Department of Planning, Housing and Infrastructure

Draft Schedule 11 Marsden Park North

Blacktown City Council Growth Centre Precincts Development Control Plan 2010

October 2025

Acknowledgement of Country

The Department of Planning, Housing and Infrastructure acknowledges that it stands on Aboriginal land. We acknowledge the Traditional Custodians of the land, and we show our respect for Elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically. We acknowledge the Dharug people on whose land we plan for a more inclusive future and acknowledge their continuing connection to the land, waters and sky of Dharug land.

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Draft Schedule 11 Marsden Park North – Blacktown City Council Growth Centre Precincts Development Control Plan 2010

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1 Introduction

1.1 Name and application of the schedule

Schedule 11 Marsden Park North Development Control Plan (this Schedule) forms part of the Blacktown City Council Growth Centre Precincts Development Control Plan 2010 (BCC Growth Centre Precincts DCP), as amended.

This Schedule applies to all development on the land shown in **Figure 1: Land application .**

This Schedule and related amendments to the BCC Growth Centre Precincts DCP give effect to the provisions of the BCC Growth Centre Precincts DCP for land within the Marsden Park North Precinct (Precinct) as shown on the Land application map.

1.2 Purpose of this schedule

The purpose of this schedule is to support and augment the objectives and controls set out in the overarching BCC Growth Centre Precincts DCP, by providing additional objectives and controls which are customised to the context of the Marsden Park North precinct.

This Schedule should be read in conjunction with and in addition to the BCC Growth Centre Precincts DCP. In the event of an inconsistency between this Schedule and the BCC Growth Centre Precincts DCP, this Schedule takes precedence.

1.3 Structure of this schedule

Table 1 summarises the structure of this Schedule.

Table 1: Structure of schedule

Part	Summary
Introduction	Identifies the land to which the Schedule applies.
Precinct Planning Outcomes	Establishes an overall vision and Indicative Layout Plan for the future development of the precinct. Provides precinct specific figures, additional objectives and controls, that support the controls in Part 2 Precinct Planning Outcomes of the BCC Growth Centre Precincts DCP in relation to the Marsden Park North Precinct.

Part	Summary
Development in Residential Zones	Provides additional objectives and controls for neighbourhood and subdivision design across the precinct.
Development in Employment Lands	Provides additional objectives and controls for non-residential zoned land across the precinct.
Appendix A	Street design illustrations
Appendix B	Indicative Vegetation Management Strategy

Additional notes are provided throughout this document. These notes are not part of the formal provisions of the DCP but are intended to provide additional guidance and explanation of the provisions. If further guidance is required on the interpretation of provisions in the DCP, readers should refer to the definitions or contact the consent authority for advice.

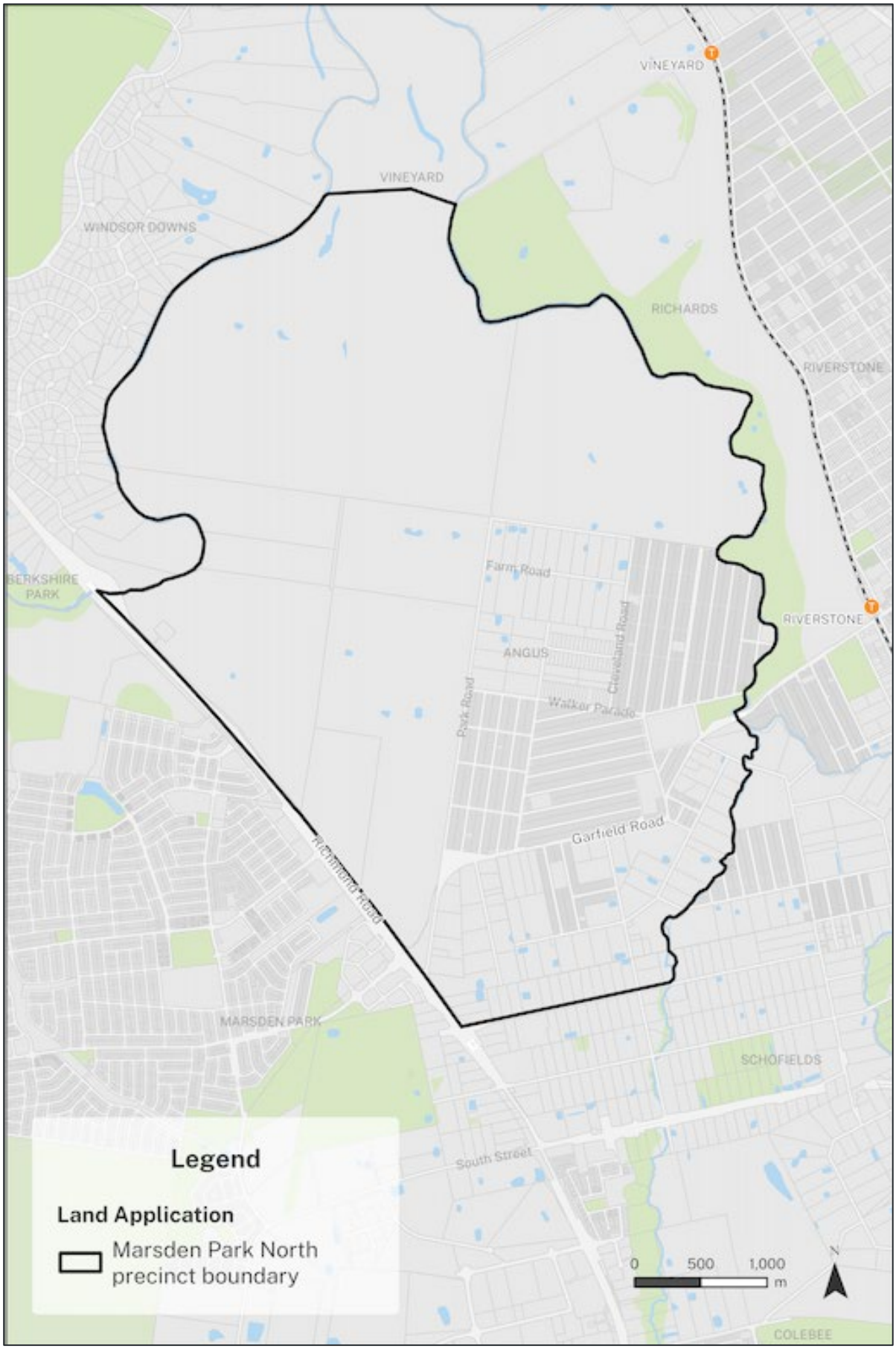

Figure 1: Land application map

2 Precinct Planning Outcomes

The following referenced figures and controls support the objectives, controls and design principles in Part 2 – Precinct Planning Outcomes in the BCC Growth Centre Precincts DCP.

2.1 Vision

The vision for the Marsden Park North is a jobs hub, with a small portion of homes, that fosters a thriving, connected and safe community for all workers and residents.

The protection and enhancement of significant vegetation will provide opportunities for current and future generations to connect with nature.

2.2 The Indicative Layout Plan

The Indicative Layout Plan for the Marsden Park North precinct is provided at Figure 2: Indicative Layout Plan. For related objectives and controls, refer to Section 2.2 - The Indicative Layout Plan of the BCC Growth Centre Precincts DCP.

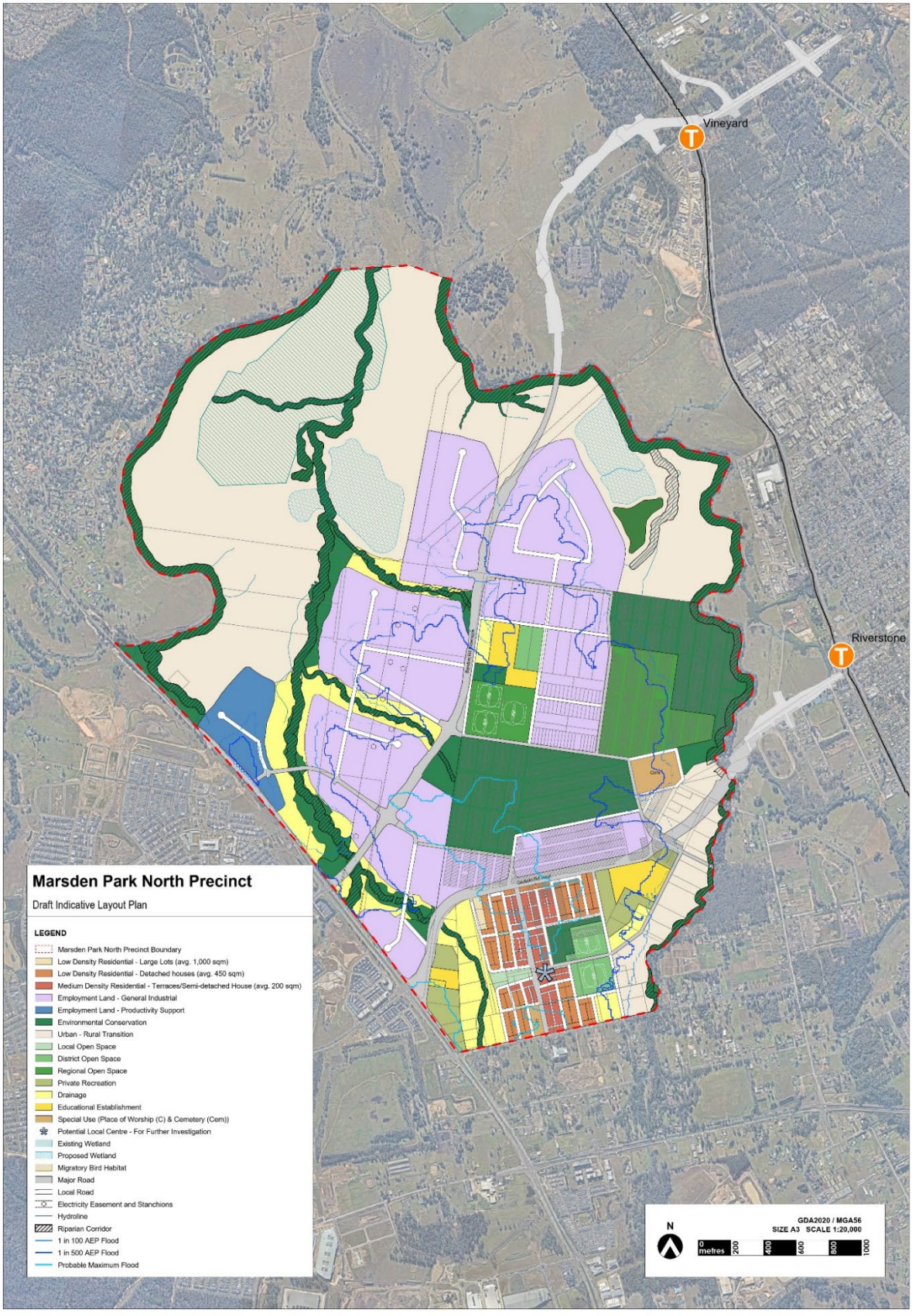

Figure 2: Indicative Layout Plan

2.3 Designing with Country

2.3.1 Objectives

a. Acknowledge, respect, celebrate, and heal Dharug Country.

b. Embed and promote Aboriginal knowledge in the built and natural environment.

c. Support the health and wellbeing of Country by valuing, respecting, and being guided by Aboriginal cultural knowledge.

d. Celebrate water through recognising ancient songlines through South and Eastern Creek, and acknowledge Dharug history by making space for ceremony and culture in practice.

e. Protect key views of Country including Cumberland Plain plants, and high points, and protect from overdevelopment.

f. Encourage opportunities for Aboriginal enterprise, education and knowledge sharing.

g. Avoid development in the culturally significant areas and waterways.

h. Where culturally appropriate, improve public access to Country.

2.3.2 Controls

1. The design of development is to consider the *Connecting with Country Framework* (Government Architect NSW, 2023).

2. Engagement with Aboriginal communities should be thoughtful, proportionate, and focused to prevent over-consultation and consultation fatigue. The *Connecting with Country Framework* (Government Architect NSW, 2023), particularly Section 3.1 of the Framework, should be followed.

3. Development design is to be sympathetic to Country, including, where appropriate, providing sensitive responses to topography, water, vistas, climate, biodiversity, and creating buildings that honour Country.

4. Cultural heritage items and significant areas, such as riparian corridors and high points in the precinct, are to be protected and made accessible to Aboriginal people so that they can maintain a connection to Country. Opportunities for the involvement of Aboriginal people in the care of Country, such as controlled access to Ceremony circles in the north, co-management, and enabling the fulfilment of cultural obligations, as identified in Figure 3 are to be fully explored.

5. Subdivision and development design should follow the lead of Country and work with it, not override it, respecting the cultural significance of high points, ridgelines, and natural topography. This includes through avoiding excessive fill, respecting flood plains, and preserving view corridors.
6. Integration of Indigenous design practices into subdivision and development design is encouraged. Aboriginal people are to lead or co-lead all Indigenous design elements. This is to be undertaken consistent with the approaches in the *Connecting with Country Framework* (Government Architect NSW, 2023).
7. Use signage, surface treatments, walls, and artwork to tell the story of Country and its peoples. Where possible, use Aboriginal language or implement dual naming in the built environment, including streets, public places, community facilities and wayfinding signage.
8. Where appropriate, incorporate storytelling elements into wayfinding devices, to both orientate people to Country today as well as inform them of the stories and history that came before.
9. Provide communal and public outdoor spaces with areas to celebrate culture such as a viewing, yarning, or sitting place with references to local design. The design of these spaces and the facilities provided should be responsive to community need.

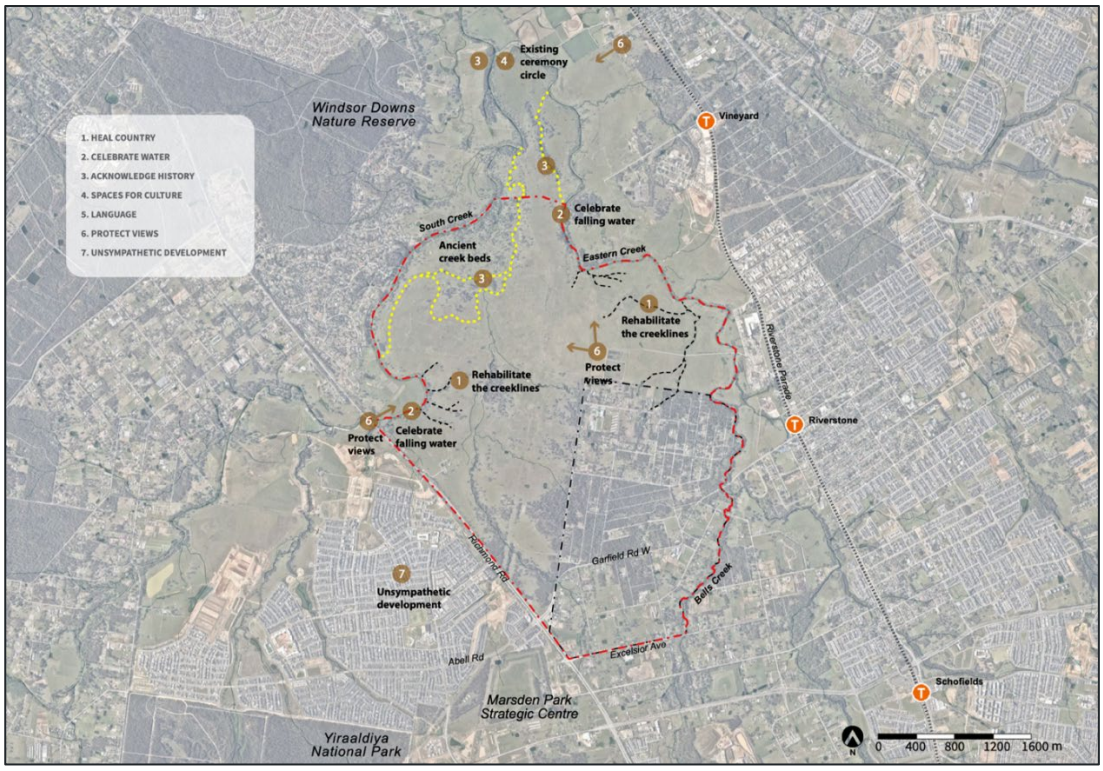

Figure 3: Connection with Country priorities map

2.4 Flooding and Water Cycle Management

For related objectives and controls, refer to Section 2.3.1 Flooding and water cycle management of the BCC Growth Centre Precincts DCP. These objectives and controls work together with the additional controls which follow Figure 4.

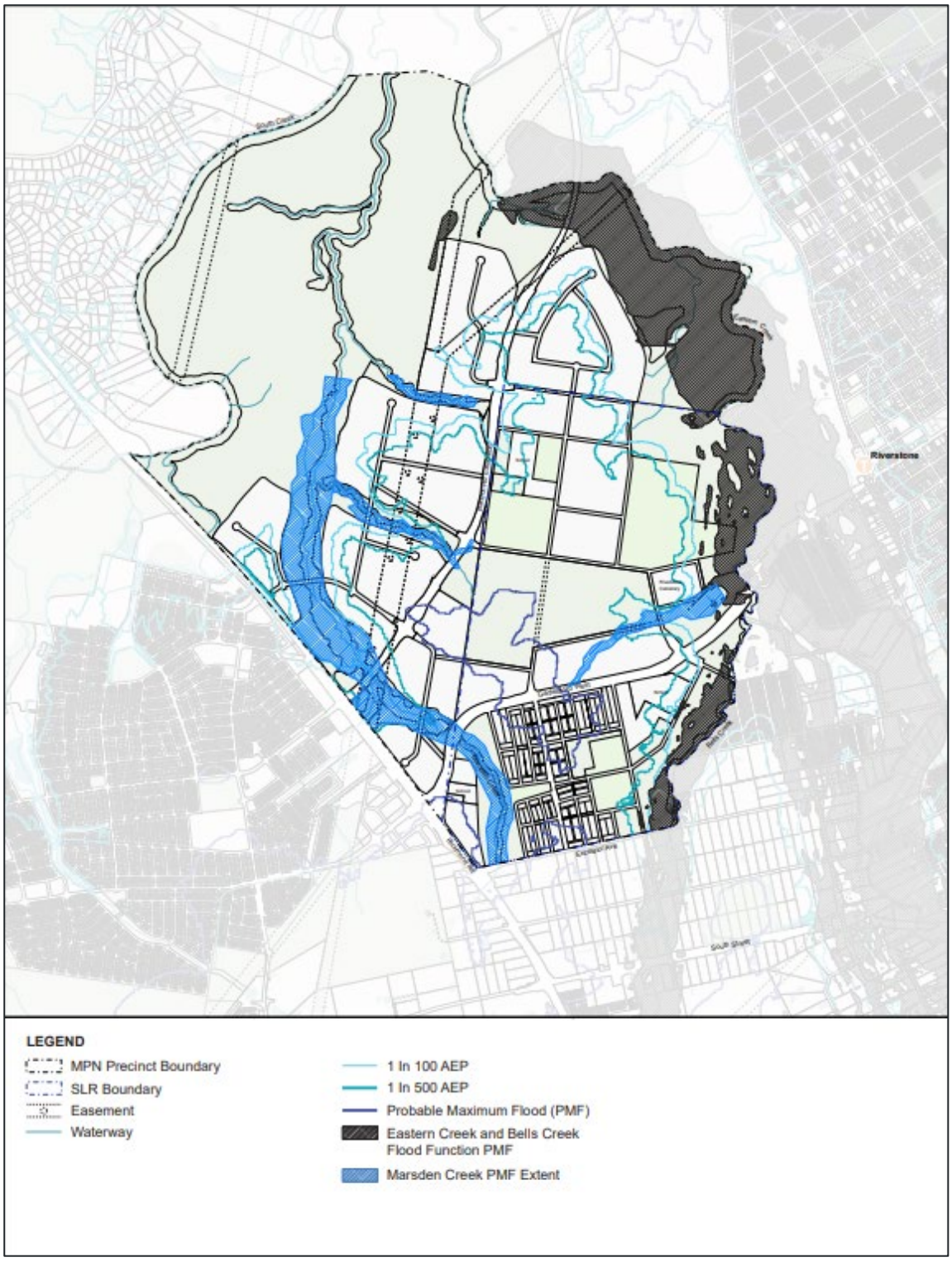

Figure 4 Flood extents

2.4.1 Precinct Specific Definitions

Flood planning level (FPL) means the 1 in 100 Annual Exceedance Probability (AEP) Hawkesbury-Nepean flood level plus a 3.0m freeboard to accommodate climate change impacts (equal to RL 20.3m AHD). This replaces all references to the '1% Annual Exceedance Probability (AEP) flood level' in Section 2.3.1 Flooding and water cycle management of the BCC Growth Centre Precincts DCP.

Flood planning area (FPA) means the area below the FPL.

2.4.2 Additional Objectives

a. To integrate a consideration of the effects of climate change on flooding and water cycle management into the design and delivery of the precinct;

b. To deliver a precinct which can be safely occupied, and efficiently and effectively evacuated in flood events;

c. To minimise the impact of development on flood functions.

2.4.3 Additional Controls – General

1. For recreation and non-residential uses in the *flood planning area*:

    a. All permanent structures have flood-compatible building components and flood-compatible building methods up to and including the flood planning level.

    b. An engineer's report is to be provided certifying that the permanent structures can withstand the forces of floodwater, debris and buoyancy up to and including the flood planning level. In the case of alterations or additions to an existing development, the newly constructed additions are to be certified.

2.4.4 Additional Controls – Evacuation

1. A rising roadway aligned north to south, near or along the localised ridgeline (identified as Robert Street in the draft ILP and Figure 5) must be provided for evacuation purposes. The design and construction of the road shall ensure its entire length is flood free up to the Probable Maximum Flood (PMF) level to support evacuation of development located between the Flood Planning Level (FPL) and the PMF.

2. Roads adjoining residential and employment areas should be designed to rise toward the residential and employment areas so access for evacuation can be provided.

3. ‘Major’ flow path design is to be coordinated, especially to confirm route redundancy and to avoid ‘stranded islands’ of developable land during evacuation.

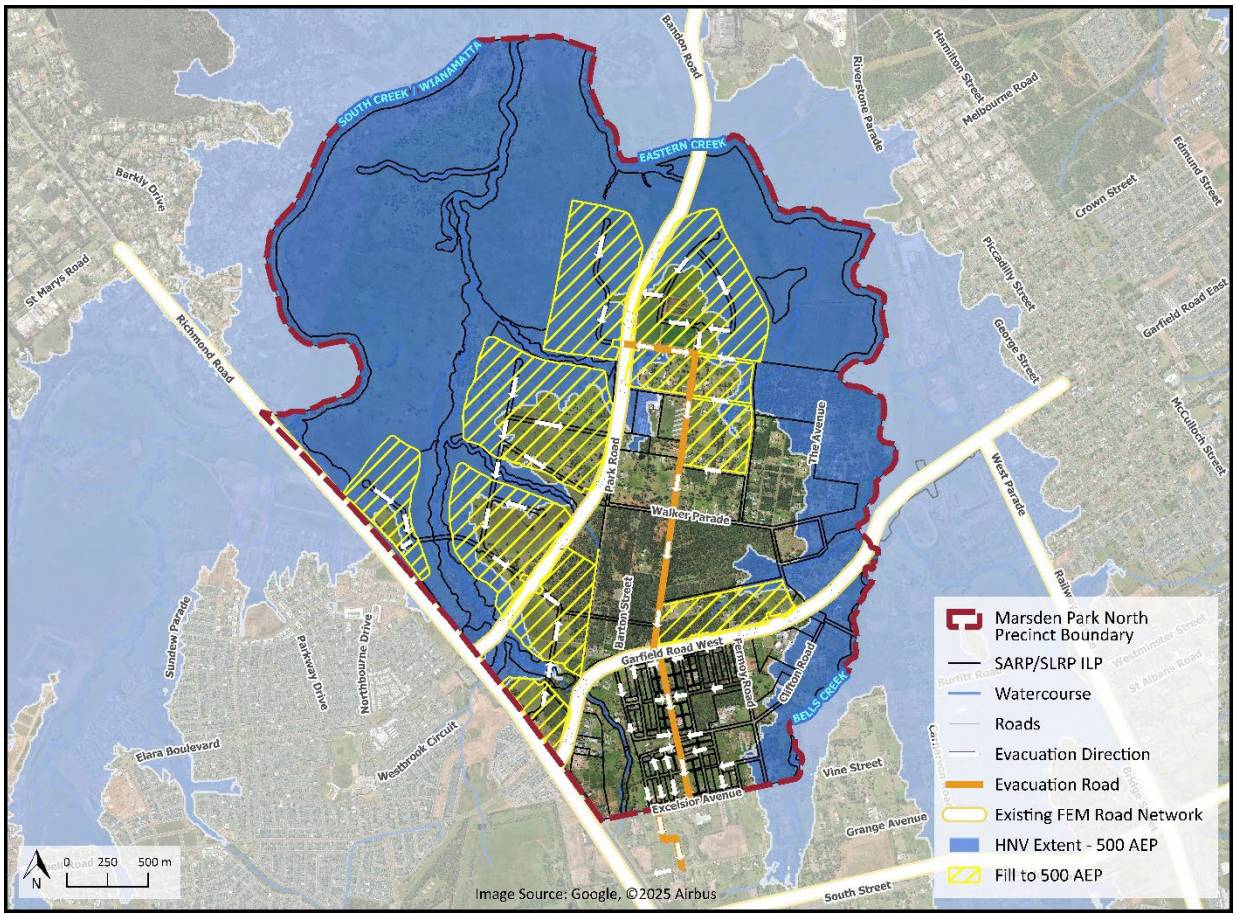

Figure 5 Flood Evacuation Route Plan

2.4.5 Additional Controls – Neutral or Beneficial Effect on Water Quality

The Precinct is part of the Wianamatta-South Creek catchment. Protection and restoration of creek health, ecology and biodiversity is a key policy for future development and delivery of the Blue-Green Infrastructure Network in the catchment. By improving and maintaining waterway health we can optimise environmental outcomes and promote healthy and resilient communities.

