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Vegetation Management Plan

Pymble Ladies College – Secondary Innovation Precinct, Pymble

Report prepared by Narla Environmental Pty Ltd

For Pymble Ladies College

February 2026



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environmental

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Report Certification

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1. Introduction

1.1 Project Background

Narla Environmental Pty Ltd (Narla) was engaged by Pymble Ladies College (the proponent) to prepare a Vegetation Management Plan (VMP) for Pymble Ladies College, Pymble NSW ('Subject Property'; **Figure 1**) to support a proposed State Significant Development Application. The proposed development involves the demolition of several existing buildings and the construction of the Secondary Innovation Precinct, along with associated landscaping and Campus Commons. The Subject Property is approximately 20.19ha and contains the following vegetation communities within a Core Riparian Zone as defined by Ku-ring-gai Council (2025):

- Blue Gum High Forest

The VMP encompasses 1.84 ha of the Subject Property. This designated area is henceforth referred to as the 'Subject Site.' This defined area has been allocated two (2) management zones, Management Zone 1 and 2, covering a total of approximately 1.80 ha (**Figure 1**).

The methodology and content of this VMP have been prepared under:

- Sections 17.2 and 18.3 of the Ku-ring-gai Council Development Control Plan (2024).
- The NSW Department of Planning and Environment (DPE) Controlled Activity – Guidelines for Vegetation Management Plans on Waterfront Land (2022).

1.2 Scope of the VMP

The primary purpose of this Vegetation Management Plan (VMP) is to provide guidance for the proposed development, aiming to restore and enhance the Blue Gum High Forest within the Core Riparian Zone of the Subject Site. Specifically, the VMP aims to:

- Delineate specific management zones within the Subject Site
- Implement targeted conservation measures for BGHF vegetation
- Protect the ecological functions of the Core Riparian Zone
- Develop a native seed collection and propagation program
- Implement site-appropriate revegetation techniques
- Minimise edge effects and habitat fragmentation
- Establish performance indicators for vegetation recovery
- Implement a minimum five-year formal monitoring program, with ongoing management of the Subject Site in perpetuity to protect the long-term integrity of the Blue Gum High Forest CEEC corridor.
- Provide adaptive management responses based on monitoring outcomes

1.3 Ecological Site Assessment

An ecological site assessment was undertaken by experienced Narla Ecologist Gemma Hicks on the 5th of May 2025. During the site assessment, the following activities were undertaken:

- Mapping the extent of native and exotic vegetation, including areas that exist only as ground cover
- Mapping all occurrences of any threatened plants across the site
- Mapping all environmental and Priority Weed infestations on the site, and identifying areas of weed infestation from adjoining properties
- Identifying and recording the locations of notable fauna habitats, such as important nesting, roosting, or foraging microhabitats
- Identifying any management issues that require addressing in the VMP (e.g. erosion works, fill removal, dam works).
- Identifying suitable techniques and locations for management efforts

1.4 Vegetation Communities

1.4.1 PCT 3136: Blue Gum High Forest

As per description from NSW DCCEE BioNet (2025), Blue Gum High Forest (BGHF) represents a very tall to extremely tall sclerophyll open forest with a mesophyll shrub layer and a grassy and herbaceous ground layer found on clay rich shale soils in the high rainfall districts of Sydney north shore and surrounding suburbs.

The tree canopy very frequently includes a high cover of *Eucalyptus saligna*, commonly with *Eucalyptus pilularis* and occasionally *Syncarpia glomulifera*.

The mid-stratum is layered, with a sparse cover of small trees that very frequently includes *Pittosporum undulatum* and occasionally *Elaeocarpus reticulatus*. There is often also at least one of a suite of tall Acacia species, of which *Acacia parramattensis* is most frequent and the others are rarely occurring. The lower shrub layer also includes very frequently *Pittosporum undulatum*, commonly with *Breynia oblongifolia*, *Polyscias sambucifolia*, and *Pittosporum revolutum*, occasionally with *Leucopogon juniperinus* and *Clerodendrum tomentosum*.

The ground layer is variable in both composition and cover. It may be ferny, grassy or herbaceous and include a diversity of small mesic climbers depending on topographic situation and disturbance history. Species very frequently include *Microlaena stipoides*, *Entolasia marginata*, *Oplismenus aemulus*, *Pseuderanthemum variabile*, and *Pandorea pandorana*, commonly with *Dichondra repens*, *Tylophora barbata*, and *Adiantum aethiopicum*, occasionally with *Calochlaena dubia*.

