PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Application No: COM/2026/92

Dated: 21 August 2026

Development shall comply with the conditions of approval as detailed in the Decision Notice and Council's Planning Scheme, Local Laws and Planning Policies

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2 Karingal Drive, Pimpama
Rehabilitation Management Plan

Client:	Bosform Pty Ltd
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Version No.	Description	Date	Prepared	Approved
00	Initial issue	19.03.2026	KE	CK
01	Revised earthworks extent	07.07.2026	KE	CK

Recipients are responsible for eliminating all superseded documents in their possession.

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Executive Summary

Burchills were engaged by Bosform Pty Ltd to prepare a Rehabilitation Management Plan for a residential community title development at 2 Karingal Drive, Pimpama (Lot 19 on RP152380), within the City of Gold Coast local government area.

This Rehabilitation Management Plan provides guidance for the restoration of disturbed areas within a proposed drainage reserve that will be restored and protected as open space. The proposed rehabilitation area is mapped as having koala habitat and assessable vegetation under the Gold Coast City Plan. Rehabilitation works will comprise weeding and revegetation with species from the pre-clearing regional ecosystems.

Specific restoration objectives include:

- Restore existing vegetation within the rehabilitation area to stabilise disturbed areas and mitigate erosion;
- Restore vegetation communities to resemble pre-clearing vegetation and enhance biodiversity and wildlife habitat; and
- Use best practice methods for restoration works to minimise impacts on existing ecological values.

All restoration works will be undertaken by a suitably experienced and qualified bushland restoration contractor. Monitoring and reporting for the rehabilitation works will be conducted by an ecologist experienced in ecological restoration monitoring.

This Rehabilitation Management Plan is operational for a minimum period of 24 months, comprising twelve (12) months Establishment and twelve (12) months On-Maintenance. Any amendments to the plan must be approved by Council.

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1. Introduction

Burchills were engaged by Bosform Pty Ltd to prepare a Rehabilitation Management Plan for a residential community title development at 2 Karingal Drive, Pimpama (Lot 19 on RP152380) within the City of Gold Coast local government area. This RMP has been prepared in accordance with:

- *Gold Coast City Plan Policy SC6.8.7* – Rehabilitation Management Plans; and
- The South-East Queensland Ecological Restoration Framework (Chenoweth EPLA and Bushland Restoration Services, 2012).

1.1 Scope and Objectives

The scope and objectives of this RMP are to provide guidance and management strategies for the restoration of the proposed restoration area within the drainage reserve. Specifically, the scope of the report is to:

- Provide an appraisal of the current condition of the vegetation in and adjoining the restoration area;
- Provide a scaled plan of the proposed restoration zones;
- Provide a management strategy for the restoration works;
- Provide a list of appropriate species to be used in the restoration works;
- Provide recommendations for the control of weeds identified on the site; and
- Provide recommendations for the maintenance, monitoring and reporting.

1.2 Site Location

The subject site is located at 2 Karingal Drive, Pimpama (Lot 19 on RP152380), within the Gold Coast suburb of Pimpama (Figure 1.1) and comprises an area of approximately 2.459 ha. The site is accessed from Karingal Drive along the northern boundary and is bounded to the west by the Gold Coast–Brisbane rail line. The site is currently vacant with no improvements and is vegetated with grassland and woodland interspersed with several dams and waterbodies (Figure 1.2).

1.3 Mapped Vegetation and Habitat Values

The Regulated Vegetation Map (RVM) for the subject site indicates that regulated vegetation on the site includes 0.06ha of Category B Of Concern Remnant Vegetation RE 12.3.11, and small area of RE 12.11.24 Least Concern. The remaining areas of the site are mapped as Category X – non-assessable as shown in Figure 1.3 and Table 1.1. This regulated vegetation is also mapped as koala habitat (Figure 1.4).

Pre-clearing mapping from Qld Globe indicates that the watercourse and adjacent riparian areas are mapped as 12.3.11 *Eucalyptus tereticornis +/- Eucalyptus siderophloia, Corymbia intermedia* open forest on alluvial plains usually near coast; with the remaining part of the site mapped as RE 12.11.24 *Eucalyptus carnea, E. tindaliae, Corymbia intermedia +/- E. siderophloia or E. crebra* woodland on metamorphics +/- interbedded volcanics.

The *Gold Coast City Plan* identifies the site's vegetation as containing Regulated (MSES), Medium (MLES) and General Priority (MLES) Vegetation with values for state significant species, and a minor watercourse line and 30m buffer within the site (Figure 1.5 to Figure 1.7).

1.4 Soils and Geology

The Geological Survey of Queensland: Beenleigh 1:100,000 Series Map indicates that the site's geology consists of Neranleigh-Fernvale Beds, comprising mudstone, shale, arenite, chert, jasper, basic metavolcanics, pillow lava and conglomerate. Gold Coast City Council soils mapping (Thomas, 2006) indicates local soils are predominantly Kurosols.

This geological and soils association aligns with Land Zone 11 under the Qld regional ecosystem (RE) framework for land classification.

1.5 Topography and Drainage

The site falls within the Pimpama River catchment. A tributary of the Pimpama River flows from the south-west northwards through the site to culverts under Karingal Drive in the north-eastern part of the site. The land rises moderately from the dam to the west. Site topography is characterised by gently inclined slopes with a westerly aspect. The site has extremely low relief, with elevation ranging from approximately 10 m AHD in the eastern extents of the site, to approximately 3 m AHD in the northwestern corner. A number of constructed dams are present in the southern part of the site (Figure 1.8).

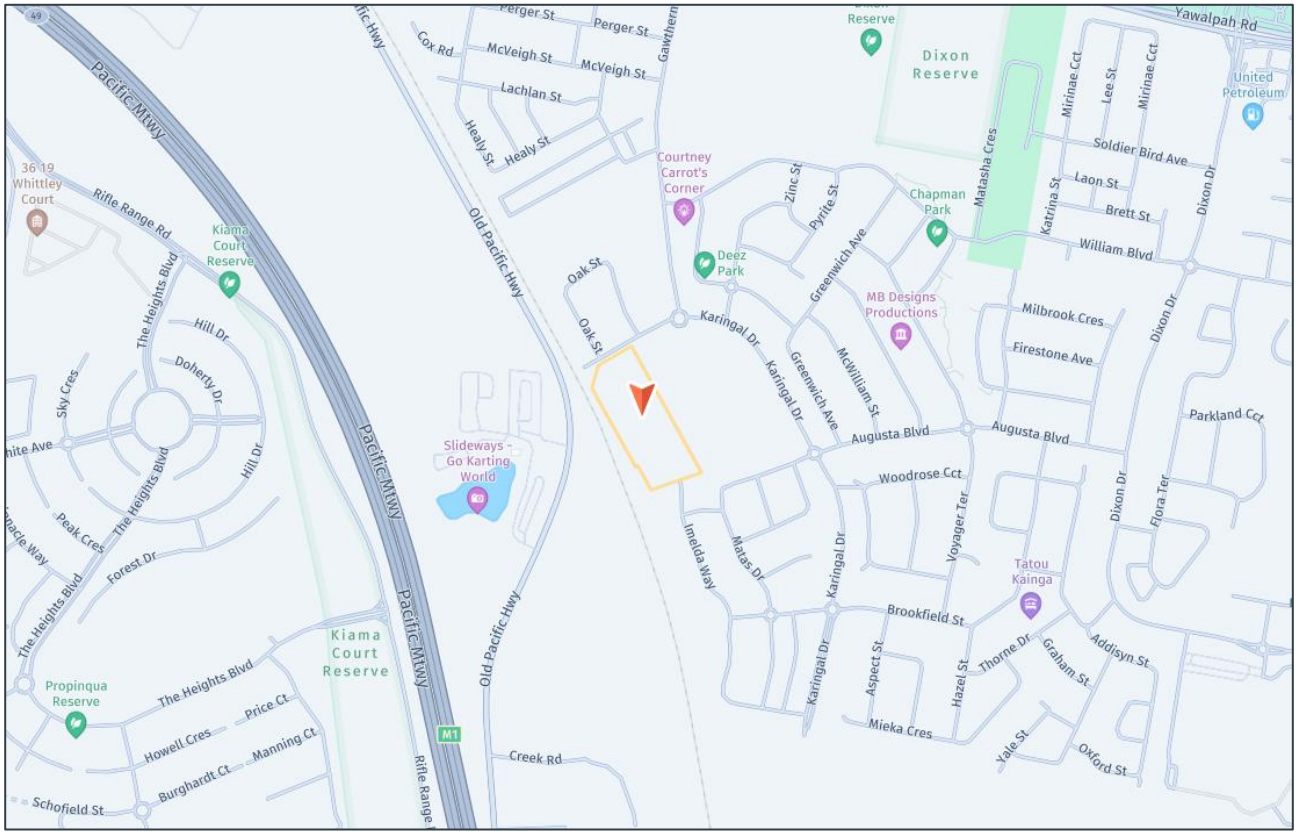


Figure 1.1 Site Location (Nearmap, 2026)

