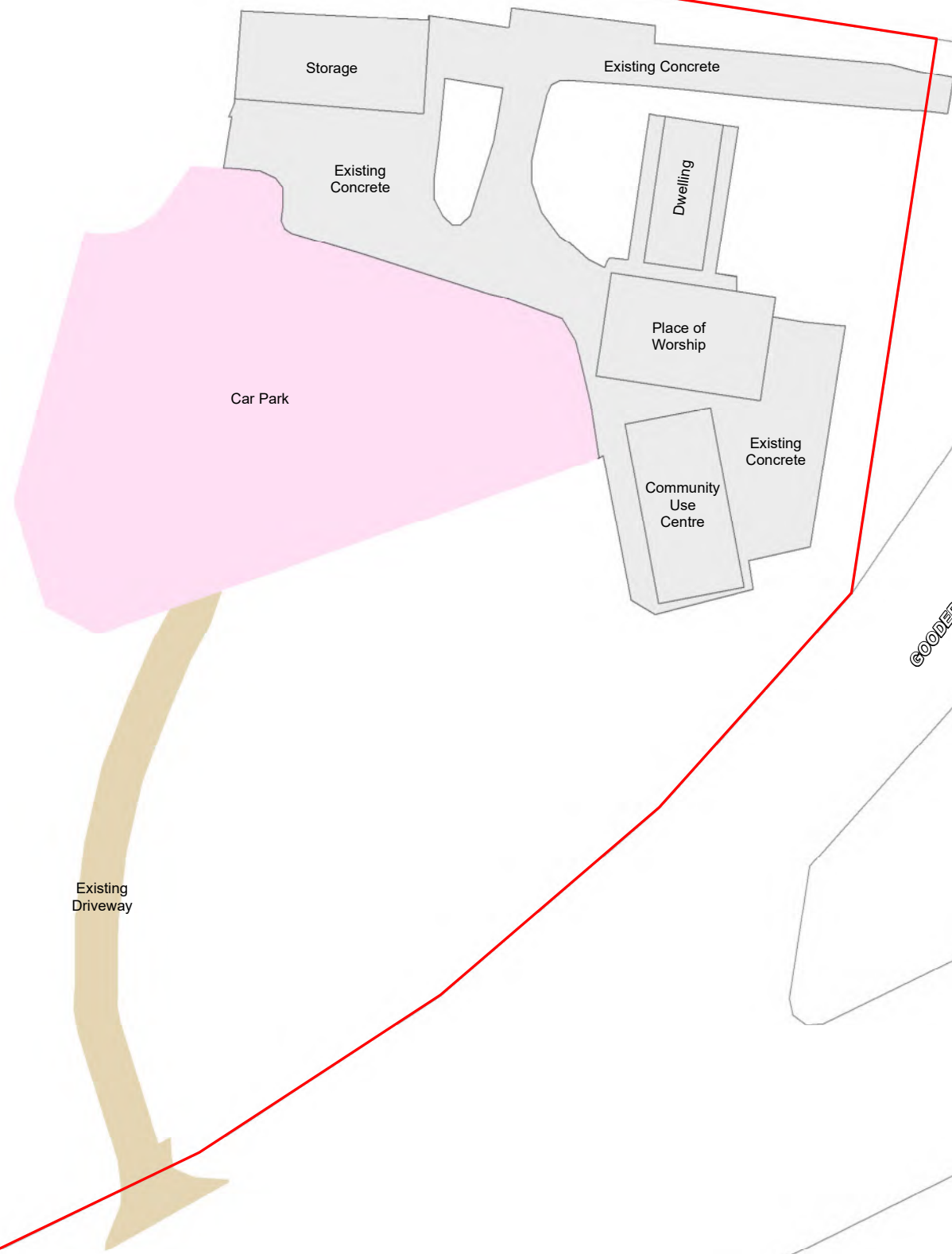
ATTACHMENT 2

Proposal Concept Plan (11 November 2021)



Notes:

1. Figure Conceptual and not for construction purposes.

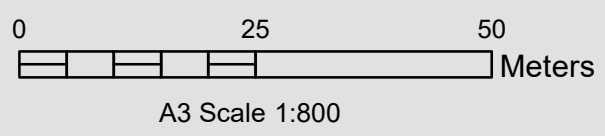


| | |
|--|-------------------------|
| | Subject Site |
| | Existing infrastructure |
| | Existing Driveway |
| | Car Park |

File: 2700Pallara-ConceptPlan-211111



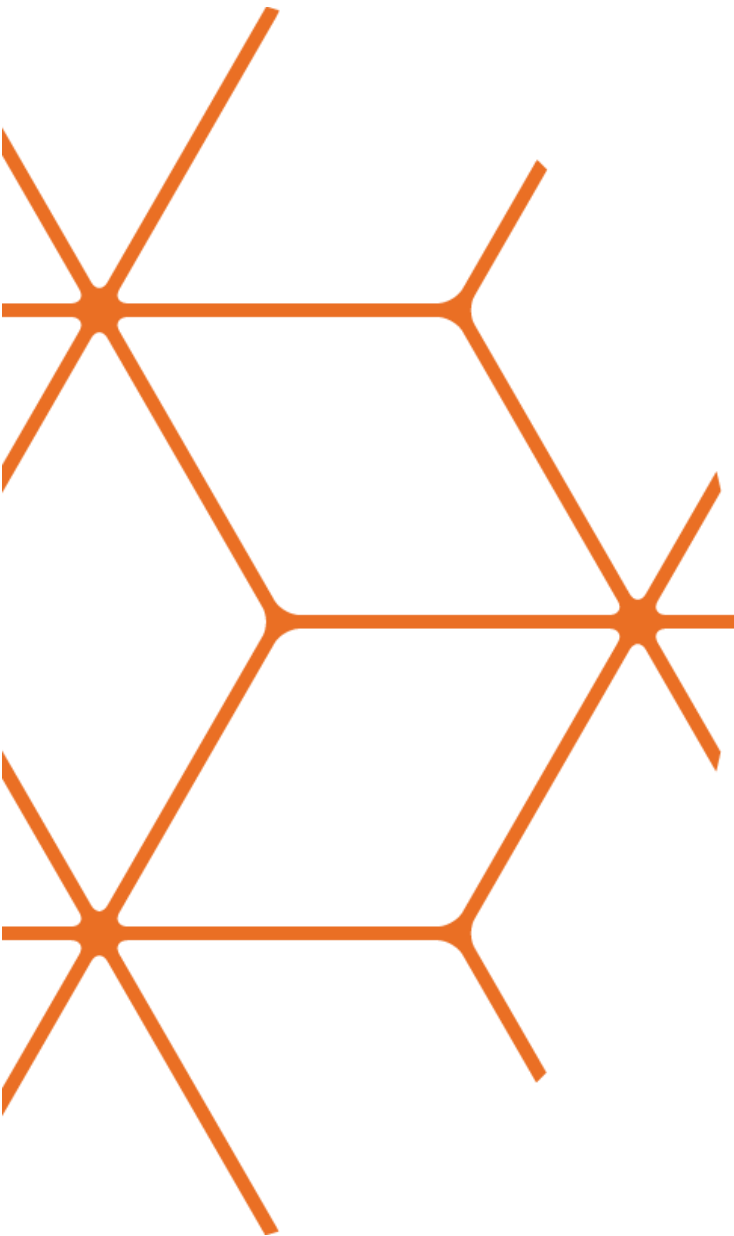
PROPOSAL CONCEPT PLAN - LOT 3 RP136964



Sheet Number: 1
Project: 2700
Version: 0
Date: 11/11/2021
Sources: Cadastral boundaries: QLD DCDB DNRME 2021
Aerial photo: NearMap 08/10/2021