This PCT occurs on a range of shale or shale-influenced substrates, including gullies, ridgelines, and slopes underlain by Wianamatta Group shales. It also occurs on small gully heads where downslope movement of shale soil lies above sandstone bedrock where outcrops may be present. It is found at elevations of 30-190 m asl. This community has been extensively cleared across low slope ridgelines between Castle Hill and St Ives, with many remaining examples restricted to steeper slopes, including in the suburbs of Ryde, Lane Cove, and Willoughby. It grades into tall forests PCT 3262 on thinner shale soils that adjoin, or PCT 3176 downslope in sandstone gullies.

Blue Gum High Forest is listed as a Critically Endangered Ecological Community (CEEC) under both the Biodiversity Conservation Act 2016 and the Environment Protection and Biodiversity Conservation Act 1999. Given this status, the management obligations under this VMP extend in perpetuity to ensure the long-term protection of this corridor.

1.5 Management Zones

The Subject Site has been assigned two (2) management zones to guide the management of vegetation (**Figure 1**):

- Management Zone 1: Upper Riparian Management.
- Management Zone 2: Lower Riparian Management



Figure 1. Management Zones within the Subject Site.

Table 1. Description, objectives, and management requirements for Management Zone 1: Upper Riparian Management

Management Zone 1: Upper Riparian Management Approximate area = 0.75ha	
	
Description	The upper riparian zone comprises a mix of native and exotic species, with exotic species found predominantly within the creek line. The canopy was largely native, including <i>Eucalyptus saligna</i> (Blue Gum), <i>Syncarpia glomulifera</i> (Turpentine Tree), <i>Eucalyptus pilularis</i> (Blackbutt), <i>Eucalyptus piperita</i> (Peppermint) and <i>Brachychiton acerifolius</i> (Illawarra Flame Tree). Locally occurring <i>Araucaria bidwillii</i> (Bunya Pine) and exotic species (<i>Cinnamomum camphora</i> (Camphor Laurel) were also present within this layer. The mid-storey included <i>Acacia parramattensis</i> (Parramatta Wattle), <i>Breynia oblongifolia</i> (Coffee Bush), <i>Homolanthus populifolius</i> (Bleeding Heart), <i>Indigofera australis</i> (Indigo), <i>Pittosporum undulatum</i> (Sweet Pittosporum) and various <i>Cyathea</i> spp. (Tree Ferns) are prevalent. Exotic species within this layer included <i>Ligustrum lucidum</i> (Broad-leaf Privet). Native groundcover species included <i>Adiantum aethiopicum</i> (Maidenhair Fern), <i>Dichondra repens</i> (Kidney Weed), <i>Doodia aspera</i> (Fern), <i>Echinopogon ovatus</i> (Hedgehog Grass), <i>Lomandra longifolia</i> (Spiny-headed Mat-rush), <i>Oplismenus aemulus</i> (Australian Basket-grass), <i>Pteridium esculentum</i> (Bracken Fern), <i>Solanum prinophyllum</i> (Forest Nightshade). Highly invasive species such as <i>Alocasia</i> spp. (Elephant Ears), <i>Hedera helix</i> (English Ivy), <i>Ipomea purpurea</i> (Morning Glory), <i>Tradescantia fluminensis</i> (Trad) and <i>Ehrharta erecta</i> (Panic Veldtgrass) are present in large amounts. Priority weed <i>Asparagus aethiopicus</i> (Ground Asparagus) was present within this zone.
Objectives	▪ Protect and enhance existing native vegetation ▪ Promote the natural regeneration of native species ▪ Control priority and environmental weeds within the riparian management zone ▪ Undertake active revegetation of the mid-storey and ground layer using locally native species suited to BGHF and riparian conditions
Management Requirements	Protection of Retained Native Vegetation ▪ Temporary fencing installed around all retained native vegetation prior to works commencement and maintained for the duration of activities Erosion and Sediment Control ▪ All erosion and sediment control measures implemented and maintained under the Managing Urban Stormwater: Soils and Construction (Landcom, 2004,"Blue Book") guidelines Use of Local Provenance in Revegetation ▪ Seed collected from on-site native species prior to clearing and propagated for use in revegetation works Weed Control

Management Zone 1: Upper Riparian Management

Approximate area = 0.75ha

- Reduce weed density by 50% within Year 1.
- Achieve ≥90% removal of Priority Weeds by the end of the VMP period.
- Reduce total environmental weed cover noticeably within Year 1, by ≥80% overall by Year 5, and to a maximum of 5% across the treated riparian corridor prior to the conclusion of formal monitoring, consistent with NSW Office of Water guidelines. Where this threshold is not achieved by Year 5, weed management is to continue until the threshold is met.