Waterway objectives (flow and water quality) have been established for the protection of waterways in the Wianamatta-South Creek catchment (refer to the Wianamatta-South Creek stormwater management targets (2022)), in line with the NSW Government *Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions* (2017). In addition, the NSW Government has prepared technical notes and guidance documentation on the modelling parameters and software packages that can be used to demonstrate compliance with these objectives and the controls below (refer to the Technical guidance for achieving Wianamatta-South Creek stormwater management targets (2022)).

Objectives

a. To protect, maintain or restore waterway health within Wianamatta-South Creek and its tributaries by managing development impacts.

b. To ensure the waterway objectives (flow and water quality) for Wianamatta-South Creek are achieved.

c. To ensure integrated land use and water cycle management outcomes.

d. To ensure the design and delivery of infrastructure, servicing and development is sustainable through encouraging the use of recycled water, optimising stormwater management and maximising efficiency in the use of potable water.

e. To safely and effectively convey stormwater flows from urban areas to the existing waterways or stormwater treatment infrastructure.

f. To protect groundwater quality and availability.

g. To consider whole of life costs and ease of maintenance in water planning.

Controls

1. Development is to deliver the waterway objectives (flow and water quality) as set out in the *Wianamatta-South Creek stormwater management targets* (2022) and *Technical guidance for achieving Wianamatta-South Creek stormwater management targets* (2022).

2. Regional detention basins and treatment areas are to be located in accordance with locations identified in Figure 6 and Figure 7.

3. Where temporary detention basins are required, these are to be constructed and maintained by the developer until such time as the ultimate operational detention basins are in place. Developers will be required to connect temporary basins to the operational detention basins. Where a temporary basin is proposed in place of a future residential lot, the land must be fully compacted under the supervision of a qualified geotechnical engineer on the Engineers Australia National Engineers Register. Following completion of compaction, the works must be certified by the supervising engineer to be suitable for residential dwelling construction.

4. Stormwater management plans are to be prepared for development applications to demonstrate how the quantity and quality of urban run-off as a result of development will be managed.

5. All development is to incorporate water sensitive urban design (WSUD).

6. The design and mix of WSUD infrastructure shall consider ongoing operation and maintenance. Subdivision applications must include a detailed lifecycle cost assessment and maintenance plan for WSUD measures
7. Stormwater detention is to reduce post development flows to less than pre-development levels. It should be demonstrated that there will be no increase in runoff from the site as a result of the development under all durations for all storm events up to and including the 1% AEP with allowance for long term climate change.
8. Erosion control and bank stabilisation measures are to be incorporated within riparian corridors where required.
9. Development must not significantly adversely impact soil salinity or sodic soils and shall balance the needs of groundwater dependent ecosystems
10. At least 80% of a development's non-potable demand is to be supplied through allotment rainwater tanks.

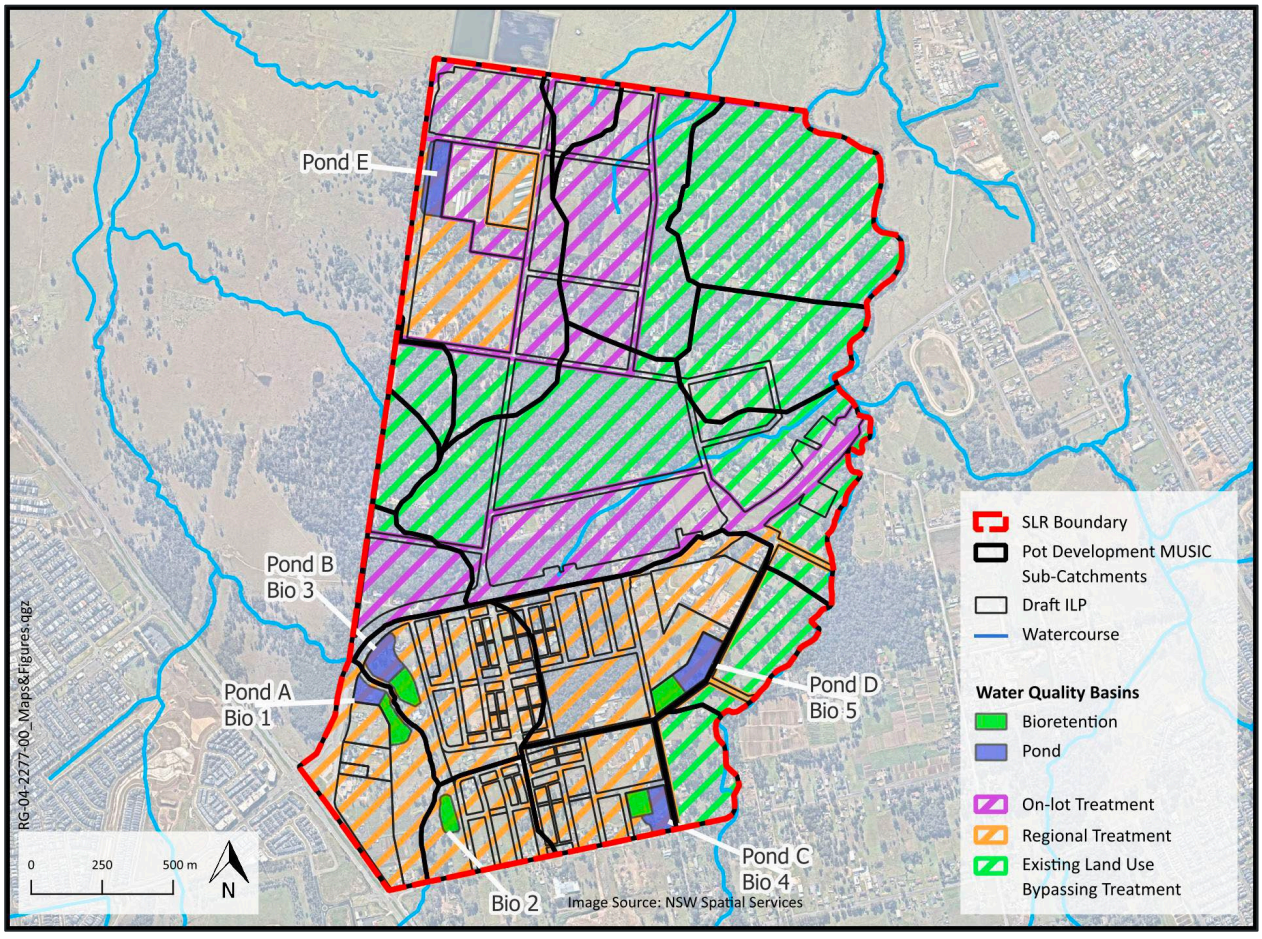

Figure 6 Key elements of the water cycle management and ecology strategy (State-led rezoning Land)

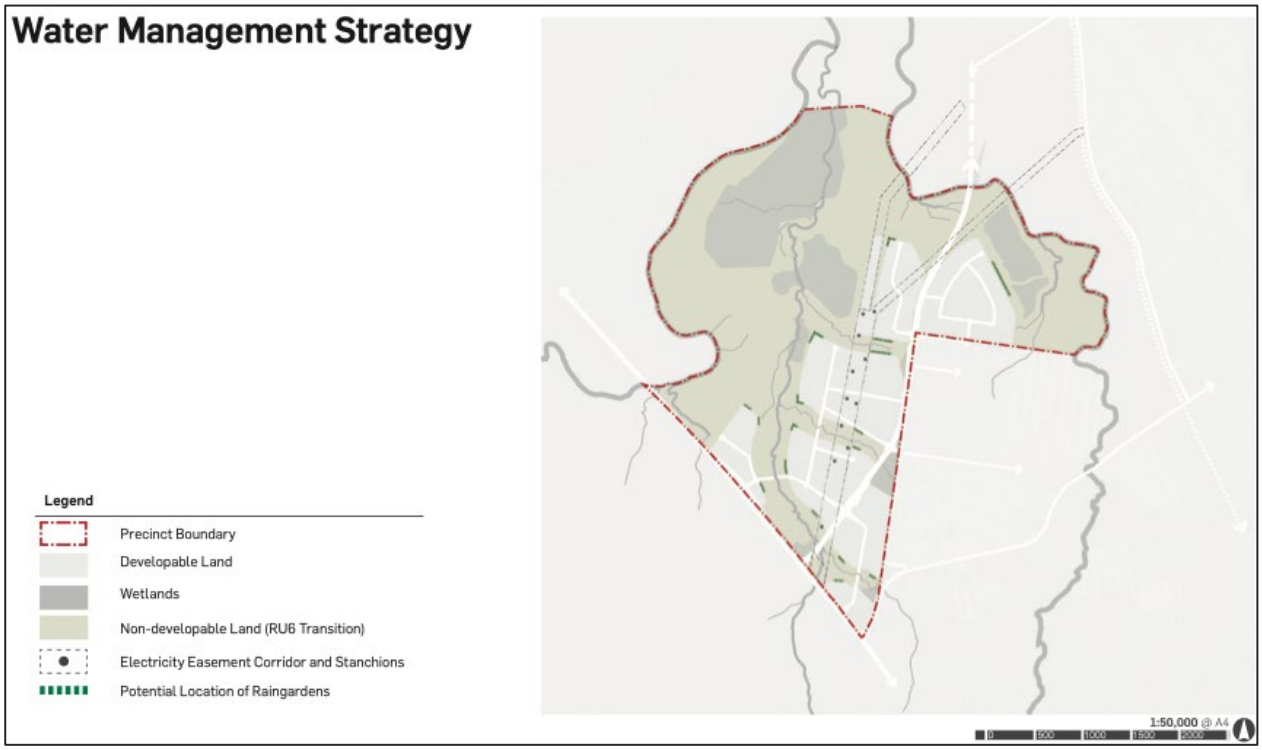

Figure 7 Key elements of the water cycle management and ecology strategy (State-assessed rezoning proposal Land)

2.5 Movement network and parking

Refer to Section 3.4 Movement network of the BCC Growth Centre Precincts DCP for objectives and controls.

2.5.1 Additional objectives

a. To encourage travel behaviour change through a vision-led approach to transport planning that seeks to reduce car dependency and assist with transition of the precinct to a 'net zero' environment.

b. To establish an appropriate walking, cycling, public transport and freight accessible network that provides a diverse mix of transport options where people choose to walk, cycle and use public transport while supporting essential freight and servicing for employment.

c. To leverage planned upgrades to the state road network to provide efficient connections to local and regional destinations.

d. To provide for street trees within road/street corridor to mitigate the urban heat effect and meet the tree canopy targets set out in Section 2.8.

e. To capitalise on significant public transport investment into the future Sydney transport network by reserving land for future transport needs and provision of high-quality walking, cycling and bus connections.

2.5.2 Additional controls

1. The movement and place hierarchy is to be provided generally in accordance with Figure 8.
2. The walking network and ILP key destinations, cycling and public transport networks are to be provided in accordance with Figure 9, Figure 10, and Figure 11.
3. Development consent is not to be granted to individual development applications that seek to vary the maximum parking rates outlined in .
4. Table 2.
5. Bicycle parking must be provided in accordance with the minimum parking rates provided in Table 3,. Where the parking rates result in a partial number, the number of parking spaces should be rounded up to the nearest whole.
6. Precinct-specific street typologies are to be designed in accordance with the street hierarchy (Figure 8), including required intersections upgrades at Robert Street with Garfield Road West and new signalised intersection at Penprase St / Lyndhurst St / Garfield Road West.

Table 2: Marsden Park North Car Parking Rates

Development	Per	Maximum car spaces
Residential		
Dwelling house	1-2 bedroom	1
	3+ bedroom	2
Medium Density Residential	1-2 bedroom	1
	3+ bedroom	2
	Visitor	0.2
Employment		

Development	Per	Maximum car spaces
Office premises and Business parks	Per 100m^2 of GFA	2.5
Business Premises	Per 100m^2 GFA (if GFA <200m^2)	3.33
	Per 100m^2 GFA (if GFA >200m^2)	4.55
General Industrial	Per 100m^2 of GFA (for portion <7500m^2)	1.33
	Per 100m^2 of GFA (for portion >7500m^2)	0.5
	Per 100m^2 of GFA office component	2.5
Warehouse/ Distribution Centre	Per 100m^2 GFA	0.4
	Per 100m^2 GFA office component	1.43
Bulky Goods Retail	Per 100m^2 of GFA	2.22
Restaurant or Café	Per 100m^2 of GFA	10
	Every 3 employees	1

Table 3: Marsden Park North Bicycle Parking Rates (minimum)

Development	Per	Minimum bicycle spaces
Residential		
Shop-top housing (to be investigated)	Apartment	1 per 3 dwellings
	Visitor	1 per 12 dwellings
Employment		

Development	Per	Minimum bicycle spaces
Commercial/Industrial	Floorspace	For employees: 1 per 200 m^2 of GFA

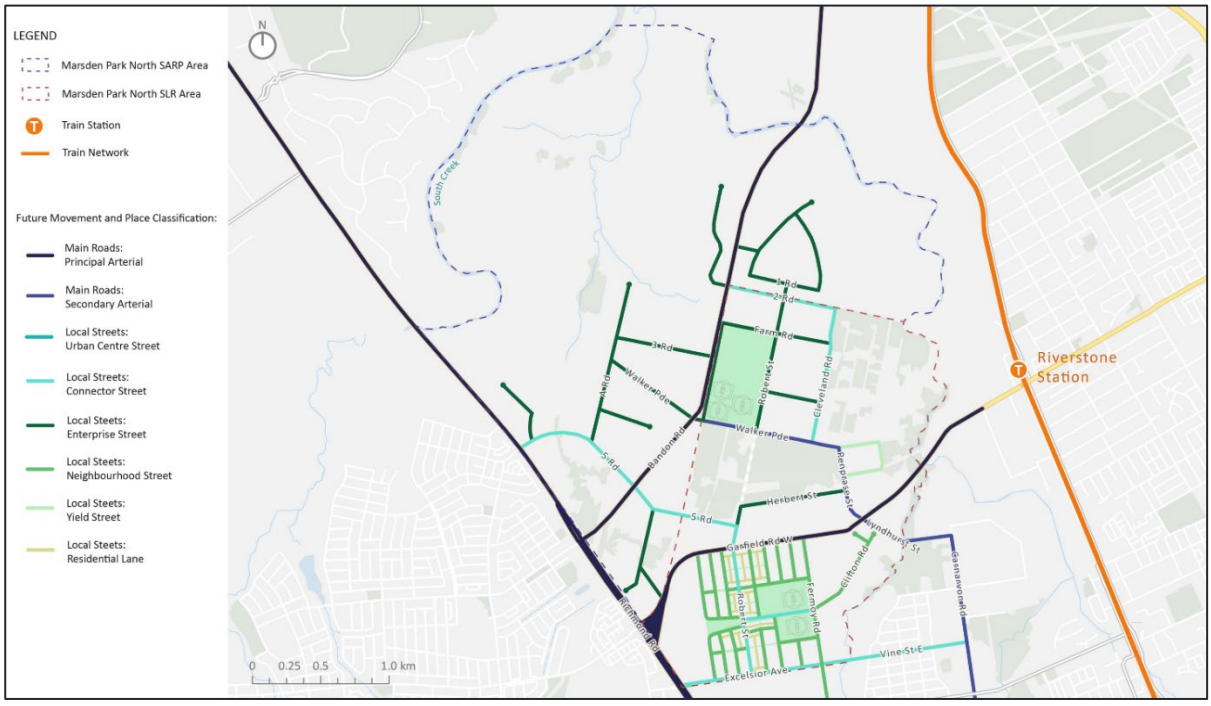

Figure 8: Movement and Place hierarchy.

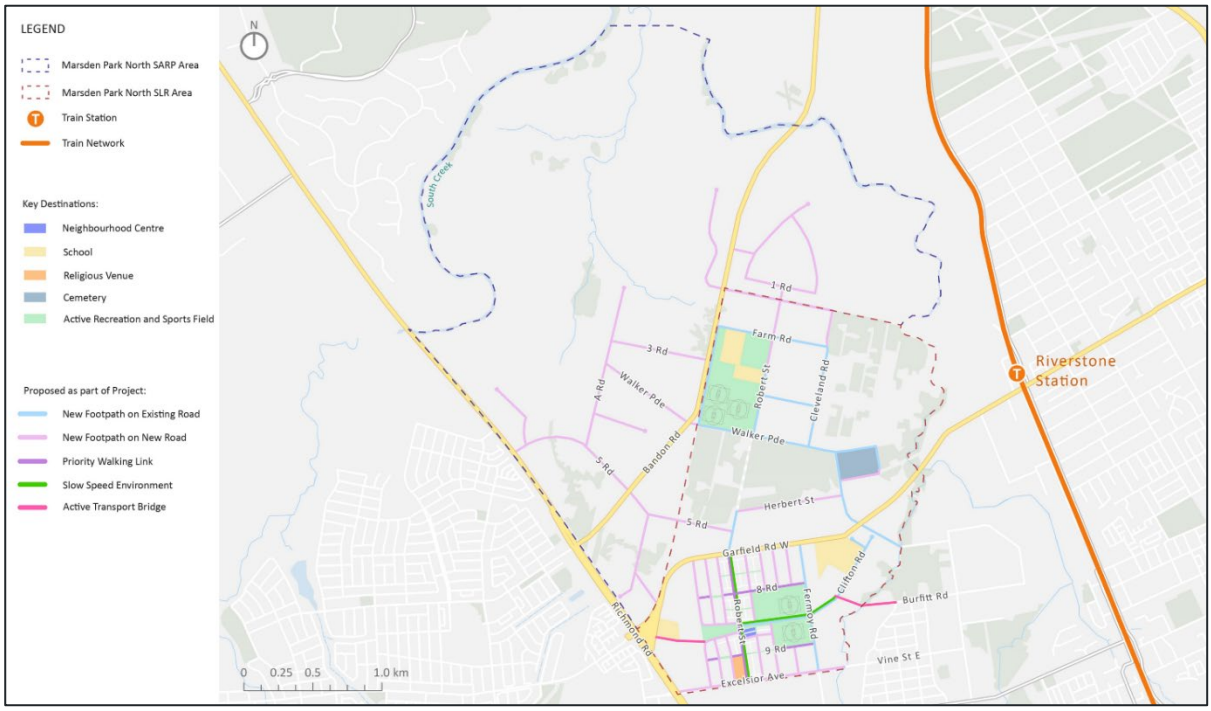

Figure 9: Proposed walking network

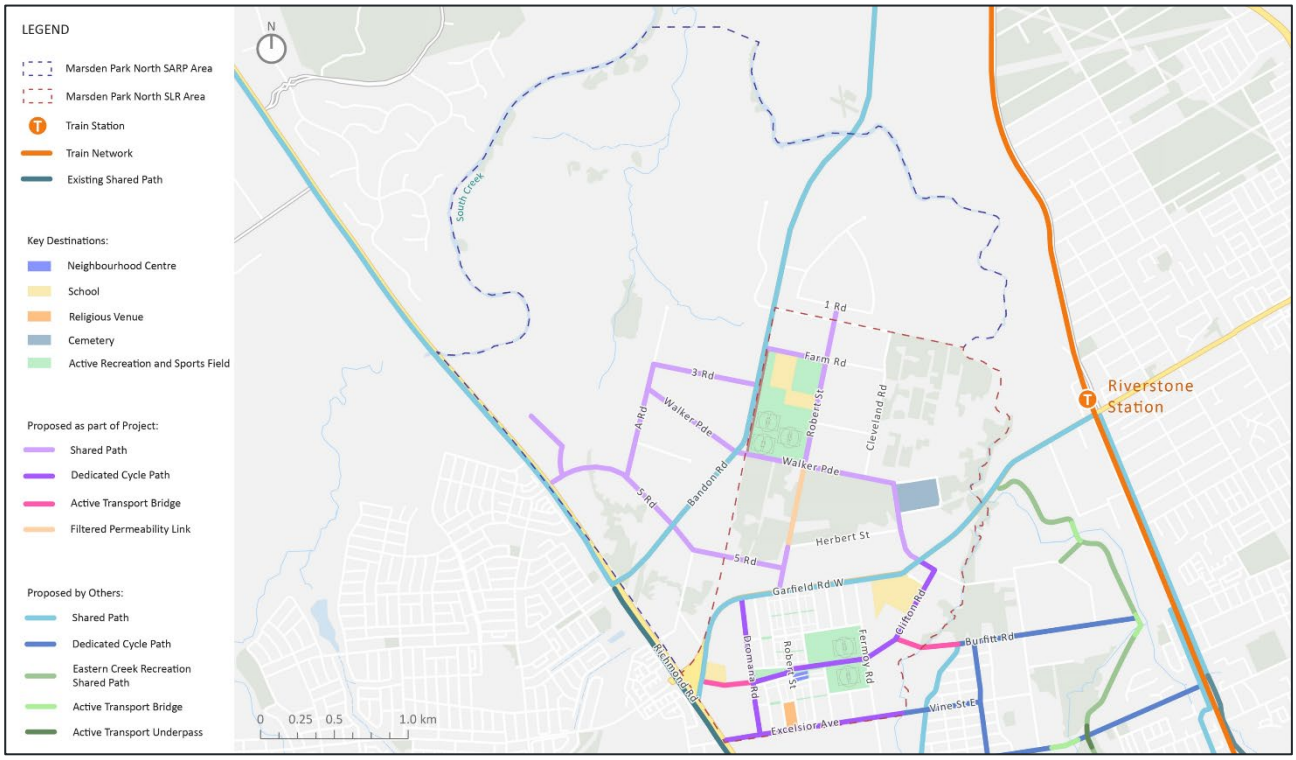

Figure 10: Proposed cycling network

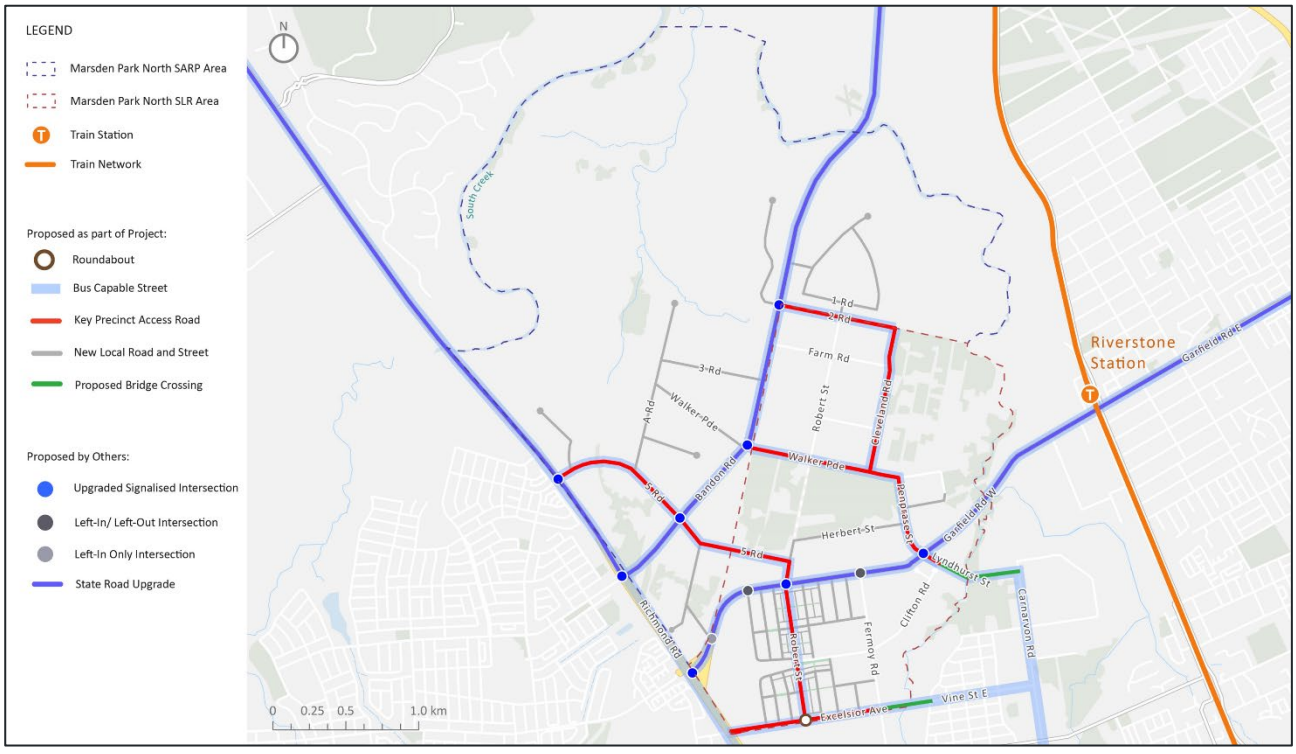

Figure 11: Proposed road and bus capable streets network

2.6 Native vegetation and ecology

Refer to Section 2.3.4 Native vegetation and ecology and Appendix B Riparian protection area controls of the BCC Growth Centre Precincts DCP for objectives and controls.