ATTACHMENT 3

EbiMap2 data layer map extract – Ecological Corridors





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Notes:

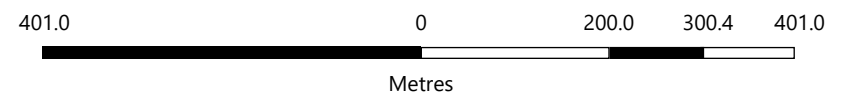
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Dedicated to a better Brisbane

Print Date:
 4/11/2021 - 12:49 PM
 Projection:
 Web Mercator Auxiliary Sphere

EbiMap2 data layer- Ecological Corridors



Scale: 1:8,011

Legend

Ecological Corridors

•• City Wide

■ State

■ Local

□ Parcel - Outside Brisbane

● State

●● Local

■ Regional

□ Property Holding

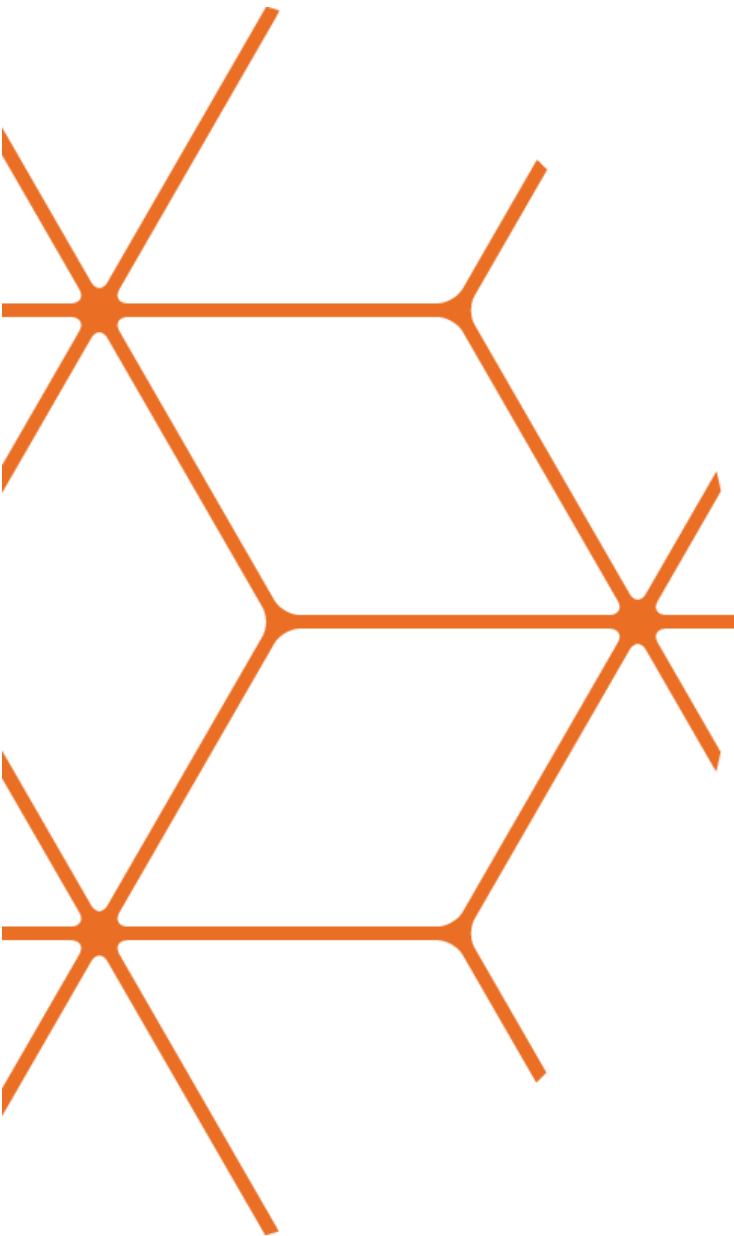
●● Regional

Ecological Corridor Buffers

■ City Wide

□ Sealed Plan

ATTACHMENT 4
Conceptual Rehabilitation Plan
(11 November 2021)

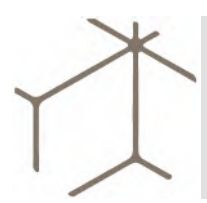


Notes:
 1. Refer sheets 2-5 for Rehabilitation guidance notes.
 2. Figure not for construction purposes.

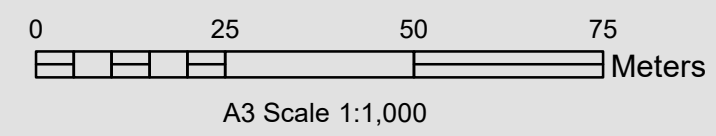


| | |
|--|--|
| | Subject Site |
| | Proposed development disturbance extents footprint |
| | Existing infrastructure |
| | RE12.3.11 Management Area |
| | RE12.9-10.4 Management Area |

File: 2700Pallara-RehabilitationPlan-211111



CONCEPTUAL REHABILITATION PLAN - LOT 3 RP136964



Sheet Number: 1
 Project: 2700
 Version: 0
 Date: 11/11/2021
 Sources: Cadastral boundaries: QLD DCDB DNRME 2021
 Aerial photo: NearMap 08/10/2021

Ecological Restoration Principles

Overarching Objectives:

- Improve the resilience of the rehabilitation area through weed management and targeted supplementary planting to resemble regional ecosystems 12.3.11 (Management Unit 1) and 12.9-10.4 (Management Unit 2).
- Direct rehabilitation works to accord with the South East Queensland Restoration Framework: Manual (2012).
- Enhance an urban fauna movement conduit and refuge habitat resources.
- Retain existing fire trail/perimeter fence maintenance track.