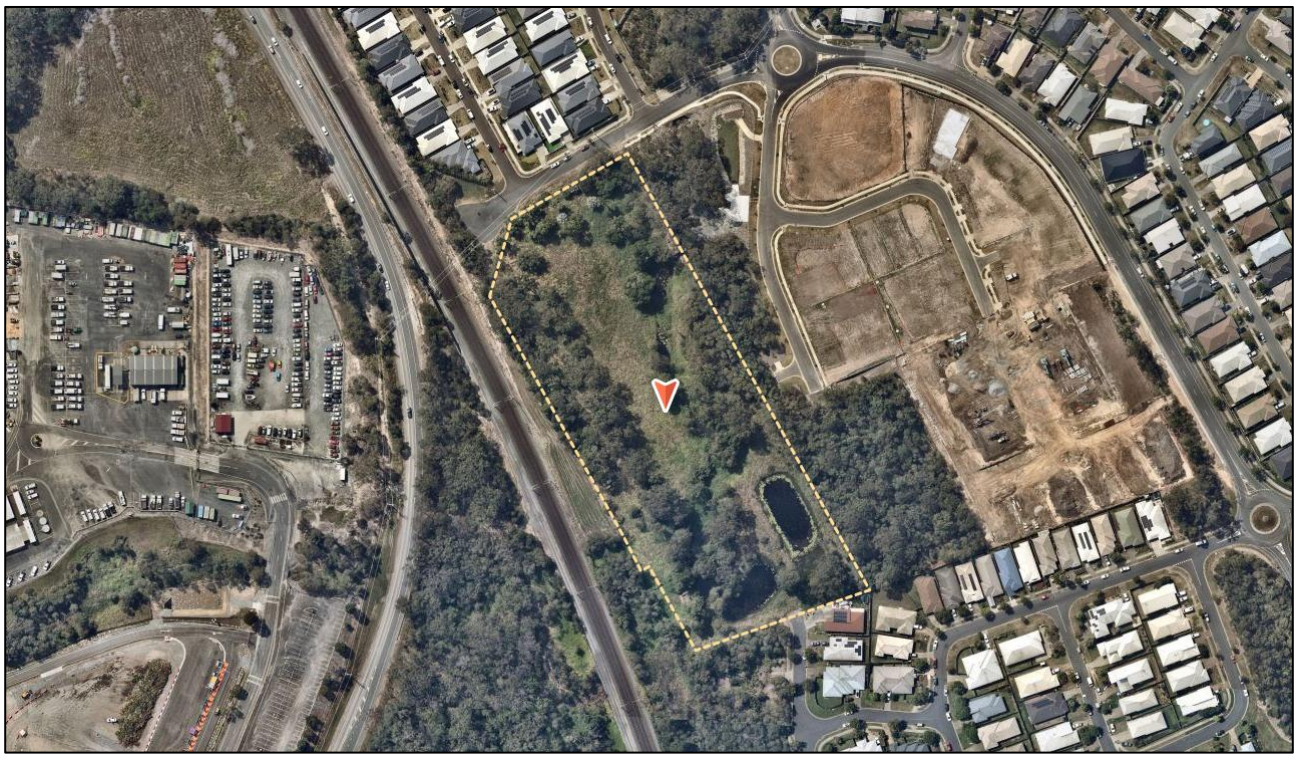


Figure 1.2 Recent aerial imagery of subject site (Nearmap, December 2025)



Figure 1.3 Regional Ecosystems mapped within the site (Qld Globe, January 2026)

Table 1.1 Regional Ecosystems within the site (Qld Dept Resources, 2025)

Regional Ecosystem	VMA Status	Category	Area (ha)	Short Description	Structure Category
12.11.24	Least Concern	B	< 0.01	*Eucalyptus carnea or E. tindaliae, Corymbia intermedia +/- E. siderophloia or E. crebra woodland on metamorphics +/- interbedded volcanics*	Spare
12.3.11	Of Concern	B	0.06	*Eucalyptus tereticornis +/- Eucalyptus siderophloia, Corymbia intermedia open forest* on alluvial plains usually near coast	Mid-dense



Figure 1.4 Koala Areas within the site (Qld Globe, January 2026)



Figure 1.5 City Plan Priority Species Overlay Map (Gold Coast City Plan V13 2026)



Figure 1.6 City Plan Priority Vegetation Management Overlay Map (Gold Coast City Plan V13 2026)



Figure 1.7 City Plan Wetlands and Watercourse Overlay Map (Gold Coast City Plan V13 2026)

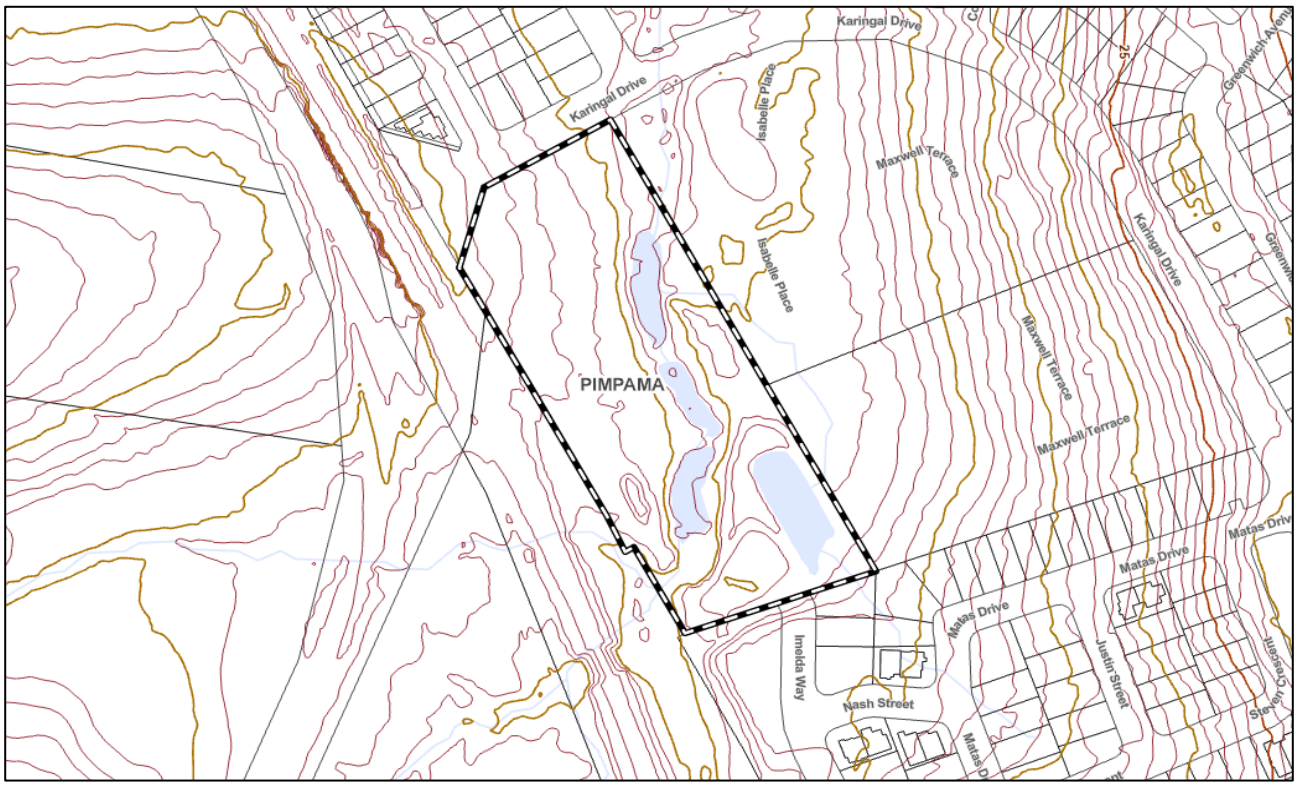


Figure 1.8 Local contours and waterways (© *City of Gold Coast 2026*)

1.6 Development Description

The proposed development is seeking Council approval for Material Change of Use (multiple dwellings), Reconfiguring a Lot (2 management lots and a park Lot) and Operational Works (change to ground level and vegetation clearing). Specifically, the proposal involves a new townhouse development which comprises a complex of 16 townhouses accessing from Imelda Way and a complex of 41 townhouses accessing from Karingal Drive. The reconfiguring a lot component involves creation of management lots for these two townhouses developments and a park lot to be dedicated to Council for the drainage reserve traversing the site.

For further details, please refer design drawings prepared by MPS Architects attached in Appendix A of this report. Figure 1.9 below provides an excerpt taken from the development's site plan (MPS Architects, 2026) and Figure 1.10 provides an extract of the proposed earthworks design (Burchills, 2026).