2.6.1 Additional Controls

1. A regionally significant, east-west wildlife corridor (Refer Figure 12) connects the vegetated areas along Eastern Creek, with Riverstone Cemetery and adjoining lands zoned C2 Environmental Conservation in the draft Indicative Layout Plan. Continuous tree canopy cover along this corridor shall not be severed by development. The protection, restoration and rehabilitation of vegetation in the vicinity of this corridor, particularly north and south of the cemetery, shall be undertaken in accordance with the Vegetation Management Strategy contained in Appendix B, or where this Vegatation Management Strategy does not apply, a Vegetation Management Plan, must be prepared by a suitably qualified person in accordance with the applicable requirements.
2. The management of native vegetation and wildlife habitat in land zoned C2 Environmental Conservation, RE1 Public Recreation, and RE2 Private Recreation shall be generally in accordance with the Vegetation Management Strategy (Appendix B) and Appendix B Riparian protection area controls of the BCC Growth Centre Precincts DCP.
3. Further to Control 2 in Section 2.3.4 Native vegetation and ecology in the BCC Growth Centre Precincts DCP, where practical, prior to development commencing and during subdivision works, applicants are to:
    - provide for the appropriate re-use of native plants, habitat features such as logs and tree hollows, and topsoil that contains known or potential native seed bank for re-use within suitable reserves, wildlife corridors, or other ecological restoration areas (e.g. C2 Environmental Conservation lands); and
    - have supervising ecologists or wildlife rescue staff available on-site during tree felling activities to relocate native animals from development sites into appropriate local areas with suitable habitat. Applicants should refer to OEH's *Policy on the Translocation of Threatened Fauna in NSW*.
4. Roads and bridges crossing Riparian Protection Areas shall be designed to allow native wildlife movement along the corridor (e.g. culverts with sufficient size and 'fauna friendly' design to allow for wildlife movement).

Note: reference to the E2 Environmental Conservation zone in Section 2.3.4 Native vegetation and ecology in the BCC Growth Centre Precincts DCP means C2 Environmental Conservation.

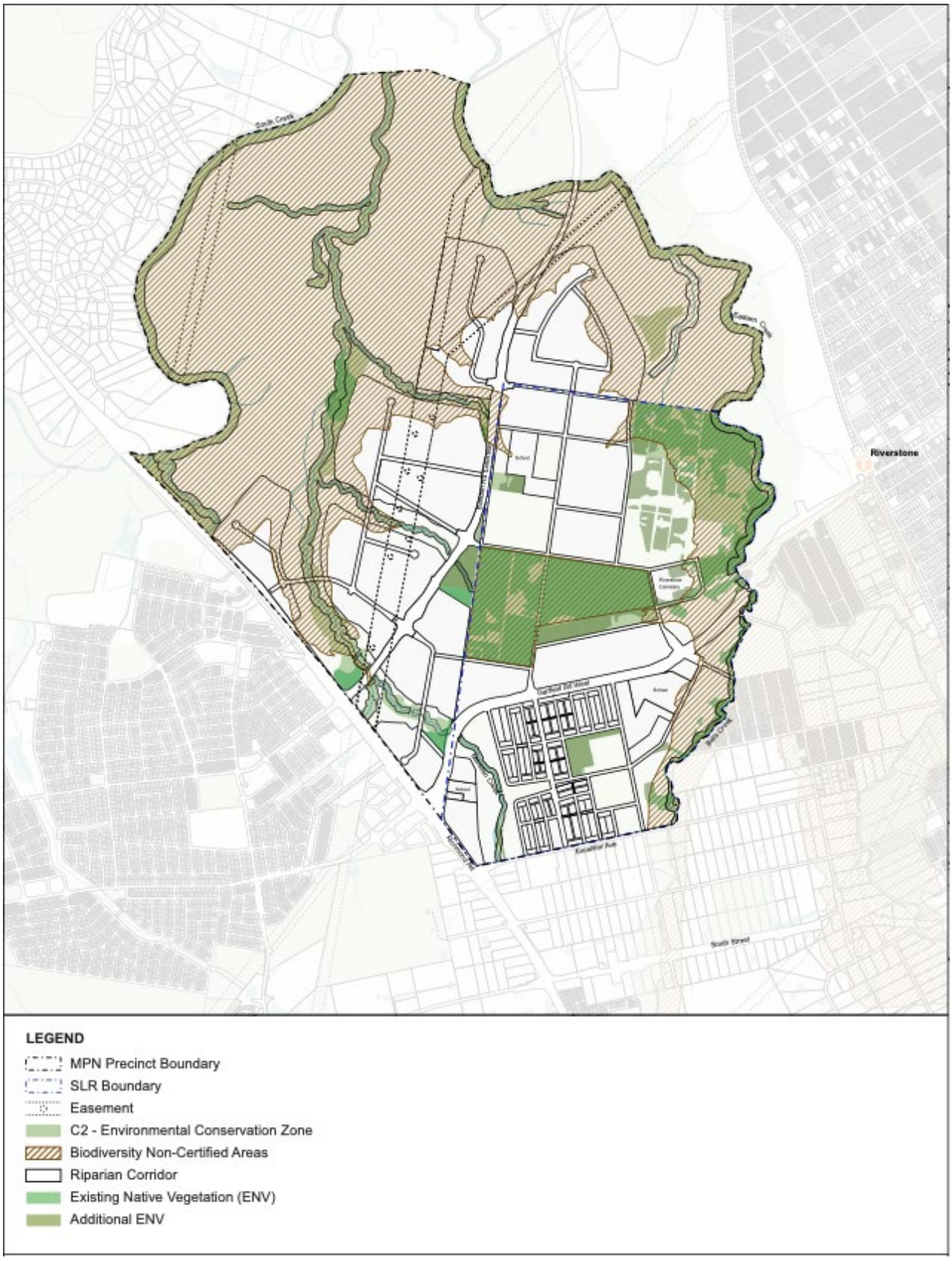

Figure 12: Native vegetation and riparian corridors.

2.7 Aboriginal cultural heritage

Figure 13 shows the areas of high archaeological significance to assist future investigations associated with the preparation of subdivision or development applications.

Refer to Section 2.3.3 of the BCC Growth Centre Precincts DCP – Aboriginal and European heritage for objectives and controls.

2.7.1 Additional Objectives

a. To minimise impacts on Aboriginal heritage particularly within riparian corridors.

b. To protect items of heritage and potential historic archaeological significance.

2.7.2 Additional Controls – Aboriginal Heritage

1. To ensure that a person who undertakes activities that may harm potential Aboriginal objects exercises due diligence, a due diligence assessment will be required for all development applications in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (NSW Department of Environment, Climate Change and Water, 2010).
2. Development involving ground disturbance works in areas classified as 'High Archaeological Sensitivity' in Figure 13 must undertake a survey and archaeological testing for Aboriginal cultural heritage.
3. Where sites that have high archaeological sensitivity are affected by a subdivision development application, the subdivision application must detail opportunities for ongoing consultation and interpretation of Indigenous heritage values.
4. An Aboriginal Heritage Impact Permit (AHIP) is required for all development applications where the sites recorded in the Aboriginal Heritage and Information Management System (AHIMS) database are to be impacted.

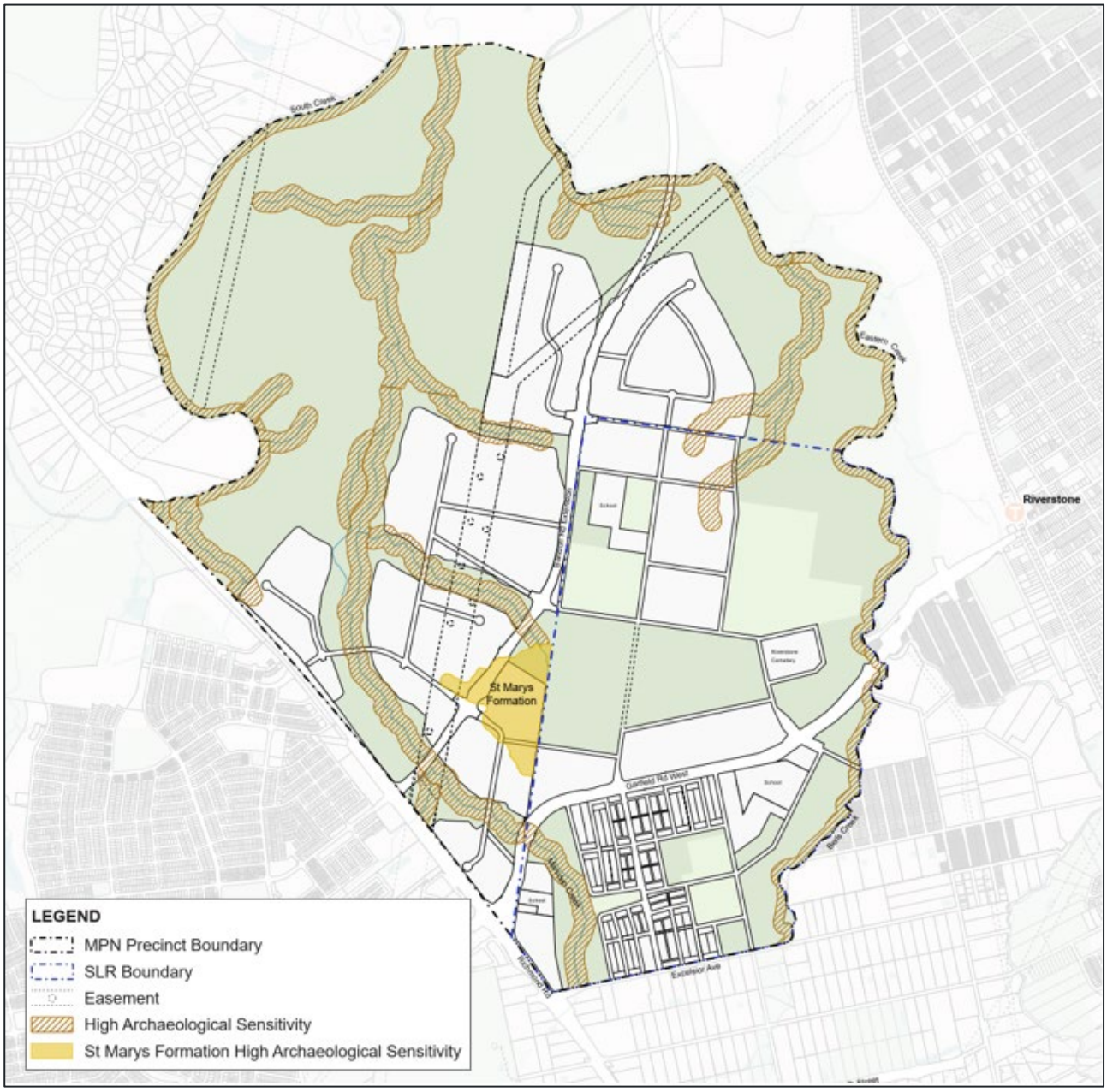

Figure 13: Aboriginal cultural heritage sites

2.8 Urban heat management and tree controls

2.8.1 Objectives

a. To ensure built form and open spaces (both public and private) are designed with measures that reduce the impact of high and extreme heat stress days on residents, workers, and visitors.

b. To manage urban heat island effects to provide a high level of comfort for residents, workers, and visitors throughout the year, with a focus on hot days and the summer period.

c. To reduce the contribution of development to the urban heat island effect through a suite of complementary design components.

d. To maintain and enhance canopy cover to address urban heat, contribute to local amenity, reduce air pollution, support biodiversity and improve community health and wellbeing.

e. To retain and protect existing trees, as far as is possible. Of particular importance are trees that provide potential habitat, shade and amenity.

2.8.2 Controls – public and private open space

1. Evaporative cooling is to be incorporated into landscape design, including through irrigation of private and public open spaces (preferably using harvested stormwater and/or recycled water) with 50% of grassed areas and 100% of trees irrigated.
2. Where possible, pavement materials shall be permeable and have high albedo, resulting in less solar absorption. When using permeable pavers, it must be demonstrated that there is no impact on the salinity or sodicity of underlying soils.
3. For private open space within all residential developments, at least 50% of site landscape hard surfaces should be either cool pavements with a Solar Reflectance Index (SRI) of ≥50 or porous pavements, or a combination of both.
4. Public seating shall have adequate shading.

2.8.3 Controls – street trees and canopy

5. Street tree planting is to be in accordance with Table 4. Development shall not reduce the amount of canopy coverage provided.

6. Street trees should have appropriate soil volumes, subsoil drainage and setbacks from buildings, footpaths, road/kerb and gutters and services to provide sufficient space for root and canopy development.
7. Street trees are to be designed to be passively irrigated through the stormwater drainage system and maximise stormwater losses through evapotranspiration.
8. Street tree planting should be provided and integrate green and blue infrastructure in accordance with the NSW Government's *Movement and Place* framework.
9. Street trees are to be provided in a manner that minimises risk to utilities and services, and comply with Council's Engineering Design and Construction specifications for installation of appropriate root barriers (where required).

Table 4: Street tree and canopy requirements for public land

Public Domain Type	Description	Canopy Cover
Residential Streets (12 m – 20 m reserve)	Existing residential street with overhead powerlines	40%
	Existing residential street with underground powerlines	50%
	New residential street with underground powerlines	70%
Employment Streets (20 m – 25 m reserve)	New employment street with underground powerlines	60%
Open Space (< 5 hectares)	Without sports fields/courts	45%
	With sports fields/courts*	45%

Street tree spacing:

- Within street settings with overhead power lines, small trees should be spaced at 7 m centres.
- Within street settings without overhead power lines, medium trees should be spaced at 10 m centres.
- Allow a 2 m offset between edge of driveways and centre of the tree on residential streets, and a 4 m offset from driveways on industrial streets.

***Open space with fields/courts:**

- Minimum 45% canopy cover target only applies to areas outside the courts and fields. Where possible, the remaining area should exceed the 45% minimum to compensate for any reduced canopy

2.8.4 Controls – Private land tree planting and canopy requirements

1. Private land should adopt the canopy cover % benchmark or tree planting rate in Table 5.
2. Tree planting is to be in accordance with Appendix D – Prescribed trees and preferred species of the BCC Growth Centre Precincts DCP.

Table 5: Urban tree canopy and deep soil minimum requirements for private land

Development Type	Lot Size	Canopy Cover*	Deep Soil	Tree Planting Rate*
Detached Dwellings	<200 m^2	20%	20%	For every 180 m^2 of site area, or part thereof at least one small tree
	200 m^2 – 450 m^2	25%	25%	For every 250 m^2 of site area, or part thereof at least one medium tree
	>450 m^2	30%	30%	For every 450 m^2 of site area, or part thereof at least 2 medium trees or one large tree
Attached Dwellings, Terraces (applied on each proposed dwelling)	< 180 m^2	15%	15%	At least one small tree
	200 m^2 – 450 m^2	20%	20%	For every 200 m^2 of site area, or part thereof at least one small tree
	> 450 m^2	25%	25%	For every 225 m^2 of site area, or part thereof at least one medium tree
Urban Services *(Zone E3 Productivity Support)*	All lots	35%	25%	For every 300 m^2 of site area, at least 2 medium trees or one large tree
At-Grade Car Park	One medium tree should be planted in every fifth car parking space provided. The tree is to be in a planted zone of 13 m^2 – the equivalent of a car parking bay area. Trees should be evenly distributed in a chequerboard fashion to increase shading.			

Development Type	Lot Size	Canopy Cover*	Deep Soil	Tree Planting Rate*

*Development can meet urban tree canopy requirements by planting trees in line with the tree planting rate or by planting a combination of trees that achieve the minimum tree canopy percentage cover. The required number of trees that will meet minimum tree canopy percentage cover can be calculated by using the assumed canopy area of small, medium and large trees in Table 6.

Table 6: Tree size at maturity

Tree category	Min. diameter spread	Min. canopy area
Small tree	6m	28m^2
Medium tree	8m	50m^2
Large tree	12m	113m^2

2.8.5 Definitions and Dimension – Deep Soil

Minimum deep soil dimensions and criteria use the following deep soil definition:

Deep soil is a landscaped area connected horizontally to the soil system and to the local ground water system beyond. It is unimpeded by any building or structure above or below ground with the exception of minor structures. Deep soil zones are to have a minimum dimension of 3m – this allows sufficient space for the planting and healthy growth of new trees that provide canopy cover and assist with urban cooling and infiltration of rainwater to the water table. Deep soil also allows for the retention of existing trees.*

* *Minor structures are defined as*

a) *path, access ramp or area of paving with a maximum width up to 1.2m*

b) *essential services infrastructure (such as stormwater pipes) with a maximum diameter up to 300mm*

c) *landscape structures (such as lightweight fences, light poles or seating) requiring a footing with a maximum size of up to 300mm x 300mm in cross section.*

The 3m dimension in deep soil refers to 3m in every horizontal direction (length and width). This means deep soil areas are a minimum 9m2 (3m x 3m).

2.8.6 Controls – building design

1. Orientate buildings to take advantage of prevailing winds, natural ventilation, and solar access.
2. Provide western and northern facades with external shading devices to shield the building from hot summer sun, while allowing direct sunlight in winter.
3. Integrate green infrastructure into buildings, such as healthy vegetation, green walls, and irrigation in open spaces.
4. Utilise design features such as low heat conductive materials, appropriate insulation, light coloured roofs and wider eaves on northern and western facades to reduce passive internal heating of the building.
5. Placement of HVAC units is to consider the impact of heat rejection on habitable rooms and communal open spaces, including those of neighbouring properties.
6. To minimise energy use, buildings can:
    - Apply green roof and green façade/wall elements to reduce heat loads on internal spaces
    - Use external shading on north and northwest facades
    - Use sub floor ventilation, and
    - Provide outdoor clothes drying facilities.

2.9 Open space and recreation networks

The following objectives and controls apply to the land identified in Figure 14: Open space network to guide the development of public open space and community facilities in the Precinct.

2.9.1 Objectives

1. To support the design and delivery of open spaces and public domain areas, and recreation networks that:
    a. Are inclusive, functional, accessible, attractive, and comfortable
    b. Are well connected to each other and the surrounding areas, and that encourage pedestrian and cycling access both within the precinct and to surrounding areas
    c. Protect and enhance local biodiversity, integrate existing vegetation, introduce new plantings of primarily locally endemic species, and provide connectivity with broader ecological networks.

2.9.2 Controls

1. Local open space must generally be in accordance with Figure 14: Open Space Network: Open space network.
2. Open space and recreation networks are to be designed to:
    a. Provide diverse play spaces for various age groups and maximise opportunities to co-locate outdoor courts, outdoor fitness stations, dog off-leash areas and youth park areas
    b. Include adequate parking, lighting, and waste management facilities.
    c. Incorporate interpretative signage (local history, Indigenous culture, environmental education).
    d. Align with the *Landscape design guidelines* for development suite of documents by Blacktown City Council, and adopted Section 7.11 contributions plan.
    e. Integrate remnant vegetation and link with riparian corridors where appropriate.
    f. Align with street borders and house orientation to promote passive surveillance.
    g. Integrate into existing regional active transport networks, and be designed to integrate into future active transport networks, such as those planned as part of the Garfield Road upgrade, and between the North West Growth Area and the Western Sydney Parklands.
3. Open space, community facilities and recreation networks are to be designed utilising the *Connecting with Country Framework* (Government Architect NSW, 2023)
4. Fencing adjoining public open space:
    a. Residential fences adjoining public open spaces are to be kept at a maximum height of 1.2m.
    b. Fencing along public open space boundaries should be low and transparent promoting surveillance, amenity and connectivity.

Figure 14: Open Space Network

2.10 Air quality, odour assessment and control

Refer to Section 2.3.7 of the BCC Growth Centre Precincts DCP – Odour assessment and control for objectives and controls.

2.10.1 Additional Objectives

a. To manage and reduce the impact of air and odour-related air pollution on surrounding development.

2.10.2 Additional Controls

1. Development that is likely to be impacted by atmospheric pollutants and/or odours from existing land uses (including traffic-generated atmospheric pollutants) may require the undertaking of an odour impact assessment. Assessment will be undertaken in accordance with the *Technical framework: Assessment and management of odour from stationary sources in NSW* (NSW Environment Protection Authority, November 2006).
2. A barrier such as continuous dense landscaping (bunds and vegetation) may be required to assist in mitigating the adverse impacts of air pollutants and/or odour dispersion from nearby sources of air pollution and/or odour. The odour impact assessment must detail the design and location of such a design outcome.
3. Development on land adjoining busy roads will demonstrate compliance with:
    a. Consider air conditioning and ventilation, and design buildings so living and work spaces such as bedrooms and offices are orientated towards clean air sources.
    b. Minimum separation distances from the kerb as outlined in Table 7; or
    c. Where minimum separation distances are not achievable, ducted mechanical ventilation for the supply of outdoor air in compliance with Australian Standard AS 1668.2:2024, *The use of ventilation and airconditioning in buildings – part 2: mechanical ventilation in buildings* (Standards Australia, June 2024). Mechanical ventilation outdoor air intakes will be located at least the minimum distance from the kerb specified in Table 7, measured in the horizontal and vertical planes from the kerb. Filtration of outdoor air will be to a minimum Australian Standard performance rating of F6 or minimum efficiency reporting value (MERV) 9.
4. Alternative setbacks may be considered by Council, where the applicant can demonstrate that a development will comply with required air quality outcomes, and the application is adequately supported by specialist studies prepared by a suitably qualified professional.

Table 7: Air quality setbacks for development within different road classifications

Road classification (existing or forecast)	Residential type buildings	Childcare centres, hospitals, aged care facilities, schools
High-volume Roads:	20m	80m

Road classification (existing or forecast)	Residential type buildings	Childcare centres, hospitals, aged care facilities, schools
more than 60,000 annual average daily traffic (AADT); and 40,000–60,000 AADT with 5% or more heavy vehicles		
Moderate-volume Roads: *20,000–40,000 AADT*	n/a	40m
Intermediate Roads: *40,000–60,000 AADT; and 30,000–40,000 AADT with 10% or more heavy vehicles*	10m	40m

2.11 Noise

Refer to Section 4.2.9 Visual and acoustic privacy of the BCC Growth Centre Precincts DCP for objectives and controls.

2.11.1 Additional Objectives

a. To minimise noise impacts in the vicinity of a road that carries, or is forecast to carry, more than 20,000 vehicles per day.

2.11.2 Additional Controls

1. Where development is proposed in the vicinity of a road that carries, or is forecast to carry, more than 20,000 AADT, an Acoustic Report is to be submitted with the development application demonstrating compliance with the Clause 2.120 of *State Environmental Planning Policy (Transport and Infrastructure) 2021* and *Development near rail corridors and busy roads – Interim guideline* (NSW Department of Planning, 2008). The Acoustic Report should:
    a. provide an assessment of traffic noise impacts on existing and anticipated dwelling locations and types of residential construction
    b. identify noise mitigation measures to be implemented at subdivision stage and/or dwelling construction stage

c. include provision for ventilation that meets the requirements of the National Construction Code where windows are required to remain closed to meet internal noise levels.