Restoration Approach

- Assisted Natural Regeneration – The rehabilitation area is analogous to remnant regional ecosystems 12.3.11 (Management Unit 1) and 12.9-10.4 (Management Unit 2) with generally intact canopy, shrub and ground strata. An assisted natural regeneration (ANR) approach to rehabilitation area will be applied since ANR is appropriate where the community appears largely healthy, functioning and broadly reminiscent of the target regional ecosystem (Chenoweth EPLA and Bushland Restoration Services 2012). In such areas, it is likely there is a viable native seed bank present, and seed will also be able to reach the site via natural distribution vectors from nearby areas. The main issues limiting native plant regeneration and impacting ecological function in such areas is competition from non-native flora for light, nutrients, space and water. Accordingly, restoration works will be focussed around strategic weed control (including supplementary planting as required), which will allow for the native vegetation to regenerate and improve resilience to disturbance.

Target (Pre-clearing) Regional Ecosystem/Outcome

- Management Unit 1 – RE 12.3.11 – *Eucalyptus tereticornis* +/- *E. siderophloia* and *Corymbia intermedia* open forest to woodland. *Corymbia tessellaris*, *Lophostemon suaveolens* and *Melaleuca quinquenervia* frequently occur and often form a low tree layer. Other species present in scattered patches or low densities include *Angophora leiocarpa*, *E. exserta*, *E. grandis*, *E. latisinensis*, *E. tindaliae*, *E. racemosa* and *Melaleuca sieberi*. *Corymbia trachyphloia* and/or *C. citriodora* subsp. *Variegata* may dominate on areas of Pleistocene alluvia. *Eucalyptus seeana* may be present south of Landsborough. Occurs on Quaternary alluvial plains and drainage lines along coastal lowlands. Rainfall usually exceeds 1000mm/y. (BVG1M: 16c). (Queensland Herbarium (2021). *Regional Ecosystem Description Database – version 12*).
- Management Unit 2– RE 12.9-10.4 – *Eucalyptus racemosa* subsp. *racemosa* woodland to open forest. Other species can include *Angophora leiocarpa*, *Eucalyptus seeana*, *E. siderophloia*, *Corymbia intermedia*, *E. tindaliae*, with *Lophostemon suaveolens*, *Melaleuca quinquenervia*, *E. tereticornis* common on lower slopes. Occurs on Cainozoic and Mesozoic sediments +/- remnant Tertiary surfaces. (BVG1M: 9g). (Queensland Herbarium (2021). *Regional Ecosystem Description Database – version 12*).

Rehabilitation Works Process Overview

- The Rehabilitation Area is to be subject to the following works process:
 - » Initial weed control in accordance with the directives of this rehabilitation plan and removal of refuse)
 - » Supplementary planting (including necessary soil preparation works) to improve resilience against weed incursion
 - » Follow up weed treatment
 - » Follow up rehabilitation and monitoring works

Planting Density and Species Selection

- Target species density for Management Unit 1 of Rehabilitation Area is to accord with the Queensland Herbarium's Technical Description for RE12.3.11 for each vegetation strata. Supplementary planting is to be undertaken with this end in mind in accordance with the density considerations of South East Queensland Restoration Framework: Manual (Chenoweth EPLA and Bushland Restoration Services 2012).
- Target species density for Management Unit 2 of Rehabilitation Area is to accord with the Queensland Herbarium's Technical Description for RE12.9-10.4 for each vegetation strata. Supplementary planting is to be undertaken with this end in mind in accordance with the density considerations of South East Queensland Restoration Framework: Manual (Chenoweth EPLA and Bushland Restoration Services 2012).
- **Tables 1 & 2** of this Plan presents the density target for each stratum of RE12.3.11 and RE12.9-10.4 respectively to assist in monitoring and adaptive management of rehabilitation works. Planting density will be variable and determined by the extent of clearings in each stratum uncovered following initial weed control works.
- Supplementary planting efforts are to focus on densification of shrub and ground layers where the soil seed bank is not sufficient in plant regeneration. In these cases, supplementary planting is advisable to improve resilience from weed incursion.
- Species selection and placement in Management Unit 1 should be overseen by a suitably qualified bush regenerator in accordance with **Tables 3-5** of this Plan, which are condensed from the RE12.3.11 Technical Description.
- Species selection and placement in Management Unit 2 should be overseen by a suitably qualified bush regenerator in accordance with **Tables 6-8** of this Plan, which are condensed from the RE12.9-10.4 Technical Description.
- Local provenance stock is to be utilised. Planting species diversity should at least achieve the following:
 - » >2 of the Dominant species for each strata presented in **Tables 3-5 & 6-8** for the respective Management Unit.
 - » >2 of the Associated species for each strata presented in **Tables 3-5 & 6-8** for the respective Management Unit.
- Given variability in stock availability, species can be selected from the Queensland Herbarium's Technical Description for each respective RE in the event that the species presented in **Tables 3-8** are not available to the extent required to achieve the above-prescribed minimum species diversity. Notwithstanding, it is suggested that pioneer species are favoured.
- All species substitutions must be approved in writing by Brisbane City Council (BCC).

Planting Notes

- Plant species and planting holes are to be randomly distributed to avoid creating areas/rows of monoculture.
- Plant set out, planting and maintenance works are to be undertaken in general accordance with the South East Queensland Restoration Framework: Manual (Chenoweth EPLA and Bushland Restoration Services 2012) and in consideration of the microhabitat preferences of species to be planted.
- Water crystals and slow release fertiliser are to be installed at the time of planting.
- Tree guards are to be installed to protect plantings.
- Erosion prone areas to be appropriately stabilised. Where erosion/scour occurs throughout the maintenance period for rehabilitation area, an alternative solution to prevent erosion/scour may be required which must be agreed with BCC.
- Placement of wood chip mulch is not recommended since most of the rehabilitation area is within a floodplain (landzone 3) area.

Weed Management

- Weed control methods are to be undertaken in accordance with the South East Queensland Restoration Framework: Manual (Chenoweth EPLA and Bushland Restoration Services 2012).
- Weed species scheduled under the Biosecurity Act 2014 (WoNS and Declared Weeds) are to form the focus of weed control works. Notwithstanding, other environmental weeds are to be controlled in order to achieve target density of local native species in the ground and mid strata.
- Herbicides are to be applied in accordance with the South East Queensland Restoration Framework: Manual (Chenoweth EPLA and Bushland Restoration Services 2012). Persons applying herbicides must be qualified/supervised in accordance with the Agricultural Chemicals and Distribution Control Act 1996. Application rates are to accord with those specified on registered product labels or on an Australian Pesticides and Veterinary Medicines Authority-issued off-label permit as applicable.
- Large Woody weeds are to be removed on a case by case basis depending on habitat function and invasiveness. Trees supporting habitat features may be retained/stagged where appropriate, generally, tree stumps/roots are to be retained for bank stability.