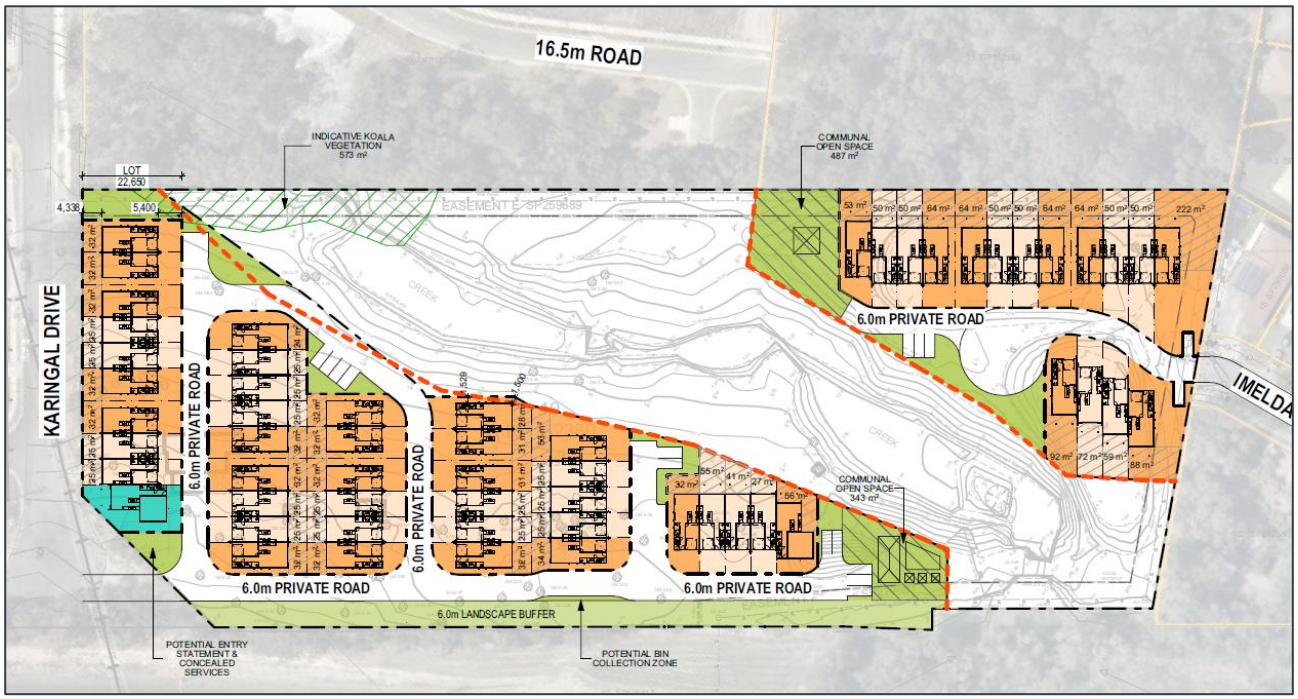


Figure 1.9 Proposed plan of development (MPS Architects, 2026)



Figure 1.10 Proposed earthworks (Burchills, 2026)

2. Regulatory Provisions and Constraints

A review of regulatory provisions and other potential constraints that apply to the subject site was undertaken with the results summarised below in Table 2.1. Complete desktop review search results are provided in Appendix B.

Table 2.1 Potential Regulatory and Other Constraints for Subject Site

Constraint	Present	Absent	Comments
Easements and / or Restrictions on Title	x		An easement parcel is present on the southern, eastern and part of the western boundaries [1].
City Plan Environmental Significance Overlay Map - Biodiversity	x		The site is mapped as containing habitat for priority species on the Biodiversity priority species overlay map[2].
City Plan Environmental Significance Overlay Map – Waterways and Wetlands	x		The site is mapped as containing a minor watercourse line and 30m buffer[2] (refer Figure 1.5).
City Plan Environmental Significance Overlay Map – Vegetation	x		The site is mapped as containing Regulated, Medium and General priority Vegetation [2] (refer Figure 1.5).
City Plan – Bushfire Risk	x		The site contains a small area of Medium potential bushfire hazard area with the balance mapped as Potential bushfire impact buffer[2].
City Plan – Acid Sulfate Soils Risk	x		All of the site is mapped as containing potential for Acid sulfate soils (predominantly land at or below 5m AHD with the remaining portion at or below 20m AHD)[2].
City Plan – Flood Prone	x		The site is not subject to flooding excepting a very minor area adjacent to the eastern boundary [2].
City Plan – Landslide Hazard and Steep Land		x	The site is not mapped as containing Landslide hazard areas[2].
State Mapped Waterways	x		The site contains two green (low risk) waterways in the south-eastern corner of the site that converge into an orange (moderate risk) waterway for waterway barrier works.
State Mapped Vegetation	x		The site's vegetation is mapped as predominantly Category X – non-remnant vegetation with a small area of 'Of concern' Regional Ecosystem 12.3.11 under the Qld *Vegetation Management Act 1999* (VMA)[1] (refer Figure 1.3).
State Mapped Essential Habitat	x		The site's regulated vegetation is mapped as Essential Habitat for *Phascolarctos cinereus* (Koala) [4].
State Mapped Koala Habitat	x		Part of the site is mapped as Core Koala Habitat[1] (refer Figure 1.4).
State Mapped Threatened Species	x		Six (6) species of threatened fauna and one (1) species of threatened flora have been recorded within 2km of the subject site[3].

Notes:

[1] – As identified in Queensland Globe (2026)

[2] – As identified in the Gold Coast City Plan

[3] – As identified by Wildlife Online Species Search results (2026) – refer Appendix B

[4] – As identified in the Vegetation Management Report (2026) – refer Appendix B

3. Restoration Strategy

Ecological restoration is the process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed. The main objective of restoration is to rehabilitate vegetation communities to the extent that they will be self-sustaining and resilient to environmental stressors (such as drought, fire and flood).

The variety in the nature and severity of disturbances that can occur within natural ecosystems dictates that a generic approach to rehabilitating ecological functions and processes is unlikely to be effective. The likelihood of successfully realising the objectives of a rehabilitation project will be greatly increased if the project is managed in accordance with a strategy that is responsive to the specific ecological parameters, functions and processes within the rehabilitation area.

A restoration strategy that is targeted toward site-specific conditions should not only prevent the inefficient expenditure of resources, but also effectively utilise natural ecological processes to enhance the integrity of the native plant community. The main objective of ecological restoration is to restore an ecosystem to the point where it becomes self-sustaining. The approach taken to achieve this objective is dependent on the existing biotic and abiotic conditions and the transitional state of the ecosystem (Figure 3.1).

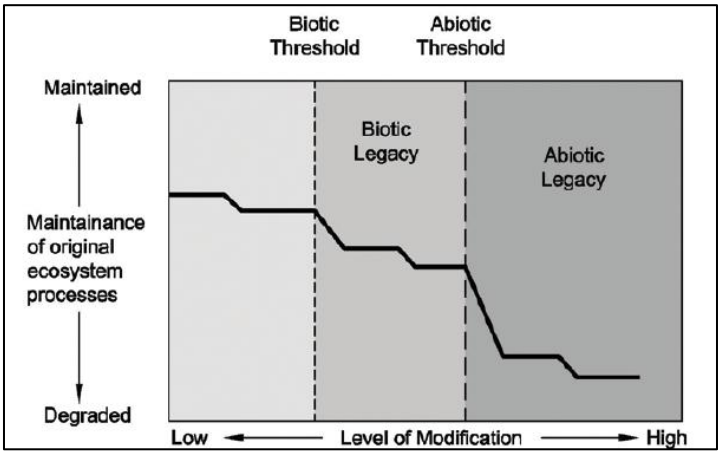


Figure 3.1 Graphical Representation of Ecosystem Transitional States (Chenoweth EPLA and Bushland Restoration Services, 2012)

There are generally two (2) main types of natural bushland restoration – **assisted natural regeneration** and **reconstruction** (Chenoweth EPLA and Bushland Restoration Services, 2012). Assisted natural regeneration is appropriate for areas that may require weed removal, but with a healthy seedbank and signs of active natural regeneration of the preclearing community. Targeted revegetation may be required where intensive weed removal has resulted in an area denuded of cover with little capacity to naturally regenerate.

Reconstruction is suited to areas that need assistance with recruitment due to factors such as a lack of canopy cover, lack of connectivity and / or highly disturbed conditions. Reconstruction typically includes initial weed treatment followed by revegetation that may be required in a number of stages. This method is appropriate for areas that have little to no natural canopy cover due to weed removal and very low natural regeneration due to seedbank suppression from weeds.

