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Vegetation Management Plan

Pymble Ladies College – Secondary Innovation Precinct, Pymble NSW

Report prepared by Narla Environmental Pty Ltd

For Pymble Ladies College

May 2025



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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 State Significant Development Application (SSDA). The project comprises demolition of several existing buildings and the construction of the Secondary Innovation Precinct ('SIP'), associated landscaping and Campus Commons at the Pymble Ladies College. The SIP is a five-storey building that will consolidate STEM based learning opportunities within the College. The Subject Property is approximately 20.19ha and contains following vegetation communities within a Core Riparian Zone as defined by Ku-ring-gai Council (2025):

- Blue Gum High Forest

The VMP encompasses 1.84ha 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 approximately 1.80 hectares (**Figure 1**).

The VMP provides a framework for protecting and enhancing the retained native vegetation within the Subject Site, with particular focus on the critically endangered Blue Gum High Forest (BGHF) community. While the Subject Site is adjacent to the SIP development site, the VMP specifically addresses areas outside the SIP's construction footprint where vegetation conservation and rehabilitation are prioritised. Through these actions, the VMP aims to maintain and enhance the ecological integrity of the retained vegetation, particularly the BGHF, while ensuring compliance with relevant legislative requirements.

The methodology outlined in the VMP is in alignment with the objectives of sections 17.2 and 18.3 of the Ku-ring-gai Council Development Control Plan (2024), as well as the NSW Department of Planning and Environment (DPE) Controlled Activities – Guidelines for Vegetation Management Plans on Waterfront Land (2022).

1.2 Scope of the VMP

The primary purpose of this VMP is to provide guidance 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 function 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 five-year monitoring program
- Provide for 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 habitat, 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); and
- 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 DCCEEW 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 metres 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.

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; and
- 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 <p>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.</p>	
Objectives <ul style="list-style-type: none"> Protect and enhance existing native vegetation Promote 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 <p>Protection of Retained Native Vegetation</p> <ul style="list-style-type: none"> Temporary fencing installed around all retained native vegetation prior to works commencement and maintained for the duration of activities <p>Erosion and Sediment Control</p> <ul style="list-style-type: none"> All erosion and sediment control measures implemented and maintained in accordance with Managing Urban Stormwater: Soils and Construction (Landcom, 2004) ("Blue Book") guidelines <p>Use of Local Provenance in Revegetation</p>	

Management Zone 1: Upper Riparian Management

Approximate Area = 0.75ha

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

Priority Weed Control

- Reduce the presence and spread of declared priority weeds
 - 50% reduction in weed density within the management zone during the first year
 - 90% removal of priority weeds by the end of the Vegetation Management Plan (VMP) period

Reduction of Environmental Weed Cover

- Observable reduction in weed cover by the end of Year 1.
- Significant reduction (≥80%) by the end of the VMP period

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

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	<p>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 ludicum</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.</p>
Objectives	<ul style="list-style-type: none"> Protect and enhance existing native vegetation. Promote 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	<p>Protection of Retained Native Vegetation</p> <ul style="list-style-type: none"> Temporary fencing installed around all retained native vegetation prior to works commencement and maintained for the duration of activities <p>Erosion and Sediment Control</p>

Management Zone 2: Lower Riparian Management

Approximate Area = 1.06ha

- All erosion and sediment control measures implemented and maintained in accordance with 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

Priority Weed Control

- Reduce the presence and spread of declared priority weeds
 - 30% reduction in weed density within the management zone during the first year
 - 90% removal of priority weeds by the end of the Vegetation Management Plan (VMP) period

Reduction of Environmental Weed Cover

- Observable reduction in weed cover by the end of Year 1.
- Significant reduction ($\geq 80\%$) by the end of the VMP period