Fauna Friendly Fencing

- The aim of fencing on the site is to allow for native fauna movement through the Rehabilitation Area while assisting to separate native fauna from domestic dogs; that may potentially be kept on the balance site.
- Where fencing is to be installed at the site's perimeter, the design of such fencing must meet specifications for fauna-friendly fencing (as defined by the Koala Sensitive Design Guideline (DES, 2020)).
- Further to the point above, it is recommended that the BCC fencing (cyclone wire with barbed wire strands at top) along the north of the rehabilitation area is replaced by BCC with koala-friendly fencing.
- In the event that the interface between the proposed development and rehabilitation area is to be fenced; fencing is to be fauna-friendly (as defined by the Koala Sensitive Design Guideline (DES, 2020)).
- Internal fauna exclusion fencing should only be used where domestic dogs are to be kept on the property which could pose a threat to native fauna. These areas must not be within the Rehabilitation Area and are to be fenced with domestic dog containment fencing that is difficult for native fauna to climb to reduce incidence of interactions between domestic dogs and native fauna. This includes maintenance access gates in exclusion fencing. Exclusion fencing examples are noted below (refer to the Koala Sensitive Design Guideline (DES, 2020) for further detail):
 - » Timber fencing/gate without gaps between palings (posts and supports should be on the dog containment/backyard side) of the fence;
 - » Fence or top of unclimbable section >1.5m above ground level;
 - » Fencing/gate fitted with a smooth surface (e.g. perspex, smooth metal along the top 600 mm of the fence/gate including posts and supports (on the fauna exclusion side); and
 - » Wire fencing with a floppy top of at least 600mm in width that falls in the direction that koala would attempt to climb the fence.

Habitat Resources

- Hollow logs removed during development site preparation works are to be placed within the Rehabilitation Area at the direction of the project QPWS-licensed Fauna Spotter Catcher.

Works Planning, Maintenance and Monitoring

- Rehabilitation works are to be undertaken by an appropriately qualified contractor. Relevant qualifications may include a TAFE Certificate in Conservation Land



Management/Natural Area Restoration or a university degree in a related field such as Ecology.

- Refer to **Table 9** of this plan for summarised milestones and maintenance schedule for the 24-month active maintenance period.
- A Rehabilitation monitoring report is to be provided to BCC's development services ecologist each quarter of the 24 month active maintenance period.
- Rehabilitation monitoring is to be undertaken by an appropriately qualified and experienced ecologist or independent (i.e., not involved with rehabilitation works on the site) bushland regenerator.

Key Performance Indicators

- >95 % survival of plantings.
- Replacement planting required where survival of plantings <95%.
- Ongoing management to be undertaken by developer during 24 month active maintenance period.
- Defects identified through monitoring to be rectified during the 24 month active maintenance period by the developer.
- >95% mortality of pest species.
- 100% mortality of declared pest species.

TABLE 1: REHABILITATION AREA VEGETATION COVER TARGETS BY STRATA - RE12.3.11

| | CANOPY (T1) | SHRUB | GROUND |
|---------------------------------|--------------|------------------|----------------|
| Height Range (average) (m) | 19-30 (22.8) | 1.5-4 (2.7) | 0.2-1 (0.6) |
| Crown Cover [PFC] (average) (%) | 17-60 (44) | 1-80 (22.9) | [12-95 (44.3)] |
| Stem Density/ha (average). | 20-520 (284) | 100-10800 (2549) | - |

Source: Ryan, T.S (2012). Technical Descriptions of Regional Ecosystems of Southeast Queensland. Queensland Herbarium, Department of Science, Information Technology, Innovation and the Arts, Brisbane).

TABLE 2: REHABILITATION AREA VEGETATION COVER TARGETS BY STRATA - RE12.9-10.4

| | CANOPY (T1) | SHRUB | GROUND |
|---------------------------------|----------------|----------------|----------------|
| Height Range (average) (m) | 14-31.5 (23.2) | 1.5-6.5 (4.1) | 0.3-1 (0.5) |
| Crown Cover [PFC] (average) (%) | 5-70 (38) | 3-40 (15.7) | [25-85 (59.9)] |
| Stem Density/ha (average). | 40-320 (154) | 240-2200 (876) | (140) |

Source: Ryan, T.S (2012). Technical Descriptions of Regional Ecosystems of Southeast Queensland. Queensland Herbarium, Department of Science, Information Technology, Innovation and the Arts, Brisbane).

All planting to achieve the below target densities:

Canopy layer – 1 plant per 10 m²

Shrub layer – 1 plant per 5 m²

Ground layer – 1 plant per 1 m²

TABLE 3: REHABILITATION AREA GROUND STRATUM PLANTING PALETTE - RE12.3.11

| SCIENTIFIC NAME | COMMON NAME | HABIT |
|--|-----------------------|------------------------------------|
| DOMINANT SPECIES | | |
| <i>Imperata cylindrica</i> | Blady grass | Ground cover, grows 0.5-1 m high |
| <i>Lomandra longifolia</i> | Spiny-headed mat rush | Ground cover, grows 0.5-1 m high |
| <i>Ottocloa gracillima</i> | - | Ground cover, grows to 30 cm high |
| <i>Pteridium esculentum</i> | Bracken | Ground cover to 1 m |
| <i>Themeda triandra</i> | Kangaroo grass | Ground cover, grows to 1.5 m high |
| ASSOCIATED SPECIES | | |
| <i>Capillipedium spicigerum</i> | Scented-top grass | Ground cover, grows to 1.5 m high |
| <i>Cyanthillium cinereum</i> | Vernonia | Ground cover to 1m |
| <i>Cymbopogon refractus</i> | barbed wire grass | Ground cover to 1m |
| <i>Entolasia stricta</i> | wiry panic | Ground cover, grows to 1.5m high |
| <i>Lepidosperma laterale var. laterale</i> | variable swordsgede | Ground cover, grows to 1 m high |
| <i>Gahnia aspera</i> | - | Ground cover, grows 65 cm high |
| <i>Dianella caerulea</i> | Blue flax-lily | Ground cover, grows to 0.75 m high |
| <i>Dianella revoluta</i> | Blueberry lily | Ground cover, grows to 1 m high |

Source: Ryan, T.S (2012). Technical Descriptions of Regional Ecosystems of Southeast Queensland. Queensland Herbarium, Department of Science, Information Technology, Innovation and the Arts, Brisbane

TABLE 4: REHABILITATION AREA SHRUB STRATUM PLANTING PALETTE - RE12.3.11 (INCORPORATING SUB-CANOPY)

| SCIENTIFIC NAME | COMMON NAME | HABIT |
|--|-----------------|---------------------------------------|
| DOMINANT SPECIES | | |
| <i>Acacia disparrima subsp. disparrima</i> | Salwood | Shrub/small tree, grows 3-12 m high |
| <i>Acacia leiocalyx</i> | Black wattle | Shrub/small tree, grows to 6 m high |
| <i>Leptospermum polygalifolium</i> | wild may | Shrub, grows 1-3 m high |
| ASSOCIATED SPECIES | | |
| <i>Acacia concurrens</i> | curracabah | Shrub/small tree, grows 3-10 m high |
| <i>Allocasuarina littoralis</i> | woolly oak | Small tree, grows to 12 m high |
| <i>Alphitonia excelsa</i> | Soap tree | Tree, grows to 21 m high |
| <i>Banksia integrifolia</i> | coastal banksia | Shrub/small tree, grows to 5-25m high |
| <i>Grevillea banksii</i> | Red silky oak | Shrub/small tree, grows 2-10 m high |