3.1 Existing vegetation

A site inspection of the area proposed to be restored was undertaken by the authors of this report in February and March 2026 and was focused upon the mapped minor waterway/drainage feature that is to be protected in environmental reserve and subject to rehabilitation. It is noted that this area has been highly disturbed through historic clearing, weed incursion and significant modification of the upstream and downstream

catchment. This modification includes channelisation, damming, construction of stormwater infrastructure (e.g. swales, detention basins) and piping. The development protects the waterway in the proposed reserve and all site stormwater will be treated for quality and quantity before discharging into the downstream environment. The width of the waterway reserve varies from 24m at its narrowest point to 116m at its widest.

A total A total of 142 species of flora were detected during the surveys including 72 non-native species, eight (8) of which are Restricted Invasive Plants under the '*Biosecurity Act 2016'*. The sites vegetation can be classed as one association – anthropogenic grassland with irregular patches/copses of native canopy and landscaped trees. This association is highly modified and degraded by historical clearing, abandoned horticultural infrastructure and significant weed incursion. In particular, *Setaria sphacelata* (South African pigeon grass) is present throughout this association, and is present as dense stands across much of the site.

The canopy layer where present comprised patches and copses with irregular height and cover. Common species include *Eucalyptus tereticornis* (forest red gum), *Eucalyptus siderophloia* (grey ironbark), *Corymbia intermedia* (pink bloodwood), *Lophostemon confertus* (brush box), *Lophostemon suaveolens* (swamp box), *Elaeocarpus grandis* (blue quandong), **Syagrus romanzoffiana* (cocos palm) and **Roystonea regia* (Cuban royal palm). Exotic vine species were found to be smothering trees and, in some instances, causing tree failure within the waterway corridor.

The shrub layer was also unevenly distributed with species including *Archontophoenix alexandrae* (Alexander palm), *Acacia concurrens* (late-flowering hickory), *Acacia disparrima* (hickory wattle), *Glochidion ferdinandi var.ferdinandi* (cheese tree), *Lantana camara* (lantana), *Senna pendula var. glabrata* (Easter cassia), *Delonix regia* (poinciana), *Schefflera actinophylla* (umbrella tree), *Solanum torvum* (devil's fig) and *Tipuana tipu* (tipuana) and *Melaleuca quinquenervia* (broad-leaved paperbark).

The ground layer, as per all other strata is highly variable in terms of composition, height and structure and is dominated by weedy/pasture grasses – predominantly *Setaria sphacelata* (South African pigeon grass), Melinis *minutiflora* (molasses grass), *Megathyrsus maximus* (Guinea grass), and other environmental weeds including *Asparagus aethiopicus cv. Sprengeri* (asparagus fern).

No part of the site meets remnant benchmark criteria as presented in the Qld Herbarium Benchmarks (2019) - including the small area adjacent to the north-east boundary that is mapped as remnant (Category B) of concern Regional Ecosystem 12.3.11 *Eucalyptus tereticornis* +/- *Eucalyptus siderophloia, Corymbia intermedia* open forest on alluvial plains. Additionally, the composition of the vegetation was not found to reflect the preclearing Regional Ecosystems 12.3.11 (associated with the waterway) and 12.11.24 (the remaining parts of the site). No flora species of conservation significance (EVNT) at a national, state or local level was detected on-site.

Based on the prevalence of environmental weeds within this community it is expected that a native seed bank is largely absent across the majority of the site. Due to the likelihood of a low native seed bank within the existing topsoil, significant restoration intervention will be required.

3.2 Restoration Strategy

The restoration area is located within the proposed reserve and covers approximately 7,439 m² of the site, surrounding the existing local mapped waterway/drainage feature. The restoration strategy comprises extensive weed removal followed by reconstruction.

The revegetation works will include planting of native canopy, understorey, shrub and groundcover species representative of the pre-clearing regional ecosystem (RE) 12.3.11a within the inner riparian zone (5 m from the top of bank) and the outer riparian zone across the remaining restoration area.

Revegetation will be undertaken to achieve an average planting density of one (1) plant per square metre across the rehabilitation area. Tree planting will be undertaken at an average density of one (1) tree per 2.25 m² (equivalent to 1.5 m centres). Planting densities will incorporate existing native vegetation to avoid over-planting in areas where native species are already established. Additional shrubs and groundcover species will be planted, where required, to achieve the target average planting density across the rehabilitation area. Planting will be undertaken in areas lacking native vegetation cover, including areas targeted for weed removal.

The revegetation will ensure a net gain in native vegetation cover over the short term and facilitate long-term natural regeneration of slower growing species through natural recruitment.

3.3 Restoration Management Plan

The restoration strategy comprises weed control and reconstruction and includes one (1) restoration management zone based on the restoration approach and site values. Actions required for the proposed works in the RMZ are summarised in Table 3.1 and the location of the RMZ within the site is shown below in Figure 3.2.

Table 3.1 Restoration Management Action Plan

Area (m²)	Existing Vegetation	Target Vegetation Community	Ecosystem Resilience	Strategy	Actions Required
7,439 m^2	Anthropogenic grassland with native canopy and landscaped trees	RE 12.3.11a	Mostly low	Reconstruction	Restoration of this zone will include: • Broadscale weed control targeting weeds per this report; • Monitor for weeds and natural recruitment of local native species as per this report; and • Reconstruction planting in areas subjected to weed control and /or with denuded native vegetation cover in accordance with planting palette in Appendix C. • Revegetation should achieve an average density of 1 plant per 2.25 square metres (1.5m by 1.5m centres) to ensure quick canopy establishment and closure, and an overall average density of one (1) plant per square metre (including existing native plants). •

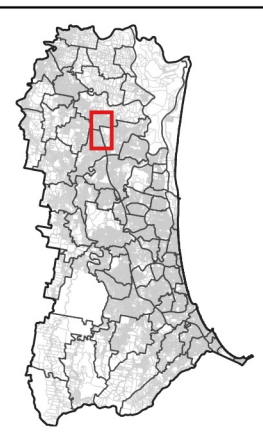
7,439 m2

0 25 50 m

2 Karingal Dve Pimpama

Figure 3.2 Rehabilitation Zone Plan

Project: BE200223	Date: 07-07-2026
Scale: 1:900 at A3	Projection: GDA 2020/MGA Zone 56
Data Sources: Nearmap February 2026	



Location of site within Gold Coast LGA

Legend

- Subject Lot
- Proposed Lots
- Surveyed Contours (MGS 2026)
- Surveyed Top of Bank (MGS 2026)
- Watercourse centreline
- Earthworks
- Restoration Area (7,439m2)

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4. Restoration Methodology

The following sections outline the actions that are to be implemented to achieve a successful restoration outcome on the site.

4.1 Compliance

It is the contractor's responsibility to ensure that the regeneration works required on the site comply with all current and relevant legislation and standards requirements, including, but not limited to:

- *Environmental Protection Act 1994* (EP Act.);
- Work and Healthy Safety *Act 2011* (the WHS Act);
- Construction Work: Code of Practice (Safe Work Australia);
- Excavation – Work Code of Practice (Safe Work Australia);
- *Environmental Protection (Water) Policy 2009*;
- City of Gold Council Legislation, Local Laws and Policies, including the Gold Coast *City Plan;*
- *Australian Standard AS 4373 Pruning of amenity trees;*
- *Australian Standard AS 4419 Soils for landscaping and garden use;*
- *Australian Standard AS 4454 Composts, soil conditioners and mulches;* and
- *Australian Standard AS 4970 Protection of trees on development sites.*

4.2 Vegetation Protection

The following provides general requirements applied to any vegetation to be retained on-site:

- As above, all vegetation protection measures must conform to the requirements of *Australian Standard 4970-2009: Protection of Trees on Development Sites* (AS 4970-2009);
- Prior to the commencement of any vegetation clearing operations, the limits of all vegetation to be retained must be clearly delineated. The storage and operation of construction equipment and machinery is to be located within the extent of earthworks delineation. No construction equipment and machinery are to disturb retained trees, waterways and remnant vegetation where approval to clear has not been received;
- Sediment runoff from all earthworks is to be prevented from entering the areas of retained vegetation (e.g. through use of filter cloth fences);
- All batters are to be erosion protected and planted with appropriate species; and
- The Principal Contractor is responsible for ensuring that all operational works are undertaken in accordance with approved Development Permits.

4.3 Weed Control

For the purposes of this report, a weed has been defined as a species that is not native to the Gold Coast and is recognised as an invasive under *Biosecurity Act 2014*, recognised as an invasive species in South East Queensland by the Queensland Herbarium (Batianoff and Butler, 2002); or recognised as an environmental weed or undesirable species by the South East Queensland Local Government Authority by way of policy. The Queensland *Biosecurity Act 2014* requires everyone to take all reasonable and practical steps to minimise the risks associated with invasive plants under their control.

The site surveys recorded a total of 65 invasive weeds present within the subject site, including eight (8) Restricted Invasive Plants. Table 4.1 provides specific weed control and removal methods for weed species recorded. Where additional weed species are observed on-site that do not have a control technique listed in Table 4.1 an appropriate weed control methodology will be used based on the general guidelines provided in Table 4.2.