Active Revegetation

- Active revegetation undertaken using an approved species list (**Appendix A**), prioritising locally endemic species
- ≥90% survival rate of planted trees and shrubs over the VMP duration, assessed through annual monitoring

Habitat Features Installation

- Any logs felled during clearing works are to be installed in this management zone to provide microhabitats for fauna species. The logs may be cut into smaller sizes for ease of installation; however, must keep any viable hollows or habitat features.
- Two (2) microbat nest-boxes are to be installed in this management zone prior to clearing works to account for proposed building demolition and tree removal (Narla 2025)

Monitoring, Reporting, and Adaptive Management

- Evaluate progress and adjust management strategies as needed
- Annual monitoring reports prepared by a suitably qualified Ecologist, assessing compliance with all VMP objectives and KPIs, and recommending adaptive management measures where required

Table 2. Description, Objectives, and Management Actions Required for Management Zone 2: Lower Riparian Management.

Management Zone 2: Lower Riparian Management Approximate Area = 1.06ha	
	
Description The lower riparian zone had considerably more exotic species present than the upper riparian area. The canopy was largely native, including <i>Eucalyptus saligna</i> (Blue Gum), <i>Syncarpia glomulifera</i> (Turpentine Tree), <i>Eucalyptus pilularis</i> (Blackbutt), <i>Eucalyptus piperita</i> (Peppermint), <i>Acacia decurrens</i> (Black Wattle) and <i>Brachychiton acerifolius</i> (Illawarra Flame Tree). The exotic species <i>Cinnamomum camphora</i> (Camphor Laurel) was present within this layer. The mid-storey included <i>Acacia parramattensis</i> (Parramatta Wattle), <i>Breynia oblongifolia</i> (Coffee Bush), <i>Elaeocarpus reticulatus</i> (Blueberry Ash), <i>Homolanthus populifolius</i> (Bleeding Heart), <i>Indigofera australis</i> (Indigo), <i>Ozothamnus diosmifolius</i> (Rice Flower), <i>Pittosporum undulatum</i> (Sweet Pittosporum), <i>Santalum obtusifolium</i> (Sandalwood), <i>Solanum aviculare</i> (New Zealand Apple) and various <i>Cyathea</i> spp. (Tree Ferns) are prevalent. Exotic species within this layer included <i>Ligustrum lucidum</i> (Broad-leaf Privet), <i>Ligustrum sinense</i> (Small-leaf Privet). Native groundcover species included <i>Adiantum aethiopicum</i> (Maidenhair Fern), <i>Dichondra repens</i> (Kidney Weed), <i>Doodia aspera</i> (Fern), <i>Echinopogon ovatus</i> (Hedgehog Grass), <i>Lomandra longifolia</i> (Spiny-headed Mat-rush), <i>Nephrolepis cordifolia</i> (Fishbone Fern), <i>Oplismenus aemulus</i> (Australian Basket-grass), <i>Pteridium esculentum</i> (Bracken Fern), <i>Solanum prinophyllum</i> (Forest Nightshade). Highly invasive species such as <i>Alocasia</i> spp. (Elephant Ears), <i>Hedera helix</i> (English Ivy), <i>Ipomea purpurea</i> (Morning Glory), <i>Tradescantia fluminensis</i> (Trad) and <i>Ehrharta erecta</i> (Panic Veldtgrass) are present in large amounts. Priority Weeds <i>Asparagus aethiopicus</i> (Ground Asparagus) and <i>Hedychium gardnerianum</i> (Ginger Lily) were present within this zone.	
Objectives - Protect and enhance existing native vegetation. - Promote the natural regeneration of native species - Control priority and environmental weeds within the riparian management zone - Undertake active revegetation of the mid-storey and ground layer using locally native species suited to BGHF and riparian conditions	
Management Requirements	
Protection of Retained Native Vegetation Temporary fencing installed around all retained native vegetation prior to works commencement and maintained for the duration of activities	
Erosion and Sediment Control All erosion and sediment control measures implemented and maintained under the Managing Urban Stormwater: Soils and Construction (Landcom, 2004,"Blue Book") guidelines	

Management Zone 2: Lower Riparian Management

Approximate Area = 1.06ha

Use of Local Provenance in Revegetation

- Seed collected from on-site native species prior to clearing and propagated for use in revegetation works

Weed Control

- Reduce weed density by 30% within Year 1.
- Achieve ≥90% removal of Priority Weeds by the end of the VMP period.
- Reduce total environmental weed cover noticeably within Year 1, by ≥80% overall by Year 5, and to a maximum of 5% across the treated riparian corridor prior to the conclusion of formal monitoring, consistent with NSW Office of Water guidelines. Where this threshold is not achieved by Year 5, weed management is to continue until the threshold is met.