Note: It is anticipated these controls will be applicable only to development within the vicinity of Richmond Road, Bandon Road and Garfield Road West, however prior to the lodgement of a development application the existing and forecast AADT for roads adjoining a development site should be considered and discussed with Council to determine the applicability of the above control.

3 Development in Residential Zones

This part provides additional controls to those set out in Part 4 Development in the residential zones of the BCC Growth Centre Precincts DCP.

For all parts of this section (Section 3), the following notes apply:

- A car space may include a garage, carport or other hardstand area constructed of materials suitable for car parking and access. The required car parking spaces specified above may be provided using a combination of these facilities, including use of the driveway (within the property boundary only) as a parking space.
- A driveway crossover refers to the section of driveway from the edge of the road surface to the boundary of a property, i.e. the portion of the driveway located within the road reserve

3.1 Residential density and subdivision

The precinct will accommodate a range of housing typologies from large lots, detached dwellings, semi-detached dwellings, and terraces.

Maximum building heights, are set out in *State Environmental Planning Policy (Precincts—Central River City) 2021*.

3.1.1 Additional residential controls

1. The Precinct is to be developed in accordance with the residential structure plan shown at Figure 15: and the maximum height provisions established in *SEPP (Precincts—Central River City) 2021*.
2. Street blocks are to be generally a maximum of 160 m long and 70 m deep. Block lengths in excess of 160 m may be considered by council where pedestrian connectivity, stormwater management and traffic safety objectives are achieved.
3. Create contiguous deep soil zones within and between property boundaries to maximise tree planting / consolidate deep soil areas by establishing them right up to abutting boundary walls and fence lines.
4. Sections 3.2 to 3.4 of this DCP override any equivalent control in Chapter 4 of the the BCC Growth Centres DCP.

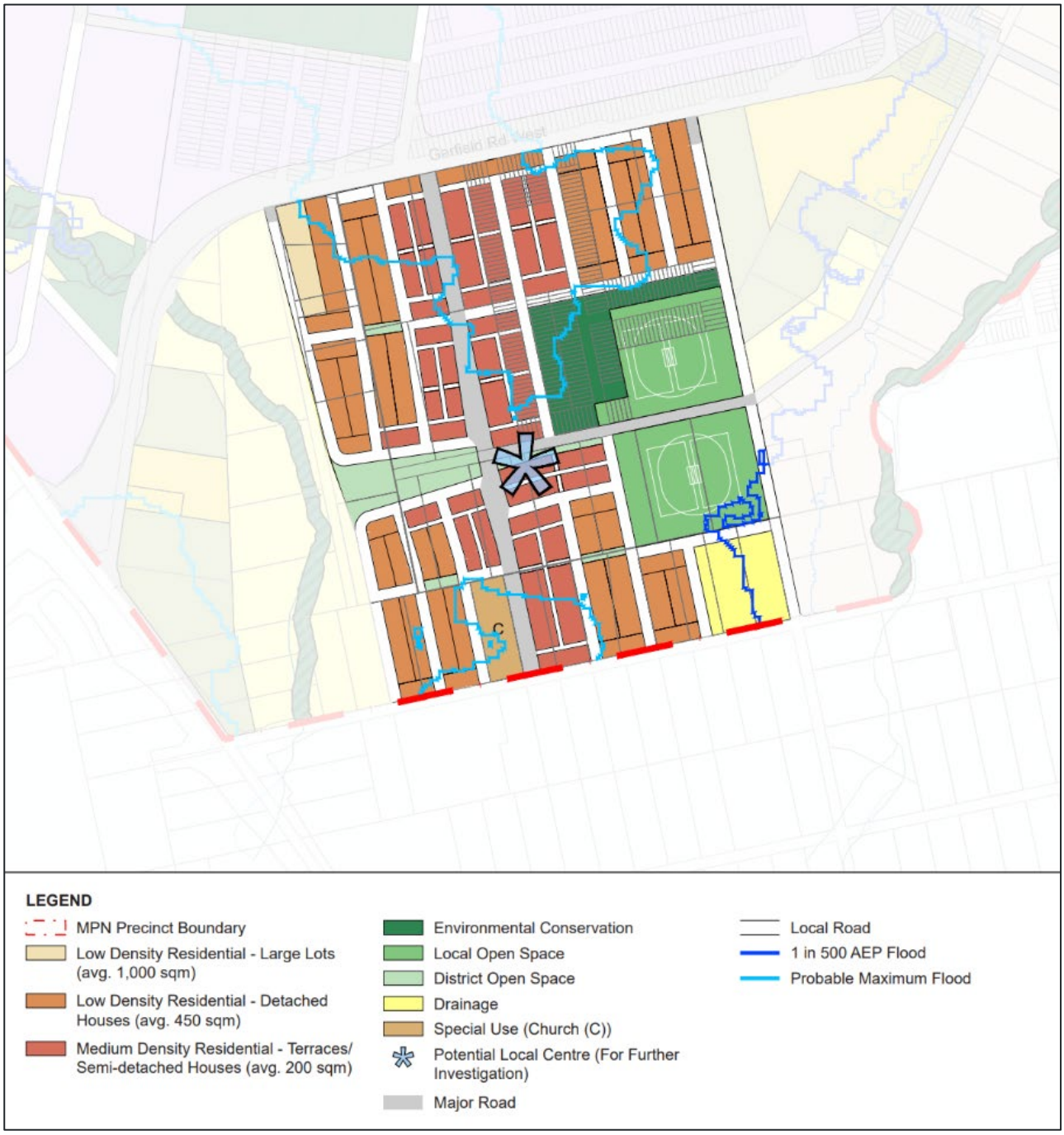

Figure 15: Residential structure plan

3.2 Large Lot Residential (1,000sqm)

Table 8 contains controls for detached dwellings on lots of approximately 1,000m^2.

Table 8: Summary of controls for a large residential lot with a detached dwelling

Elements		Controls	
Setbacks	Front	4.5m min.	Building setback to ground and upper floor.
		3 m min.	Articulation zone
		5.5m min.	Garage setback
		1m min.	Garage setback from main building line
	Side	0.9m min or 2m min,	Building setback to both sides to ground and upper floors. One side must have a minimum of 2m side setback.
	Rear	6m min.	Building setback to ground floor
		9m min.	Building setback to upper floors
Building heights	Storeys	2 storeys max.	
Site Coverage	Ground floor building footprint	40% max.	% of total lot area
	Upper floor building footprint	20% max.	
External Landscaping	Overall area	45% min.	% of total lot area
	Permeable	26% min.	
	Impermeable	19% max.	
	Primary landscape zones	5.5% min.	
		One primary land space zone to be delivered in the front setback area and one in the rear setback area.	

Elements		Controls	
		1.5m min depth	
		4m min length (of primary landscape zones), where impacted by a driveway 3m is permissible	
		25m^2 min.	
Principal Private Open Space (PPOS)	Size	5m min.	
	Dimensions	50% of the area of the required PPOS (of both the proposed development and adjoining properties) should receive at least 3 hours of sunlight between 9am and 3pm at the winter solstice (21 June)	
	Solar access	Directly accessible from at least one habitable room in the dwelling (excluding bedrooms) i.e. living area	
	Location & Qualities	Area is to be unobstructed.	
		6m max	
		4.5m max	
Garages	Garage door / carport width	6m max	Double garage space / garage door / carport width
	Crossover & Driveway		Crossover

3.3 Detached Houses (minimum lot size 450sqm)

Table 9 contains controls specifically for detached dwellings on lots with a minimum lot size of 450m^2.

A typical layout for a detached dwelling on a minimum 450m^2 lot is shown in Figure 16.

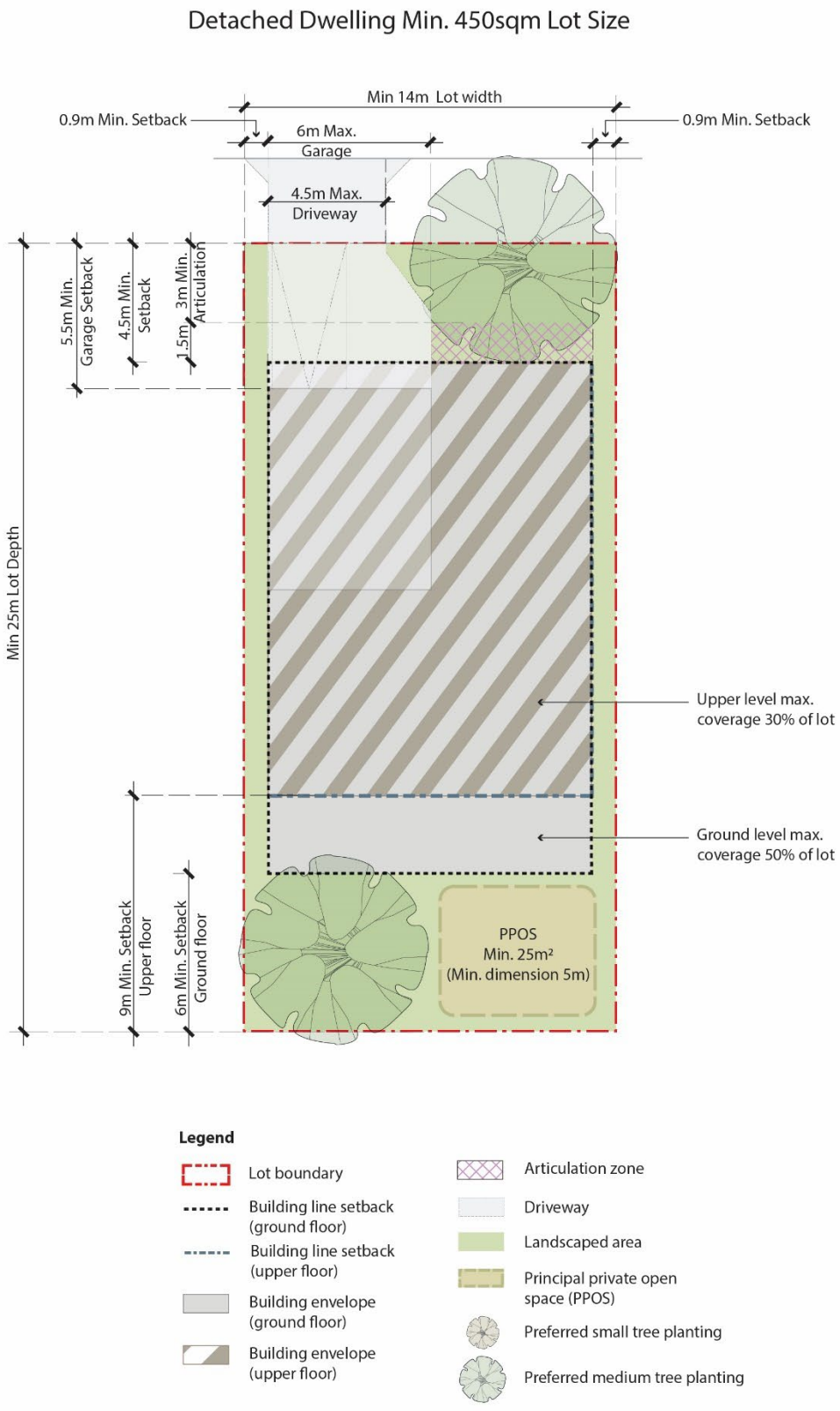

Figure 16: Typical lot layout for a detached dwelling on a minimum lot of 450m²

Table 9: Summary of controls for a minimum lot of 450m² with a detached dwelling

Elements		Controls	
Setbacks	Front	4.5m min.	Building setback to ground and upper floor.
		3 m min.	Articulation zone
		5.5m min.	Garage setback
		1m min.	Garage setback from main building line
	Side	0.9m min	Building setback to both sides to ground and upper floors.
	Rear	6m min.	Building setback to ground floor
		9m min.	Building setback to upper floors
Building heights	Storeys	2 storeys max.	
Site Coverage	Ground floor building footprint	50% max.	% of total lot area
	Upper floor building footprint	30% max.	
External Landscaping	Overall area	45% min.	% of total lot area
	Permeable	26% min.	
	Impermeable	19% max.	
	Primary landscape zones	5.5% min.	
		One primary land space zone to be delivered in the front setback area and one in the rear setback area.	
		To be provide in the zones shown in **Figure 16,** or relevant lot lined Figure.	

Elements		Controls	
		1.5m min depth	
		4m min length (of primary landscape zones), where impacted by a driveway 3m is permissible	
Principal Private Open Space (PPOS)	Size	25m^2 min.	
	Dimensions	5m min.	
	Solar access	50% of the area of the required PPOS (of both the proposed development and adjoining properties) should receive at least 3 hours of sunlight between 9am and 3pm at the winter solstice (21 June)	
	Location & Qualities	Preferred location shown in **Figure 16,** or relevant lot lined Figure.	
		Directly accessible from at least one habitable room in the dwelling (excluding bedrooms) i.e. living area	
		Area is to be unobstructed.	
Garages	Garage door / carport width	6m max	Double garage space / garage door / carport width
	Crossover & Driveway	4.5m max	Crossover
		6m max	Driveway

3.4 Attached dwellings (minimum lot size 180sqm)

Table 10 contains controls specifically for dwellings on lots with a zero-lot line on one or two lengths and a minimum lot size of 180m^2.

A typical layout for a zero-lot line (two sides) dwelling on a minimum 180m^2 lot is shown in **Figure 17**.

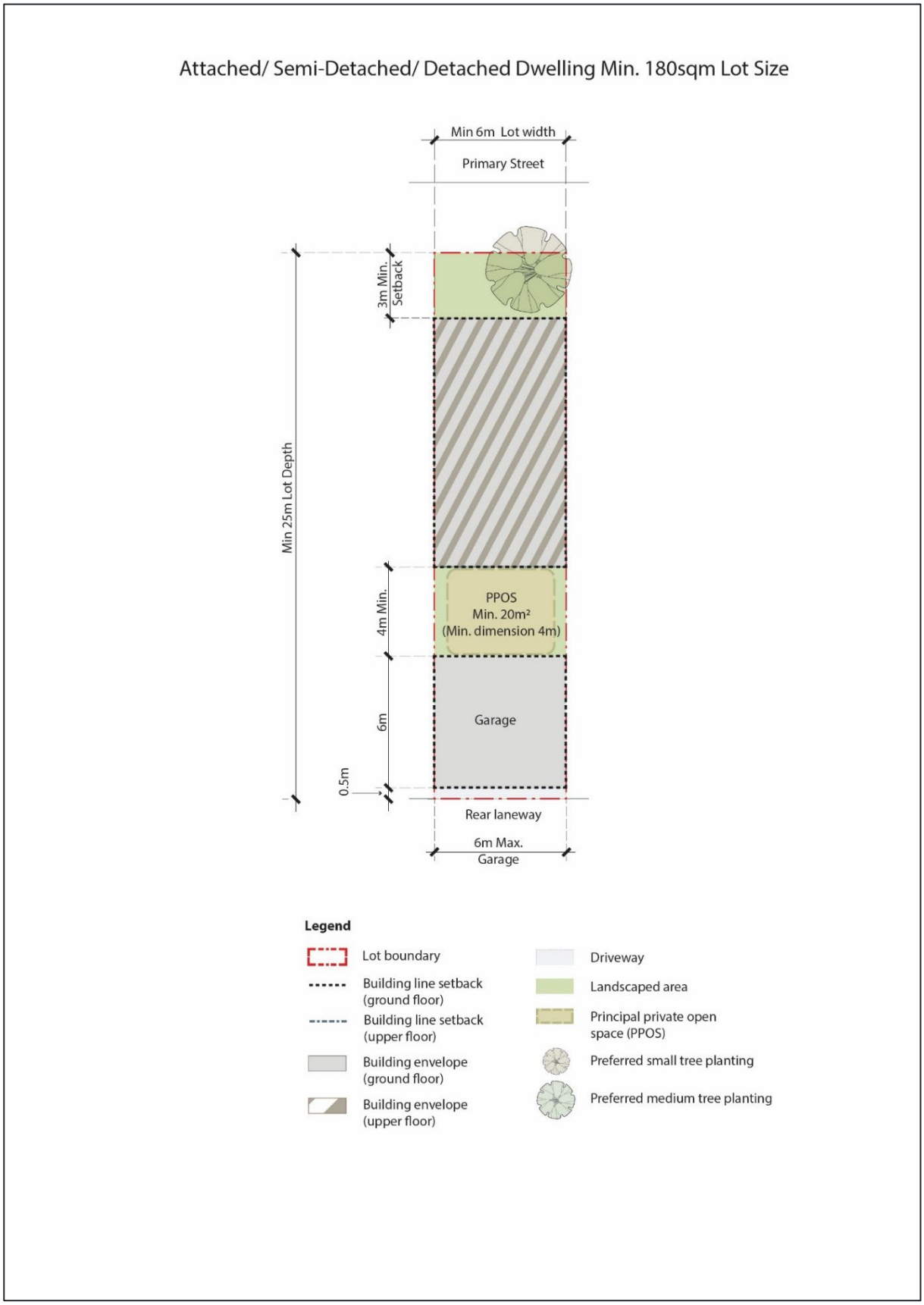

Figure 17: Typical lot layout for a minimum 180m^2 lot with a zero-lot line (two sides) attached dwelling

Table 10: Summary of controls for a typical lot layout for a minimum 180m² lot with a zero-lot line (one side) attached dwelling

Elements		Controls	
Setbacks	Detached side	0.9m min.	Building setback to both sides at the ground and upper floors.
	Zero lot lined side	0m min.	Building setback to ground floor
	Front setback	3m minimum	Must be 100% landscaped area
	Dwelling separation from Garage	6m	
Garage	Width	6m maximum	
	Rear laneway setback	0.5m	
Principal Private Open Space (PPOS)	Size	20m² min.	
	Dimensions	4m min.	
	Solar access	50% of the area of the required PPOS (of both the proposed development and adjoining properties) should receive at least 3 hours of sunlight between 9am and 3pm at the winter solstice (21 June)	
	Location & Qualities	Preferred location shown in **Figure 18,** or relevant lot lined Figure.	
		Directly accessible from at least one habitable room in the dwelling (excluding bedrooms) i.e. living area	

4 Development in Non-Residential Zones

This part provides additional controls to those set out in Part 5 Centres development controls of the BCC Growth Centre Precincts DCP.

4.1 Employment Lands

4.1.1 Desired Future Character Statement

Employment land will be used for relatively flat sites designed to accommodate larger format buildings for uses such as warehousing, freight and logistics, manufacturing and bulky goods.

The overarching concept is an employment precinct that's defined by sensitivity to the blue-green network, balances existing critical infrastructure such as the transmission corridor, and adjacent residential land use.

The concept takes a pragmatic approach considering the Precinct's unique flooding risks, ecological heritage and significance, to create a workplace that supports the growing worker population and contributes to fostering innovation, jobs and skills growth, and competitiveness of the Western Sydney Region.

The Precinct is organised around the creek system, flood / wetland areas, and existing residential areas. Specifically:

- The majority of the northern and western portion of the Precinct, along with a portion of the northeastern sector, is dedicated to ecological, environmental landscape, flooding, watercourse protection, and recreation.
- The majority of the proposed employment zoning is located in the central, southern and central-eastern portion of the Precinct to reduce impact on the primary creek system while providing convenient access from existing and future road networks, public transport, and residential areas, and utilising substantial areas of relatively level land that industrial developments require and being an appropriate interface with the existing electrical transmission easement.

- The productivity support zone, with its smaller building footprints requirements, is located between the narrower land availability between the creek and the Richmond Road corridor. It also provides a finer grain interface with the existing residential areas.

4.1.2 Additional Objectives

a. To enable the delivery of important employment lands within the North-West Growth Corridor that also sensitively manages environmental constraints including flooding, transmission and ecology.

b. To support a range of employment land uses within well-designed development and of a bulk, scale and design that responds to its context, and enhances the amenity of those spaces.

c. To encourage public transport, walking and cycling to the employments lands by integrating it with the surrounding road, public and active transport network.

d. To minimise urban heat impacts by ensuring adequate tree planting and deep soil within public and private lands in the employment areas.

4.1.3 Additional Controls

1. The development of non-residential land uses is to be consistent with the ILP for Marsden Park North at Figure 2: Indicative Layout Plan
2. The bulk and scale of buildings is to be compatible with the surrounding employment uses, residential development, and ecological areas such as wetlands and land allocated for conservation uses.
3. There should be no adverse impact on the amenity or environmental sustainability of the surrounding residential and environmental precincts because of development within the employment lands.