Herbicide application is to be undertaken in accordance with the *South East Queensland Restoration Framework* (Chenoweth EPLA and Bushland Restoration Services, 2012). Treatment is to target introduced species only and be carried out in a manner that minimises disturbance to native plants. When undertaking herbicide application for weed control, care will be taken to ensure that no off-target damage occurs to native vegetation. All weed control on-site must be undertaken in a manner that does not promote erosion or instability of soil, particularly in and around waterways and / or high velocity flow areas.

Table 4.1 Specific Weed Control Methodology

Scientific Name	Common Name	Qld Status*	Treatment Method
Ageratina adenophora	crofton weed	OIP	Hand pull and hang to dry; spray G1:200 or G1:200 + MM or MM.
Ageratum houstonianum	blue billygoat weed		Hand pull; spray G1:100.
Ambrosia artemisiifolia	annual ragweed	RIP	Hand pull; spray G1:100 or G1:100 + MM or MM.
Archontophoenix alexandrae	Alexander palm		Seedlings: Hand pull; crown out; spray G1:200 + MM. Trees: Cut below growing point or SI G1:1.5
Asparagus aethiopicus cv. Sprengeri	ground asparagus	RIP	Crown then hang up to dry; spray G1:100 + MM or MM. Best results from herbicide application will be obtained when plant is between flowering and berry formation.
Bidens pilosa	cobbler's pegs		Hand pull; spray G1:100 or G1:100 + MM or MM.
Callisia elegans	striped inch plant		Hand pull, roll or rake, ensure all segments are removed, bag and dispose off-site; spray G1:200 or G1:200 + MM.
Callisia fragrans	purple succulent		Hand pull, roll or rake, ensure all segments are removed, bag and dispose off-site; spray G1:200 or G1:200 + MM.
Cecropia peltata	trumpet tree		Seedlings and regrowth: Hand pull or spray G1:100 + MM. Shrubs: CSP G1:1.5 or SI G1:1.5. Trees: SI G1:1.5.
Chloris gayana	Rhodes grass		Hand pull or dig up; spray G1:100.
Cinnamomum camphora	camphor laurel	RIP	Regrowth and seedlings: Hand pull; spray G1:200 or G1:200 + MM. Saplings: CSP G1:1.5 or G100%. Trees: SI G1:1.5 or G100%.
Conyza bonariensis	flax-leaf fleabane		Hand pull; spray G1:100 or G1:100 + MM or MM.
Conyza sumatrensis	fleabane		Hand pull; spray G1:100 or G1:100 + MM or MM; CSP G1:1.5.
Delonix regia	poinciana		Seedlings and regrowth: Hand pull or spray G1:200 or G1:200 + MM or MM. Shrubs: CSP G1:1.5 or SI G1:1.5.
Desmodium uncinatum	silver-leaved desmodium		Trees: SI G1:1.5. Where possible, bag seed pods and dispose off-site.
Duranta erecta	duranta		Seedlings: Hand pull; spray G1:100. Shrubs: CSP 1:1.5. Where practical, collect and bag seeds, dispose off-site.

Scientific Name	Common Name	Qld Status*	Treatment Method
Eragrostis curvula	African lovegrass		Seedlings: Hand pull; crown out; spray G1:200 + MM. Trees: Cut below growing point or SI G1:1.5
Eriobotrya japonica	loquat		Hand pull or dig up; spray G1:100.
Eugenia uniflora	Brazilian cherry		Seedlings: Hand pull; spray G1:200 or G200 + MM or MM. Saplings: CSP G1:1.5. Trees: SI G1:1.5.
Lantana camara	lantana	RIP	Seedlings: Spray G1:200 or G200 + MM or MM. Shrubs: CSP G1:1.5; SI 1:1.5. Seedlings and regrowth: Spray G1:100. Shrubs: Lop into 50 cm pieces and CSP base G1:1.5. Dense and large infestations: Overspray using G1:100. Best results will be obtained when plants are undergoing active growth.
Lepidium bonariense	Argentine peppercress		Hand pull; spray G1:100 or G1:100 + MM.
Leucaena leucocephala	leucaena		Seedlings: Hand pull; spray G1:200 or 1:200 + MM. Saplings: CSP 1:1.5. Trees: SI G1:1.5.
Livistona chinensis	Chinese fan palm		Seedlings: Hand pull; crown out; spray G1:200 + MM. Trees: Cut below growing point or SI G1:1.5
Lotononis bainesii	lotononis		Hand pull, bag and dispose offsite; spray G1:200 + MM or MM.
Macroptilium atropurpureum	siratro		Seedlings: Spray G1:100 + MM or MM. Vines CSP 1:1.5.
Macroptilium lathyroides	phasey bean		Seedlings: Spray G1:100 + MM or MM. Vines CSP 1:1.5.
Macrotyloma axillare	perennial horse gram		Minor infestations: Hand pull or crown; spray G1:200 or G1:200 + MM or MM. Tubers: CSP G1:1.5. Dense infestations: Spray G1:200 or G1:200 + MM or MM. Bag seeds and dispose off-site.
Megathyrsus maximus	Guinea grass		Hand pull or dig up; spray G1:100.
Melinis minutiflora	molasses grass	OIP	Hand pull or dig up; spray G1:100.
Melinis repens	red natal grass		Hand pull or dig up; spray G1:100.
Monstera deliciosa	monstera		Scrape and paint stems G100%
Morus alba	white mulberry		Seedlings: Hand pull, spray G1:200. Saplings: CSP G1:1.5, stack branches above the ground to dry and prevent reshooting. Trees: SI G1:1.5.
Murraya paniculata	orange jessamine	OIP	Seedlings: Hand pull, spray G1:200. Shrubs: CSP G1:1.5; SI G1:1.5.
Neonotonia wightii	glycine		Seedlings: Hand pull; spray G1:100 + MM or MM. Vines: CSP G1:1.5.

Scientific Name	Common Name	Qld Status*	Treatment Method
Nymphaea caerulea subsp. Zanzibarensis	blue waterlily		Hand pull and/or rake out of water, roll up and hang to dry; spray G1:100 or G1:100 + MM. Bag and dispose safely off site.
Ochna serrulata	ochna		Seedlings and regrowth: Spray G200 + MM or MM. Stems: CSP G1:1.5; scrape and paint G1:1.5; SI G1:1.5. Has very long tap root do not try to hand pull.
Oxalis corniculata	yellow wood-sorrell		Crown out; spray G1:100 or G1:100 + MM.
Passiflora suberosa	corky passionflower	OIP	Seedlings: Spray G200 or G200 + MM. Vines: Hand pull; CSP G1:1.5.
Philodendrum bipinnatifidum	tree philodendron		Scrape and paint stems G100% or cut stems high and low. It takes a long time to die and requires repeated monitoring and treatment.
Ricinus communis	Castor-oil plant		Seedlings: Hand pull; spray G1:200. Shrubs and small trees: CSP G1:1.5; SI G1:1.5.
Roystonea regia	Cuban royal palm		Seedlings and regrowth: Spray G1:200. Shrubs and thickets: Lop into 50 cm pieces and CSP base G1:1.5. Dense and large infestations: Overspray using G1:200.
Schinus terebinthifolius	broad-leaved pepper tree	RIP	Seedlings: Hand pull; spray G1:200. Saplings: CSP G1:1.5. Trees: SI G1:1.5.
Setaria sphacelata	South African pigeon grass		Hand pull or dig up; spray G1:100.
Sida rhombifolia	Paddy's lucerne		Seedlings and small plants: Hand pull; spray G1:100 or G1:100 + MM. Shrubs: CSP G1:1.5.
Sida spinosa	spiny sida		Hand pull; spray G1:100 or G100 + MM.
Solanum chrysotrichum	giant devil's fig		Seedlings: Hand pull or spray G1:200. Shrubs: CSP G1:1.5; SI G1:1.5.
Solanum mauritianum	wild tobacco	OIP	Seedlings: Hand pull or spray G1:200. Shrubs: CSP G1:1.5; SI G1:1.5.
Solanum nigrum	black-berry nightshade		Hand pull; spray G1:100.
Solanum seaforthianum	Brazilian nightshade		Seedlings and regrowth: Spray G1:200 or G1:200 + MM. Vines: CSP G1:1.5.
Solanum torvum	devil's fig		Seedlings: Hand pull or spray G1:200. Shrubs: CSP G1:1.5; SI G1:1.5.
Sonchus oleraceus	sow thistle		Hand pull; spray G1:100 or G1:100 + MM or MM.
Spathodea campanulata	African tulip tree	RIP	Seedlings: Spray G1:200. Saplings: CSP G1:1.5. Trees: SI G1:1.5.
Sphagneticola trilobata	Singapore daisy	RIP	Hand pull, ensure all root nodes are removed, bag and dispose off-site; spray G1:200 + MM.