Active Revegetation

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

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

Objective	Key Performance Indicator (KPI)	How will this KPI be assessed?	Designated time to meet KPI	If KPI cannot be met by designated time
Protection of Retained Native Vegetation	Temporary fencing erected around all retained native vegetation at risk of indirect impacts.	Verified by Construction Manager via site inspection.	Prior to commencement of any construction activity.	Cease all works in the affected area until fencing is installed and verified.
Erosion and Sediment Control	All erosion and sediment controls installed and maintained in accordance with "Blue Book" (Landcom, 2004).	Assessed by Construction Manager pre- and post-rainfall events and documented for use in the 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 seed from on-site native species during clearing.	Reviewed by Project Ecologist and Landscape Architect.	During vegetation clearing, with propagation commencing immediately after.	Source additional local-provenance seed stock and document reason for deviation in monitoring report.
Priority Weed Control	50% reduction in Zone 1, 30% in Zone 2 within Year 1. 90% removal by end of VMP period.	Site inspections and weed mapping by Project Ecologist.	Initial milestone: Year 1; Final: End of VMP.	Double frequency of site inspections and implement targeted follow-up control actions.
Reduction of Environmental Weed Cover	Observable reduction in weed cover by end of Year 1. Significant reduction ($\geq 80\%$) by the end of the VMP period	Site inspections and weed mapping by Project Ecologist.	Annual assessment, with final benchmark at Year 5.	Intensify weed control efforts and reassess control methods.
Active Revegetation	Active revegetation undertaken with an appropriate species list (Appendix A).	Visual inspection and planting logs reviewed by Project Ecologist.	Post-weeding, ongoing throughout VMP period.	Adjust species composition, site prep methods or timing. Replant as needed.
Achieve plant survival targets	$\geq 90\%$ survival of trees and shrubs established over VMP duration.	Spring assessments of survival rates following planting.	Annually in spring.	Replace lost plantings. If losses persist beyond 2 years, reassess site conditions and species selection.
Monitoring, Reporting, and Adaptive Management	Annual monitoring report prepared by qualified ecologist, addressing all VMP objectives and KPIs.	Review of submitted reports.	Annually for the life of the VMP.	Require supplementary report and updated action plan if non-compliance or underperformance is recorded.

2.2 Work Schedule/ Timing

Task	Process for Completion	Time Required (estimate)	Responsibility	Scheduling				
				Year 1	Year 2	Year 3	Year 4	Year 5
Appointment of Relevant Contractors	Appointment of a qualified Project Ecologist and Bush Regenerator.	Prior to work commencing	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 and store seed from BGHF species during vegetation clearing.	As part of construction works	Landscape Architect Ecologist					
Implement Hygiene Protocol	Implementation of Hygiene Protocol as per the report, 'Arrive Clean, Leave Clean' (Commonwealth of Australia 2015).	Ongoing	Contractors Proponent Project Ecologist					
Erosion and Sediment Control	Adequate erosion and sediment measures will be in place at all times during construction activities in case of minor sediment runoff and/or disruption to soil profiles.	Once, prior to any construction works	Construction Manager Erosion Control Contractor					
Priority Weed Control	Target 50% reduction (Zone 1), 30% (Zone 2) by end of Year 1. 90% reduction by Year 5.	Ongoing	Proponent Contractors					
Reduction of Environmental Weed Cover	Observable reduction in weed cover by end of Year 1. Significant reduction (≥80%) by the end of the VMP period	Ongoing	Proponent Contractors					
Active Revegetation	Active revegetation undertaken with an appropriate species list (Appendix A).	Ongoing.	Proponent Contractors					
Achieve plant survival targets	Maintain ≥90% survival. Replace failed plantings annually.	Annual spring assessments	Proponent Contractors					
		Annually for the life of the VMP.	Proponent					

Task	Process for Completion	Time Required (estimate)	Responsibility	Scheduling				
				Year 1	Year 2	Year 3	Year 4	Year 5
Monitoring, Reporting, and Adaptive Management	Assess progress of remediation and ongoing management actions through sampling of vegetation plots and a general assessment of the management zones. Use annual reports to adjust actions (e.g. replanting, intensifying weed control).		Ecologist					

3. Detailed Management Actions

3.1 Assign a Suitably Qualified Project Ecologist

Prior to work commencing, 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 which can be spread through infected soil, with potentially large detrimental impact. The risk to biodiversity-related to each pathogen has resulted in them 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 transport of sediment onto and off-site by cleaning all work clothing, gloves, tools, and machinery. In some cases, a solution of 70% ethanol or methylated spirits in 30% water may be sufficient to disinfect equipment prior to use. The report 'Arrive Clean, Leave Clean' (Commonwealth of Australia 2015) provides further information and best practice methods to reduce spread of these pathogens between Subject Properties; and

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 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.