Appendix A Indicative Street Designs

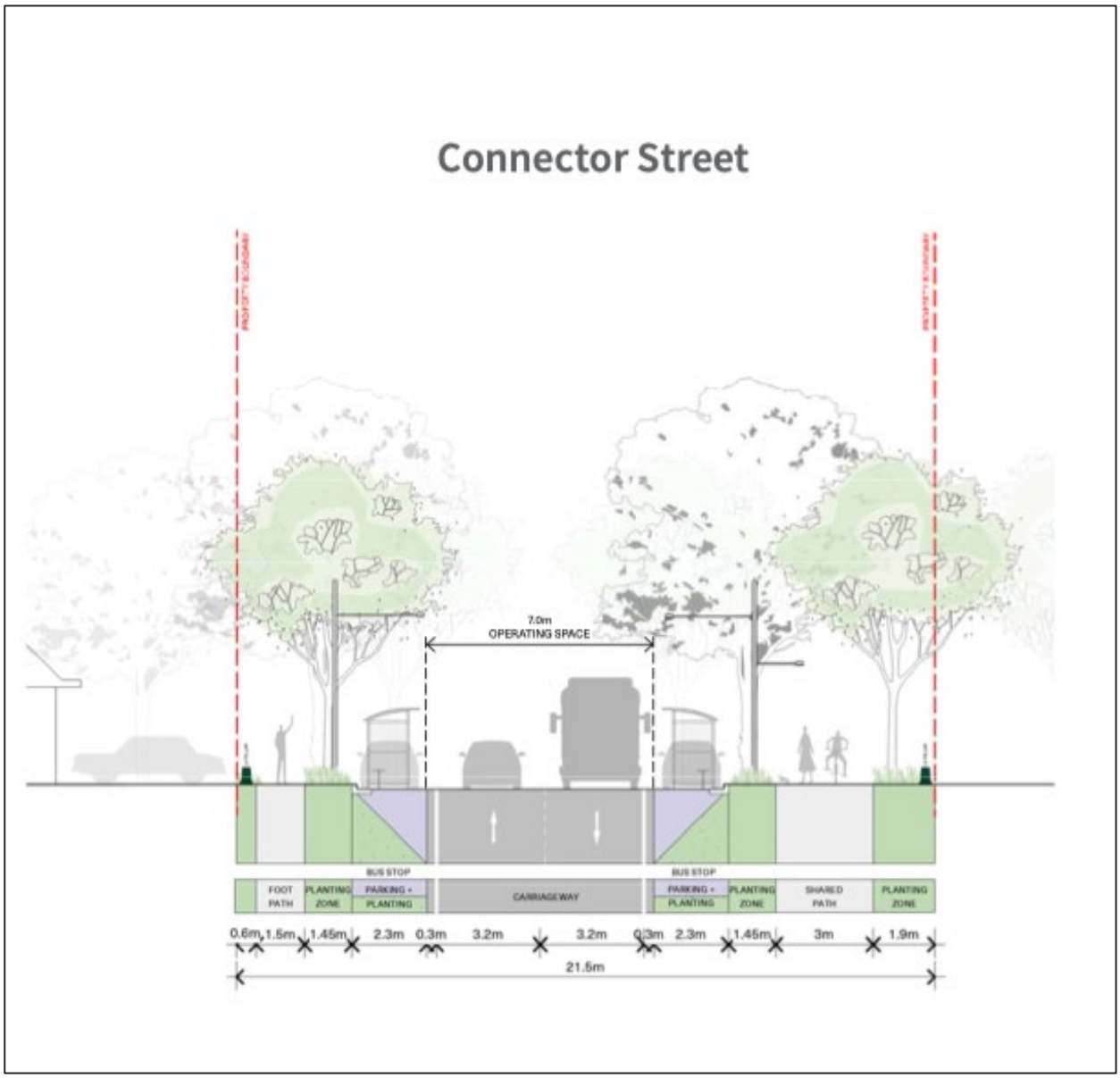

Figure 18: Indicative connector street cross-section

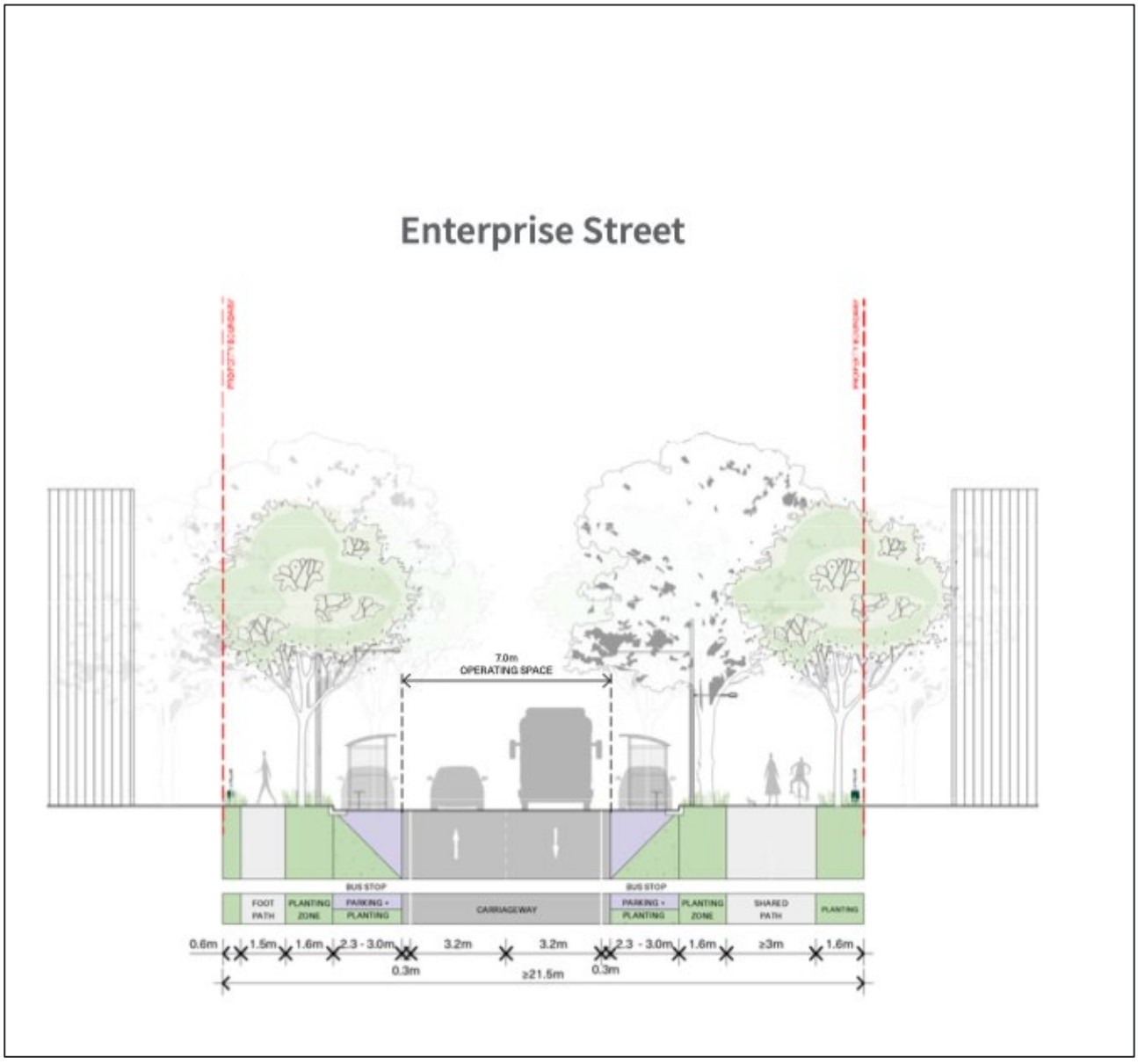

Figure 19: Indicative enterprise street cross-section

Figure 20: Indicative neighbourhood street cross-section

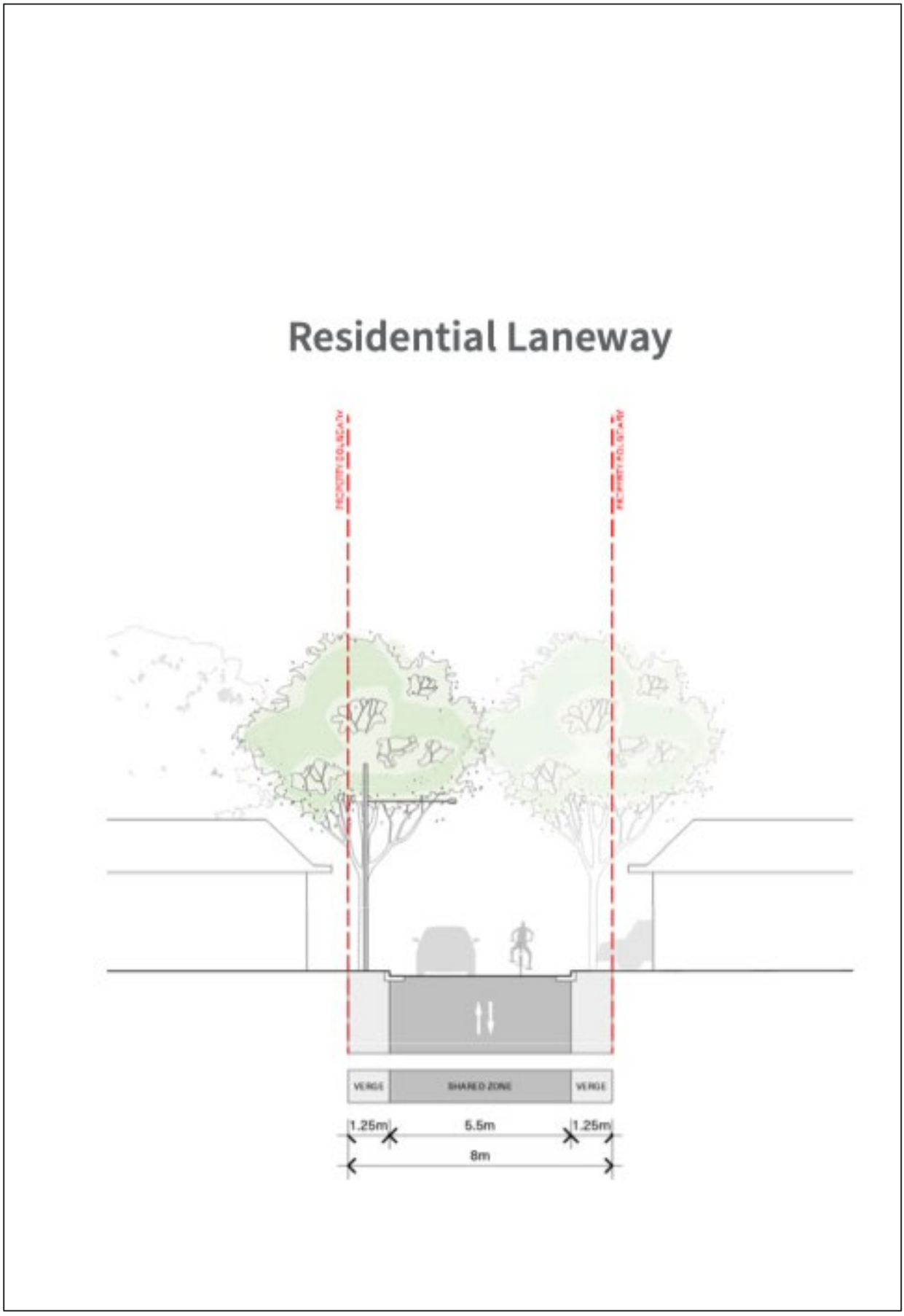

Figure 21: Indicative residential laneway cross-section

Appendix B Indicative Vegetation Management Strategy

Marsden Park North Precinct - Biodiversity and Riparian Corridor Assessment

Vegetation Management Strategy

Prepared for Department of Planning, Housing and Infrastructure

October 2025

Marsden Park North Precinct - Biodiversity and Riparian Corridor Assessment

Vegetation Management Strategy

Department of Planning, Housing and Infrastructure

E241229 RP3

October 2025

Version	Date	Prepared by	Reviewed by	Comments
1	22 August 2025	David Brennan	Steven Ward	Draft
2	20 October 2025	David Brennan	Steven Ward	Final

Approved by

Steven Ward

Steven Ward
Associate Director
20 October 2025

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Attachments

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1 Introduction

EMM Consulting Pty Limited (EMM) has been engaged by the NSW Department of Planning, Housing and Infrastructure (DPHI) to assess the biodiversity, bushfire, and riparian corridors for the Marsden Park North Study Area. Our Study Area is limited to the Marsden Park North Precinct State Led Rezoning (SLR) lands, whilst a separate assessment of the State Assessed Rezoning Proposal (SARP) is being undertaken on lands owned by Leamac and Garfield Pastoral Holdings.

This Vegetation Management Strategy (VMS) has been prepared as an appendix to the Biodiversity and Riparian Corridor Assessment (BRCA), with the Strategic Bushfire Assessment (SBA) (Coolburn 2025) to be prepared separately. The VMS has been prepared to guide ecological restoration and management within the conservation zoned areas, riparian corridors and open space areas of the Study area, identified as the VMS area as shown in Figure 2.1. Previously referred to in the main body of our report as the Conservation area.

It is noted that restoration/revegetation of native vegetation can be used towards achieving native vegetation conservation targets under the *Order to confer biodiversity certification on the State Environmental Planning Policy (Sydney Region Growth Centres) 2006* (the Order), at a ratio of 1:3 (i.e. 3 hectares (ha) of revegetation counting towards 1 ha of conservation target). However, as the process and availability for funding and acquisition of conservation zoned areas is currently unclear, the revegetation areas identified in this VMS are not currently planned to contribute to the achievement of conservation targets under the Growth Centres Order, as described in Section 4.6 of the BRCA. Should this process be made clearer and commitments made to acquiring lands and delivering vegetation restoration, then the vegetation restoration works could count towards meeting the Growth Centres Order native vegetation conservation targets.

1.1 Objectives

The objectives of this VMS are to:

- protect, restore and enhance and ecological communities within the VMS area
- protect and provide habitat linkages between areas of ecological communities within the VMS area
- provide strategies for the revegetation and long-term management of ecological communities within the VMS area
- provide for the long-term management of VMS area.

1.2 Report structure

The VMS includes:

- identification of management issues
- identification of the ecological communities to be re-established
- identification of broad management zones, including identifying some of the management and ecological restoration actions likely to be required in these areas
- setting out key priorities and project timeframes
- providing high-level estimates of management and rehabilitation costs
- providing draft controls relating to vegetation management in the riparian corridor for potential inclusion in the Growth Centres Development Control Plan (DCP).

1.3 National standards and guidelines

This VMS has been prepared in accordance with applicable standards and guidance, including:

- National Standards for the practice of ecological restoration in Australia (SERA 2018)
- Recovering bushland on the Cumberland Plain (DEC 2005)

A list of useful guidance is provided in Attachment B.1. A comprehensive identification of the relevant/guiding legislation, planning policies and guidelines that apply to our biodiversity and corridor assessment is provided in Section 2 of the BRCA.

1.4 Triggers for Vegetation Management Plans

This strategy has been prepared for the conservation area to support the State Led Rezoning Proposal. As such it is considered a high-level assessment of the management actions and costing required for management of natural areas. It is assumed that site specific vegetation management plans (VMPs) will be prepared to support any Development Application (DA) or application for Controlled Activity Approval (CAA) as required.

Triggers and relevant guidelines for these are identified below:

- **Development impacts on land identified for environmental protection:** For Local development activities (as defined in the *Environment Protection and Assessment Act 1979* (EP&A Act) impacting either directly or indirectly on lands identified for environmental protection including:
  - C2 environmentally zone lands
  - Some RE1 zoned lands with identified areas of Existing Native Vegetation (ENV) or Native Vegetation Retention (NVR).

  Where development impacts on these areas, they will likely require the preparation of a VMP to the satisfaction of Blacktown City Council (BCC). Other development, such as Major Projects, transport related infrastructure or projects requiring Controlled Activity approval through the Australian Government, will have their own requirements. The VMP should be prepared by a suitably qualified person and clearly address all of the criteria in the Vegetation Management Plan Guideline (Blacktown City Council 2019). For further information on relevant planning policies in Section 2 of the BRCA.

- **Development impacts on Waterfront lands:** Development activities (as defined in the *Water Management Act 2000* (WM Act) (see Section 2 of the BRCA) impacting on waterfront Lands, will likely require CAA at the DA stage. If the development impacts on native vegetation, the application will likely need to be submitted with a VMP to detail how the restoration of the waterfront lands will be carried out to ensure that no more than minimal harm is being proposed to waterfront land. The VMP will need to have the objective of providing a stable water course and riparian corridor, emulating local native vegetation communities. The VMP should be prepared by a suitably qualified person and clearly address all of the criteria in Guideline for vegetation management plans on waterfront land (DPE 2022).

1.5 Responsible government agencies

Agencies responsible for the management of open space and natural areas within the Study area are identified in Appendix A. Private Landholders are responsible for adherence to all relevant Acts as required under relevant legislation, and as guided by relevant Government agencies.

1.6 Key threatening processes

A threatening process is defined as a key threatening process (KTP) if it threatens or may threaten the survival, abundance or evolutionary development of a native species or ecological community. KTPs includes impacts from weed species, pest animals, altered fire regimes and diseases.

Listed KTPs identified under the *Environment Protection and Biodiversity Conservation Act 1979* (EPBC Act) and the NSW *Biodiversity Conservation Act 2016* (BC Act) applicable for the study site are identified in Attachment B.2.

1.7 Native Vegetation Restoration: The Resilience and Restoration Spectrum

Native vegetation restoration can be achieved through the appropriate management of vegetation zones. This can occur through natural regeneration, assisted regeneration or revegetation. The level of biological resilience and degradation dictates the restoration approach and level of effort as shown in Plate 1.1, as follows:

- Natural Regeneration: where sites have high levels of biological resilience and low levels of degradation where naturally occurring regeneration can usually be relied upon to facilitate native vegetation recovery over time.
- Assisted Regeneration: where sites have moderate levels of both biological resilience and degradation, and which will need management actions to restore the ecological community and natural values of the site.
- Revegetation (or Reconstruction): where sites have low levels of both biological resilience and high levels of degradation, which will need extensive management actions to revegetate to seek to restore the ecological community and natural values of the site.

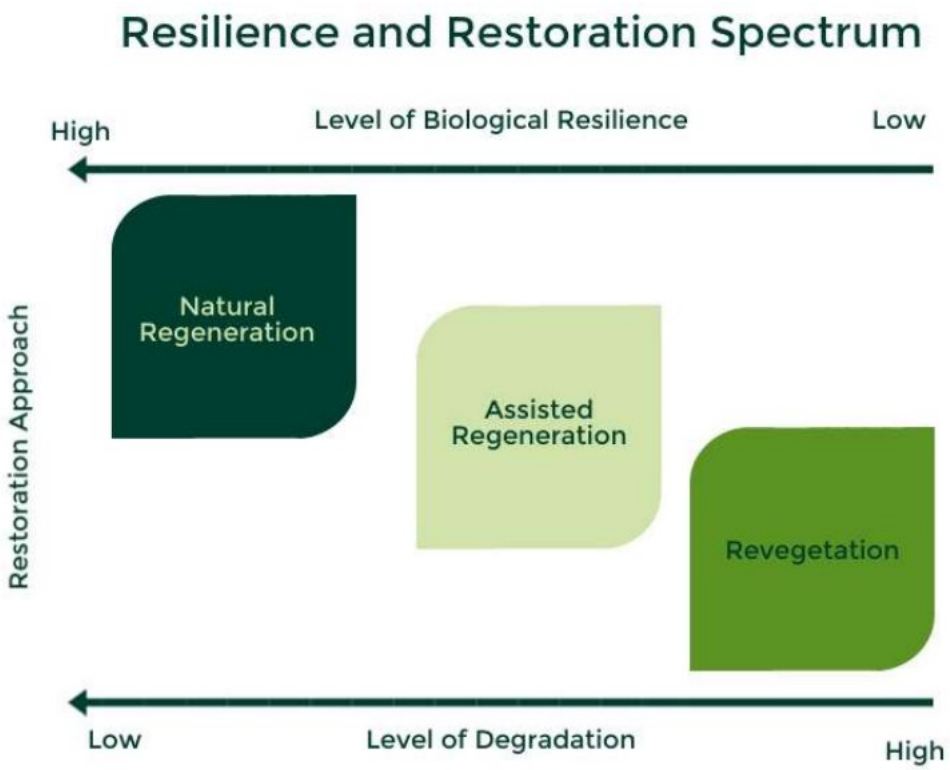

Plate 1.1 Resilience and Restoration Spectrum (BCT 2019)

Links to further reference and guidance materials for ecological restoration are provided in Appendix B.

2 Existing environment

2.1 The Marsden Park North: Vegetation Management Strategy Area

The Marsden Park North VMS area covers 173.45 ha. It includes all of the C2 environmentally zoned lands, as well as existing native vegetation to be retained in some RE1 lands. This includes the conservation area (identified in Section 1.5 of the BRCA, including the large central block of native vegetation protected under Condition 12 of the Growth Centres Order, Riparian corridors identified as waterfront lands under the *Water Mangement Act 2000* and areas where existing native vegetation (ENV) and additional high conservation value vegetation (AHCVV) identified under the Growth Centres Order 2007 are identified to be protected under the final Indicative Layout Plan (ILP) (Hatch, 2025) (see Figure 2.1).

Blacktown City Council (BCC) has care and control over Knudsen Reserve, which is reserved for environmental protection. There are no gazetted National Parks or reserves in the Study area, with the nearest being Yiraaldiya National Park to the south-west and Windsor Downs Nature Reserve to the north-west (refer to Figure 1.1 in the BRCA).

The Study area includes a significant number (5,198) of individual lots, in a range of ownership types, including State Government, Local Government, organisations and private (refer to Figure 1.3 in the BRCA). Many are "paper lots" (i.e. lots that have been legally subdivided but have not achieved a purpose under environmental zoning). These areas are often referred to as scheduled lands. Within the scheduled lands, illegal access issues leading to environmental damage, illegal dumping and potentially illegal development have and continue to occur.

2.2 Ownership, acquisition process and management

The Study area is currently largely zoned RU4 for primary production small lots. The final ILP (Hatch, 2025) proposes the rezoning of the area into a mixture of residential, employment, Special Purpose (SP) including churches, cemeteries and schools, water quality and flood management (SP2-Drainage), recreation and Open Space and environmental conservation (Section 1.5 of the BRCA).

The acquisition process and timeframes for private lands in areas proposed to be re-zoned for C2 Conservation purposes has not, as yet, been determined. This will be a critical item for the delivery of native vegetation outcomes. The extent of acquisition for lands being rezoned C2 Conservation is currently limited to the core vegetated area under Condition 12 of the Order and a small extension to this, as well as some C2 areas aligned with riparian corridors. For private lands rezoned as C2 outside of these areas there is no pathway for acquisition currently planned as part of this rezoning process.

In the absence of clarity around acquisition and longer term management, we have identified the following Government agencies who can assume the responsibility for the long-term management of conservation areas/VMS areas.

Potential management agencies include:

- Blacktown City Council
- agencies within NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) who may look to divide the management responsibilities as identified:
    - NSW National Parks and Wildlife Service (NPWS) – who may take on responsibility for the central "core" area of Condition 12 lands

- Greater Sydney Parklands, who may take on the responsibility of riparian lands along the Eastern Creek and Bells Creek corridors, extending Western Sydney Parklands along the Eastern Creek floodplain, as identified in Blacktown City Council's Local Strategic Planning Statement (BCC 2024).

Lands transferred to BCC will be identified as Local Parks under the Blacktown LEP and managed under a Council Plan of Management (PoM) established under the *Local Government Act 1993*. Lands transferred to Greater Sydney Parklands could be managed as an extension to the Western Sydney Parklands, and managed under the *Western Sydney Parklands Act 2006*, under a PoM or similar. Lands to be transferred into National Parks or nature reserves will be gazetted through the reserve gazettal process and managed under a PoM established under the *National Parks and Wildlife Act 1979* or similar.

The process as understood, is for lands to be purchased/acquired by the Planning Ministerial Corporation and then transferred to the relevant agency. Funding for vegetation rehabilitation and restoration would also need to be resolved with relevant agencies taking on management of lands.

2.3 Plant community types, threatened ecological communities and threatened species

The existing plant community types (PCTs) and associated threatened ecological communities (TECs) identified within the VMS area are outlined in Table 2.1 and shown in (Figure 2.2). In total, four PCTs are identified within the Study area, associated with five TECs listed under both the EPBC Act and BC Act. It is important to note that the Shale Gravel Transition Forest is associated with both PCT 3320 and 3448 and can form part of the Critically Endangered *Cumberland Plan Woodland and Shale-Gravel Transition Forest* listing under the (EPBC Act).

Future VMPs will need to identify the PCT/TECs and the relevant condition (or benchmark) to be restored. Relevant PCT benchmarks (Attachment D.1) and species planting lists (Attachment D.2) useful for guiding the restoration efforts for the PCTs have been provided, in line with the requirements in the BCC Vegetation Management Plan guidelines (BCC 2022), noting these have been updated to the latest PCT numbering.

Table 2.1 PCTs and possible associated TECs within the Study area

PCT no.	PCT name	Area (ha)	Listing EPBC Act	Listing BC Act	Condition
3320	Cumberland Shale Plains Woodland	58.27	Cumberland Plain Woodland and Shale Gravel Transition Forest (CE)	Cumberland Plain Woodland in the Sydney Basin Bioregion (CEEC)	-
				Shale Gravel Transition Forest in the Sydney Basin Bioregion (EEC)	-
3448	Castlereagh Ironbark Forest	26.94	Cooks River/ Castlereagh Ironbark Forest of the Sydney Basin Bioregion (CE)	Cooks River/ Castlereagh Ironbark Forest of the Sydney Basin Bioregion (EEC)	-
			Cumberland Plain Woodland and Shale Gravel Transition Forest (CE)	Shale Gravel Transition Forest in the Sydney Basin Bioregion (EEC)	-
3629	Castlereagh Scribbly Gum Woodland	5.75	Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion (E)	Castlereagh Scribbly Gum Woodland in the Sydney Basin Bioregion (V)	-
4025	Cumberland Red Gum Riverflat Forest[1]	21.46	River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria (CE)	River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions (EEC)	-
0	Not classified	28.23			-

PCT no.	PCT name	Area (ha)	Listing EPBC Act	Listing BC Act	Condition
Total		**140.56**			

Note: 1. This PCT can also associate with Elderslie Banksia Scrub Forest in the Sydney Basin Bioregion CE (EPBC) and E (BCT), as the subject site is not located on the Tertiary alluvium of Spring Farm Elderslie area.