Source: Ryan, T.S (2012). Technical Descriptions of Regional Ecosystems of Southeast Queensland. Queensland Herbarium, Department of Science, Information Technology, Innovation and the Arts, Brisbane

TABLE 5: REHABILITATION AREA CANOPY STRATUM PLANTING PALETTE - RE12.3.11

| SCIENTIFIC NAME | COMMON NAME | HABIT |
|--------------------------------|------------------------|--------------------------|
| DOMINANT SPECIES | | |
| <i>Corymbia intermedia</i> | pink bloodwood | Tree, grows to 30 m high |
| <i>Eucalyptus tereticornis</i> | forest red gum | Tree, grows to 50 m high |
| <i>Eucalyptus siderophloia</i> | Grey ironbark | Tree, grows to 45 m high |
| <i>Lophostemon suaveolens</i> | Swamp box | Tree, grows to 25 m high |
| <i>Melaleuca quinquenervia</i> | broad-leaved paperbark | Tree, grows to 25 m high |

| | | |
|---|-------------------|--------------------------|
| ASSOCIATED SPECIES | | |
| <i>Angophora leiocarpa</i> | Rusty gum | Tree, grows to 25 m high |
| <i>Corymbia citriodora subsp. variegata</i> | Lemon-scented gum | Tree, grows to 50 m high |

Source: Ryan, T.S (2012). Technical Descriptions of Regional Ecosystems of Southeast Queensland. Queensland Herbarium, Department of Science, Information Technology, Innovation and the Arts, Brisbane



TABLE 6: REHABILITATION AREA GROUND STRATUM PLANTING PALETTE - RE12.9-10.4

| SCIENTIFIC NAME | COMMON NAME | HABIT |
|-------------------------------|-------------------------|------------------------------------|
| DOMINANT SPECIES | | |
| <i>Entolasia stricta</i> | wiry panic | Ground cover, grows to 1.5m high |
| <i>Imperata cylindrica</i> | blady grass | Ground cover, grows 0.5-1 m high |
| <i>Pteridium esculentum</i> | bracken fern | Ground cover, grows to 1.5 m high |
| <i>Themeda triandra</i> | kangaroo grass | Ground cover, grows to 1.5 m high |
| ASSOCIATED SPECIES | | |
| <i>Cymbopogon refractus</i> | barbed wire grass | Grass to 1m |
| <i>Eremochloa bimaculata</i> | poverty grass | Ground cover, grows to 0.6 m high |
| <i>Bothriochloa decipiens</i> | red grass | Ground cover, grows to 1 m high |
| <i>Gahnia aspera</i> | - | Ground cover, grows 0.65 m high |
| <i>Goodenia rotundifolia</i> | star goodenia | Ground cover, grows 0.5 m high |
| <i>Dianella caerulea</i> | blue flax-lily | Ground cover, grows to 0.75 m high |
| <i>Dianella revoluta</i> | blueberry lily | Ground cover, grows to 1 m high |
| <i>Lepidosperma laterale</i> | variable swordedge | Ground cover, grows to 1 m high |
| <i>Lomandra multiflora</i> | multi-flowered mat rush | Ground cover, grows 0.5-1 m high |
| <i>Lomandra longifolia</i> | spiny-headed mat rush | Ground cover, grows 0.5-1 m high |
| <i>Lomandra hystrix</i> | creek mat rush | Ground cover, grows 0.5-1 m high |

Source: Ryan, T.S (2012). Technical Descriptions of Regional Ecosystems of Southeast Queensland. Queensland Herbarium, Department of Science, Information Technology, Innovation and the Arts, Brisbane).

TABLE 7: REHABILITATION AREA SHRUB STRATUM PLANTING PALETTE - RE12.9-10.4

| SCIENTIFIC NAME | COMMON NAME | HABIT |
|---|-----------------|---------------------------------------|
| DOMINANT SPECIES | | |
| <i>Acacia concurrens</i> | curracabah | Shrub/small tree, grows 3-10 m high |
| <i>Acacia disparrima</i> subsp. <i>Disparrima</i> | salwood | Shrub/small tree, grows 3-12 m high |
| <i>Acacia leiocalyx</i> | black wattle | Shrub/small tree, grows to 6 m high |
| <i>Allocasuarina littoralis</i> | woolly oak | Small tree, grows to 12 m high |
| <i>Banksia integrifolia</i> | coastal banksia | Shrub/small tree, grows to 5-25m high |
| ASSOCIATED SPECIES | | |
| <i>Banksia robur</i> | swamp banksia | Shrub, grows to 2 m high |
| <i>Banksia spinulosa</i> | hairpin banksia | Shrub, grows to 3 m high |
| <i>Grevillea banksii</i> | red silky oak | Shrub/small tree grows 2-10 m high |
| <i>Jacksonia scoparia</i> | dogwood | Shrub/small tree, grows to 12 m high |
| <i>Leptospermum polygalifolium</i> | wild may | Shrub, grows 1-3 m high |
| <i>Persoonia stradbrogensis</i> | geebung | Shrub. Grows to 5 m high |

Source: Ryan, T.S (2012). Technical Descriptions of Regional Ecosystems of Southeast Queensland. Queensland Herbarium, Department of Science, Information Technology, Innovation and the Arts, Brisbane).

TABLE 8: REHABILITATION AREA SUB-CANOPY AND CANOPY STRATA PLANTING PALETTE – RE12.9-10.4

| SCIENTIFIC NAME | COMMON NAME | HABIT |
|--------------------------------|------------------------|--------------------------|
| DOMINANT SPECIES | | |
| <i>Angophora leiocarpa</i> | rusty gum | Tree, grows to 25 m high |
| <i>Angophora woodsiana</i> | smudgee | Tree, grows to 20 m high |
| <i>Corymbia intermedia</i> | pink bloodwood | Tree, grows to 30 m high |
| <i>Eucalyptus racemosa</i> | scribbly gum | Tree, grows to 15 m high |
| <i>Eucalyptus siderophloia</i> | grey ironbark | Tree, grows to 45 m high |
| ASSOCIATED SPECIES | | |
| <i>Alphitonia excelsa</i> | soap tree | Tree, grows to 21 m high |
| <i>Eucalyptus microcorys</i> | tallowwood | Tree, grows to 40 m high |
| <i>Eucalyptus resinifera</i> | red mahogany | Tree, grows to 45 m high |
| <i>Eucalyptus tindaliae</i> | tindale's stringybark | Tree, grows to 30 m high |
| <i>Lophostemon confertus</i> | brush box | Tree, grows to 25 m high |
| <i>Lophostemon suaveolens</i> | swamp box | Tree, grows to 25 m high |
| <i>Melaleuca quinquenervia</i> | broad-leaved paperbark | Tree, grows to 25 m high |

Source: Ryan, T.S (2012). Technical Descriptions of Regional Ecosystems of Southeast Queensland. Queensland Herbarium, Department of Science, Information Technology, Innovation and the Arts, Brisbane).