Active Revegetation

- Active revegetation undertaken using an approved species list (**Appendix A**), prioritising locally endemic species
- ≥90% survival rate of planted trees and shrubs over the VMP duration, assessed through annual monitoring

Habitat Features Installation

- Any logs felled during clearing works are to be installed in this management zone to provide microhabitats for fauna species. The logs may be cut into smaller sizes for ease of installation; however, must keep any viable hollows or habitat features.
- Two (2) microbat nest-boxes are to be installed in this management zone prior to clearing works to account for proposed building demolition (Narla, 2025)

Monitoring, Reporting, and Adaptive Management

- Evaluate progress and adjust management strategies as needed
- Annual monitoring reports prepared by a suitably qualified Ecologist, assessing compliance with all VMP objectives and KPIs, and recommending adaptive management measures where required

2. Performance Criteria and Implementation Schedule

2.1 Performance Criteria

Aim	Key Performance Indicator (KPI)	How will this KPI be assessed?	Designated time to meet KPI	If the KPIs cannot be met by the designated time
Protection of Retained Native Vegetation	Temporary fencing installed around all retained native vegetation at risk of indirect impacts.	Verified by the Construction Manager via site inspection log.	Prior to the commencement of any construction activity.	Cease all work in the affected area until fencing is installed and verified.
Erosion and Sediment Control	All erosion and sediment controls installed and maintained under <i>Managing Urban Stormwater: Soils and Construction, 4th Edition</i> (Landcom, 2004, "Blue Book").	Assessed by the Construction Manager following installation and after all rainfall events >10 mm. Records documented for monitoring reports.	Prior to construction and maintained throughout.	Halt works until controls are rectified or installed.
Use of Local Provenance in Revegetation	Collection and propagation of seeds from on-site native species during vegetation clearing, with storage and propagation under Florabank Guidelines.	Reviewed by the Project Ecologist and Landscape Architect.	During vegetation clearing, propagation begins immediately after.	Source additional locally-provenance material from accredited suppliers and document the reason for deviation in the monitoring report.
Priority Weed Control	Zone 1: ≥50% reduction by end of Year 1. Zone 2: ≥30% reduction by end of Year 1. Both zones achieved ≥90% reduction by Year 5.	Site inspections and weed mapping by the Project Ecologist.	Initial milestone: Year 1. Final milestone: Year 5.	Increase the frequency of inspections and implement targeted control actions; reassess the methodology if reduction is not achieved.
Reduction of Environmental Weed Cover	Measurable reduction in % cover by Year 1, ≥80% reduction across the Subject Site by Year 5, and a maximum 5% weed cover achieved across the treated riparian corridor prior to the conclusion of formal monitoring. Where the 5% threshold is not achieved by Year 5, the formal monitoring and management program is to be extended until this threshold is met.	Baseline and follow-up vegetation surveys using fixed quadrats and mapping by the Project Ecologist.	Annual assessment; formal benchmark at Year 5 or until ≤5% weed cover is achieved, whichever is later.	Intensify weed control efforts and trial alternative methods. Extend the monitoring and management program until the ≤5% weed cover threshold is achieved.
Active Revegetation	Active revegetation was undertaken using the approved species list (Appendix A), with locally endemic species prioritised.	Visual inspection and planting logs reviewed by the Project Ecologist.	Beginning within 3 months of initial weed control, ongoing throughout the VMP period.	Adjust species composition, site preparation, or timing. Replant to maintain planting densities.

Aim	Key Performance Indicator (KPI)	How will this KPI be assessed?	Designated time to meet KPI	If the KPIs cannot be met by the designated time
Habitat Installation	Microbat nest-boxes are to be installed prior to construction works. Logs from clearing works are to be retained and installed as habitat features.	Site inspection by the Project Ecologist.	Prior to construction and during vegetation clearing.	Source additional habitat features and nest-boxes and document the reason for deviation in the monitoring report.
Achieve plant survival targets	≥90% survival of planted trees and shrubs maintained throughout the VMP or replanting to maintain equivalent densities.	Annual spring survival assessments by the Project Ecologist.	Annually in spring.	Replace failed plantings annually. If losses persist beyond 2 years, reassess site conditions and species selection.
Monitoring & Reporting	Annual monitoring report prepared by a qualified Ecologist, addressing all VMP objectives and KPIs, and submitted to Council.	Review of submitted reports.	Annually for 5 years.	Provide a supplementary report and an updated action plan if non-compliance or underperformance is recorded.