3.2.1 Weed Removal Techniques

Appropriate techniques will be applied based on weed species and growth characteristics:

- Cut and Paint
 - For woody weeds, stems will be cut as close to the ground as possible.
 - Herbicide will be applied immediately to the freshly exposed stem.
- Scrape and Paint
 - For weeds with deep taproots, a knife will be used to scrape the stem from the base upward.
 - Herbicide will then be applied to the exposed section.

- Hand Removal
 - Weeds with shallow root systems (e.g., *Tradescantia* spp.) will be manually extracted using a trowel or shovel.
 - Care will be taken to minimise soil disturbance while ensuring complete removal of the root crown.
- Herbicide Usage
 - Only Council-approved herbicides may be used to minimise impacts on invertebrates.
 - Non-chemical methods will be prioritised where feasible.
- All removed weed material must be securely bagged, transported off-site, and disposed of at a licensed waste facility. This ensures no residual propagation or reinfestation occurs.

3.3 Revegetation

3.3.1 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.
- Collection must adhere to ethical and sustainable practices, including:
 - Securing necessary permits in accordance with the Biodiversity Conservation Act 2016
 - Limiting harvest to ≤10% of seed from any individual population to avoid depletion.
- Collected seed must be:
 - Properly cleaned and labelled.
 - Stored in a cool, dry, horticulturally approved facility to maintain viability.
 - Where feasible, 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) will be used.
- Planting densities must reflect natural community structure.
- Any shortfall in 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.

3.3.1 Use of Tube Stock

It is recommended to use tube stock 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 tends to have a higher success rate than direct seeding (NSW Biodiversity Conservation Trust, 2019).

3.3.2 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 be representative of 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:
 - Use tube stock and hiko cells, revegetation them into holes at least twice the depth of the pot.
 - Apply a suitable fertilizer and soil wetting agent to promote deep root growth.
 - Revegetation should only occur after the complete removal of exotic ground covers.
 - Watering and maintenance will include additional visits during dry periods to ensure plant survival.

3.4 Monitoring Specifications

3.4.1 Monitoring Details (Vegetation)

Monitoring is to occur on a yearly basis by a suitably qualified ecologist and will be performed as follows:

- General site-specific photographs should be collected within the Management Zones
- 50mx20m plots to be established in each Management Zone to assess diversity and cover within each monitoring plot
- Vegetation conditions within the monitoring plots are to be monitored against performance criteria
- Floristic data to be collected within each plot are to include:
 - Weed cover within each vegetation layer (ground, mid-strata, canopy); and
 - Full species list, including native and weed species

3.5 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 the following:

- A summary of annual weed management
- A site assessment based on performance targets
- Presentation of photographic evidence to illustrate 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); and
- Any other commentary or recommendations on KPIs listed in this VMP

This VMP should be reviewed by a qualified ecologist at least every five years from the date of its adoption.