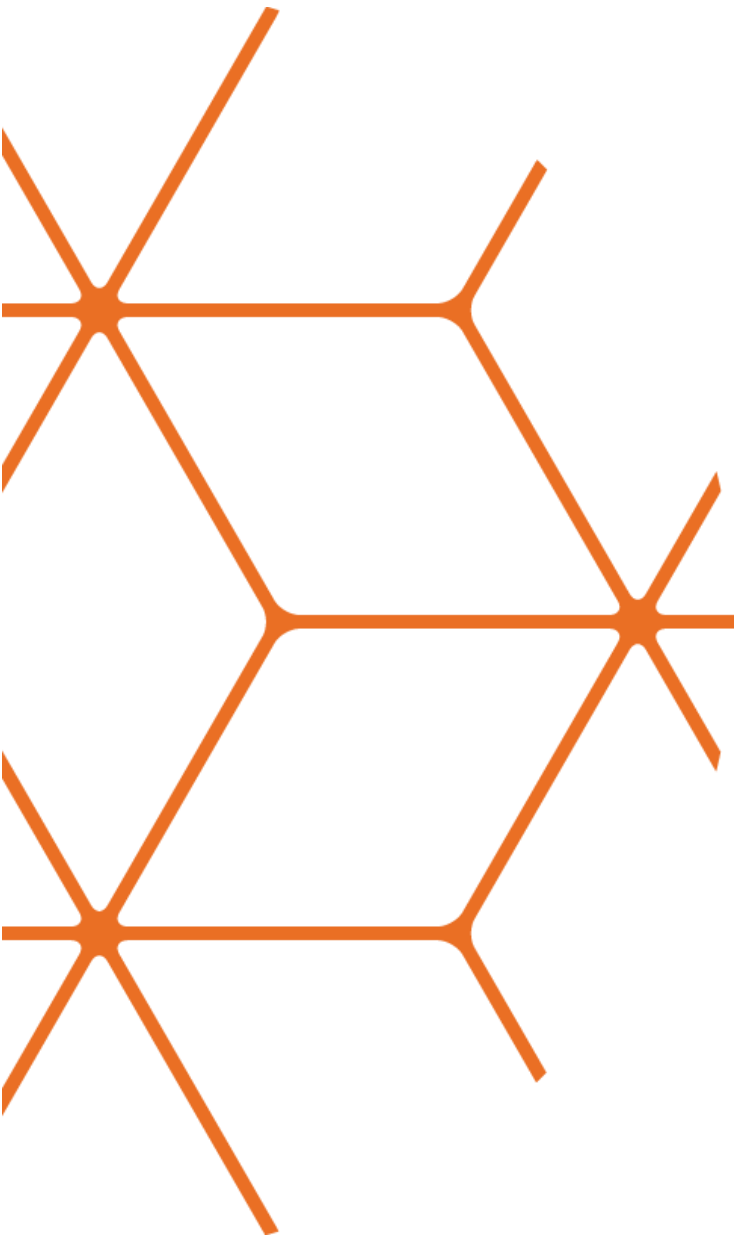
TABLE 9: MILESTONES AND MAINTENANCE SCHEDULE FOR REHABILITATION WORKS OVER PART LOT 3 RP136964

| PHASE | TASK | TIMING | FREQUENCY | MAINTENANCE MONITORING | PERFORMANCE INDICATOR |
|------------|---|---|---|---|--|
| Phase 1 | Pre-works planning (i.e. order plant tube stock, tree guards and stakes and erosion control planning etc.). | >2-3 months before site preparation. | A single event. | Works undertaken in accordance with project approval conditions | <ul style="list-style-type: none"> Source from local provenance plant stock. Fauna friendly and pet exclusion fencing to be installed prior to maintenance inspection with BCC. Works undertaken in accordance with project approval conditions |
| Phase 2 | Site preparation (including Demarcation of Rehabilitation Area), refuse removal, erosion control mechanisms and Initial weed control event. | First weed control event should occur before the initial planting installation. | Follow up weed control should occur quarterly for the first year, bi-annually for the second year until the end of maintenance period. | Maintenance visits are concurrent with each subsequent weed control event. Maintenance events should monitor the prevalence and diversity of weeds present. This information should be used to determine if the weed control methods need updating in order to adapt to changing conditions, such as the invasion by new weed species. Maintenance should also assess the health of plantings and determine if additional plantings are required. Additional plantings are required when the survival rate drops below 90%. | <ul style="list-style-type: none"> Soil is suitably prepared for planting. Monitor and treat with intent to achieve <5% weed cover by end of maintenance period. Invasive weeds controlled within 1m diameter of plantings (<10% cover). |
| Phase 3 | Install plants | After the site preparation has been completed. | A single event. | Maintenance visits are concurrent with each weed control event. Maintenance events will monitor the health and growth of plantings. This information should be used to determine if additional work is required, such as weed control, water or fertilising, or if additional plantings are needed to replace dead plants. Additional plantings are deemed necessary when the survival rate of plantings drops below 90% (at end of maintenance period). | <ul style="list-style-type: none"> >90% survival rate of plantings. Planting a diversity of at least two of the dominant species and two of the associated species for each strata as per Tables 2-4. Supplementary planting is to increase upon existing density in each strata to achieve plant density targets of Tables 1 & 2. Water crystals and slow release fertiliser applied at time of planting. Tree guards installed to protect plantings from desiccation, herbivores, and mowing operations. Plant species to be randomly distributed to emulate regional ecosystem (see Tables 3-8 for planting palettes). |
| Phase 3 | Erosion Control Works | Immediately prior to installing plants | Initially before planting and ongoing (to be determined by restoration practitioner). | Maintenance and monitoring are to occur with each visit. Reapplication is only to occur if determined necessary by the restoration practitioner. | <ul style="list-style-type: none"> Performance is indicative by the level of weed suppression and stabilisation of the ground stratum. Mulch is not to be applied to areas with high possibility of washing away during high rainfall events. In this case, an alternative stabilisation mechanism should be used such as jute matting or geotextile fabric. |
| Phase 3 | Water plants | Commencing on the same day as planting (including replacement plantings). | To be determined by restoration practitioner, as a guide, water twice a week for the initial week, then weekly for four weeks and then monthly for the following three months. Required watering frequency may change depending on prevailing weather conditions. | Maintenance and monitoring will occur initially with each watering event for the first 3 months and then concurrently with each weed control event. Monitoring will determine if watering frequency should be increased or decreased. | <ul style="list-style-type: none"> Plantings show no signs of water stress. At the end of the watering regime, the plantings are established and don't require additional watering. Monitor with intent to achieve >90% survival rate of installed plants by end of maintenance period. |
| Phase 4 | Follow up weed treatment and maintenance – treat weeds throughout rehabilitation area. Arrange On Maintenance inspection with BCC at practical completion of works | After phase 3 is complete. | Once every 2 months for 12 months. Then once every three months until end of maintenance period. | Maintenance visits across the site are concurrent with each weed control event. Maintenance events will monitor the health and growth of plantings. This information should be used to determine if additional work is required, such as weed control, water or fertilising, or if additional plantings are needed to replace dead plants. Additional plantings are deemed necessary when the survival rate of plantings drops below 90% (at end of maintenance period). | <ul style="list-style-type: none"> Plantings show no signs of stress. Monitor and systematically treat weeds with intent to achieve <5% exotic by end of maintenance period. |
| Monitoring | Reporting – monitoring and results, any adaptive management changes, and general recommendations. Arrange Off Maintenance inspection with BCC at the end of the 24 month maintenance period. | Each monitoring event and report is to be documented. | Annually after completion of phase 4 works until completion of maintenance period. | - | <ul style="list-style-type: none"> Monitoring reports to include: <ul style="list-style-type: none"> » Monitoring results and progress toward achieving RE12.3.11 & RE12.9-10.4 benchmark goals of Tables 1 & 2; » Report any adaptive management changes made to the implementation, maintenance and monitoring schedule; » Estimated rates of survival of plantings; » Estimated rates of weed cover; » Any new issues or impediments to the success of restoration works; and » Recommendations regarding the ongoing management of the rehabilitation area. |