2.2 Work Schedule/ Timing

Task	Process for Completion	Time Required (estimated)	Responsibility	Scheduling					
				Year 1	Year 2	Year 3	Year 4	Year 5	In Perpetuity
Appointment of Relevant Contractors	Appointment of a qualified Project Ecologist and bush regeneration contractor with experience in Blue Gum High Forest management.	Prior to work beginning	Proponent Land Manager						
Protection of Retained Native Vegetation	Install temporary fencing around all retained native vegetation at risk.	1 day	Construction Manager						
Use of Local Provenance in Revegetation	Collect, store, and propagate seeds from BGHF species during vegetation clearing. Storage in accredited facilities under Florabank Guidelines.	As part of the construction work	Landscape Architect Ecologist						
Implement Hygiene Protocol	Implementation of the Hygiene Protocol as per the report, 'Arrive Clean, Leave Clean' (Commonwealth of Australia, 2015).	Ongoing	Contractors Proponent Project Ecologist						
Erosion and Sediment Control	Install and maintain erosion and sediment controls consistent with the Blue Book guidelines.	Once, prior to any construction works	Construction Manager Erosion Control Contractor						
Priority Weed Control	Achieve a 50% reduction (Zone 1) and a 30% reduction (Zone 2) by Year 1, with a 90% reduction across both zones by Year 5.	Ongoing	Proponent Contractors						
Reduction of Environmental Weed Cover	Measurable reduction in % cover by Year 1, ≥80% reduction across the Subject Site by Year 5, and a maximum 5% weed cover achieved across the treated riparian corridor prior to the conclusion of formal monitoring. Where the 5% threshold is not achieved by Year 5, the formal monitoring and management program is to be extended until this threshold is met.	Ongoing	Proponent Contractors						
Active Revegetation	Active revegetation undertaken with an appropriate species list (Appendix A).	Ongoing.	Proponent Contractors						
Habitat Feature Installation	Appointment of a qualified Project Ecologist.	Prior to work beginning, and immediately after.	Project Ecologist Contractors Proponent						
Achieve plant survival targets	Maintain ≥90% survival. Replace failed plantings annually.	Annual spring assessments	Proponent Contractors						

Task	Process for Completion	Time Required (estimated)	Responsibility	Scheduling					
				Year 1	Year 2	Year 3	Year 4	Year 5	In Perpetuity
Monitoring & Reporting	Assess progress using fixed vegetation plots and photo monitoring. Submit annual reports to the Council and the proponent. Adapt management as required.	Annually for the life of the VMP.	Proponent Ecologist						
Ongoing Long-Term Management	Following achievement of the $\leq 5\%$ weed cover and $\geq 80\%$ plant survival thresholds, monitoring and reporting shall continue every three years in perpetuity to maintain the ecological integrity of the BGHF CEEC corridor and prevent future weed encroachment. Monitoring reports shall be prepared internally by the proponent and provided to the consent authority upon request.	Ongoing beyond Year 5	Proponent Ecologist						

3. Detailed Management Actions

3.1 Assign a Suitably Qualified Project Ecologist

Prior to work beginning, a Project Ecologist must be assigned. The Project Ecologist must as a minimum hold a relevant tertiary degree in Science, Biology, Ecology, Environmental Science, Environmental Management, or Natural Resources Management, be fully licensed under the Biodiversity Conservation Act 2016 (or equivalent) and have practical experience in the proposed tasks. The Ecologist will be commissioned to fulfill monitoring and reporting requirements.

3.1 Erosion and Sediment Controls

In pre-emptive action, adequate erosion and sediment measures will be in place at all times in case of minor sediment runoff and/or disruption to soil profiles. Preceding the works, the 'Blue Book' (Landcom, 2004) should be consulted to ensure any additional necessary erosion controls are adequately installed.

3.1 Hygiene Protocol

Phytophthora and Myrtle Rust are pathogens that can be spread through infected soil, with potentially large detrimental impacts. The risk to biodiversity-related to each pathogen has resulted in their being listed as 'Key Threatening Processes' under the BC Act 2016. As a precautionary measure, hygiene procedures are essential across the site. Such hygiene protocols have the additional benefit of limiting the potential to facilitate the introduction or spread of weed propagules to the Subject Property, which can be costly to manage later.

Basic principles include avoiding the transport of sediment onto and off-site by cleaning all work clothing, gloves, tools, and machinery. Sometimes, a solution of 70% ethanol or methylated spirits in 30% water may disinfect equipment prior to use. The report 'Arrive Clean, Leave Clean' (Commonwealth of Australia, 2015) provides further information and best practice methods to reduce the spread of these pathogens between Subject Properties.

It is recommended that all future plantings considered within either zone be tested for Myrtle Rust prior to installation within the Subject Property.