Source: EMM (2025); DCSSS (2024); DPI (2013); GA (2009); Esri (2025)

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KEY

- Study area
- Precinct boundary (boundary offset for clarity)
- State assessed planning proposal boundary
- Non certified area - Land subject to condition 12 of the biodiversity certification order
- Riparian corridor (ELA 2018)

Vegetation management strategy

- VMS area
- Developable area
- AHCVV
- ENV

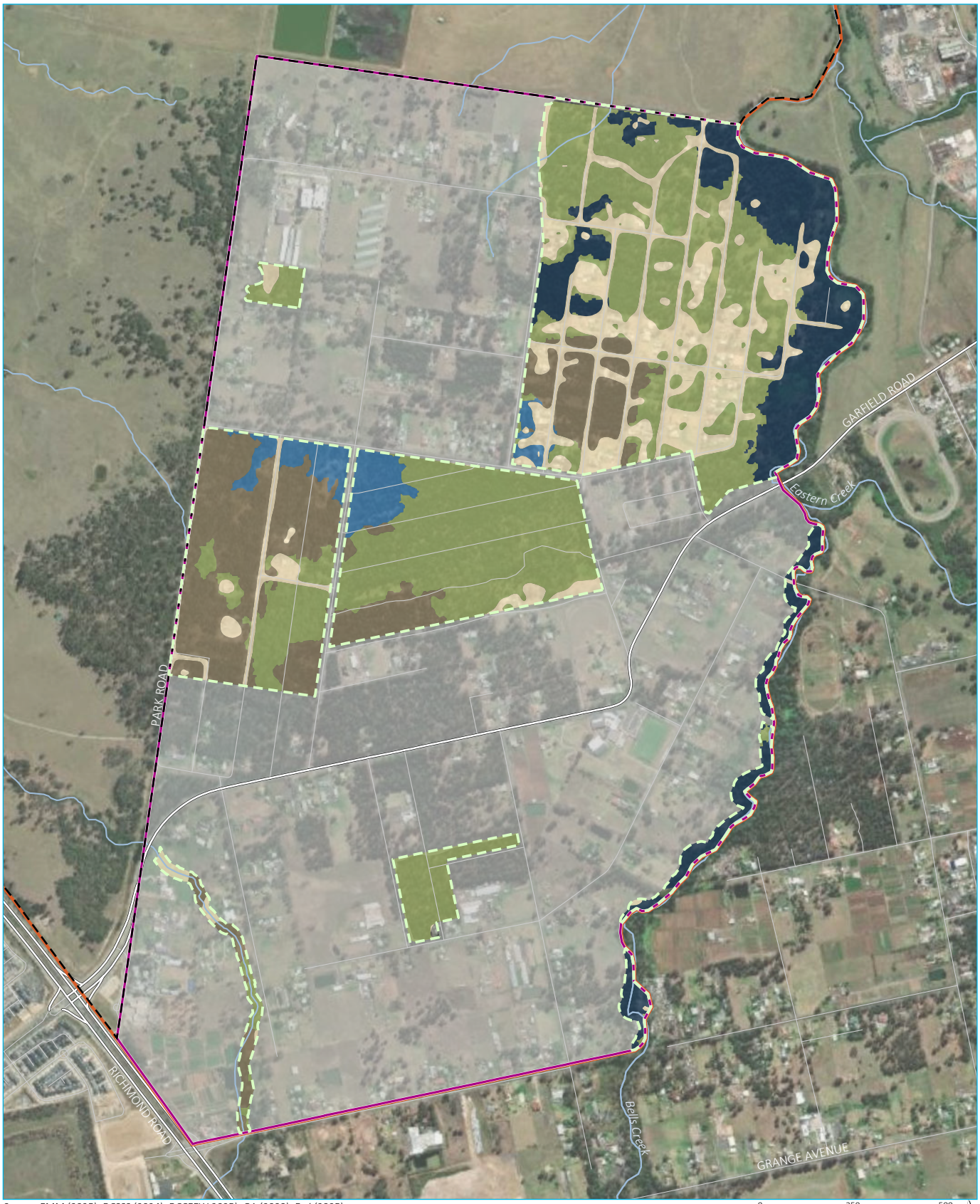
Existing environment

- Major road
- Minor road
- Watercourse/drainage line

Vegetation management area

NSW - DPHI
Appendix A
Vegetation Management Strategy
Figure A.1

EMM
creating opportunities



Source: EMM (2025); DCSSS (2024); DCCEEW 2025); GA (2009); Esri (2025)

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KEY

- Study area
- Precinct boundary (boundary offset for clarity)
- State assessed planning proposal boundary
- VMS area
- Developable area

Existing environment

- Major road
- Minor road
- Watercourse/drainage line

Plan community type

- 0 | Not classified
- 3320 | Cumberland Shale Plains Woodland
- 3448 | Castlereagh Ironbark Forest
- 3629 | Castlereagh Scribbly Gum Woodland
- 4025 | Cumberland Red Gum Riverflat Forest

Vegetation management area - PCT

NSW - DPHI
Appendix A
Vegetation Management Strategy
Figure A.2

EMM
creating opportunities

2.4 Pest and weed species

2.4.1 Weeds of National Significance (WoNS) and Priority weeds under the NSW *Biosecurity Act 2015*

The Australian Weed Strategy (2017-2027) provides a National framework to guide and coordinate weed management efforts across all levels of government, industry, and the community. The strategy focuses on preventing new weed problems, reducing the impact of existing weeds of national significance, and enhancing Australia's capacity for weed management.

Under the strategy, those weeds considered to be highly invasive and problematic weeds for Australia, based on their invasiveness, potential for spread, and environmental, social, and economic impacts are recognised as Weeds of National Significance (WoNS). There are currently 32 species identified as WoNS.

The NSW *Biosecurity Act 2015* places restrictions on the trade and movement of plants that harm the NSW environment, economy and community. Those plants are called 'priority weeds' and the restrictions on trade and movement apply to all parts of the plant including cuts, cultivars and hybrids. Everyone shares duties under the Biosecurity Act.

Priority weeds are categorised as either:

- State priority weeds – which must not be sold anywhere in NSW, anyone found doing so could face legal repercussion
- Regional priority weeds – should not be sold or moved in certain regions.

2.4.2 Local weed control authority: Hawkesbury River County Council

Hawkesbury River County Council (HRCC) is the local weed control authority responsible for the identification, eradication and control of priority weeds for BCC, Hawkesbury, Penrith and the Hills Shire local government areas (LGAs).

The HRCC have prepared the Local Weeds Plan which also includes:

- Local priority weeds – weeds which have undergone a Weed Risk Assessment process at the local level.

2.4.3 Consolidated WoNS and priority weeds within the Study area

Table C.1 includes an assessment of presence which has largely been through positive identification in the previous assessment report (ELA 2018), due to limited site access. Our weed presence likelihood was categorised as follows:

- Unlikely – not likely to be significantly present within the VMS area.
- Potential – potential to be present within a part or all of the VMS area.
- Likely – previously identified as being present, or thought likely to be present, within a part or all of the VMS area.

2.4.4 Pest species

The following is a list of identified introduced/pest species from desktop and previous assessments.

Mammals:

- Cat (*Felis catus*)
- Dog (*Canis familiaris*)
- Brown Hare (*Lepus capnsis*)
- Black Rat (*Rattus rattus*)
- Fallow Deer (*Dama dama)*
- Rabbit (*Oryctolagus cuniculus*)
- Red Fox (*Vulpes vulpes*)
- Rusa Deer (*Cervus timorensis*)

Birds:

- Common Myna, Indian Mynah (*Acridotheres tristis*)
- Laughing Turtle-Dove (*Streptopelia senegalensis*)
- Spotted Turtle-Dove (*Streptopelia chinensis*)
- Common Starling (*Sturnidae sturnus*)

Fish:

- European Carp (*Cyprinhus carpio*)
- Mosquito Fish, Eastern Gambusia (*Gambusia holbrooki*)

This list is not considered to capture all introduced and pest species present on the VMS area.

2.5 Threatened species management

Four threatened flora species and 15 threatened fauna species have been recorded and are thought to be present on the site. A further 63 threatened species are considered likely to be present within the Study area. Management of these VMS areas should give due consideration to the needs of threatened species, in particular the management of the Cumberland Plain Land Snail (CPLS) which is heavily dependent of the Cumberland Plain Woodland TEC and lack the mobility of other threatened bird and bat species.

2.6 Riparian Corridors and Waterfront Lands

The Riparian Corridors are included in Figure 5.1 in the BRCA. For further information on Riparian Corridors (see Section 5.2 of the BRCA) and the Riparian Corridor Assessment in Appendix C of the BRCA.

3 Vegetation management: regeneration and restoration

This section outlines the actions to be considered to rehabilitate the management zones identified for the Study area.

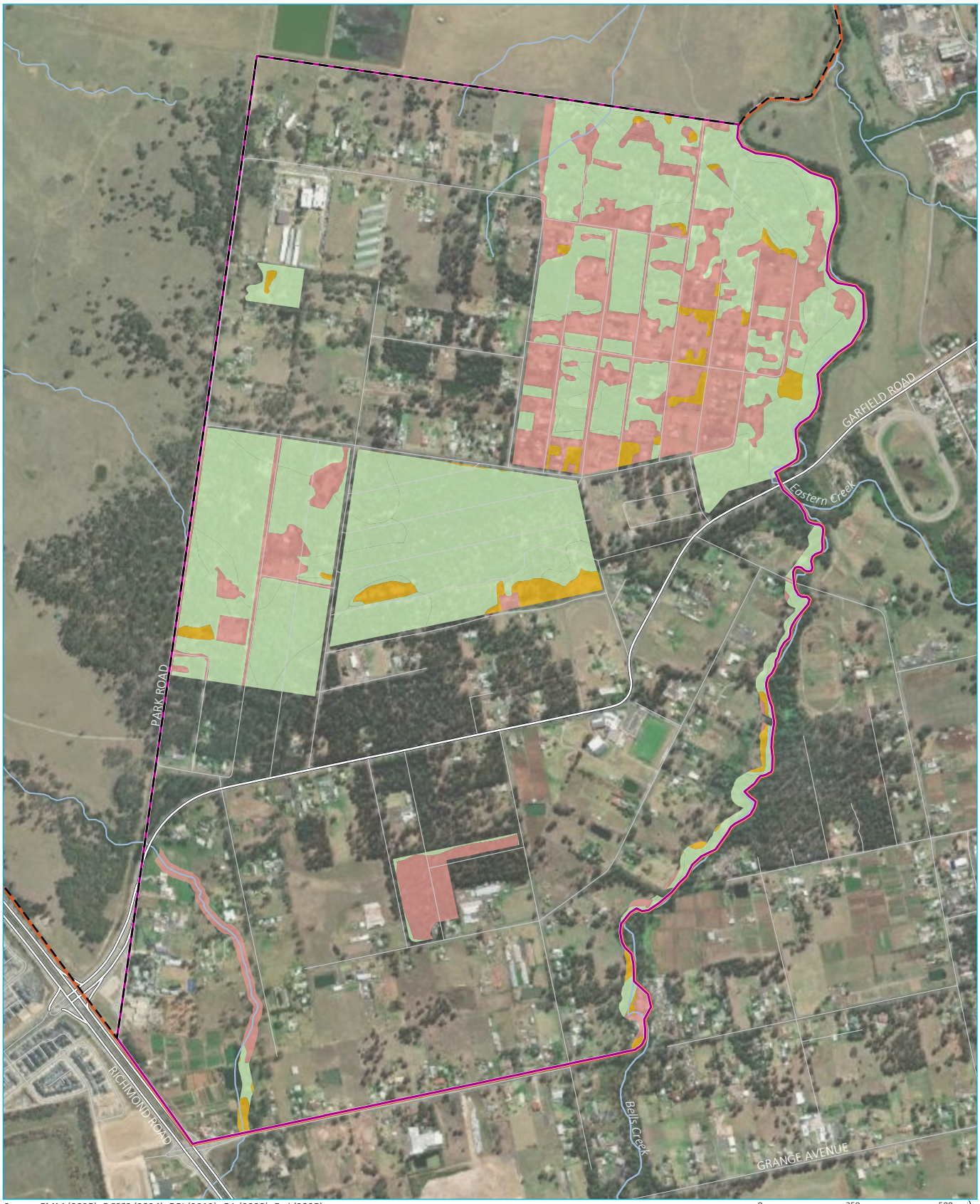
3.1 Vegetation management zones

Table 3.1 identifies and describes the broad management zones identified for the VMS area, as shown in Figure 3.1. The vegetation management zones have been established, based upon:

- connecting patches of existing native vegetation, to promote ecological connectivity through the VMS area (see Section 4.7 of the BRCA).
- biodiversity values and restoration potential (Section 4.8 of the BRCA).

Table 3.1 Management zone descriptions

Management zones	Area (ha)	Biodiversity value	Restoration potential	Description
MZ 1: Natural regeneration	93.68	High	High	Areas of existing native canopy (trees). Native shrubs and groundcovers may be present but are not always, depending on current management.
MZ 2: Assisted regeneration	6.16	Moderate	Moderate	Areas of exotic lawn or derived native grasslands adjacent to patches of native canopy.
MZ 3: Reconstruction	41.16	Low	Low	Areas lacking native vegetation. Includes areas where houses, roads, or cleared of native vegetation or areas. This could include restoration within open space areas (i.e. ovals/parks, raingardens, and riparian corridors)
Total	**141.00**			



Source: EMM (2025); DCSSS (2024); DPI (2013); GA (2009); Esri (2025)

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KEY

- Study area
- Precinct boundary (boundary offset for clarity)
- State assessed planning proposal boundary

Vegetation management zone

- MZ1 | Natural regeneration
- MZ2 | Assisted regeneration
- MZ3 | Reconstruction

Existing environment

- Major road
- Minor road
- Watercourse/drainage line

Vegetation management zones

NSW - DPHI
Appendix A
Vegetation Management Strategy
Figure A.3

EMM
creating opportunities

3.2 Management actions

Table 3.2 identifies the management actions for the VMS area. Actions are described in more detail in the following sections.

Table 3.2 Management actions

Management zones	Area (ha)	Objectives	Management actions	Level of effort required
MZ 1: Natural regeneration	93.68	Returned to full ecosystem functionality. They will act to provide core habitat value and contribute to regionally significant ecological connectivity.	• Weed control – primary, secondary and maintenance. • Restoration – supplementary planting (as required), largely for shrubs and ground covers. • Threatened species habitat management (as required). • Deterring access/rubbish dumping – installation of gates, fences and signage and other deterrence measures including ranger patrols, remote cameras and community education/engagement programs. • Ecological fire management – re-introduce traditional/ecological burn regimes as permissible.	Low (though variable)
MZ 2: Assisted regeneration	6.16	Returned to a reasonable level of ecosystem functionality. They will act to buffer MZ1 areas and provide ecological connectivity.	• Weed control – primary, secondary and maintenance. • Restoration - planting for canopy, shrubs and ground covers. • Deterring access/rubbish dumping. • Ecological fire management – re-introduce traditional/ecological burn regimes as permissible, at least 10 years post planting.	Moderate
MZ 3: Reconstruction	41.16	Returned to a partial level of ecosystem functionality. They will act to provide foraging and ecological connectivity to other areas.	• Weed control – primary, secondary and maintenance. Significant post-planting maintenance weeding is likely required for a minimum period of 5 years. • Restoration – Full reconstruction required. Includes soil preparation works (removal of all toxic materials including asbestos, lead and other heavy metals, decompaction of compacted soil and top soil replacement is likely to be required). Planting for canopy, shrubs and ground covers. Noting that alternatives to tube-stock planting (direct seeding, drone, micro-forests) may be used as appropriate to the local situation. • Deterring access/rubbish dumping – post planting. • Ecological fire management – re-introduce traditional/ecological burn regimes as permissible, likely 10–20 years post reconstruction.	High / Very High
Total	**141.00**			

3.2.1 Weed control

A systematic and sensitive approach to weed control should be applied to ensure weeds are replaced by native species rather than other weed species. It is essential that follow up and maintenance work are undertaken for the recovery process. To ensure resources are used efficiently, weed control should be undertaken in the following stages:

- **Primary:** Primary weed control is the initial strategic control of weeds. Weeds are to be accurately identified and targeted to ensure that native species are not negatively affected. Each weed species or group of weeds impacting the area is to be assessed to determine the methods and techniques to be applied (e.g. physical, chemical and/or biological), how existing attributes can be maintained (e.g. habitat for birds, stability of the slope, etc.) and how the area will be maintained. Primary weed control primarily involves manual work using methods such as cut, scrape and paint, and spot spraying. Hand weeding may be necessary to prepare areas for spot spraying where native species and weeds occur together.

- **Secondary (follow up):** Following primary weed control, resources (e.g. light, space and nutrients) are made available to plants and soil seed banks. Native and exotic seedlings and ground covers are likely to occur, as such identifying regenerating plants is important to ensure targeted control can be undertaken. Timely follow up weed control is essential to ensure soil seed banks are not wasted (e.g. inappropriate control and off target damage) as this greatly affects the recovery process.

- **Maintenance:** Ongoing weed control is essential as it can take years to exhaust weed seed in the soil seedbank. This will ensure that exotic species remain at manageable levels as the site continues to develop. In addition, birds and other fauna, disturbance events (e.g. storms, floods, fire, etc.) and garden waste may contribute to continued dispersal of weeds within the area. The frequency and duration of maintenance depends on a range of factors including (but not limited to):

    - the site recovery capacity
    - the viability of weed seed in the soil seedbank
    - the weed species impacting the area
    - the proximity of weed sources for re-infestation
    - the edge to area ratio
    - the capacity of native vegetation to fill the gaps.

Hence, ensuring that weed control maintenance is regular and match the regrowth rates, is accurate and well-timed and undertaken by experienced operators, will reduce efforts and costs over time as the site recovers with native vegetation.

3.2.2 Restoration

i Tube-stock planting

Tube-stock planting involves direct planning of seedlings propagated in nurseries. This is ideal for small and difficult sites (e.g. steep, rocky or wet) as it has a greater likelihood of success than other methods. Tube-stock planting is labour and input intensive and can be costly compared to other methods particularly as the size of the site increases. Recommended planting densities in the Blacktown VMP guide (BCC 2019), are provided in Table 3.3.

Table 3.3 Planting densities (BCC 2019)

Strata	Recommended planting density
Trees	One plant per 20 to 40 m^2
Shrubs	One plant per 4 m^2
Ground cover	Four plants per m^2
Wetland plants	Six to eight plants per m^2

ii Direct Seeding

Direct seeding has many applications for both broadscale vegetation establishment and spot sowing. This involves direct mechanical and/or hand sowing of seeds to achieve germination and establishment. The advantage of this technique includes:

- seeded trees and shrubs develop deep and strong root systems, establish quickly and withstand drought and wind
- patchy spacing of plants recreates a 'natural' self-sustaining habitat
- seeds can be stored until favourable conditions for direct seeding
- mechanical direct seeding for broadscale revegetation is cost effective and labour efficient.

There are seven steps for successful direct seeding by machine:

1. **Planning:** This includes determining the purpose of revegetation, site selection and assessment, species selection and seeding design, machinery selection and acquiring resources.
2. **Site preparation:** This includes appropriate weed control and soil preparation for direct seeding.
3. **Pest management:** The site should be protected from livestock through fencing and pests (e.g. rabbits and hares) eradicated prior to direct seeding.
4. **Seed selection:** This includes identifying sources with preference to local provenance, utilising a mix of species and calculating seed quantities, rates and treatments required for the site.
5. **Seeding:** It is important that the timing of seeding and machinery selected (e.g. seed flow, sowing depth, etc.) is appropriate for the site. While not necessary, bulking agents may be used as required.
6. **Site maintenance:** The site should be inspected three weeks after sowing to identify signs of seed germination, pest and diseases. Appropriate management actions should be undertaken as required.
7. **Monitoring:** Monitoring should be undertaken to document species sown, rates and techniques used, and record germination success. Site photos from a fixed point should be taken to record changes over time. Together, this will provide important information to help refine and develop strategies to promote germination.

Recommended seeding densities in the Blacktown VMP guide (BCC 2019), are provided in Table 3.4.

Table 3.4 Direct seeding density (BCC 2019)

Vegetation strata	Formation seeding density (per hectare)
Eucalypts	50-100 grams per species
Acacias and large seeded species	50-100 grams per species
Shrubs and grasses	25-50 grams per species

iii Alternative/emerging approaches

The following are alternative/emerging solutions to restoration, which have been included for potential use as appropriate in future site-specific management plans.

a Tiny Forests

Tiny Forest is a dense and fast-growing patch of native bushland designed to help mitigate urban climate and biodiversity challenges. This unique nature-based solution utilises an established planting method (the Miyawaki method (Miyawaki 1999)) that focuses on soil enrichment, planting a diverse range of indigenous plants and dense planting structure. This method results in growth about 10 times faster than traditional forests and up to 100 times more diverse than monoculture forests.

An advantage to this approach is local community engagement with these forests, with planting often carried out by volunteers. The community can also be encouraged to remain engaged through tree/forest care programs run through council and on-going engagement through regular monitoring and reporting events.

b Woody Meadows

Woody Meadows is a diverse and dense patch of flowering native plants designed to improve urban resilience. The flowering plants encourage insects, native bees, smalls birds and other wildlife. Woody Meadows improve urban landscapes and can reduce weeds and maintenance costs. They are often useful along transit lines (road/rail easements) with the objective that long-term they will require less maintenance than lawn.

c Drone seeding

Drone seeding is a leading high-tech solution used in restoration which can be precise, efficient and cost effective, particularly in challenging locations. Equipped with sensors and cameras, drones can provide detailed mapping of the site to develop appropriate restoration strategies (e.g. site selection, seed selection and preparation, and seeding pattern). Further, drones can also be used to monitor the effectiveness of the restoration project undertaken.

d Topsoil re-location

Topsoil re-location is a widely used technique in restoration which involves the transfer of the upper soil layer (rich in organic matter, nutrients, and native seed banks) from a donor site to a restoration site. This method has been effective in restoration as it reintroduces native seed banks, restores soil structure and nutrients, transfers soil biota (e.g. microbes, fungi and invertebrates) and reduces the need for seeding and planting.

The Growth Centres DCP, Condition 2.3.4.2 Control (2) requires development, to where practical:

> provide for the appropriate re-use of native plants and topsoil that contains known or potential native seed bank

3.2.3 Pest control

As identified in the direct seeding methods above, a key objective of pest control in the initial phases of each project will be to reduce the impact of exotic and native herbivores on the newly established plantings / natural regeneration. Longer term, pest control actions will need to focus on the control (and where possible) eradication of introduced predators to allow native fauna species to recolonise restored areas. Pest control programs usually require regional co-ordination, consistent implementation and adequate resourcing to prove effective.

3.2.4 Pathogen / disease prevention

Bush regeneration contractors and volunteers undertaking management works will need to ensure that they comply with biosecurity protocols whilst undertaking restoration works. Simple measures such as:

- washing down mud and soil from machinery, vehicles, footwear and tools prior to and after works to reduce the spread of invasive weeds and soil borne pathogens
- appropriate removal and disposal of diseased plant material
- ensuring that plant stock is from a reputable native nursery, such as those from Nursery Industry Accreditation Scheme Australia to avoid introducing or spreading pathogens.

Specific measures will be included in VMPs or construction environmental management plans (CEMPs).

3.2.5 Fire regimes

In the drying landscape as the Australian continent separated from Africa and South America, the Australian landscape evolved to adapt to regular fire occurrence for the last several millennia. The traditional land owners and custodians of the Blacktown region, the Dharug people were known to use fire for various purposes, including hunting, land management and cooking. Their practice of "fire-stick farming" involved controlled burns to clear vegetation, making it easier to hunt and altering plant and animal species. This practice, also known as cultural burning or cool burning, is a deep-rooted tradition aimed at caring for Ngurra (Country) and promoting ecological balance.

The invasion of Australia by white settlers, brought about an end to cultural burn regimes across most of the County, including on Dharug lands. This has resulted in less frequent, but much hotter and destructive wildfires or “bush fires” a KTP under both the EPBC and BC Acts. With the impacts of climate change already being felt, there is a growing movement to reintroduce these traditional burn regimes to re-instate the cultural traditions of the Dharug peoples and to work to re-gain ecological balance in the landscape. Recent examples re-kindling cultural burn programs in Western Sydney involving the Dharug people is included in Attachment B.1.

It is noted that management of native vegetation areas and the regeneration and restoration of native ecological communities may bring with it an increased fire risk of hazardous bushfires occurring, unless properly managed. In order to reduce this risk, fire breaks can be manually or mechanically installed, or small fires (pile burning and ecological burns) can be used to reduce and manage the fuel load in order to reduce the risk of hazardous bushfires occurring. A useful guide to the use of fire as a conservation management tool is provided by the BCT, as well as guidance by NSW RFS is provided in Attachment B.1. Fire should always be used by experienced and trained personal, once all of the required permissions have been provided. This strategy does not constitute approval to undertake burns on private or public lands.

Bushfire asset protection zones should be catered for within development zones, unless agencies have entered into specific agreements for management of lands in a fuel reduced state, such as over as sports fields.