Scientific Name	Common Name	Qld Status*	Treatment Method
Syagrus romanzoffiana	cocos palm	OIP	Seedlings: Hand pull; crown out; spray G1:200 + MM. Trees: Cut below growing point or SI G1:1.5
Syzygium jambos	rose apple		Seedlings: Hand pull; crown out; spray G1:200 + MM. Trees: Cut below growing point or SI G1:1.5
Tipuana tipu	tipuana		Seedlings: Hand pull; spray G1:200. Saplings: CSP G1:1.5. Trees: SI G1:1.5.
Urochloa decumbens	signal grass		Dig up; spray G1:100.
Verbena bonariensis	purpletop		Hand pull; spray G1:100 or G100 + MM.
Verbena littoralis	common verbena		Hand pull; spray G1:100 or G100 + MM.
Yucca aloifolia	Spanish bayonet		Dig out plants by hand or machine; cut and paint near ground G1:1.5; spray MM.

*Notes:

1. Species specific weed control methodology has been extracted from the *South East Queensland Restoration Framework* (Chenoweth EPLA and Bushland Restoration Services, 2012).
2. Control Methods: G = Glyphosate (e.g. Weedmaster Duo ®, Roundup Biactive ®), MM = Metsulfuron Methyl (e.g. Brushoff ®, Brushkiller ®, Associate ®), S = Surfactant (e.g. L1700 ®, Prosil ®, Pulse ®), A = spray adjuvant (e.g. Agral ®, Protec ®, Codacide ®), D = colour marking dye (e.g. Herbi [red or blue] Liquid Dye ®), CSP = cut, scrape and paint, SI = stem inject.
3. Rates: G1:100 = Glyphosate at a rate of 100mL/10L, G1:200 = Glyphosate at a rate of 100mL/20L, G1:1.15 = Glyphosate at a rate of 400mL/600mL and MM = Metsulfuron Methyl at a rate of 1.5g/10L.
4. Glyphosate formulations, as referred to above, will be “frog-friendly”.
5. It is recommended to add spray adjuvant to improve adhesion to and penetration of herbicide spray into the target species.
6. Adjuvants are not to be allowed to come into contact with natural water bodies when either mixing or spraying herbicide.
7. When not spraying directly adjacent to natural water bodies, the recommended broad-spectrum herbicide mix for treatment of all species is Glyphosate 1:100 for seedlings and Metsulfuron Methyl 1g/10L plus adjuvant.

Table 4.2 General Weed Control Methods

Method	Application	Procedure
Cut-scrape-paint	All woody shrubs and trees Some vines	Prepare herbicide with 1-part of Glyphosate[1] to 1.5-parts water; Cut plant low to ground at an angle and apply herbicide with a paintbrush; Scrape sides lightly to reveal green tissue and apply the herbicide to the scraped area; Ensure that the brush is not contaminated with soil; and All species with seeds that have high viability or longevity (e.g. *Senna spp*., some members of the Fabaceae family, or plants with high invasive potential such as *Heptapleurum actinophyllum*) must be removed from the parent and either composted on-site or removed from the site.
Stem injection	All woody trees and shrubs with a diameter of 6-10cm or greater	Prepare herbicide with 1-part of Glyphosate[1] to 1.5-parts water; With a tomahawk or saw, make a slightly angled cut approximately 1.5cm wide and 1.5cm deep into the trunk and apply herbicide immediately into the cut using a tree-injecting device; Repeat this process in a brickwork pattern around the circumference of the tree, as close to the ground as possible; and Two (2) rows of cuts will be sufficient for trees with trunks of 6-10cm; larger trunk diameters will require more rows.
Spraying	Dense infestations of shrubs and groundcover with no native species interspersed.	Using a 15L spray backpack with a nozzle providing a solid spray pattern, spray herbicide on the infestation[2]; and If Glyphosate[1] is to be utilised as the herbicide, dilution rates are to be in accordance with the manufacturer's recommendations.
Overspray	Plants with large, dense infestations (such as Lantana camara) Where dead plants should be intact to prevent erosion and over-exposure of large areas, protect native seedlings from predators and avoid trampling of the area by humans	Prepare a solution of 1-part Glyphosate[1] to 100-parts water; Spray over the top of the infestation[2]; Leave the sprayed plants intact so that native seedlings can establish under the shelter provided; and Weeds can be cut and flattened with bush-hooks or loppers and the subsequent regrowth sprayed with Glyphosate
Crowning	Weeds which have their growing points beneath the surface in the form of corms, bulbs, rhizomes, clumped or fibrous root systems or similar structures (e.g. *Asparagus aethiopicus, Chlorophytum comosum* and Poaceae species)	Grasp the leaves or stems and hold them tightly so that the base of the plant is visible. Plants with sharp leaves or stems should be cut back first; Insert a knife close to the base of the plant at a slight angle with the tip well under the system; Cut through the roots close to the base. Depending on the size of the plant, two (2) or more cuts may be needed to sever the roots; and Remove the plant and make sure that the base of the plant where the roots begin is completely removed

Notes:

[1] – Due to the proximity of the site to watercourses, where Glyphosate is indicated for use in chemical treatments, Glyphosate Biactive or an equivalent 'Frog Friendly' herbicide must be used. Dilution rates should always be in line with the manufacturer's recommendations and any variation requires a permit from the National Registration Authority.

[2] - To prevent any unnecessary and excessive use of herbicides during weed control activities, a vegetable-based dye will be mixed with all herbicides to be used for spraying and over spraying.

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a Revegetation to increase the average density of trees to 1 plant per 2.25 square metres (1.5m by 1.5m centres) to ensure quick canopy establishment and closure.
b An average density of 1 plant per square metre is to be achieved over the entire rehabilitation area.

4.4 Revegetation

A planting palette for the revegetation works representing the preclearing Regional Ecosystems (12.3.11 and 12.11.24) is provided in Appendix C. The palette includes understorey, shrub and groundcover species. The revegetation works should be result in an average density of one (1) plant per 5 m^2 for trees; 10m for shrubs and one (1) plant per 1m^2 for groundcovers. **Densities should include existing native plants to avoid over-planting in vegetated areas.**

4.4.1 Revegetation Protocol

Table 4.3 outlines the procedure for revegetation planting works.

Table 4.3 Revegetation Protocol

Item	Description
1	Local provenance tube stock is to be utilised for all restoration works. Where this is not possible due to circumstances out of the control of the applicant, Council approval must be sought.
2	Plants are to be vigorous, well established, hardened off, consistent with naturally occurring species or varieties (no cultivars), free from disease and insect pests, with large root systems and no evidence of having been restricted or damaged.
3	Plants are to be planted immediately after delivery to the planting site. If not possible, they are to be stored in the shade and watered sufficiently daily.
4	Excavate planting medium to a depth suitable for the installation of tube or pot specimens (Figure 4.1). In areas where the planting substrate is deemed to be very poor (compacted, nutrient depauperate, hydrophobic, etc.) and above areas of potential frequent inundation and water flow, soil shall be suitably prepared (e.g. through use of fertiliser, and mechanical ripping where required) and sufficient topsoil to sustain long term plant growth shall be used.
5	Pre-water plant hole if soil is dry in order to decrease root stress upon planting and assess the infiltration of water through the soil.
6	A complete, slow release fertiliser is recommended, and is to be administered appropriately during planting. Top dressing with slow release fertiliser is preferred to avoid toxic levels of fertiliser accumulating in the plant hole around the plant roots.
7	Place plant into hole and backfill ensuring that the plant is upright and the stem is not covered in any less than 10mm or any more than 20mm of planting medium.
8	Plants are to be watered thoroughly immediately after planting (ensure deep irrigation) and thereafter as required depending on climatic conditions. Creation of a concave hollow around the base of each plant will aid water infiltration to the plant roots.
9	To ensure successful establishment, all planting surfaces must be covered in either a 10cm layer of high quality composted chip mulch free of weeds and debris (Note: to avoid possible stem rot in some 'drier' species ensure mulch is 'dished' and not covering plant stem by more than 2cm); or suitable individual anchored natural fibre weed mat (e.g. jute mat) in areas subject to high velocity flows or on slopes greater than 1:3 (Figure 4.2).
10	As presented within other sections, where available mulch material will be sourced from cleared vegetation material if adequately seasoned (i.e. stockpiled for at least 6 weeks to prevent nitrogen drawdown).
11	Monitoring and maintenance (watering, weed control, stock replacement, fertilising, managing inappropriate site access, etc.) is to occur monthly for the period from October to May and bi-monthly for June to September during the Establishment period.
12	Where specimens show signs of very poor health, do not replace unless the plant is determined to be dead below ground. Many species are capable of strongly recovering from transplant stress or adjustment to site conditions. If a particular species is consistently doing poorly in certain site conditions, it is recommended to replace with an alternate species.
13	A minimum 90% survival rate must be achieved for all planted stock at all milestones. Where this is not achieved, supplementary planting must be undertaken (refer to Section 5.7).