3.2 Mitigation of Edge Effects

To mitigate edge effects resulting from clearing and construction activities, the following measures should be implemented:

- A mulch strip with a minimum width of one m is to be installed along all exposed edges. This mulch should be sourced locally and certified as weed-free to suppress weed germination and keep soil moisture. The mulch layer will be inspected and topped up annually, or as required, to maintain its efficacy.
- Planting should be conducted in a staged sequence to ensure the rapid establishment of continuous canopy cover. Priority should be assigned to fast-growing mid-storey and groundcover species that provide shading and inhibit weed colonisation. The planting layout will be strategically designed to maximise shade on disturbed edges, with taller shrubs and mid-storey species positioned on the outer margins to limit light penetration into areas susceptible to weed invasion.
- Temporary physical barriers, including fencing and erosion controls, will be maintained along the perimeter during construction. These barriers will limit unauthorised access, prevent soil compaction, and minimise disturbance from machinery.

3.3 Weed Management

All weed management works must be conducted by a suitably qualified professional with expertise in NSW exotic and native flora. Given Toolijooa's prior experience conducting bush regeneration works on-site, their engagement with these works is recommended.

Weed management will be implemented across both Management Zones, with the following objectives:

- Targeting existing weed infestations.
- Preventing weed encroachment into adjacent areas.
- Conducting regular management visits as specified by the qualified contractor for five years, or until weed levels are deemed acceptable by the Project Ecologist.

3.3.1 Weed Removal Techniques

Techniques will be applied based on weed species and growth characteristics as per Table 3.

Table 3. Weed removal techniques and timing for species identified within the Subject Site.

Management Priority	Species	Control Method	Timing
Primary (Priority Weed)	<i>Asparagus aethiopicus</i>	▪ Hand Pulling ▪ Crowning ▪ Spot Spraying	Initial control in Years 1–2; target 90% removal by Year 5 with quarterly monitoring.
Primary (Woody Weeds)	<i>Ligustrum lucidum</i> , <i>Ligustrum sinense</i> , <i>Cinnamomum camphora</i>	▪ Hand Pulling ▪ Splatter Gun ▪ Basal Barking ▪ Cut and paint	Year-round control. Intensive efforts in early spring and late summer, prior to seeding.
Secondary (Environmental Weeds)	<i>Tradescantia fluminensis</i> , <i>Hedera helix</i> , <i>Ipomoea purpurea</i> , <i>Alocasia spp.</i> , and <i>Ehrharta erecta</i> , among others.	▪ Hand Pulling ▪ Scrape and Paint ▪ Spot Spraying	Year-round control. Intensive efforts in early spring and late summer, prior to seeding.

3.4 Revegetation

3.4.1 Species Selection

The revegetation species listed in Appendix A have been selected to align with the documented composition and structure of the Plant Community Type 3136: Blue Gum High Forest. This approach ensures the restoration of a self-sustaining native ecosystem.

All selected species are confirmed as frequent or very frequent constituents of PCT 3136. This adherence to the benchmark community description guarantees the ecological authenticity of the revegetated area and eliminates the risk of introducing atypical or potentially non-local species. The floristic composition mirrors a remnant patch of Blue Gum High Forest.

Under the seed collection protocols in **Section 3.4.1**, all propagation material will be of local provenance. Sourcing seed from within the same biogeographic region maintains the genetic integrity and local adaptations of the plant stock, which is a fundamental prerequisite for long-term plantation resilience and survival. This practice ensures that the revegetation is not only floristically correct but also genetically appropriate for the site conditions.

The species assemblage also serves specific ecological functions beyond structural replication. Including nitrogen-fixing species such as *Acacia floribunda* and *Acacia longifolia* will enhance soil fertility. The complex vegetation

structure created by the canopy, mid-storey, and climbing plants provides essential foraging, nesting, and shelter resources for native fauna. This revegetation strategy is integrated with the habitat feature installation detailed in **Section 3.4.3**, with the planted vegetation providing a supportive landscape for fauna using nest boxes and relocated logs.

Finally, the selected species were chosen for their practical availability. All taxa are routinely propagated by regional bushland nurseries or can be sourced from on-site populations, ensuring the project can be implemented efficiently and within a practical timeframe.