3.3 Other management considerations

Some other management considerations, which will need to be addressed include:

- **Fragmented ownership**: The Study area includes a significant number of individual lots, with many areas of C2 zoned lands to remain in private ownership. A regional approach will need to be taken to restoration efforts to ensure long-term success.
- **Timing / staging of the release areas**: With restricted acquisition process for C2 lands, and the fragmented ownership challenges, any transfer of lands from private into public ownership is not expected to occur in the near term (within 5 to 10 years). During this time, on-going management challenges associated with illegal clearing, dumping and access/ingress issues are expected to continue. The longer/greater that these disturbances are, the higher the level of effort required (and associated cost) to restore natural areas (as per Plate 1.1). It is noted that Yiraaldiya National Park, formerly the Air Services land was flagged for acquisition as a nature reserve as early (if not earlier) than 2005, but was not transferred to NPWS ownership until 2020, with gazetted occurring in 2023; a timeframe of 18 years.
- **Indirect impacts**: Future development both within the Study area and adjacent precincts, can have impact on the natural values of the retained natural values within the VMS area. These include increased nutrient loads, sediment runoff, edge effects increasing weed invasion. Recommended inclusions to the Blacktown Growth Centres DCP (see Section 5) to strengthen development controls and limit the impact to native vegetation, including indirect impacts on areas to be conserved and managed under this VMS are provided.
- **Barriers to connectivity:** Development, especially transport related infrastructure around the proposed Bandon Road extension and the Garfield Road West upgrade works, may prove a barrier for native species movement. These should allow for the movement of flora and fauna through the construction of raised bridges or culverts where these pass through vegetated areas to substantially reduce the impacts on ecological connectivity. Installation of fauna friendly 'furniture' would also improve the usability of culverts for native wildlife movement. As far as possible, natural canopy should be retained in the Riverstone Cemetery, noting Objective C in the Riverstone PoM which is to "Respect and enhance the native vegetation and parkland setting of the site" (BCC 2020). Rehabilitation and/or restoration of native vegetation to both the north and south of Riverstone Cemetery is highly desirable to improve ecological connectivity to the large area of native vegetation to be retained approximately within the centre of the VMS area under condition 12 of the Biodiversity Certification Order.
- **Acquisition and restoration funding (Growth Centres Conservation Fund):** Conditions 20 and 21 of the Growth Centres Order provides for the creation of a $530M Conservation Fund, with $397.5M spent on acquisitions and entering into conservation agreements outside of the Growth Centres, and $132.5M to be spent on the acquisition and management within the Growth Centres. Condition 32 identifies priorities for funding, with areas identified as "Regional Biodiversity Corridors", within Western Sydney identified as having first preference. It is not known whether any funds remain from the $397.5M in the Growth Centres Conservation Fund, for the acquisition and management of conservation lands within the Study area. Should existing funds not remain, then acquisition costs will need to come from developer contributions levied on developers. It is noted that the Growth Centres Certification is up for renewal and the need for further funding to acquire and fund long term on-ground management and ecological restoration should be flagged during this process.
- **Restoration impacts:** Consideration should be given to the potential impact of native vegetation towards bushfire risks (i.e. more native vegetation results in increased bushfire risks) and impacts on flooding (i.e. more vegetation slows water flow). In both instances the density and spacing of the shrub layer regeneration/plantings is an important variable, and consultation between experts in relevant technical disciplines should be undertaken at the detailed design phase.

3.4 Management costs

3.4.1 Benchmark against Total Fund Deposits

The NSW Biodiversity Conservation Trust (BCT) are responsible for the administration and management of *in-perpetuity* conservation agreements entered into between the Government and landholders, including Biodiversity Stewardship Agreements (BSAs). Money for the on-ground management is paid into a Total Fund Deposit (TFD), which is administered by the BCT, and released to the landholder as annual landholder payments to fund in-perpetuity management actions.

The BCT has made available the average, and typical ranges of TFD, from 348 existing BSA (and former BioBanking) sites, established between 2010 and 2025 within the Greater Sydney and Non-Sydney regions, as shown in Plate 3.1.

A key factor determining average cost per hectare is the size of the site for management, with larger sites being significantly cheaper on a per hectare basis. This is because economies of scale can be realised with larger sites in common ownership.

BSA Size Category							
Geographic Region		**<30 ha**	**30-50ha**	**50-100ha**	**100-200ha**	**200-500ha**	**500+ha**
Greater Sydney	Average	$119,600	$80,300	$42,600	$30,200	N/A	N/A
	Typical range	$63-196k	$41-139k	$17-61k	$14-38k		
Non-Sydney	Average	$46,000	$21,700	$14,900	$10,400	$6,600	$3,500
	Typical range	$25-78k	$10-36k	$6-26k	$4-21k	$3-16k	$2-6k

Plate 3.1 Average TFD costs for management and restoration within BSAs (BCT 2025)

3.4.2 High-level vegetation management costing

It is very difficult to provide management and restoration costs without a firm idea of ownership, site conditions, vegetation condition, project timeframes and without a clear idea of the baseline condition which would require full access to lands in private ownership. As such, our estimates provided below are based upon the low, average and high-end typical range in TFDs provided by the BCT. Due to the fragmented ownership within the VMS area, we have used the smallest BSA size category (<30 ha) in making our assessment, as the majority of privately owned lands will fit within this category. We note that if larger areas of the VMS area restored collectively, then efficiencies of scale might be applicable. As BSA sites do not typically include significant revegetation/reconstruction works, with management costs usually outweighing the expected return from credit sales, we have included a 30% increase on the upper maximum range to the estimated management costs for MZ2 and MZ3.

These management costs exclude all acquisition costs, costs to remediate any contaminated lands, demolition costs and all associated legal, surveying, and assessment fees. It is also noted that this cost, represents a figure in today's dollars that should it be held aside, with accumulated interest accruing, could provide for the in-perpetuity management of the VMS area. It is expected that future VMPs or PoMs will provide a more accurate costs at a site-specific level.

The total estimated cost for management of the VMS area is at **$17,342,904** in today's value (2025), as shown in Table 3.5.

Table 3.5 High-level management and restoration costs

Management zone	Area (ha)	Estimated management and restoration costs (per/ha)	Total management costs
MZ 1: Natural regeneration	93.68	$63,000/ha [1]	$5,901,825
MZ 2: Assisted regeneration	6.16	$154,700[2]	$953,093
MZ 3: Reconstruction	41.16	$254,800[3]	$10,487,986
Totals	**141.00**		**$17,342,904**

Notes

1. Based upon average TFD costs for a <30 ha BSA (BCT 2025), using the TFD Low range price of $63,000/ha
2. Based upon average TFD costs for a <30 ha BSA (BCT 2025), including a 30% mark-up on the TFD Average price of $119,000/ha
3. Based upon average TFD costs for a <30 ha BSA (BCT 2025), including a 30% mark-up on the TFD Upper Range price of $196,000/ha

3.5 Management objectives and key performance indicators

3.5.1 Management zone objectives

Section 1.1 identifies the overriding objectives for this strategy. Table 3.6 identifies the Management Zone objectives for the VMS areas.

Table 3.6 Management zone objectives

Management zone	Objectives
MZ 1: Natural regeneration	Returned to full ecosystem functionality. They will act to provide core habitat value and contribute to regionally significant ecological connectivity.
MZ 2: Assisted regeneration[1]	Returned to a reasonable level[1] of ecosystem functionality. They will act to buffer MZ1 areas and provide ecological connectivity.
MZ 3: Reconstruction[1]	Returned to a lower level[2] of ecosystem functionality. They will act to provide foraging and ecological connectivity to other areas.

Notes

1. A reasonable level is considered to have all native strata layers (canopy, shrubs and groundcovers) present, with cover and diversity of species at approximately 75% of relevant PCT benchmarks, as shown in Attachment D.1.
2. A lower level of ecosystem functionality is considered to include all strata (canopy, shrubs and groundcovers) present, with cover and diversity of native species at approximately 50% of relevant PCT benchmarks, as shown in Attachment D.1.

3.5.2 Key performance indicators

Key performance indicators (KPIs), which can also be referred to a variety of other terminology such as performance criteria, project objectives or project goals, amongst others, are important for establishing a measurable objective for the project. KPIs will be established at a site-specific level in relevant future management plans. KPIs should be Specific, Measurable, Achievable, Relevant and Time-bound (SMART). Examples of relevant KPIs are provided in the BCC VMP guidelines (Section 5.5 and Table 7) (BCC 2019). Appendix 4 in the National Restoration Standards also identifies some quantifiable indicators (SERA 2018). Other relevant guidance on establishing KPIs for restoration projects is included in Attachment B.1.

3.5.3 Vegetation condition benchmarks

The NSW Vegetation Classification includes Community Condition Benchmarks. These are calculated at the IBRA region for each PCT and based on average environmental conditions that represent and average attribute state across seasons. A list of identified benchmarks for the PCTs within the VMS area is provided in Attachment D.1

3.6 Timing

Objectives and management actions identified in this strategy are considered high-level and not linked to any specific timeframe. Future VMPs, PoMs or similar are expected to identify the project timeframes of the individual project. Timeframes can generally be established at the following scale:

- Short term (next 5 to 10 years)
- Medium term (10 to 20 years)
- Longer term (20 years plus).

The achievement of the objectives of the VMS across all VMS areas is expected to occur over the longer term.

3.7 Monitoring requirements and adaptive management

When preparing the VMP or PoMs, consideration should be given to the frequency, intensity and purpose of monitoring and reporting requirements. These should allow for adaptive management which seeks to learn from and be adaptable to the results of reporting (within the project period).

4 Next steps

The next steps for the implementation and achievement of this strategy's objectives, for both public and private lands are identified below.

On public lands:

1. Confirm the long-term ownership and management responsibilities and allocate to responsible agency (Greater Sydney Parklands, NPWS or Blacktown City Council (BCC).

2. Designate the conservation land under appropriate measures (i.e. gazettal for nature reserves, include on Western Sydney Parklands mapping, or amend the LEP for BCC areas).

3. Prepare (or incorporate into existing) PoM for public reserves, as required under relevant legislation, and assign on-going management funding and resources to achieve management objectives.

On private lands, staying in private ownership:

4. All subdivision/development impacting on VMS areas, should require rehabilitation and restoration of native vegetation under a VMP, prepared under relevant guidance (see Section 5 for suggested wording inclusions to the Blacktown Council DCP (Growth Centres) 2022). VMP implementation will be the responsibility of the developer.

On private lands being transferred into public ownership:

5. Identify the areas, timeframes, costs and staging for acquisition of private lands and transferal into public ownership (either DCC or State government), noting that the limited ability for private landholders to elect for their lands to be acquired in C2 zoned lands. Then follow Steps 1 and 2 identified above.

   Consideration should be given to the management of areas not identified for acquisition in the short to medium term to ensure that future damage and loss of native vegetation does not continue to occur.

Management for bushfire risks:

6. Bushfire prone lands on private and public lands should be managed in accordance with the Strategic Bushfire Assessment (Coolburn 2025), and all relevant requirements under the *NSW Rural Fires Act 1997.* Future site-specific bushfire assessments should cater for bushfire asset protection zones within development zones, unless agencies have entered into specific agreements for management of lands in a fuel reduced state, such as over as sports fields.

5 Recommendations for inclusion in the Blacktown Growth Centres DCP

5.1 Review of existing controls

The current BCC Growth Centres DCP 2010, amended 2022 (BCC 2022), identified development controls for native vegetation and its management in several areas of the DCP. Our assessment identified the following:

- Section 2: Precinct planning outcomes.
- Section 2.3: Subdivision site analysis.
- Section 2.3.1 Flooding and water cycle management:
  - The existing objectives and Controls – General seem largely appropriate; however, more emphasis could be given to reducing the impacts of stormwater overflow from development sites into natural/biodiversity conservation areas .
- Section 2.3.4: Native vegetation and ecology objectives and controls:
  - Does not include provisions relating to the management and restoration of C2 (former E2) conservation lands and ENV/AHVCC in RE1 lands.
  - Does not include provisions requiring supervision of tree felling by an ecologist of wildlife carers when undertaking tree clearance activities, including translocation of tree hollows and logs (for use by Cumberland Plain Land Snail (*Meridolum corneovirens*) and others ground-dwelling species.
  - Could provide greater clarity around the location for the appropriate re-use of native plants and topsoil and where to put them.
  - Does not include measures for transport related development to include ecology friendly mechanisms (i.e. culverts or rope bridges over new roads, fauna friendly furniture in drainage culverts).
  - Does not clearly state the requirements for the preparation of a VMP outside of riparian protection areas. This should be included in the DCP, unless otherwise captured elsewhere (i.e. the Growth Centres SEPP). The VMP should be required for sub-division or development in C2 zoned lands or lands adjoining/adjacent to existing native vegetation to be retained, and should be prepared in accordance with Council requirements, as identified in BCC's VMP guidelines.
- Section 3.3: Neighbourhood and subdivision design.
- Section 3.3: Construction environmental management:
  - Requirement for CEMPs seems appropriate.
- Section 6: Employment lands subdivision and development controls.
- Section 6.5: Ecologically sustainable development:

- Despite the name of the chapter this section speaks to broader environmental considerations (i.e. waste minimisation, green star ratings, sustainable water use, etc.) not ecological controls. Suggest either that Landscape plans could include elements of Biodiversity Sensitive Urban Design (BSUD) or this section should be more appropriately titled "Environmentally sustainable development".

- Appendix B: Riparian controls:
  - The existing Riparian Outcomes and Controls seem largely appropriate; however, further consideration could be given for wildlife movement under bridges/creek crossings. This is relevant for the future Garfield Road West re-alignment/expansion and the footbridge over Marsden Park Creek Tributary to Marsden Park Public School.

- Appendix F: Lodgement requirements.

- Table 1: Checklist of lodgement requirements:
  - Table is missing the requirements for VMPs. We recommend including this as a requirement for all sub-division DAs and building DAs that impact on riparian areas or VMS/conservation areas to be submitted with DA applications for BCC assessment.

5.2 Suggested inclusions

Suggested wording for inclusion in the DCP are provided (shown in ***bolded italics***) below:

- 2.3 Subdivision site analysis
- 2.3.4 Flooding and water cycle management
- 2.3.1.1 Objectives
  - ***d. to minimise stormwater impacts on areas of native vegetation***
- 2.3.1.2 Controls-General
- 6. Management of 'minor' flows using piped systems for the 20% AEP (residential land use) and 10% AEP (commercial land use) shall be in accordance with Blacktown Council's Engineering Guidelines for Subdivision and Development. Management measures shall be designed to:
  - prevent damage by stormwater to the built and natural environment,
  - reduce nuisance flows to a level which is acceptable to the community,
  - provide a stormwater system which can be economically maintained and which uses
  - open space in a compatible manner,
  - control flooding,
  - minimise urban water run-off pollutants to watercourses ***and natural areas***, and
  - meet the standards for a 20% AEP flood level
- 2.3.4 Native Vegetation and ecology

- 2.3.4.2 (3) 2. Where practical, prior to (and during) development commencing, applicants are to:

  - provide for the appropriate re-use of native plants, ***habitat features such as logs and tree hollows*** and topsoil that contains known or potential native seed bank ***for re-use within Nature Reserves, Council Bushland Reserves, Regionally Significant Core areas or Regionally Significant Corridors or other ecological restoration areas (such as the VMS (EMM 2025)*;** and

  - ***provide ecologists or wildlife rescue staff during tree felling activities,*** and relocate native animals from development sites ***into appropriate local areas with suitable habitat*.** Applicants should refer to OEH's *Policy on the Translocation of Threatened Fauna in NSW*.

- 3. Within land that is in a **Riparian Protection Area** or ***Vegetation Management Strategy Areas*** as shown on the figure in the relevant Precinct Schedule:

  - all existing native vegetation is to be retained and rehabilitated, except where clearing is required for essential infrastructure such as roads; ***rehabilitation is to be guided by a Vegetation Management Plan, prepared by a suitably qualified person and prepared in accordance with applicable Vegetation Management Plan requirements*,**

  - ***Roads and bridges crossing riparian corridors should give due consideration to ensuring the designs allow for wildlife movement, and include fauna friendly designs (for example culverts with sufficient size and design to allow for wildlife movement, or the provision of rope bridges for tree dwelling animals),*** and

  - native vegetation is to be conserved and managed in accordance with the Riparian Protection Area controls at **Appendix B.**

- Section 6: Employment lands subdivision and development Controls

- 6.5 Ecologically sustainable development

- 6.5.2 Controls

- 2. Development Applications are required to demonstrate consideration of:

  - promoting biological diversity through appropriate retention, planting and maintenance of indigenous flora of the area;

  - ***Consider and allow for the movement of native plants and animals, including pollinator friendly gardens, green walls and other Biodiversity Sensitive Urban Design (BSUD) principles;***

  - implementing a waste management strategy that promotes the overall reduction of waste levels.

- Appendix B: Riparian protection area controls

  In the appropriate location/locations include the following:

  - ***Roads and bridges crossing riparian corridors areas should give consideration to allowing native wildlife movement and include fauna friendly designs (for example culverts with sufficient size and design to allow for wildlife movement)***

- Appendix F: Lodgement Requirements

- ***Include Vegetation Management Plans and requirements in the Table 1 – checklist of lodgement requirements.***

Appendix A
Government agencies

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A.1 Government agencies

The responsibly for the management of natural areas in the subject area falls across many different agencies. The below is a list of Government agencies with current and future management responsibilities within the VMS area are identified in Table A.1.

Table A.1 Government agencies responsible for the management of conservation areas and open space

Agency	Responsibility
Blacktown City Council (BCC)	**Ownership/ Care and Control:** Responsible for the management of Riverstone Cemetery, Knudsen Reserve and local road verges throughout the Study area. BCC is understood to own other lots within the Study area, where the management objective is unclear. **Assessing Local Development activities:** Responsible for the assessment of local development applications (DAs) and the preparation and implementation of VMPs and other Consent Conditions, i.e. tree clearance supervision. **Tree management:** Assessment and provision of tree clearance certificates under the relevant planning. **Water quality management:** BCC undertakes regular monitoring of water quality across the city. Further information is included in our Riparian Corridor Assessment (Appendix C of the BRCA). **Pest management:** Whilst not the lead agency, BCC has a supporting role in the planning and delivery of regional pest plans. It is noted in the Biodiversity Strategy 2023–2033 (BCC 2023) as action 9 that BCC will look to engage a Biosecurity Officer to develop and implement a biosecurity strategy to mitigate impacts from pest species.
Crown Lands	Crown Lands is responsible for the management of Crown Lands.
DCCEEW (Australian Government)	Responsible for assessing any development impacting on Protected Matters of National Significance (PMNES).
DCCEEW (NSW) – a mega department with many bodies	**NSW National Parks and Wildlife Service (NPWS):** With no National parks or reserves in the Study area, the NPWS do not currently have any responsibilities in the Study Area. Conservation areas, acquired and gazetted under the NPWS Act will be managed by the NPWS. **NSW Biodiversity Conservation Trust (BCT):** work with landholders to enter into and manage Conservation Agreements on private and public lands. Their role would be limited unless a Conservation Agreement were entered into within the Study area. **Water Group:** Review of and establishment of CAA including the preparation of VMPs. **NRAR:** Enforcement of CAAs including compliance with VMPs on waterfront lands.
Hawkesbury River County Council (HRCC)	The local control authority responsible for the identification, eradication and control of priority weeds within Blacktown City, Hawkesbury City, Hills Shire and Penrith City LGAs.
Fire and Rescue NSW (FRNSW)	A State government agency responsible for fire, rescue, and hazmat services in urban areas of NSW, including Marsden Park.
NSW Department of Primary Industries and Regional Development (DPIRD)	Responsible for the protection of and enhancement of Key Fish Habitat values.
NSW Rural Fire Service	The lead combat agency for bushfires in NSW. Their primary role is to protect life, property, and the environment from bushfires and other emergencies, including structure fires, motor vehicle accidents, and storms within rural fire districts.
NSW Local Land Services	A regional-focused NSW government agency that provides services to farmers, landholders, and the wider community to help inform and support landholders in land management decision-making. They offer a range of services related to pest management and will often act to co-ordinate regional pest control programs.

Agency	Responsibility
Office of Strategic Lands	The Office of Strategic Lands administers the Planning Ministerial Corporation, which buys, manages and transfers land to local councils and other NSW government agencies.
Greater Sydney Parklands (GSP)	GSP have responsibility for the protection and management of Western Sydney Parklands which protects biodiversity conservation lands along the Eastern Creek corridor to the south (upstream) of the VMS area. The GSP are flagged as a potential future managers of the Eastern Creek floodplain sections of the VMS, as part of the Green Grid within BCC's Local Strategic Planning Statement (LSPS) 2022.

Appendix B

Guidance material and list of KTPs

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B.1 Guidance material list

A short list of guidance materials and resources is provided in Table B.1.

Table B.1 Appliable guidance materials for the management and restoration of natural areas

Topic	Guidance
Ecological Restoration / Bush Regeneration	• Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest: A guide to identifying and protecting the nationally threatened ecological community EPBC Act 1999 (DCCEEW 2010). • Bringing the Bush Back to Western Sydney, Best Practice Guidelines for Bush Regeneration on the Cumberland Plain (DIPNR 2003). • Australian Association of Bush Regenerators (AABS). Guiding Principles for Ecological Restoration and Rehabilitation (2013) and other Best Practice guidance, available from their website at: https://www.aabr.org.au/ • The NSW Biodiversity Conservation Trust's (BCT) *Restoring Native Vegetation: guidelines for assisted regeneration and revegetation* (2019), available from: https://www.bct.nsw.gov.au/resources/managing-your-land/vegetation • Greening Australia provides resources for revegetation guides for best practice, available from https://www.greeningaustralia.org.au/publications/ • Tiny Forests: https://earthwatch.org.au/programs/tiny-forests • Woody Meadows: https://woodymeadow.unimelb.edu.au/ • Conservation Management Notes – Natural Regeneration: https://www.environment.nsw.gov.au/resources/cpp/NaturalRegen.pdf
Weeds	• Weeds Australia, which is a free online database powered by the Centre for Invasive Species Solutions and made available through funding from the Australian Government, available online at: https://weeds.org.au/. Including WeedScan app, which is Australia's first AI weed identification and management app. • NSW Weed Wise which contains key information to reduce the impact of weeds in NSW. This includes the profile of weeds, appropriate control measures and biosecurity duty under the NSW *Biosecurity Act 2015*. • Weeds and the Biosecurity Act – a handbook for Councillors and Local Councils (DPI 2020) explains the NSW *Biosecurity Act 2015* and its implications for weeds management by local councils. • The Hawkesbury River County Council (HRCC) website, which includes information about Priority weeds, the weed inspection process and legal obligations. Available online at: https://hrcc.nsw.gov.au/weed-information/
Pest Management	• Centre for Invasive Species Solutions, available online at: https://invasives.com.au/, including the FeralScan app here: https://www.feralscan.org.au/ • The NSW Local Land Services (LLS) provide significant amount of guidance around land management and pest species management at: https://www.lls.nsw.gov.au/regions/greater-sydney/articles,-publications-and-plans?topic=biosecuritygeneral

Topic	Guidance
Fire Management	• Guidelines to the application of fire as a management tool (BCT 2022) and the Vegetation recovery after bushfire (BCT 2024), both available online at: https://www.bct.nsw.gov.au/resources/managing-your-land/fire • FireSticks Alliance, who support Indigenous communities to care for Country by strengthening their capacity to apply traditional knowledges, including Cultural Fire, available online at: https://firesticks.org.au/ • Dharug women to lead work to re-establish cultural burns in Wallumatta, available online: https://www.mq.edu.au/thisweek/2023/08/18/dharug-women-lead-work-to-re-establish-cultural-burns-in-wallumatta/ & plans to re-introduce cultural burn regimes into Western Sydney's newest National Park: https://www.environment.nsw.gov.au/news/yiraaldiya-national-park-sydney-planned-cultural-burn • The NSW RFS provide significant amount of guidance around bush fire planning, risk assessment and bushfire management. A useful guide for bush regenerators looking to create burn piles (from weeds) is the Standards for pile burning, available online at: https://www.rfs.nsw.gov.au/__data/assets/pdf_file/0012/13323/Standards-for-Pile-Burning-V2.pdf

B.2 Listed key threatening processes

Listed threatening process which threatened the survival of species and ecological communities, under both the Federal and State Acts is provided in Table B.2.

Table B.2 Listed key threatening processes

Listed key threatening processes	EPBC Act	BC Act
Impacts from introduced feral animals and weed species		
Impact of Noisy miners	Aggressive exclusion of birds from potential woodland and forest habitat by over-abundant noisy miners (*Manorina melanocephala*)	Aggressive exclusion of birds from woodland and forest habitat by abundant Noisy Miners *Manorina melanocephala*.
Impact of weeds	Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants	Invasion and establishment of exotic vines and scramblers Invasion of native plant communities by African Olive Olea europaea subsp. cuspidata (Wall. ex G. Don) Cif. Invasion of native plant communities by bitou bush & boneseed Invasion of native plant communities by exotic perennial grasses Invasion, establishment and spread of Lantana (Lantana camara L. sens. lat) Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants
Introduced /feral animals	Predation by feral cats Predation by the European red fox (*Vulpes vulpes*) Predation, Habitat Degradation, Competition and Disease Transmission by Feral Pigs Competition and land degradation by feral rabbits	Herbivory and environmental degradation caused by feral deer Competition and grazing by the feral European rabbit Predation by the European Red Fox Predation by feral cats Predation, habitat degradation, competition and disease transmission by Feral Pigs (Sus scrofa)
Introduced fish species	-	Predation by the Plague Minnow (Gambusia holbrooki)
Pathogens and disease		
Impact on native vegetation by Root Rot Fungus	Dieback caused by the root-rot fungus (*Phytophthora cinnamomi*)	Infection of native plants by *Phytophthora cinnamomi*
Chytrid fungus impacts on native Frogs	Infection of amphibians with chytrid fungus resulting in chytridiomycosis	Infection of frogs by amphibian chytrid causing the disease chytridiomycosis
Beak and feather disease (Psittacine circoviral)	Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species	Infection by Psittacine circoviral (beak and feather) disease affecting endangered psittacine species
Impacts of Exotic Rust Fungi (including Myrtle Rust)	-	Introduction and establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae

Listed key threatening processes	EPBC Act	BC Act
Management issues		
Fire regimes	Fire regimes that cause declines in biodiversity	Ecological consequences of high frequency fires
Land clearing, Hollow Bearing Tree loss and removal of dead wood and trees	Land clearance	Clearing of native vegetation Loss of Hollow-bearing Trees Removal of dead wood and dead trees
Impacts of human induced climate change	Loss of climatic habitat caused by anthropogenic emissions of greenhouse gases	Human-caused climate change
Water Management / altered flow regimes	-	Alteration to the natural flow regimes of rivers, streams, floodplains & wetlands.
Bushrock removal	-	Bushrock removal

Appendix C

Priority and WoNS list

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C.1 Priority and WoNS list

The consolidated list of WoNS and priority weeds and assessed likelihood of presence within the VMS area is provided in Table C.1.