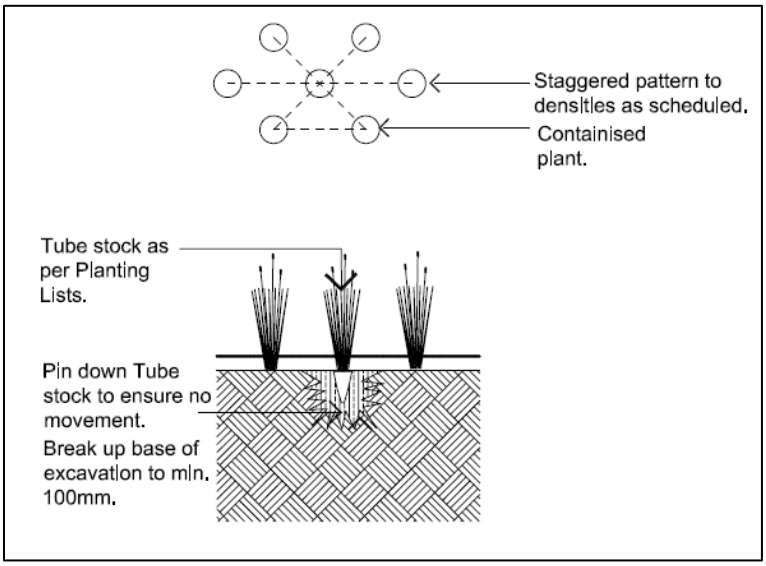


Figure 4.1 Typical Tubestock Planting Details

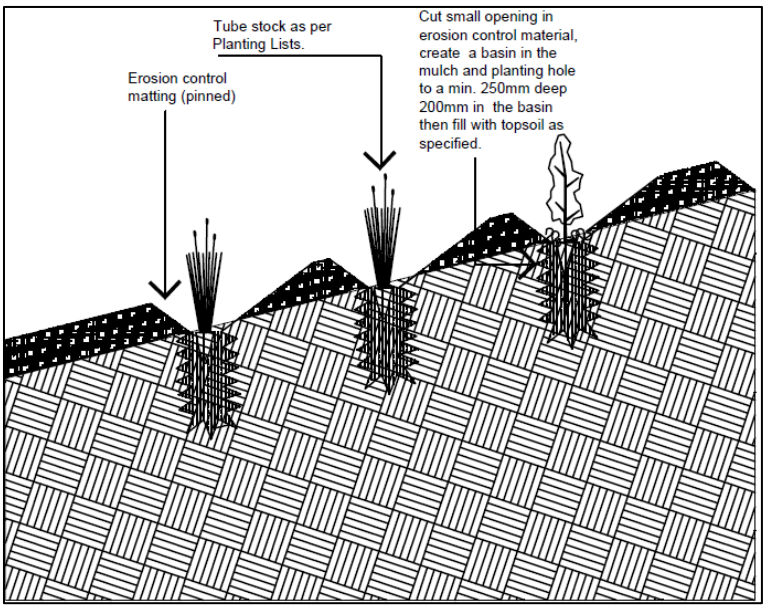


Figure 4.2 Planting Method for Slopes Greater than 1:3

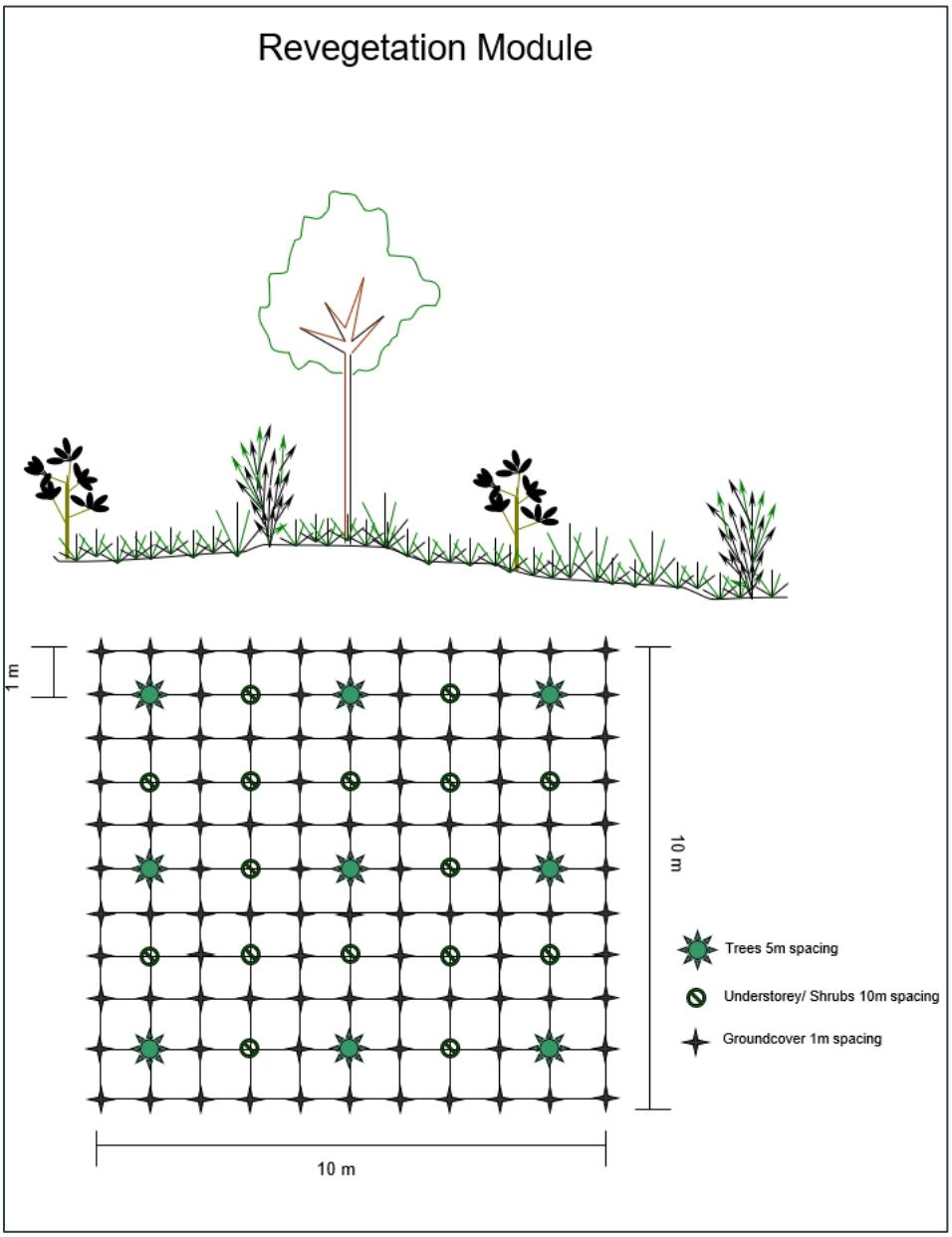


Figure 4.3 Revegetation Planting Module

4.5 Schedule of Rehabilitation Works

4.5.1 Establishment Period

Following initial rehabilitation works, the area is to undergo an Establishment Period of twelve (12) months, during which time the developer will be responsible for undertaking and / or organising monitoring and maintenance requirements. All fencing, signage, initial weed control and initial revegetation would be undertaken in order to achieve on-establishment of the proposed works prior to bonding being proposed.

Table 4.4 outlines the schedule of maintenance and benchmarks for the Establishment Period.

Table 4.4 Establishment Period Schedule of Works

Activity	Frequency	Commencement	Details
Fencing and Signage	Once	Prior to Works	Temporary fencing and signage may be required to deter access to the revegetation areas where deemed appropriate by the revegetation contractor.
Weed Control	Monthly	Initial period	This will comprise initial weed control and following up treatments. By the end of the Establishment Period, the restoration area will be 90% free of weeds.
Initial Revegetation Works	Once but follow up required	Following weed control	Works to include soil preparation (soil wetting agent may be required), planting, fertilising (slow release for native plants), mulching and installation of stakes and seedling protection covers where deemed appropriate by the revegetation contractor. All reconstruction works are to achieve a minimum survival rate of 90% at the end of the establishment period.
Irrigation	Weekly/As required	At reconstruction planting	Irrigation requirements will depend on rainfall events. Irrigation will be undertaken at a minimum every three (3) to five (5) days for first eight (8) weeks depending on rainfall.
Routine Inspections	Weekly/Monthly	Following weeding and planting out	Inspections will be undertaken weekly for the first month following reconstruction works; then monthly for the remainder of the establishment period.
Follow up Revegetation Planting	As required	Following inspection and as required	Replace dead plants; and/or add additional mulch/fertiliser; and/or replace stakes/protective covers where required as determined at the routine inspections.
Photo-monitoring	Every three (3) months	Prior to rehabilitation works, then immediately upon completion of reconstruction works.	Photographs taken from fixed points, determined by the landowner, to record changes in the rehabilitating vegetation community every three (3) months for the duration of the Establishment Period.