ATTACHMENT 5

Tree Retention/Removal Plan (11 November 2021)



Notes:
 1. Figure not for construction purposes.
 2. Refer to Sheets 2-3 for individual tree data.

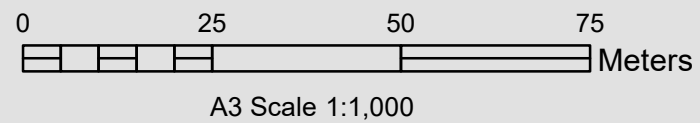


| | |
|-----------------------------------|--|
| | Subject Site |
| | Proposed development disturbance extents footprint |
| | Existing infrastructure |
| | Biodiversity area (High ecological significance strategic) |
| | Biodiversity area (High ecological significance) |
| Tree stem | |
| | To be retained |
| | Prospects for retention subject Arborist Assessment |
| Tree Protection Zone (TPZ) | |
| | To be retained |
| | Prospects for retention subject Arborist Assessment |

File: 2700Pa-Allara-TreeRetention-Removal-211111



TREE RETENTION / REMOVAL PLAN - LOT 3 RP136964



Sheet Number: 1
 Project: 2700
 Version: 0
 Date: 11/11/2021
 Sources: Cadastral boundaries: QLD DCDB DNRME 2021
 Aerial photo: NearMap 08/10/2021
 Biodiversity areas: Brisbane City Plan 2014



| TREE NO | SCIENTIFIC NAME | COMMON NAME | TREE HEIGHT (M) | CROWN WIDTH (M) | DBH (MM) | TPZ RADIUS FROM TRUNK (M) | HOLLOWS | NUMBER OF HOLLOWS | TREE HEALTH | HEALTH COMMENT | TREE STRUCTURE | STRUCTURE COMMENT | COMMENTS | SUITABILITY FOR RETENTION | COORDINATES | |
|---------|---------------------------------|---------------------|-----------------|-----------------|----------|---------------------------|-----------------|-------------------|-------------|----------------|----------------|-----------------------|--|---------------------------|-------------|------------|
| | | | | | | | | | | | | | | | NORTHING | EASTING |
| 2051 | <i>Eucalyptus racemosa</i> | scribbly gum | 22 | 17 | 900 | 10.8 | Medium 35-100mm | 6 to 10 | Fair | Typical | Fair | Crown Cavity | occupied hollow (rainbow lorikeet) | Suitable | 6945559.451 | 500751.862 |
| 2052 | - | stag | 19 | 12 | 750 | 9.0 | Medium 35-100mm | 6 to 10 | Dead | Typical | Fair | Deadwood | - | Suitable | 6945547.494 | 500698.139 |
| 2053 | <i>Eucalyptus tereticornis</i> | forest red gum | 17 | 15 | 800 | 9.6 | Large >100mm | 6 to 10 | Fair | Typical | Fair | Fill around tree base | - | Suitable | 6945528.998 | 500766.46 |
| 2054 | <i>Allocasuarina littoralis</i> | black she-oak | 14 | 12 | 400 | 4.8 | No | 1 to 5 | Fair | Typical | Fair | Crown Wound | - | Suitable | 6945520.314 | 500773.235 |
| 2055 | <i>Acacia sp.</i> | an acacia | 8 | 4 | 160 | 2.0 | No | 1 to 5 | Good | Typical | Fair | Typical | - | Suitable | 6945516.321 | 500770.228 |
| 2056 | - | stag | 26 | 18 | 950 | 11.4 | Large >100mm | 6 to 10 | Dead | Typical | Poor | Deadwood | occupied hollow (sulfur-crested cockatoo) | Suitable | 6945572.723 | 500804.078 |
| 2057 | <i>Eucalyptus resinifera</i> | red mahogany | 25 | 17 | 880 | 10.6 | Medium 35-100mm | 1 to 5 | Fair | Typical | Fair | Root damage | - | Suitable | 6945599.28 | 500824.086 |
| 2058 | <i>Acacia sp.</i> | an acacia | 9 | 5 | 130 | 2.0 | No | - | Fair | Typical | Poor | Poor Form | - | Low | 6945660.035 | 500759.268 |
| 2059 | <i>Eucalyptus racemosa</i> | scribbly gum | 10 | 6 | 260 | 3.1 | No | - | Fair | Typical | Fair | Multi-stemmed at base | - | Suitable | 6945667.481 | 500757.622 |
| 2060 | <i>Eucalyptus racemosa</i> | scribbly gum | 17 | 15 | 380 | 4.6 | No | - | Fair | Typical | Fair | Typical | - | Suitable | 6945677.621 | 500757.718 |
| 2061 | <i>Eucalyptus racemosa</i> | scribbly gum | 19 | 16 | 650 | 7.8 | Small <35mm | 1 to 5 | Fair | Typical | Fair | Deadwood | - | Suitable | 6945670.982 | 500783.026 |
| 2062 | <i>Pinus elliotii*</i> | slash pine | 18 | 12 | 320 | 3.8 | No | - | Fair | Typical | Fair | Typical | neighbours tree | Suitable | 6945676.636 | 500767.424 |
| 2063 | <i>Allocasuarina littoralis</i> | black she-oak | 8 | 5 | 320 | 3.8 | No | - | Fair | Typical | Fair | Typical | - | Suitable | 6945676.463 | 500762.948 |
| 2064 | <i>Eucalyptus racemosa</i> | scribbly gum | 18 | 15 | 1000 | 12.0 | Large >100mm | 6 to 10 | Fair | Typical | Fair | Root damage | occupied hollow (rainbow lorikeet) | Suitable | 6945640.645 | 500804.166 |
| 2065 | <i>Eucalyptus racemosa</i> | scribbly gum | 16 | 14 | 750 | 9.0 | Large >100mm | 6 to 10 | Fair | Typical | Fair | Crown Failure | - | Suitable | 6945647.45 | 500802.957 |
| 2066 | <i>Eucalyptus racemosa</i> | scribbly gum | 18 | 15 | 650 | 7.8 | Medium 35-100mm | 1 to 5 | Fair | Typical | Fair | Trunk Wound | - | Suitable | 6945646.174 | 500816.015 |
| 2067 | <i>Eucalyptus racemosa</i> | scribbly gum | 15 | 15 | 670 | 8.0 | No | - | Fair | Typical | Fair | Crown Wound | - | Suitable | 6945669.588 | 500794.376 |
| 2068 | <i>Eucalyptus tereticornis</i> | forest red gum | 17 | 15 | 620 | 7.4 | Small <35mm | 1 to 5 | Fair | Typical | Fair | Fill around tree base | - | Suitable | 6945665.432 | 500804.504 |
| 2069 | <i>Angophora leiocarpa</i> | smooth-barked apple | 17 | 13 | 320 | 3.8 | No | - | Fair | Typical | Fair | Typical | - | Suitable | 6945666.091 | 500831.789 |
| 2070 | <i>Eucalyptus tereticornis</i> | forest red gum | 17 | 20 | 1000 | 12.0 | Medium 35-100mm | 1 to 5 | Fair | Typical | Fair | Multi-stemmed | neighbours tree, low crown. Untagged | Suitable | 6945672.68 | 500820.261 |
| 2071 | <i>Pinus elliotii*</i> | slash pine | 17 | 8 | 360 | 4.3 | No | - | Fair | Typical | Fair | Typical | neighbours tree, | Suitable | 6945662.202 | 500861.801 |
| 2072 | <i>Eucalyptus racemosa</i> | scribbly gum | 28 | 18 | 1200 | 14.4 | Large >100mm | 6 to 10 | Fair | Typical | Fair | Crown Wound | street tree, occupied hollow (rainbow lorikeet) | Suitable | 6945618.684 | 500871.633 |
| 2073 | <i>Eucalyptus racemosa</i> | scribbly gum | 30 | 18 | 1050 | 12.6 | Large >100mm | 6 to 10 | Fair | Typical | Fair | Crown Wound | street tree, occupied hollow (native bees) | Suitable | 6945606.292 | 500865.855 |
| 2074 | <i>Eucalyptus racemosa</i> | scribbly gum | 34 | 22 | 1300 | 15.0 | Large >100mm | >10 | Fair | Typical | Fair | Crown Wound | street tree, occupied hollow (sulfur-crested cockatoo) | Suitable | 6945591.747 | 500857.179 |
| 2075 | <i>Allocasuarina littoralis</i> | black she-oak | 14 | 7 | 340 | 4.1 | No | - | Fair | Typical | Fair | Asymmetric Crown Form | street tree | Suitable | 6945591.31 | 500855.469 |
| 2076 | <i>Allocasuarina littoralis</i> | black she-oak | 14 | 6 | 330 | 4.0 | No | - | Fair | Typical | Fair | Asymmetric Crown Form | street tree | Suitable | 6945589.68 | 500854.057 |
| 2077 | <i>Allocasuarina littoralis</i> | black she-oak | 11 | 5 | 220 | 2.6 | No | - | Fair | Typical | Fair | Asymmetric Crown Form | street tree | Suitable | 6945588.371 | 500855.27 |
| 2078 | <i>Allocasuarina littoralis</i> | black she-oak | 13 | 5 | 450 | 5.4 | No | - | Fair | Typical | Fair | Poor Form | street tree | Suitable | 6945588.223 | 500856.294 |