Table C.1 Priority and WoNS list

Common name	Scientific name	WoN	HRCC priority weed list	HRCC objective	Detected in previous assessment (ELA 2018)	Likelihood of presence within the VMS area
Aquatic weeds						
Alligator weed	*Alternanthera philoxeroides*	Yes	State Regional	Containment/Asset Asset	No	Potential
Anchored Water Hyacinth	*Eichhornia azurea*	No	State	Prevention	No	Potential
Arrowhead	*Sagittaria calycina var. calycina*	No	Local	Prevention	No	Potential
Cabomba	*Cabomba caroliniana*	Yes	State Regional	Containment/Asset Asset	No	Potential
Chinese Knotweed	*Persicaria chinensis*	No	Regional	Eradication	No	Potential
East Indian Hygrophila	*Hygrophila polysperma*	No	Regional	Prevention	No	Potential
Eurasion Water Milfoil	*Myriophyllum spicatum*	No	State	Prevention	No	Potential
Frogbit/ Spongeplant	*Limnobium spp. (all species)*	No	State	Prevention	No	Potential
Horsetails	*Equisetum spp*	No	Regional	Eradication	No	Potential
Hydrocotyl/Water Pennywort	*Hydrocotyle ranunculoides*	No	State	Prevention	No	Potential
Hygrophila	*Hygrophila costata*	No	Regional	Eradication	No	Potential
Kidney Leaf Mud Plantain	*Heteranthera reniformis*	No	Regional	Eradication	No	Potential
Lagarosiphon	*Lagarosiphon major*	No	State	Prevention	No	Potential
Leafy Elodea	*Egeria densa*	No	Local	Containment	No	Potential

Common name	Scientific name	WoN	HRCC priority weed list	HRCC objective	Detected in previous assessment (ELA 2018)	Likelihood of presence within the VMS area
Long Leaf Willow Primrose	*Ludwigia longifolia*	No	Local	Asset	No	Potential
Ludwigia	*Ludwigia peruviana*	No	Regional	Asset	No	Potential
Red Ludwigia	*Ludwigia repens*	No	Local	Prevention	No	Potential
Sagittaria	*Sagittaria platyphylla*	Yes	State	Containment/Asset	No	Potential
Salvinia	*Salvinia molesta*	Yes	State Regional	Containment/Asset Asset	No	Potential
Sea Spurge	*Euphorbia paralias*	No	Regional	Eradication	No	Potential
Sengal Tea[2]	*Gymnocoronis spilanthoides*	No	Regional	Eradication	No	Potential
Water Caltrop	*Trapa spp. (all species)*	No	State	Prevention	No	Potential
Water hyacinth	*Eichhornia crassipes*	Yes	State Regional	Containment/Asset Asset	No	Potential
Water Lettuce	*Pistia stratiotes*	No	Regional	Prevention	No	Potential
Water Poppy	*Hydrocleys nymphoides*	No	Regional	Containment[3]	No	Potential
Water Soldier	*Stratiotes aloides*	No	State	Prevention	No	Potential
Water Star Grass	*Heteranthera zosterifolia*	No	Regional	Prevention	No	Potential
Willows except Weeping Willows, Pussy Willow and Sterile Pussy Willow	*Salix spp.* except *S. babylonica, S.x calodendron and S.x reichardtiji*	Yes	State	Containment/Asset	No	Potential
Terrestrial weeds						
African boxthorn	*Lycium ferocissimum*	Yes	State	Containment/Asset	Yes	Likely
African Milk Bush	*Synadenium grantii*	No	Local	Eradication	No	Potential
African Olive	*Olea erupoaea* subsp. *Cuspidata*	No	Regional	Containment[1]	No	Potential

Common name	Scientific name	WoN	HRCC priority weed list	HRCC objective	Detected in previous assessment (ELA 2018)	Likelihood of presence within the VMS area
Asparagus Fern	*Asparagus virgatus*	Yes	Regional	Eradication	Yes	Likely
Asparagus weeds	*Asparagus aethiopicus, A. asparagoides* Western Cape form*, A. declinatus, A. plumosus and A. scandens.* Includes original WoNS *Asparagus asparagoides* Excludes A. officinalis and *A. racemosis*	Yes	State	Containment/Asset	Yes	Likely
Athel pine	*Tamarix aphylla*	Yes	State	Containment/Asset	No	Unlikely
Banana Passionfruit	*Jatrophsa gossypiifolia*	No	Local	Containment	No	Potential
Bellyache bush	*Jatropha gossypiifolia*	Yes	State	Containment/Asset	No	Potential
Bitou bush	*Chrysanthemoides monilifera subsp. rotunda*	Yes	State	Eradication	No	Potential
Black Knapweed	*Centaurea x moncktonii*	No	State	Prevention	No	Potential
Black Willow	*Salix nigra*	No	Stage Regional	Containment/Asset Containment	No	Unlikely
Blackberry	*Rubus fruticosus agg.*	Yes	State	Containment/Asset	Yes	Likely
Boneseed	*Chrysanthemoides monilifera subsp. monilifera*	Yes	State	Eradication	No	Potential
Bridal creeper, Bridal Veil Creeper	*Asparagus declinatus* (formerly *A. asparagoides)*	Yes	State	Prevention	Yes	Likely
Broadleaf Pepper Tree	*Schinus terebinthifolia*	No	Local	Eradication	No	Potential
Broomrape	*Orobanche spp. (all species except the native O. cernua var. australiana and O. minor)*	No	State	Prevention	No	Potential
Cape/Montpellier Broom	*Genista monspessulana,*	Yes	State	Containment/Asset	No	Potential

Common name	Scientific name	WoN	HRCC priority weed list	HRCC objective	Detected in previous assessment (ELA 2018)	Likelihood of presence within the VMS area
Cat's claw creeper	*Dolichandra unguis-cati*	Yes	State Regional	Containment/Asset Asset	No	Potential
Chilean needle grass	*Nassella neesiana*	Yes	State	Containment/Asset	No	Potential
Chinese Celtis	*Celtis sinensis*	No	Local	Containment	No	Potential
Chinese Violet	*Asystasia gangeca subsp. micrantha*	No	State	Eradication	No	Potential
Climbing Asparagus	*Asparagus africanus*	Yes	State Regional	Containment/Asset Eradication	No	Potential
Coolatai grass	*Hyparrhenia hirta*	No	Local	Eradication	No	Potential
Coral Creeper	*Barleria repens*	No	Regional	Eradication	No	Potential
Corky Passionfruit	*Passiflora suberosa*	No	Local	Asset	No	Potential
Crofton weed	*Ageratina adenophora*	No	Local	Asset	No	Likely (very widespread weed)
Fireweed	*Senecio madagas cariensis*	Yes	State	Containment/Asset	Yes	Likely
Flax leaf Broom	*Genista linifolia*	Yes	State	Containment/Asset	No	Potential
Gamba grass	*Andropogon gayunus*	Yes	State	Prevention	No	Potential
Giant Devil's Fi	*Solanum chrysotrichum*	No	Regional	Eradication	No	Potential
Giant Rats Tail Grass	*Sporobolus pyramidalis*	No	Regional	Prevention	No	Potential
Giant Reed	*Arundo donax*	No	Regional	Asset	No	Potential
Glory Lily	*Gloriosa superba*	No	Regional	Eradication	No	Potential
Gorse	*Ulex europaeus*	Yes	State Regional	Containment/Asset Containment	No	Potential
Green Cestrum	*Cestrum parqui*	No	Regional	Asset	No	Potential

Common name	Scientific name	WoN	HRCC priority weed list	HRCC objective	Detected in previous assessment (ELA 2018)	Likelihood of presence within the VMS area
Grey Sallow	*Salix cinerea*	Yes	Regional	Eradication	No	Potential
Groundsel Bush	*Baccharis halimifolia*	No	Regional	Eradication	No	Potential
Hawkweed	*Pilosella spp (all species) in addiϴon to Hieracium spp (all species except Hieracium murorum)*	No	State	Prevention	No	Potential
Holly-Leaved Senecio	*Senecio glastifolius*	No	Regional	Eradication	No	Potential
Honey Locust	*Gleditsia triacanthos*	No	Local	Containment	No	Potential
Hymenachne	*Hymenachne amplexicaulis*	Yes	State Regional	Containment/Asset Prevention	No	Potential
Karoo Acacia	*Vachellia karroo (syn. Acacia karroo)*	No	State	Prevention	No	Potential
Kei Apple	*Dovyalis caffra*	No	Regional	Eradication	No	Potential
Kochia	*Bassia scoparia (excluding subsp. trichophylla)*	No	State	Prevention	No	Potential
Koster's Curse	*Clidemia hirta*	No	State	Prevention	No	Potential
Kudzu	*Pueraria lobata*	No	Regional	Eradication	No	Potential
Lantana	*Lantana camara*	Yes	State	Containment/Asset	Yes	Likely
Leaf Cactus	*Pereskia aculeata*	No	Regional	Eradication	No	Potential
Lippia	*Phyla canescens*	No	Local	Eradication	No	Potential
Madeira vine	*Anredera cordifolia*	Yes	State	Containment/Asset	No	Likely
Mesquite	*Prosopis spp.*	Yes	State	Containment/Asset	No	Potential
Mexican Feather Grass	*Nassella tenuissima (syn. Stipa tenuissima)*	No	State	Prevention	No	Potential
Miconia	*Miconia spp. (all species)*	No	State	Prevention	No	Potential

Common name	Scientific name	WoN	HRCC priority weed list	HRCC objective	Detected in previous assessment (ELA 2018)	Likelihood of presence within the VMS area
Mikania Vine	*Mikania micrantha*	No	State	Prevention	No	Potential
Mimosa	*Mimosa pigra*	Yes	State	Prevention	No	Potential
Ming Fern	*Asparagus macowanii var. zuluensis*	Yes	Regional	Eradication	No	Potential
Mother of Millions	*Bryophyllum spp.*	No	Local	Asset	Yes	Likely
Mysore Thorn	*Caesalpinia decapetala*	No	Regional	Prevention	No	Potential
Nodding Thistle	*Carduus nutans*	No	Regional	Eradication	No	Potential
Ox Eye Daisy	*Leucanthemum vulgare*	No	Local	Eradication	No	Potential
Pampas Grass	*Cortaderia spp.*	No	Regional	Asset	No	Potential
Paper Mulberry	*Broussonetia papyrifera*	No	Local	Prevention	No	Potential
Parkinsonia	*Parkinsonia aculeata*	No	State	Eradication	No	Potential
Parthenium weed	*Parthenium hysterophorus*	Yes	State	Prevention	No	Potential
Perennial Soybean	*Neonotonia wightii*	No	Local	Eradication	No	Potential
Pond apple	*Annona glabra*	Yes	State	Prevention	No	Potential
Prickly acacia	*Acacia nilotica ssp. indica*	Yes	State	Prevention	No	Potential
Prickly pears	*Opuntia spp. (*excludes *O. ficus-indica), Cylindropuntia spp., Austrocylindropuntia spp.*	Yes	State	Containment/Asset	Yes	Likely
Rattlepod	*Crotolaria beddomeana*	No	Local	Prevention	No	Potential
Rubber vine	*Cryptostegia grandiflora*	Yes	State	Prevention	No	Potential
Scotch Brooms	*Cytisus scoparius*	Yes	-	-	No	Unlikely
Serrated tussock[3]	*Nassella trichotoma*	Yes	State Regional	Containment/Asset Containment	No	Potential

Common name	Scientific name	WoN	HRCC priority weed list	HRCC objective	Detected in previous assessment (ELA 2018)	Likelihood of presence within the VMS area
Siam Weed	*Chromolaena odorata*	No	State	Prevention	No	Potential
Sicilian Sea Lavender	*Limonium hyblaeum*	No	Regional	Eradication	No	Potential
Sicklethorn	*Asparagus falcatus*	Yes	Regional	Containment[3]	No	Potential
Silverleaf nightshade	*Solanum elaeagnifolium*	Yes	State	Containment/Asset	No	Potential
Singapore Daisy	*SphagneƟcola trilobata*	No	Regional	Asset	No	Potential
Skunk Vine	*Paederia foetida*	No	Regional	Eradication	No	Potential
Spanish Broom	*Spartium junceum*	Yes	Regional	Prevention	No	Potential
Spotted Knapweed	*Centaurea stoebe subsp. australis*	No	State	Prevention	No	Potential
Sticky Nightshade	*Solanum sisymbriifolium*	No	Local	Asset	No	Potential
Tiger Pear 4	*Opuntia auranaca*	Yes	Regional	Containment 4	Potential*	Potential
Tropical Soda Apple	*Solanum viarum*	No	State	Eradication	No	Potential
Velvety Tree Pear	*Opuntia tomentosa*	Yes	Local	Eradication	Potential*	Potential
White Blackberry/Mysore Raspberry	*Rubus niveus*	Yes	Regional	Prevention	No	Potential
Witchweed	*Striga spp. (except the native S. parviflora)*	No	State	Prevention	No	Potential
Yellow Bells	*Tecoma stans*	No	Local	Asset	No	Potential
Yellow Burrhead	*Limnocharis flava*	No	State	Prevention	No	Potential

1. In Penrith LGA west of the study site, African Olive is an eradication target

2. In HRCC's area outside of the Hawkesbury Nepean River and its tributaries, Senegal Tea is an ERADICATION target.

3. In HRCC's area, this weed is an ERADICATION target.

4. In HRCC's area outside of the Blacktown LGA, Tiger Pear is an ERADICATION target.

*In the previous assessment, ELA referred to Opuntia sp. Not clear if this would also include the similar species Tiger Pear (*Opuntia auranaca*) and Velvety Tree Pear (*Opuntia tomentosa*).

Appendix D
Species planting list

EMM
creating opportunities

D.1 PCT benchmarks

The applicable average condition benchmarks for PCT to be restored to are provided in Table D.1.

Table D.1 PCT (average rainfall) community condition benchmarks (accessed via the BioNet Vegetation Classification, 8 August 2025)

PCT code	PCT name	Potential TEC equivalent	Formation / Class	Rainfall threshold average rainfall (mm)	Community condition benchmarks												Total length of fallen logs (m)	Litter cover	Number of large trees	Large tree threshold size (m)
					Richness						Cover									
					Tree	Shrub	Grass and grass like	Forb	Fern	Other	Tree	Shrub	Grass and grass like	Forb	Fern	Other				
3320	Cumberland Shale Plains Woodland	Cumberland Plain Woodland (CE; EPBC Act, CEEC; BC Act) Shale Gravel Transition Forest (EEC; BC Act)	Grassy Woodlands / Coastal Valley Grassy Woodlands	614–963	5	8	12	14	2	4	52	15	59	9	1	4	40	40	3.0	50
3448	Castlereagh Ironbark Forest	Cooks River/ Castlereagh Ironbark Forest (CE; EPBC Act, EEC; BC Act) Shale Gravel Transition Forest (CE; EPBC Act, EEC; BC Act)	Sclerophyll Forests (Shrub/grass sub-formation) / Cumberland Dry Sclerophyll Forests	671-1056	5	11	13	12	1	4	42	34	47	6	1	2	68	60	3.0	50

PCT code	PCT name	Potential TEC equivalent	Formation / Class	Rainfall threshold average rainfall (mm)	Community condition benchmarks												Total length of fallen logs (m)	Litter cover	Number of large trees	Large tree threshold size (m)
					Richness						Cover									
					Tree	Shrub	Grass and grass like	Forb	Fern	Other	Tree	Shrub	Grass and grass like	Forb	Fern	Other				
3629	Castlereagh Scribbly Gum Woodland	Castlereagh Scribbly Gum and Agnes Banks Woodlands (E; EPBC Act, V; BC Act)	Dry Sclerophyll Forests (Shruby sub-formation)/ Sydney Sand Flats Dry Sclerophyll Forests	638-993	Yes	4	20	11	9	1	3	28.0	77.0	58.0	5.0	0.0	1.0	45	65	3.0
4025	Cumberland Red Gum Riverflat Forest	River-flat Eucalypt Forest CE; EPBC Act, EEC; BC Act)	Forested Wetlands / Coastal Floodplain Wetlands	831-1279	Yes	4	8	8	8	2	4	21.0	21.0	69.0	3.0	1.0	1.0	12	40	1.0

D.2 Species planting list

Recommended species planting lists, broken down by PCTs is provided Table D.2. This table is in largely considered to be consistent with BCC's VMP guide (BCC 2022) but has been updated to new PCT numbers.

Table D.2 PCT recommended species planting lists

Scientific name	Common name	Plant community types			
		PCT: 3220	PCT: 3448	PCT: 3629	PCT: 4025
Trees					
Acacia dealbata	Silver wattle, Blue wattle, Mimosa	X			
Acacia decurrens	Black wattle, Green wattle	X	X	X	X
Acacia melanoxylon	Blackwood	X			
Acacia parramentensis	Parramatta Wattle	X	X	X	X
Allocasuarina littoralis	Black she-oak	X	X	X	X
Allocasuarina torulosa	Forest oak	X		X	X
Angophora bakeri	Narrow-leaved apple		X	X	
Angophora floribunda	Apple, Rough-barked apple	X	X	X	X
Brachychiton populneus	Kurrajong	X	X	X	X
Casuarina cunninghamiana	River oak				X
Casuarina glauca	Swamp oak		X	X	X
Corymbia maculata	Spotted gum	X			
Eucalyptus amplifolia	Cabbage Gum	X	X	X	X
Eucalyptus crebra	Narrow-leaved ironbark	X	X	X	X
Eucalyptus eugeniodes	Thin-leaved stringybark	X	X	X	X
Eucalyptus fastigata	Brown barrel	X			
Eucalyptus fibrosa	Red ironbark	X	X	X	X
Eucalyptus globoidea	White strtingybark	X	X	X	X
Eucalyptus longifolia	Woolybutt		X		X
Eucalyptus moluccana	Grey Box	X	X	X	X
Eucalyptus obliqua	Messmate stringybark, Brown top stringybark	X			
Eucalyptus parramattensis	Parramatta red gum, Drooping red gum		X	X	X
Eucalyptus punctata	Grey gum		X	X	X

Scientific name	Common name	Plant community types			
		PCT: 3220	PCT: 3448	PCT: 3629	PCT: 4025
Eucalyptus radiata	Narrow-leaved peppermint	X			
Eucalyptus resinifera	Red mahogany		X		X
Eucalyptus saligna	Sydney Blue Gum				X
Eucalyptus sclerophylla	Hard-leaved scribbly gum		X	X	X
Eucalyptus tereticornis	Forest Red Gum	X	X	X	X
Eucalyptus viminalis	Manna gum, Ribbon gum	X			
Melaleuca decora	White feather honey myrtle, Prickly-leaved paperbark		X	X	X
Melaleuca nodosa	Prickly-leaved paperbark		X	X	X
Shrubs					
Acacia brownii	Heath wattle, Prickly moses	X	X	X	
Acacia falcata	Sickle wattle	X	X	X	X
Banksia spinulosa	Hairpin banksia	X	X	X	
Billardiera scandens	Apple berry	X	X	X	X
Bursaria spinosa	Sweet bursaria, Native box, Native blackthorn	X	X	X	X
Daviesia ulicifolia	Gorse bitter-pea	X	X	X	
Grevillea mucronulata	Green spider flower, green grevillea		X	X	X
Hakea dactyloides	Finger hakea, broad-leaved hakea			X	
Hakea sericea	Silky hakea, needlebush		X	X	X
Leptospermum trinervium	Paperbark tea tree, woolly tea tree		X	X	X
Leucopogon lanceolatus	Lance beard heath	X			
Lissanthe strigosa	Peach heath	X	X	X	X
Ozothamnus diosmifolius	Rice flower, white dogwood, Sago bush		X	X	X
Pimelea linifolia	Slender rice flower, Queen of the bush, Flax-leaf rice flower	X	X	X	
Xanthorrhoea minor	Small grass tree		X	X	
Grass, sedges, and rushes					
Aristida vagans	Threeawn speargrass		X	X	X
Cyathochaeta diandra	Sheath rush, Sheath sedge		X	X	
Echinopogon ovatus	Forest hedgehog grass	X	X	X	X

Scientific name	Common name	Plant community types			
		PCT: 3220	PCT: 3448	PCT: 3629	PCT: 4025
Entolasia marginata	Bordered panic	X	X	X	X
Entolasia stricta	Wiry panic	X	X	X	X
Eragrostis brownii	Brown's lovegrass, Common lovegrass		X	X	X
Lepidosperma laterale	Variable sword-sedge, sharp sword-sedge	X	X	X	X
Lomandra filiformis	Wattle mat-rush	X	X	X	X
Lomandra longifolia	Spiny-headed mat-rush	X	X	X	X
Lomandra multiflora	Many-flowered mat-rush	X	X	X	X
Microlaena stipoides	Weeping grass	X	X	X	X
Oplismenus aemulus	Australian basket grass, wavy beard grass		X		X
Panicum simile	Two-colour panic, Hairy panic		X	X	X
Poa meionectes	Fine-leaf tussock grass	X			
Themeda triandra	Kangaroo grass	X	X	X	X
Herbs/Forbs					
Acaena novae-zelandiae	Bidgee-widgee, Biddy Biddy, Buzzy	X			
Asperula scoparia	Prickly woodruff	X			
Brunoniella australis	Blue trumpet		X	X	X
Coronidium scorpioides	Button everlasting	X	X	X	
Cyanthillium cinereum	Little ironweed		X	X	X
Dianella revoluta	Blueberry lily, Blue flax-lily	X	X	X	
Dianella tasmanica	Tasman flax-lily	X			
Dichondra repens	Kidney weed	X	X		X
Gonocarpus tetragynus	Common raspwort	X	X	X	X
Goodenia hedera	Ivy goodenia	X	X	X	X
Hardenbergia violacea	False sarsaparilla	X	X	X	X
Lagenophora stipitata	Blue bottle-daisy	X	X		X
Laxmannia gracilis	Slender wire lily		X	X	X
Lobelia purpurascens	White root	X	X	X	X
Opercularia diphylla	Stinkweed, Twin-leaf stinkweed		X	X	X
Oxalis perennans	Grassland wood-sorrel, native oxalis	X	X	X	X

Scientific name	Common name	Plant community types			
		PCT: 3220	PCT: 3448	PCT: 3629	PCT: 4025
Patersonia sericea	Purple flag		X	X	
Pomax umbellata	Pomax, Dwarf's umbrella		X	X	X
Poranthera microphylla	Small poranthera	X	X	X	X
Senecio prenanthoides	Common forest fireweed, Beaked fireweed	X			
Solanum prinophyllum	Forest nightshade		X		X
Stellaria pungens	Prickly starwort	X			
Stylidium lineare	Narrow-leaved triggerplant	X	X	X	
Veronica calycina	Hairy speedwell, Cup speedwell	X	X		
Veronica plebeia	Trailing speedwell, Creeping speedwell	X	X		X
Viola hederacea	Australian violet, native violet	X	X		X
Wahlenbergia gracilis	Australian bluebell, sprawling bluebell		X	X	X
Ferns					
Cheilanthes sieberi	Mulga fern, Poison rock fern		X	X	X
Pteridium esculentum	Austral bracken	X			X
Adiantum aethiopicum	Common maidenhair fern, creeping maidenhair fern	X	X		X
Other – climbers and vines					
Clematis aristata	Australian clematis	X	X		X
Cassytha glabella	Slender devil's twine	X	X	X	
Desmodium varians	Slender tick-trefoil	X	X	X	X
Glycine clandestina	Twining glycine	X	X	X	X
Glycine microphylla	Small-leaf glycine		X	X	X
Glycine tabacina	Variable glycine		X	X	X

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