4. References

- Abernethy, B., & Rutherford, I. (1999). Guidelines for stabilising streambanks with riparian vegetation. Cooperative Research Centre for Catchment Hydrology.
- Baker, J. (2024). A Practical Guide to Planting Tubestock Paddock Trees.
- Commonwealth Department of Environment, Australian Government. (2015). Arrive Clean, Leave Clean. <https://www.awe.gov.au/sites/default/files/documents/arrive-clean-leave-clean.pdf>
- Ku-ring-gai Council. (2024). Ku-ring-gai Development Control Plan.
- Landcom. (2004). Managing Urban Stormwater: Soils and Construction 'The Blue Book', Volume 1, Fourth Edition, New South Wales Government, ISBN 0-9752030-3-7.
- McDonald, T., Jonson, J., & Dixon, K. W. (2016). National standards for the practice of ecological restoration in Australia. *Restoration Ecology*, 24(2.1), S4–S32. <https://doi.org/10.1111/rec.12359>
- Narla Environmental Pty Ltd (2025) Streamlined Biodiversity Development Assessment Report for Pymble Ladies College Secondary Innovation Precinct.
- NSW Biodiversity Conservation Trust. (2019). Guidelines for assisted regeneration and revegetation. NSW Biodiversity Conservation Trust.
- NSW Department of Climate Change, Energy, the Environment, and Water (DCEEWW). (2025). BioNet Vegetation Classification. <https://www.environment.nsw.gov.au/research/Visclassification.htm>
- NSW Department of Planning and Environment (2022). Controlled activities – Guidelines for vegetation management plans on waterfront land.
- NSW Department of Primary Industries (DPI). (2025). NSW Weed Wise: Priority weeds for Greater Sydney. <https://weeds.dpi.nsw.gov.au/WeedBiosecurities?AreaId=141>
- NSW Government Spatial Services (SIX Maps). (2025). NSW Government Land & Property Information Spatial Information Exchange map viewer. <https://six.nsw.gov.au/>
- Plant NET. (2025). The NSW Plant Information Network System, Royal Botanic Gardens and Domain Trust, Sydney. <http://plantnet.rbgsyd.nsw.gov.au>
- Ralph, M. (2003). Growing Australian native plants from seed for revegetation, tree planting, and direct seeding. Murray Ralph/Bushland Horticulture.

Appendices

Appendix A. Example species suitable for revegetation in Management Zones 1 and 2.

Species	Recommended Densities	Approximate Quantities for Planting
Canopy Layer Species		
<i>Allocasuarina torulosa</i> – Forest Oak <i>Angophora costata</i> – Smooth-barked Apple <i>Ceratopetalum gummiferum</i> – Christmas Bush <i>Eucalyptus saligna</i> – Blue Gum <i>Eucalyptus paniculata</i> – Grey Ironbark <i>Eucalyptus pilularis</i> – Blackbutt <i>Notelaea longifolia</i> – Large Mock-olive <i>Syncarpia glomulifera</i> – Turpentine Tree	1 per 40m ²	453
Mid-Story Species		
<i>Acacia floribunda</i> – Gossamer Wattle <i>Acacia longifolia</i> – Long Leaf Wattle <i>Backhousia myrtifolia</i> – Grey Myrtle <i>Breynia oblongifolia</i> – Coffee Bush <i>Elaeocarpus reticulatus</i> – Blueberry Ash <i>Indigofera australis</i> - Indigo <i>Leucopogon juniperinus</i> - Prickly Beard-heath <i>Leucopogon lanceolatus</i> – Lance Beard-heath <i>Ozothamnus diosmifolius</i> – White Dogwood <i>Persoonia linearis</i> – Narrow-leaved Geebung <i>Pittosporum revolutum</i> – Rough-fruited Pittosporum <i>Pittosporum undulatum</i> – Sweet Pittosporum <i>Polyscias sambucifolia</i> – Elderberry Panax	1 per 20m ²	905
Ground Layer Species		
<i>Adiantum aethiopicum</i> – Maidenhair Fern <i>Commelina cyanea</i> – Scurvy Weed <i>Dianella caerulea</i> - Blue Flax Lily <i>Dichondra repens</i> – Kidney Weed <i>Doodia aspera</i> – Prickly Rasp Fern <i>Einada hastata</i> – Berry Saltbush <i>Entolasia marginata</i> – Bordered Panic Grass <i>Entolasia stricta</i> – Wiry Panic <i>Geranium homeanum</i> – Rainforest Crane’s Bill <i>Glycine microphylla</i> – Small-leaf Glycine <i>Hypolepis muelleri</i> – Ground Fern <i>Lobelia purpurascens</i> - Purple Lobelia <i>Lomandra longifolia</i> - Spiny-headed Mat-rush <i>Microlaena stipoides</i> – Weeping Grass <i>Oplismenus aemulus</i> – Basket Grass <i>Pseuderanthemum variabile</i> – Pastel Flower <i>Sigesbeckia orientalis</i> subsp. <i>orientalis</i> – Indian Weed <i>Veronia plebeia</i> – Creeping Speedwell <i>Wahlenbergia gracilis</i> – Australian Bluebell	2 per 5m ²	7,240



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