3.4.2 Seed Collection

To ensure the ecological integrity and long-term resilience of restored vegetation, all seed and planting stock must be of local provenance, sourced from on-site or nearby remnant vegetation of the same plant community type. This approach maintains genetic compatibility and adaptation to local environmental conditions. Relevant protocols are as follows (Ralph, 2003):

- A suitably qualified Ecologist will oversee seed collection during vegetation clearing, targeting a representative range of:
 - Dominant and subdominant native species (trees, shrubs, ground covers).
 - Species characteristic of the Blue Gum High Forest vegetation community.
- Collections must adhere to ethical and sustainable practices, including:
 - Securing the permits under the Biodiversity Conservation Act 2016
 - Limiting harvest to ≤10% of seed from any individual population to avoid depletion.
- Collected seeds must be:
 - Properly cleaned and labelled.
 - Stored in a cool, dry, horticulturally approved facility to maintain viability.
 - Where workable, propagation should be conducted by accredited nurseries with expertise in native species.
- Detailed records must be maintained, including:
 - GPS coordinates of collection sites.
 - Species, quantities, and collection dates.
 - These records ensure provenance, traceability and inform future restoration efforts.
- Where natural regeneration is insufficient, propagated tube stock (grown from collected seed) is to be used.
- Planting densities must reflect natural community structures.
- Any shortfall in the local seed supply must be:
 - Documented with justification.
 - Supplemented (where necessary) with seed from adjacent, ecologically matched provenance areas.
- Alternative sourcing decisions must be included in monitoring reports for transparency.

3.4.1 Use of Tube Stock

It is recommended to use tubestock for the revegetation of the Subject Site. Tube stock revegetation offers several benefits, including the ability to revegetate small or challenging sites (e.g., steep, rocky, or wet areas) where other methods may be less cost-effective or viable. Tube stock revegetation also has a higher success rate than direct seeding (NSW Biodiversity Conservation Trust, 2019).

3.4.2 General Revegetation Measures

The following general revegetation measures are recommended for the Subject Site:

- Active revegetation is to occur in all management zones, and species are to represent the BGHF vegetation community (**Appendix A**).
- Monitoring visits will be conducted by the Project Ecologist to assess the success of revegetation, aiming for a 90% survival rate for trees and shrubs.
- Revegetation Specifications:
 - Using tube stock and hiko cells, revegetation them into holes at least twice the depth of the pot.
 - Apply a suitable fertiliser and soil wetting agent to promote deep root growth.
 - Revegetation should occur only after the complete removal of exotic ground covers.
 - Watering and maintenance will include additional visits during dry periods to ensure plant survival.

3.4.3 Habitat Feature Installation

Various habitat features are to be installed within the Subject Site to mitigate the potential losses from the proposed development (Narla, 2025):

- Nest-boxes designed specifically for use by microbats are to be installed within both management zones (two boxes per management zone) to account for the proposed demolition works and tree removal.
 - Nest-boxes are to be installed prior to both tree removal and building demolition to provide safe relocation options for any microbats identified during these works.
- Any logs from felled trees, especially those including hollows or other habitat features, are to be moved to both management zones to be utilised as microhabitat by ground-dwelling mammal and reptile species.
 - Logs are able to be cut into smaller sizes for ease of installation; however, any habitat features must be maintained.

3.5 Monitoring Specifications

3.5.1 Monitoring Details (Vegetation)

Vegetation monitoring is to be undertaken annually by a suitably qualified Ecologist. Monitoring is to be conducted under standard ecological monitoring protocols relevant to the vegetation community and site conditions. The methodology will include:

- Establishing fixed-point photographic stations within each Management Zone to capture visual evidence of vegetation changes.
- Establishing 50 m x 20 m permanent plots within each Management Zone. Within each plot, assess species diversity and vegetation cover by strata (ground, mid-storey, canopy).
- Within each monitoring plot, record:
 - Full species list identifying all native and non-native species present.
 - Weed cover estimates for each vegetation layer (ground, mid-storey, canopy).
 - Evidence of natural regeneration of native species.
- Assess soil compaction annually at each permanent plot. Where compaction is identified, apply remediation (e.g. ripping, aeration, organic amendment) prior to any supplementary planting.
- Mapping weed cover annually in each Management Zone. Where weed cover exceeds 20% following initial control, schedule targeted follow-up treatment within three months.

- Assessing and documenting the extent of edge effects annually. Monitoring should include:
 - Development and effectiveness of mulch buffers.
 - Progress of planted or naturally established shade vegetation.
 - Ingress of edge-invading weed species.
- Preparing an annual monitoring report that:
 - Summarises results for each plot and Management Zone.
 - Evaluates condition trends against performance criteria.
 - Document management responses triggered by performance thresholds.
 - Includes photographic records and weed mapping outputs.
- Formal monitoring shall continue beyond Year 5 where the maximum 5% weed cover threshold has not been achieved across the treated riparian corridor, consistent with NSW Office of Water guidelines. Once this threshold is achieved, monitoring shall transition to a reduced frequency of every three years in perpetuity. Monitoring reports shall be prepared internally by the proponent and provided to the consent authority upon request, with continued weed management and adaptive management responses implemented as required to maintain $\leq 5\%$ weed cover and protect the BGHF CEEC corridor in perpetuity.