| TREE NO | SCIENTIFIC NAME | COMMON NAME | TREE HEIGHT (M) | CROWN WIDTH (M) | DBH (MM) | TPZ RADIUS FROM TRUNK (M) | HOLLOWES | NUMBER OF HOLLOWES | TREE HEALTH | HEALTH COMMENT | TREE STRUCTURE | STRUCTURE COMMENT | COMMENTS | SUITABILITY FOR RETENTION | COORDINATES | |
|---------|--------------------------------|----------------|-----------------|-----------------|----------|---------------------------|--------------|--------------------|-------------|----------------|----------------|-----------------------|--------------------------------------|---------------------------|-------------|------------|
| | | | | | | | | | | | | | | | NORTHING | EASTING |
| 2079 | <i>Acacia sp.</i> | an acacia | 15 | 7 | 350 | 4.2 | No | - | Fair | Typical | Poor | Poor Form | street tree | Low | 6945589.347 | 500857.294 |
| 2080 | <i>Acacia sp.</i> | an acacia | 17 | 12 | 600 | 7.2 | No | - | Good | Typical | Fair | Multi-stemmed at base | street tree | Suitable | 6945591.208 | 500860.587 |
| 2081 | <i>Alphitonia excelsa</i> | red ash | 9 | 6 | 150 | 2.0 | No | - | Good | Typical | Fair | Asymmetric Crown Form | street tree | Suitable | 6945593.071 | 500859.128 |
| 2082 | - | stag | 22 | 15 | 1100 | 13.2 | Large >100mm | 6 to 10 | Dead | Typical | Fair | Trunk Cavity | street tree | Suitable | 6945645.588 | 500867.939 |
| 2083 | <i>Eucalyptus resinifera</i> | red mahogany | 23 | 17 | 750 | 9.0 | Small <35mm | 1 to 5 | Fair | Typical | Fair | Deadwood | street tree | Suitable | 6945662.151 | 500885.105 |
| 2084 | <i>Eucalyptus tereticornis</i> | forest red gum | 17 | 13 | 480 | 5.8 | No | - | Fair | Typical | Fair | Typical | up to 1 m GPS location accuracy only | Suitable | 6945660.528 | 500880.285 |
| 2085 | <i>Eucalyptus tereticornis</i> | forest red gum | 16 | 12 | 400 | 4.8 | No | - | Fair | Typical | Fair | Typical | up to 1 m GPS location accuracy only | Suitable | 6945664.379 | 500872.053 |

Notes: Trees were identified and assessed by ArborAustralis arborists. Reproductive material could not be found for all trees to allow conclusive identification.

Individual tree survey targeted native trees within and overhanging the proposed development disturbance footprint with a DBH >150mm

Tree Protection Zone and multi-stem tree DBH were calculated in accordance with AS4970-2009

A detailed arboricultural assessment of trees to be retained where new disturbance is proposed within TPZ will be required. This will allow for formulation of appropriate impact mitigation measures for individual trees as well as a detailed review of viability for retention.