4.5.2 On-Maintenance Period

Following completion and acceptance by Council of the 12-month Establishment Period, the developer will be responsible for maintenance and monitoring for the 12-month On-Maintenance Period. Council will undertake a final inspection at the end of the On-Maintenance period to determine whether the area meets the restoration benchmarks and objectives outlined in this RMP. This inspection will determine whether the restoration works can go 'Off Maintenance' and the works moves into the Management phase. It should be noted that once the area is in Management (Off Maintenance), the restoration contractor may still access the area for routine / spot inspections to ensure ongoing compliance with this RMP. The landowner may also wish to bond this period in accordance with Council requirements to facilitate early plan sealing. All establishment works (outlined in Section 4.5.1) will be completed prior to proposing bonding of the on-maintenance period of the works.

Table 4.5 outlines the schedule of activities and maintenance to be undertaken during the On-Maintenance period.

Table 4.5 On-Maintenance Period Schedule of Works

Activity	Frequency	Commencement	Details
Weed Control	Every three (3) months	Following completion of establishment period	Three (3) monthly and reactive based on monitoring results.
Irrigation	As required	Following completion of establishment period	Irrigation requirements during this stage will be reactive based on the monitoring results and rainfall events.
Routine Inspections	Every three (3) months	Following completion of establishment period	Inspections will be undertaken every three (3) months during this period.
Follow up Revegetation Planting	As required	Following completion of establishment period	Replace dead plants; and/or add additional mulch/fertiliser; and/or replace stakes/protective covers where required as determined at the routine inspections.
Photo-monitoring	Every three (3) months	Following completion of establishment period	Photographs taken from fixed points, determined by the landowner, to record changes in the rehabilitating vegetation community every three (3) months during this period.

4.6 Qualifications of Personnel Involved in RMP Implementation

On-ground restoration works must be undertaken and / or supervised by persons with qualifications in the field of bush regeneration. Minimum qualifications and experience for bush regenerators to undertake on-ground restoration works should comprise Certificate III in Conservation Land Management (Natural Area Restoration) or equivalent and two (2) years' experience working on the vegetation type(s) at the site. Equivalent qualifications and / or experience will require the provision of successful on-ground examples under the responsibility of the applicant or referee reports from experienced practitioners eligible for Australian Association of Bush Regeneration accreditation. Proof of qualifications and experience of on-ground personnel is required to be submitted to Council prior to commencement of works.

Bush regenerators are to hold a current Chemical Users Certificate and other relevant legislative requirements (e.g. harvesters' licence to work with threatened flora).

Monitoring and reporting are to be undertaken by a suitably qualified ecologist with experience in monitoring natural areas and quantitative analysis.

4.7 Daily Record Keeping

To comply with the *Chemical Usage (Agricultural and Veterinary) Control Act 1988*, a daily record sheet which includes records of chemicals used must be kept. An example of a Daily Record Sheet is included as Appendix D.

To comply with the *Work Health & Safety Act 2011* a daily record sheet for on-site staff involved in the restoration work will need to be kept. A sample Job Risk Assessment Form and Matrix is included within Appendix E

5. Monitoring and Reporting

It is critical to the success of any restoration project to undertake regular monitoring of the works' progression. Recording and evaluating the progress and effectiveness of work that has been undertaken provides valuable opportunities for adaptive management which will enable improvements of strategic and operational methods.

A record of each management event will be kept and used to describe any activities undertaken including:

- Weeding and methods used;
- General location of activities; and
- Any other general observations / comments (such as fire or weather conditions such as drought, significant rainfall events, etc.).

A sample of a monitoring record sheet has been provided in Appendix F of this report.

The following measures will facilitate effectiveness of the restoration program:

- Establish a baseline monitoring program before restoration commences;
- Prepare an inspection and monitoring program; and
- Ensure that remedial action is taken promptly when the results of monitoring, auditing or inspections reveal a problem or environmental risk.

When evaluating the progress of the rehabilitation project, key indicators of positive progress include:

- Reductions in the severity and extent of weed infestations;
- Improvements in vegetation structure;
- Increases in species diversity through natural recruitment;
- Increases in the diversity of, and species within, successional stages (e.g. pioneer, secondary and mature phases); and
- Improvements in vegetation community health.

Monitoring and reporting are to be undertaken by a suitably qualified ecologist or restoration professional with experience in monitoring natural areas.

5.1 Monitoring Methodology

Data collected for this restoration project will use qualitative methods (e.g. observations on daily record sheets and photo point monitoring).

Photo-monitoring points are to consist of a marker or a feature (e.g. a survey peg or stake in the ground) that is not likely to change dramatically over time. To provide accurate and reliable data, photographs should be taken from exactly the same location, height and direction, and with the same lens and / or camera. GPS co-ordinates of each photo-monitoring point should be accurately recorded. A prominent feature that is unlikely to change over time (e.g. a large dead tree) should be visible in each photo, which will assist with the recognition and comparison of any changes in the vegetation.

Data collection to measure restoration outcomes will be based on the performance indicators (refer to Section 6.2). An example monitoring and evaluation datasheet has been provided in Appendix F of this report.

A monitoring report is required to be submitted to Council for certification at the end of both the Establishment and On-Maintenance periods. The certification is to demonstrate that the restoration works have achieved the required performance indicators.

5.2 Performance Indicators

Performance indicators or benchmarks are tools to measure the effectiveness of prescribed management and restoration actions. Performance indicators for this restoration project are as follows:

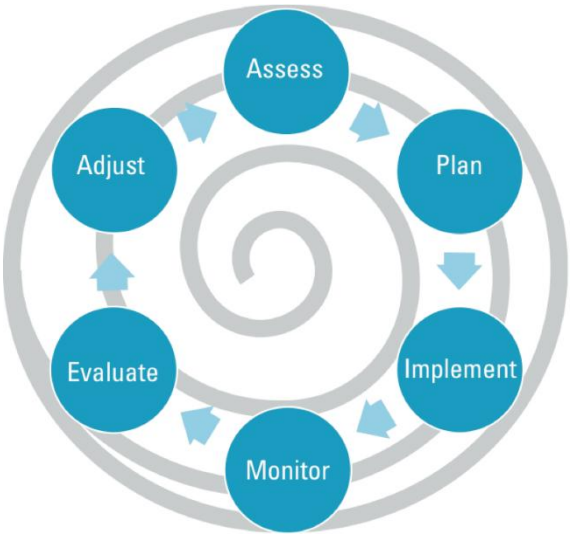
- Primary treatment of all weeds in the riparian zone by the end of the on-maintenance period;
- Nil fruiting of weed species after primary treatment;
- Increased abundance and diversity of native species;
- Increased recruitment of native species;
- Increased canopy percentage of native species;
- No inappropriate genetic material used in plantings;
- >90% survival rate of planted stock and naturally recruited native species; and
- Increased colonisation and use of the site by native fauna.

When the management obligations for the site have been completed (i.e. the management period has come to an end and the performance criteria have been achieved), certification of completion of works and maintenance requires:

- Documentation to demonstrate that all performance criteria have been achieved;
- A site visit with Council officers, the proponent and the consultant; and
- Formal correspondence will be forwarded to the proponent notifying Council acceptance of the management of the RMP site and release of any bond if applicable.

6. Adaptive Management and Contingency Planning

Adaptive management allows for flexible management responses by either adopting or amending management actions over the duration of the project. This approach allows managers to learn from mistakes and adapt to unexpected events such as drought, floods and fire. Changes in industry best practice may also influence the management strategies.



Any minor alterations to any component of the RMP must be approved by the relevant authority.

Approval of an amended RMP will be subject to the same assessment process as the original RMP. Justification for the amendments, including an analysis of the implementation, maintenance and success of the existing RMP will be considered in assessment of the amended RMP.

An application for minor alterations must be accompanied by an Adaptive Management Statement (AMS) which clearly outlines the plan component to be altered and the reasoning for the alteration. Reasoning would usually be for an improved environmental outcome. A completed signed copy of each AMS must be forwarded to the relevant authority.

7. Definitions

AMS	Adaptive Management Strategy
DES	Department of Environment and Science
RE	Regional Ecosystem
RMP	Rehabilitation Management Plan
VMA	*Vegetation Management Act 1999*

8. References

Chenoweth EPLA and Bushland Restoration Services (2012). *South East Queensland Ecological Restoration Framework: Code of Practice*. Prepared on behalf of SEQ Catchments and South East Queensland Local Governments, Brisbane.

Burchills, (2026). Ecological Site Assessment – 2 Karingal Drive, Pimpama. Prepared for Bosform Pty Ltd.

Thomas, Evan (2006). *Gold Coast Soil Association Map*. Prepared for Gold Coast City Council.