3.6 Reporting and Review

Monitoring reports are to be produced following monitoring events. These are to be produced by a suitably qualified Ecologist. Monitoring reports are to include:

- A summary of annual weed management
- A site assessment based on performance targets
- Presentation of photographic evidence to illustrate the progress of weeding works and natural regeneration
- Any management issues/recommendations required to meet performance targets
- Update work specifications as required to meet performance targets
- Management/maintenance requirements or recommendations to inform any subsequent management of the site (beyond the 1st year maintenance period).
- Any other commentary or recommendations on the KPIs listed in this VMP

Following achievement of the $\leq 5\%$ weed cover and $\geq 80\%$ plant survival thresholds, monitoring and reporting shall continue every three years in perpetuity to maintain the ecological integrity of the BGHF CEEC corridor and prevent future weed encroachment. Monitoring reports shall be prepared internally by the proponent and provided to the consent authority upon request.

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Appendices

Appendix A. Planting schedule for Management Zones 1 and 2.

Stratum	Species	Density	Zone 1	Zone 2	Total
Canopy	<i>Eucalyptus saligna</i>	1/40 m ²	60	83	143
	<i>Eucalyptus pilularis</i>		40	56	96
	<i>Syncarpia glomulifera</i>		30	41	71
	<i>Eucalyptus paniculata</i>		20	28	48
	<i>Angophora costata</i>		12	16	28
	<i>Notelaea longifolia</i>		12	16	28
	<i>Allocasuarina torulosa</i>		8	11	19
	<i>Ceratopetalum gummiferum</i>		8	12	20
Subtotal Canopy			190	263	453
Mid-Storey	<i>Pittosporum undulatum</i>	1/20 m ²	80	110	190
	<i>Polyscias sambucifolia</i>		60	83	143
	<i>Breynia oblongifolia</i>		60	83	143
	<i>Pittosporum revolutum</i>		40	56	96
	<i>Elaeocarpus reticulatus</i>		40	56	96
	<i>Leucopogon juniperinus</i>		20	28	48
	<i>Ozothamnus diosmifolius</i>		20	28	48
	<i>Indigofera australis</i>		20	28	48
	<i>Acacia floribunda</i>		20	28	48
	<i>Acacia longifolia</i>		20	28	48
Subtotal Mid-storey			380	525	905
Ground Layer	<i>Microlaena stipoides</i>	1/5m2	180	254	434
	<i>Entolasia marginata</i>		150	212	362
	<i>Oplismenus aemulus</i>		120	170	290
	<i>Entolasia stricta</i>		60	85	145
	<i>Lomandra longifolia</i>		90	127	217
	<i>Adiantum aethiopicum</i>		90	127	217
	<i>Doodia aspera</i>		80	113	193
	<i>Hypolepis muelleri</i>		50	71	121
	<i>Pseuderanthemum variabile</i>		60	85	145

Stratum	Species	Density	Zone 1	Zone 2	Total
	<i>Dichondra repens</i>		60	85	145
	<i>Dianella caerulea</i>		45	64	109
	<i>Commelina cyanea</i>		45	64	109
	<i>Lobelia purpurascens</i>		30	42	72
	<i>Geranium homeanum</i>		15	21	36
	<i>Veronica plebeia</i>		30	42	72
	<i>Wahlenbergia gracilis</i>		15	21	36
	<i>Pandorea pandorana</i>		95	134	229
	<i>Eustrephus latifolius</i>		95	134	229
	<i>Tylophora barbata</i>		75	106	181
	<i>Clematis glycinoides</i>		55	76	131
	<i>Hardenbergia violacea</i>		55	76	131
	Subtotal Ground Layer			1495	2109
TOTAL PLANTINGS			2,065	2,897	4,962
Notes					
The revegetation schedule has aligned with the benchmark composition and structure for PCT 3136: Blue Gum High Forest. Planting densities for canopy species and mid-storey shrubs ensure the reinstatement of a dominant overstorey and a stratified understorey. The ground layer comprises benchmark taxa from the grass, climber, forb, and fern growth forms. These species are identified as frequent or very frequent within PCT 3136 and provide dense cover for soil stabilisation and competitive suppression of weeds. Using frequent and very frequent species guarantees alignment with the benchmarks for the PCT, and the species selected are generally available from regional bushland nurseries or are otherwise available within the broader Subject Property for propagation.					



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